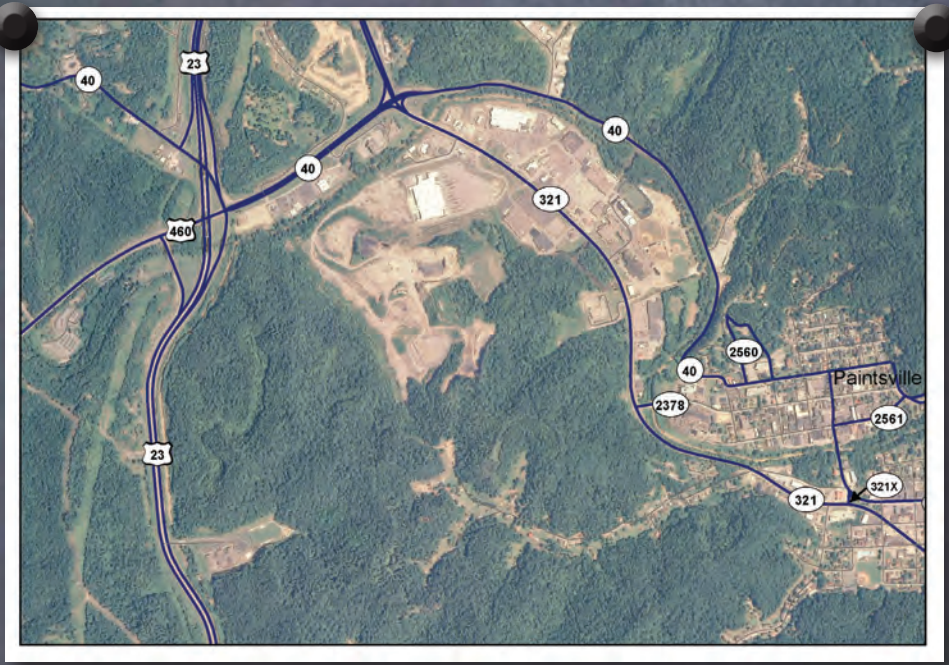
KY 321

KY 40 TO KY 321X
JOHNSON COUNTY, KY

FINAL REPORT

PROGRAMMING STUDY



PREPARED FOR:

KENTUCKY TRANSPORTATION CABINET

PREPARED BY:

QK4

AUGUST 2012

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EXECUTIVE SUMMARY

KY 321 from KY 321X (MP 7.053) north to KY 40 (MP 8.791) is a congested arterial just north of Paintsville (Figure ES-1). It is a two-lane rural roadway with left turns provided through either a two-way left turn lane or back-to-back left turn lanes from KY 2378 (James Trimble Boulevard) north to KY 40. South of KY 2378, KY 321 is a two-lane roadway.

The **purpose** of this project is to relieve congestion and improve safety for both motorists and pedestrians on KY 321. The **need** results from **volume-to-capacity ratios** currently exceeding 0.75 and projected to reach levels greater than 1.0 in the future. **Crash rates are 3.5 times higher** than the threshold for statistical significance. **Goals** for the project are to:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS

KY 321 is a Rural Minor Arterial roadway and a State Secondary route. Abutting KY 321 are **many traffic generators** such as Walmart, Kmart, Food Lion, Lowe's, McDonald's, Arby's, Bob Evans, gas stations, clothing stores, auto supply stores, two banks, a post office, Johnson Central Middle School and Johnson Central High School.

KY 40 in the project area begins at MP 9.073 (KY 321) and ends at MP 10.743 (Church Street). KY 40 is classified as a rural major collector and as a State Secondary route in State Primary Road System.

In the years 2008-2010, 167 of the 207 crashes in the KY 321 study area occurred in a one-mile segment (MP 7.637-8.637), resulting in a **CCRF of 4.131** on that segment. 125 crashes occurred between MP 8.268 and MP 8.876, while 19 of the crashes occur in a 0.1-mile spot (MP 8.409-8.509). None of these resulted in a fatality, but 45 crashes resulted in 63 injuries. **96% of the crashes involved more than one vehicle,** with 52% being rear-end crashes and another 20% being angle crashes.

Levels-of-service on KY 321 **range from B to F northbound and from A to F southbound** (Table ES-1). Average delays in making turning movements from or to KY 321 **exceed 60 seconds** in both the morning and afternoon peak periods at eight intersections. A 1% forecasted annual growth in traffic worsens this condition by the year 2035.

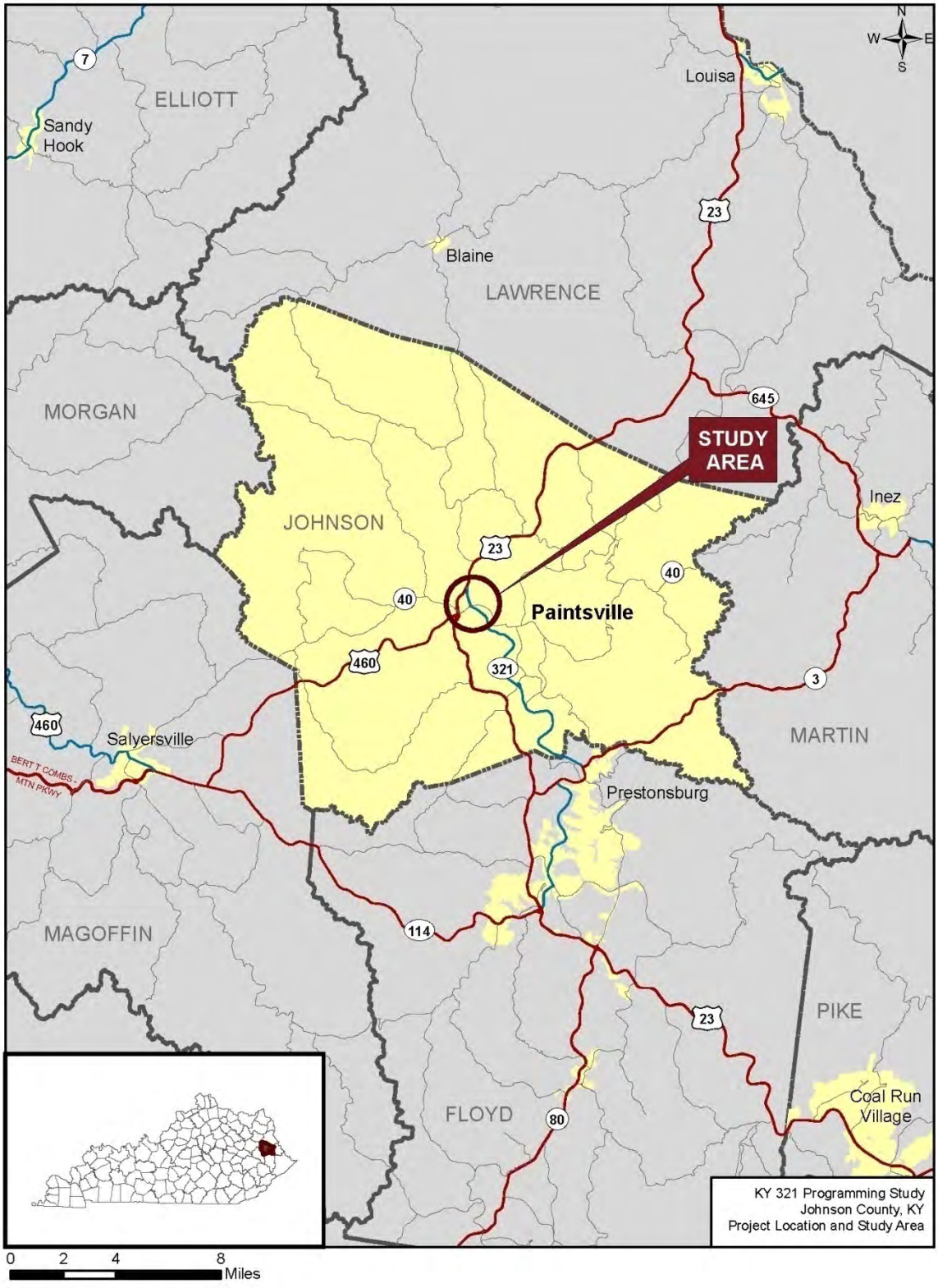


Figure ES-1 – Project Location

Table ES-1 – Current Year Peak Hour Levels of Service at Select Intersections

LOS at Intersecting Roadway	Northbound AM Peak Hours	Northbound PM Peak Hours	Southbound AM Peak Hours	Southbound PM Peak Hours
KY 321X	C	F	B	E
James Trimble Blvd (KY 2378)	D	F	A	B
Apple Tree Shopping Plaza	B	F	A	B
Federal Way (Post Office)	B	A	A	A
Mayo Drive (McDonald's)	C	F	C	C
Kmart Entrance	F	F	F	F
Walmart Entrance	B	C	C	F
KY 40	B	A	C	C

A KYTC Project Team provided guidance and a Stakeholders' Group provided input in the conduct of this study. Project Stakeholders stressed the turning movement delays and safety concerns.

Alternative improvement concepts were developed and evaluated for their effectiveness (see Figure ES-2):

- **"DO-NOTHING" ALTERNATIVE**
  - This alternative would have no construction disruption or cost except for routine maintenance.
- **IMPROVEMENTS TO KY 321**
  - Alternative 4: Five Lane KY 321 from KY 2378 (James Trimble Blvd) to KY 40
    - Alternative 4A: Right In/Right Out Only at McCloud Drive
    - Alternative 4C: Right Turn Lanes at Various Intersections
  - Alternative 4D: Additional southbound lane and an exclusive right turn lane on KY 321 from Paint Creek Bridge south to the northernmost Kmart entrance.
  - Alternative 5: Four-lane KY 321 from KY 2378 (James Trimble Boulevard) to Mill Branch Road then transition to three-lanes to KY 321X
- **OTHER OPTIONS FOR RELIEVING TRAFFIC ON KY 321**
  - Alternatives 4B, 4B-1, and 4B-2: Frontage road north of and parallel to KY 321

- Alternative 6: New connector extending KY 2378 (James Trimble Blvd) west from KY 321 to US 23
- Alternative 4E: Combine Kmart and Walmart entrances to KY 321 for a single shared entrance
- Alternative 7: New Connector from, and west of, KY 321 Near Mill Branch Road behind Walmart to McCloud Street
- Alternative 8: New Connector from, and west of, KY 321 from McCloud Street to KY 40 near Detention Center Road

- **CONNECTORS FROM KY 321 TO KY 40**
  - Alternative 1B: South side of Lowe's
  - Alternative 1C: North side of Lowe's
  - Alternative 2: South side of school complex
  - Alternative 2A: North side of school complex
  - Alternative 2A-1: North side of school complex, but not extending to KY 321
- **OTHER IMPROVEMENTS CONSIDERED**
  - Alternative 1: Left-Turn Lane on KY 40 eastbound to Teays Branch Road
  - Alternative 3A: Relocate KY 40 from approximately WH Dixon Boulevard following Mill Street to 3rd Street
  - Alternative 3B: Improve existing alignment on KY 40 from WH Dixon Boulevard to West Street
  - Alternative 9: Pedestrian Bridge from south side of Lowe's to Teays Branch Road and Improvements to KY 2378 (James Trimble Boulevard) at KY 321
  - Alternative 10: Improve KY 40 on or near existing alignment from near KY 321 to Alternative 3A or 3B

Given input from the Project Team, Stakeholders, traffic and capacity analyses, alternative impacts, terrain, and financial constraints, the Project Team recommended Alternative 4 (widening KY 321 from Paint Creek Bridge south to KY 2378 {James Trimble Boulevard}). Increasing capacity appears to have the most impact on congestion, safety, and providing better access to the hospital and schools. At present, KY 321 between KY 40 and KY 2378 (James Trimble Boulevard) has nearly reached capacity. Other alternatives examined did not

address the purpose and need for the project and project goals as well as Alternative 4. KYTC owns a good portion of the right-of-way which will help reduce costs.

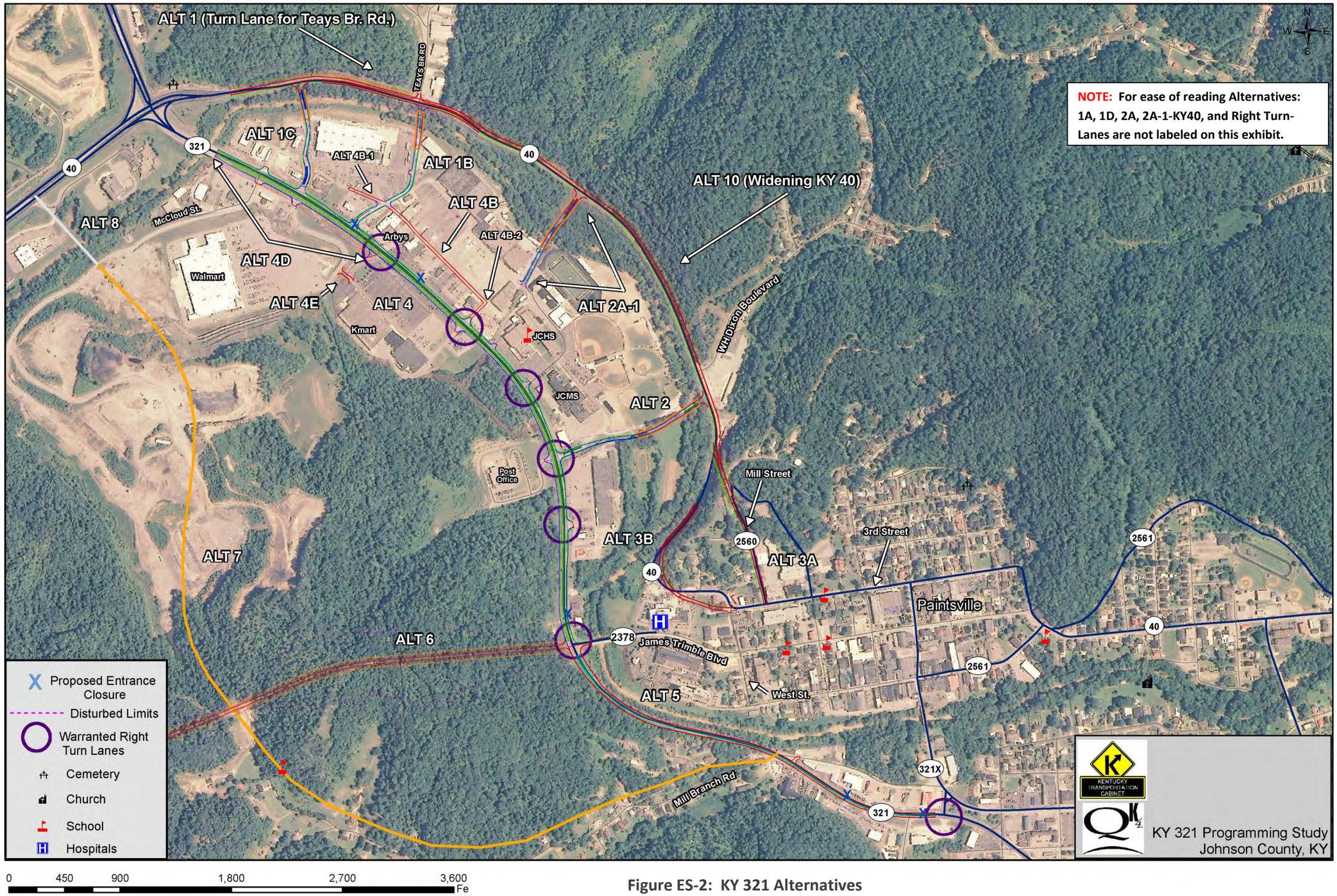


Figure ES-2: KY 321 Alternatives

The construction cost estimate of $8,236,000 was developed utilizing the typical section shown in Figure ES-3 with the following recommendations (shown in Figure ES-4):

- A two-way left turn lane - However, because of left turn volumes, KY 2378 (James Trimble Boulevard) and perhaps Walmart may be better served with separate southbound and northbound left turn lanes, respectively.
- Close northernmost Kmart/Arby's intersection.
- Close entrance next to Burger King
- Combine the two entrances immediately north of James Trimble Boulevard (KY 2378)
- Construction of the right turn lanes addressed in Chapter 6, Section 6.4 of this study (except where recommendations are to close the intersection).

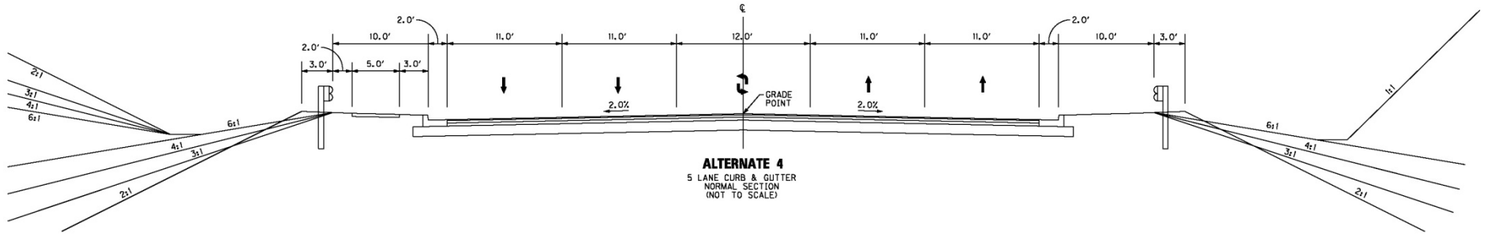
At the second stakeholder's meeting, it was requested that consideration be given to prohibiting the remaining left turns (not targeted for closure with Alternative 4) at unsignalized intersections. The three unsignalized intersections that were not originally a part of Alternative 4 are:

- Central High School Drive,
- The bus exit at Johnson Central High School, and
- Hardee's/Radio Shack/Southernmost Lowe's Intersection.

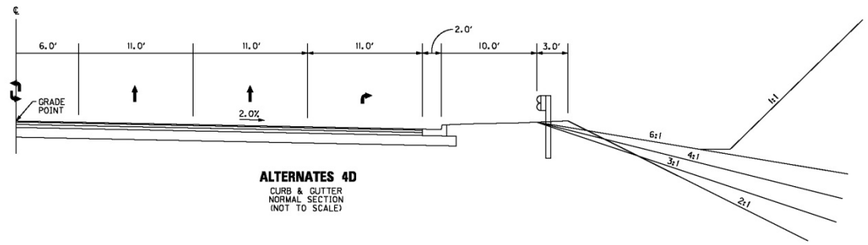
Additional options that may perhaps improve benefits of implementation of Alternative 4 are as follows:

- Alternative 4E (combine Kmart and Walmart entrances)
- Alternative 4B, 4B-1 and 4B-2 (parallel access road to KY 321 connecting McDonald's intersection to Lowe's,
- Convert Johnson County Middle School Drive to right in/right out, expand the southernmost intersection to the schools and allow all movements at that intersection. Busses would use the northernmost entrance for right turns only. Another option is to allow for a midblock U-turn at the present Burger King intersection. This midblock U-turn would necessitate a section of raised median with a minimum separator width of 40 feet.
- Convert southernmost Lowe's entrance (Hardee's/Radio Shack/Lowe's) to right in/right out and direct left turns to the signalized intersection at Walmart/Lowe's intersection.

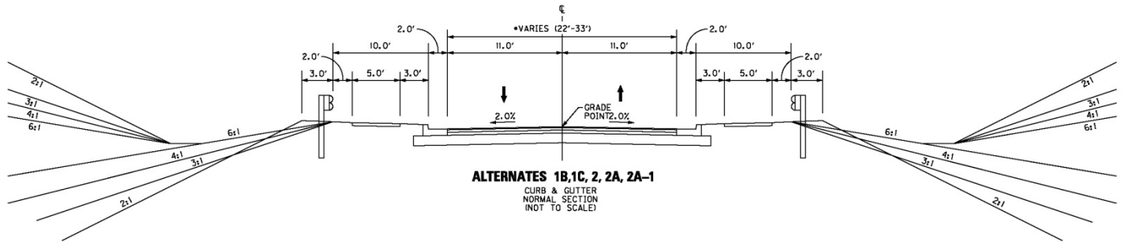
TYPICAL SECTIONS



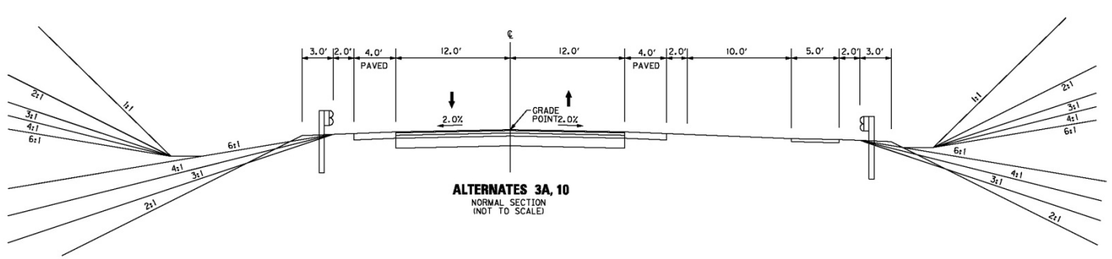
ALTERNATE 4
5 LANE CURB & GUTTER
NORMAL SECTION
(NOT TO SCALE)



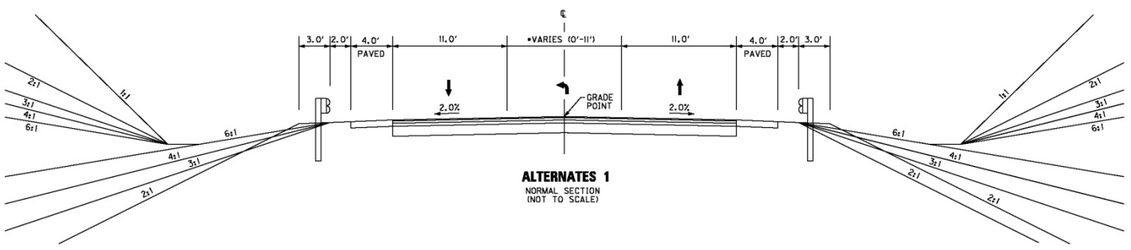
ALTERNATES 4D
CURB & GUTTER
NORMAL SECTION
(NOT TO SCALE)



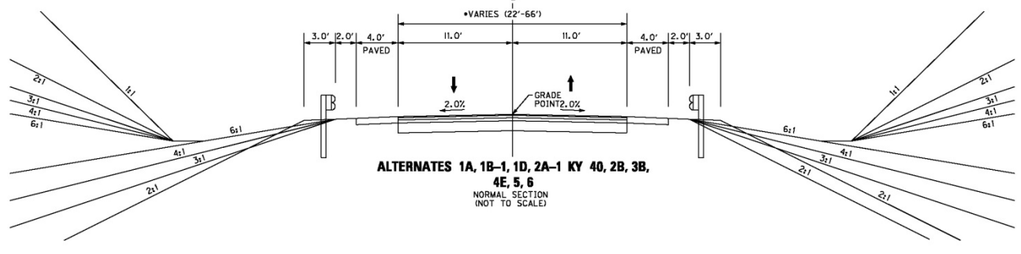
ALTERNATES 1B,1C, 2, 2A, 2A-1
CURB & GUTTER
NORMAL SECTION
(NOT TO SCALE)



ALTERNATES 3A, 10
NORMAL SECTION
(NOT TO SCALE)



ALTERNATES 1
NORMAL SECTION
(NOT TO SCALE)



ALTERNATES 1A, 1B-1, 1D, 2A-1 KY 40, 2B, 3B, 4E, 5, 6
NORMAL SECTION
(NOT TO SCALE)

* SEE ALTERNATIVE SHEETS FOR TURN LANE LOCATIONS

KY 321 – JOHNSON COUNTY PROGRAMMING STUDY IMPROVEMENT ALTERNATIVES

Figure ES-3 - Alternative Typical Sections

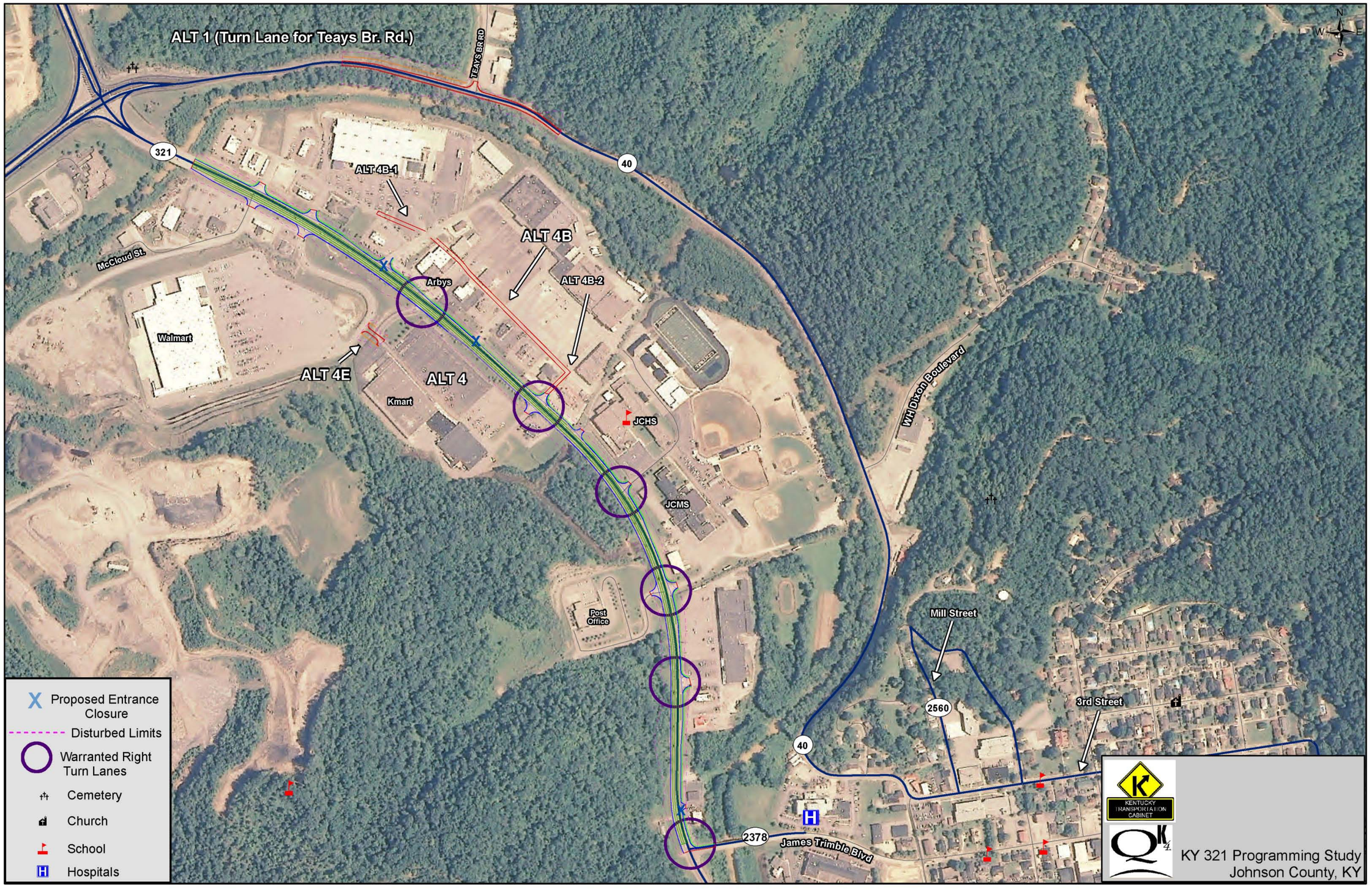


Figure ES-4: Aerial Photography Depicting Project Team Recommendations

CHAPTER 1
INTRODUCTION

KY 321 from KY 321X (MP 7.053) north to KY 40 (MP 8.791) is a congested rural arterial in a densely developed area just north of Paintsville in Eastern Kentucky (see Figure 1). It is a two-lane roadway with left turns provided through either a two-way left turn lane or back-to-back left turn lanes for the majority of the route from KY 40 to KY 2378 (James Trimble Boulevard). The remaining portion of KY 321 south of KY 2378 to KY 321X is two-lane roadway.

Formerly US 23, KY 321, passes through the commercial section of Paintsville. The US 23 Bypass built in the mid 1990s, removed coal trucks from this portion of KY 321, however, it did not alleviate congestion.

The study area (see Photo Tour in Appendix A) has traffic generators such as Walmart, Kmart, Food Lion, Lowe's, McDonald's, Arby's, Bob Evans, gas stations, clothing stores, auto supply stores, two banks, a post office, Johnson Central Middle School and Johnson Central High School just to name a few. Therefore, residents travel to this stretch of road to conduct business, work, shop, and take their children to and from school and dine.

Because of the rugged terrain, the development in the area is very close together. With the Johnson Central High School and the Johnson County Middle School, the mornings and afternoons provide peak congestion with children being bused to school, dropped off and picked up by their parents.

Improvement options for KY 321 have been on Highway District 12's Unscheduled Needs List for six to eight years and have consistently ranked in the top 10 or so of priorities for the District and The Big Sandy Area Development District. The District Transportation Plan recently completed also ranked improvement options in the Top 30 of the Unscheduled Projects List. The KYTC's FY 2012 – FY 2018 Highway Plan contains one project in the study area – Item Number 12-194.00, which will address geometric, safety issues and future congestion mitigation on KY 40 at Teays Branch Road. Design is scheduled for FY 2015.

"Old" US 23, now KY 40, snakes around the hillside from downtown Paintsville, and parallels Paint Creek north to the KY 40/ KY 321 intersection. KY 40 is used by many as a "run around" to avoid congested KY 321. Spring 2012, a pharmacy school is proposed to be located on Teays Branch Road off KY 40[1].

The Highway District Office staff has attempted to reduce congestion by improving the KY 40/KY 321 intersection, providing for a right in/right out at Bob Evans, and installing some right turn lanes from the existing shoulder on KY 321.

Over the years, several ideas have been conceptualized in an effort to help with traffic congestion in the area. One idea was a connector between KY 321 and KY 40 near the school complex that would provide another entrance/exit for the schools, and potentially an alternative route to the congested KY 321. Improvements to KY 40 and KY 321 have also been part of these ideas.

[1] As this report was being prepared, the proposed pharmacy school has not moved forward as anticipated.

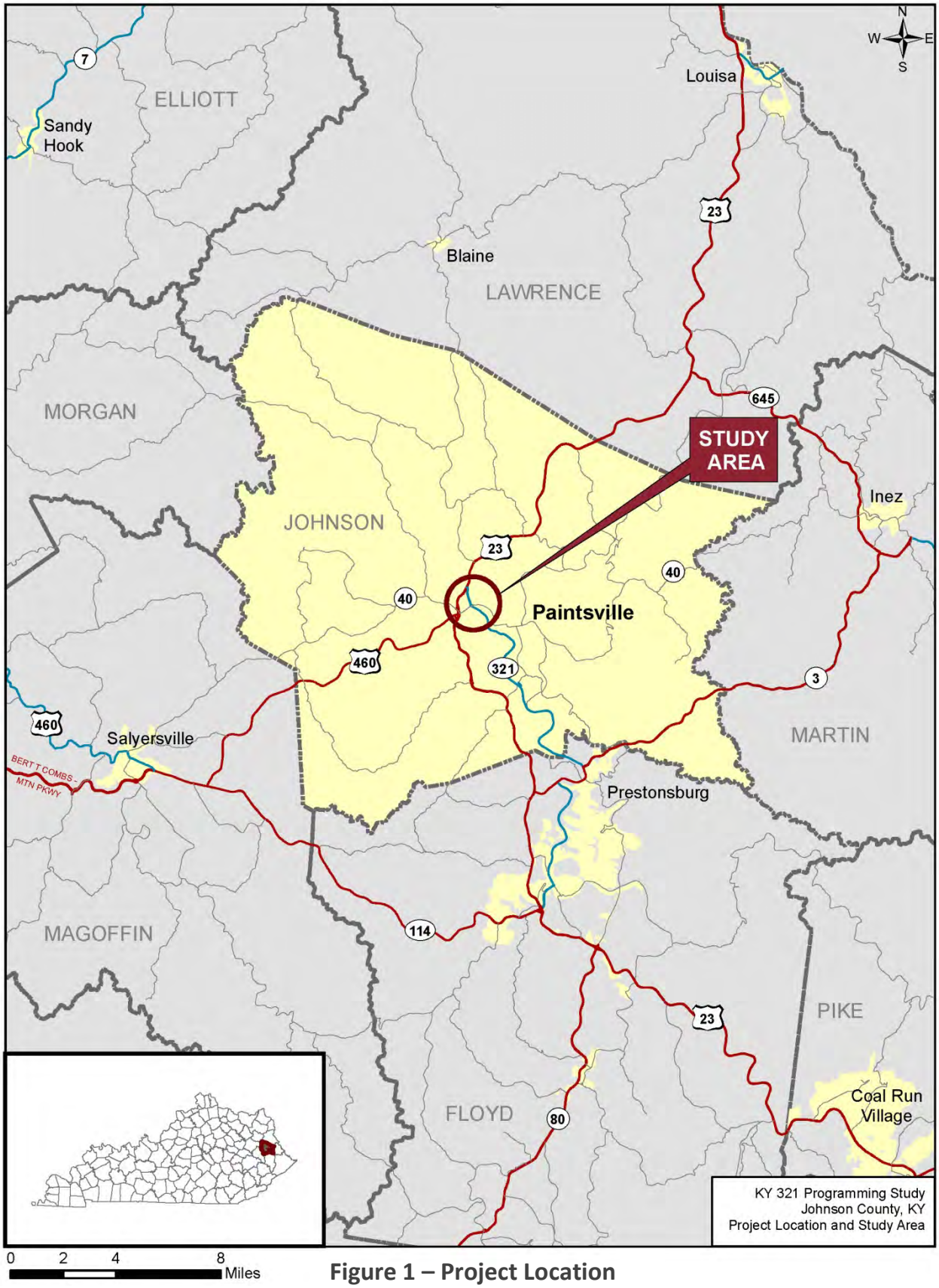


Figure 1 – Project Location

The Highway District Office estimated total costs for a KY 321/KY 40 Connector south of Johnson County Middle School, a left turn lane at Teays Branch Road, and KY 40 reconstruction from KY 321 to West Street.

With KY 321 congestion relief and safety being the focus, the purpose of this study is to take what has been identified in the past and any new concepts, and develop a traffic model to analyze alternatives and their effects on KY 321 congestion. This study was also to review previous cost estimates and identify any low-cost solutions that could be implemented in the short-term to achieve that goal.

CHAPTER 2
PURPOSE AND NEED

The purpose of this project is to relieve congestion and improve safety for both motorists and pedestrians on KY 321 while considering current and existing future development near KY 321 and the safety of pedestrians.

The need results from current and projected traffic volumes that exceed the desired level today and in the future for the entire project length, and forecasted traffic volumes that produce Level of Service E, and a volume to capacity ratio over 1.0 in the design year (2035). Currently KY 321 from KY 40 to James Trimble Boulevard (KY 2378) carries between 13,500 and 17,600 vehicles per day (vpd). South of James Trimble Boulevard (KY 2378), KY 321 is two lanes and carries approximately 12,600 vpd. The entire project length has a volume to capacity ratio that exceeds 0.75 today and over 1.0 in the future.

A crash analysis identified the project corridor as one with a Critical Crash Rate Factor (CCRF)[2] greater than 1.0 from KY 321 to James Trimble Boulevard (KY 2378). A large number of crashes are occurring between Johnson Central High School Drive and KY 40. There is also dense development and many access points along the project corridor that add to congestion and crashes. In addition, pedestrians must currently walk either behind guardrail or on the shoulder of the road.

Goals for the project were established at the first Project Team Meeting following stakeholder input and those are as follows:

1. Provide for congestion relief on KY 321 and improve safety.
2. Provide better service to Teays Branch Road.
3. Provide better access to Johnson Central High School and Johnson County Middle School.
4. Provide better access to Paul Hall Hospital.
5. Provide for better pedestrian movement.

Terrain and development limit the number of reasonable and financially feasible alternatives.

[2] The "Critical Crash Rate" is the maximum crash rate expected to occur on a roadway section, given the statewide average crash rate for that functional roadway class, the ADT, and the section length. The ratio of the actual crash rate to the critical crash rate produces a Critical Crash Rate Factor (CCRF). If the roadway section's actual crash rate exceeds the critical rate (i.e. the CCRF is greater than 1.0), then that roadway section has more crashes than is statistically probable to be occurring randomly.

At present in the study area, KY 321 does not have sidewalks with the exception of a sidewalk from James Trimble Boulevard (KY 2378) on the eastside of KY 321 for approximately 200 feet. South of KY 321X sidewalks are provided on KY 321. Residents of the Senior Citizens High-Rise Complex in Paintsville have been known to ride their electric scooters north on KY 321 to the stores at the north end of the project area.

CHAPTER 3
EXISTING CONDITIONS

3.1 Study Area

The KY 321 study area is located in Johnson County along the western edge of Paintsville. The study area is depicted in Figure 2.

3.2 Existing Roadways

KY 321 begins at KY 1428 in Prestonsburg in Floyd County, crosses into Johnson County, and ends at its junction with US 23 north of Paintsville for a length of 14.0 miles. The project study begins at the intersection with KY 321X (MP 7.061) and ends at the junction with KY 40 (MP 8.791).

KY 321 in the project area is classified as a rural minor arterial, since Paintsville is below the population threshold for urban functional classifications, for the length of the project and on the State Primary Road System as a State Secondary route. Prior to the opening of the current US 23 in 1996, that route number was assigned to what is now KY 321. For access management purposes, KY 321 is considered a Class I roadway (posted speed of 45 mph) from Mill Branch Road north to KY 40 and a Class II roadway (posted speed less than 35mph) from Mill Branch Road south to KY 321X.

KY 40 in the project area begins at MP 9.073 (KY 321) and ends at MP 10.743 (Church Street). KY 40 is classified as a rural major collector and as a State Secondary route on the State Primary Road System.

The current US 23 is the major north-south artery in Johnson County and is on the National Highway System. It is located approximately 1.25 miles west of KY 321 in the project study area.

3.3 Crash Analysis

KY 321 is currently characterized by high crash rates. The study segment of KY 321 from KY 40 to James Trimble Boulevard (also known as KY 2378 or 2nd Street) has a Critical Crash Rate Factor (CCRF) of 3.488. The study segment is part of a larger 5-mile segment (MP 5.616 to MP 10.616) with a CCRF of 2.722. 167 of the 207 crashes occurring in the study segment happened in a one-mile segment (MP 7.637 to 8.637), resulting in a CCRF of 4.131. 125 crashes occur in a 0.608-mile segment between MP 8.268 and MP 8.876 producing a CCRF in excess of 3.0. The crashes and crash segments and spots are illustrated on Figures 3 and 4.

Nineteen of the crashes occur in a 0.1-mile spot between MP 8.409 and MP 8.509 near the Kmart entrance and the side road to the Big Sandy Superstore and Hardee's (refer to Figure 4).

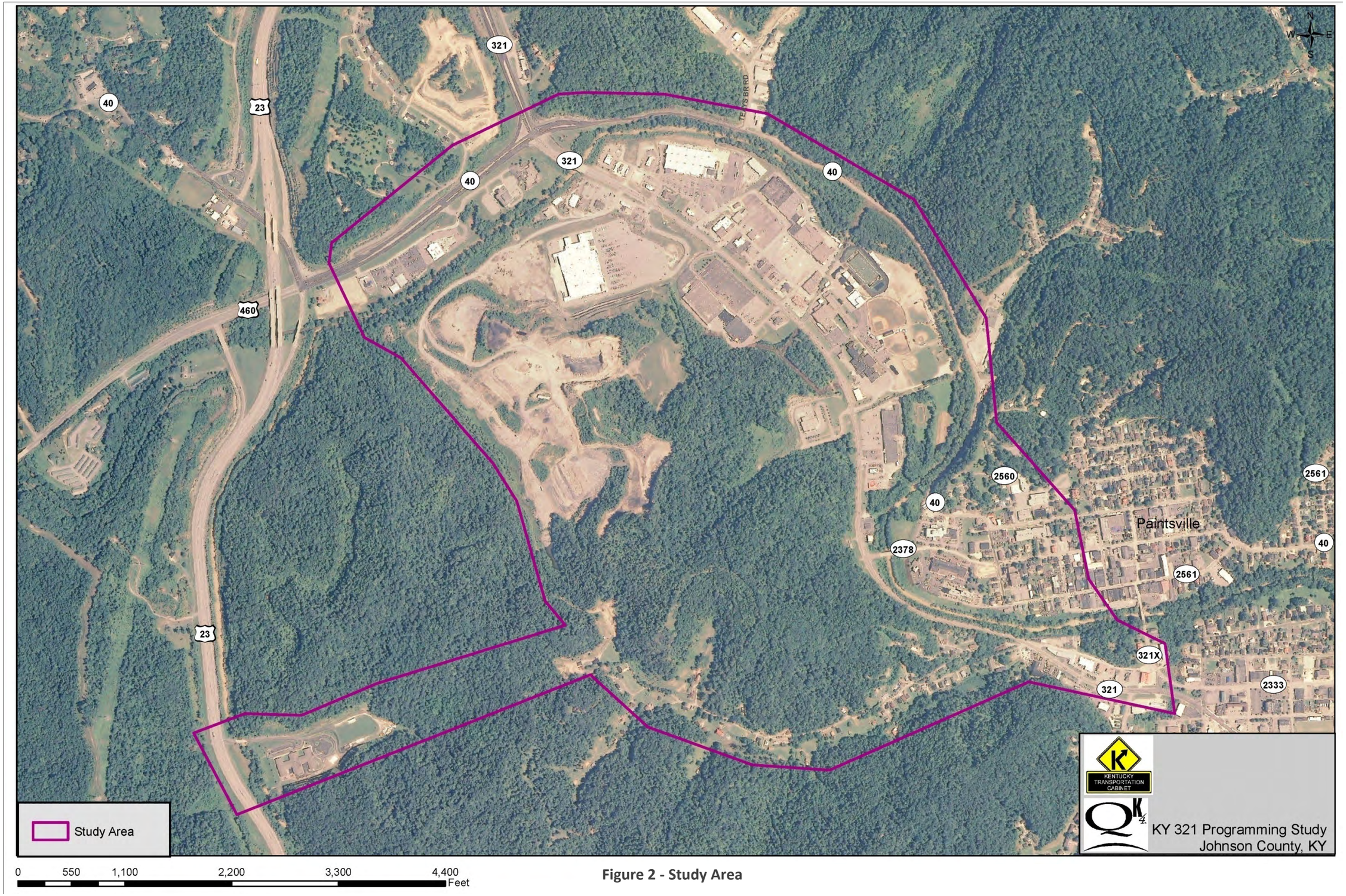


Figure 2 - Study Area

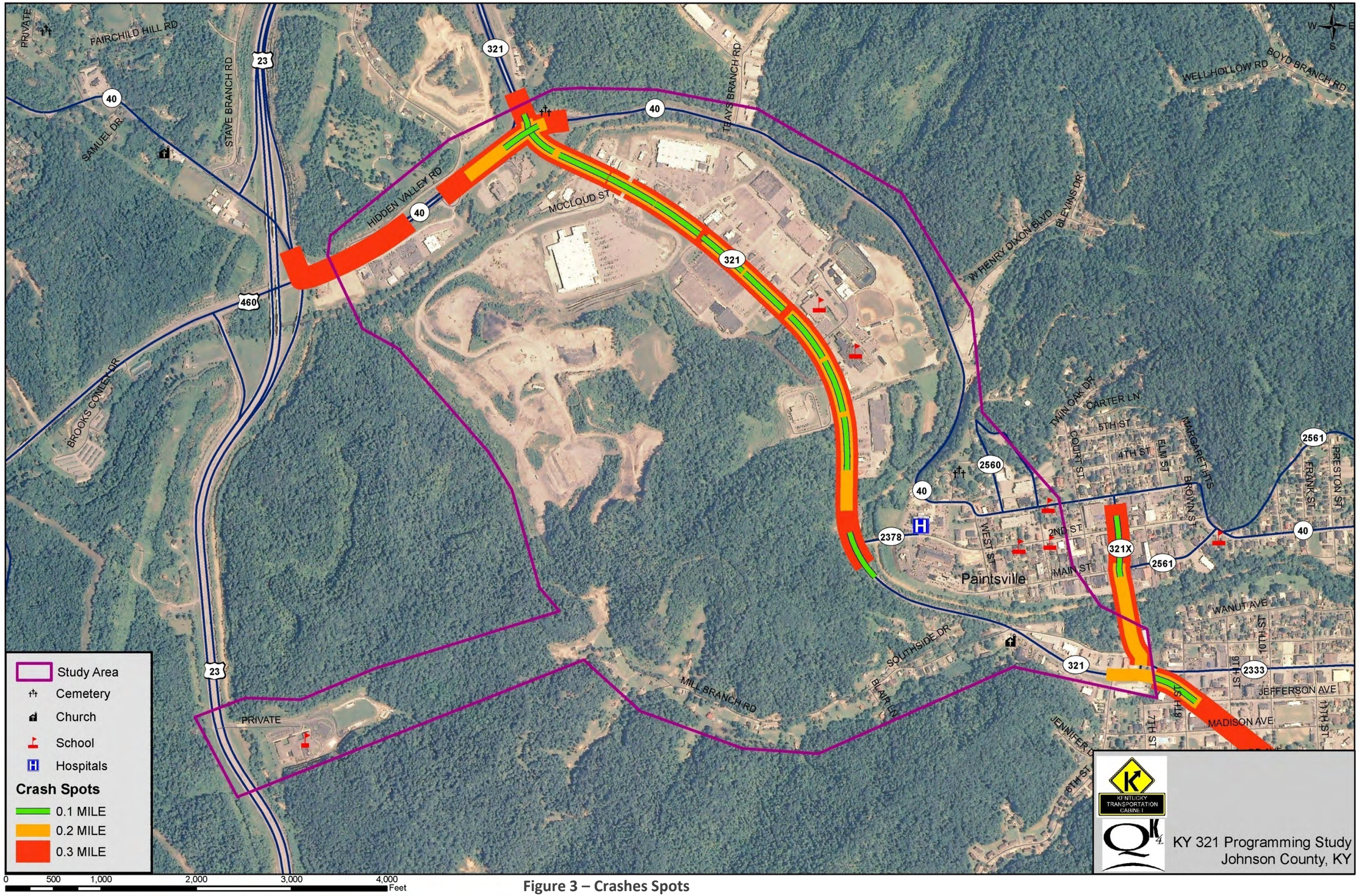


Figure 3 – Crashes Spots

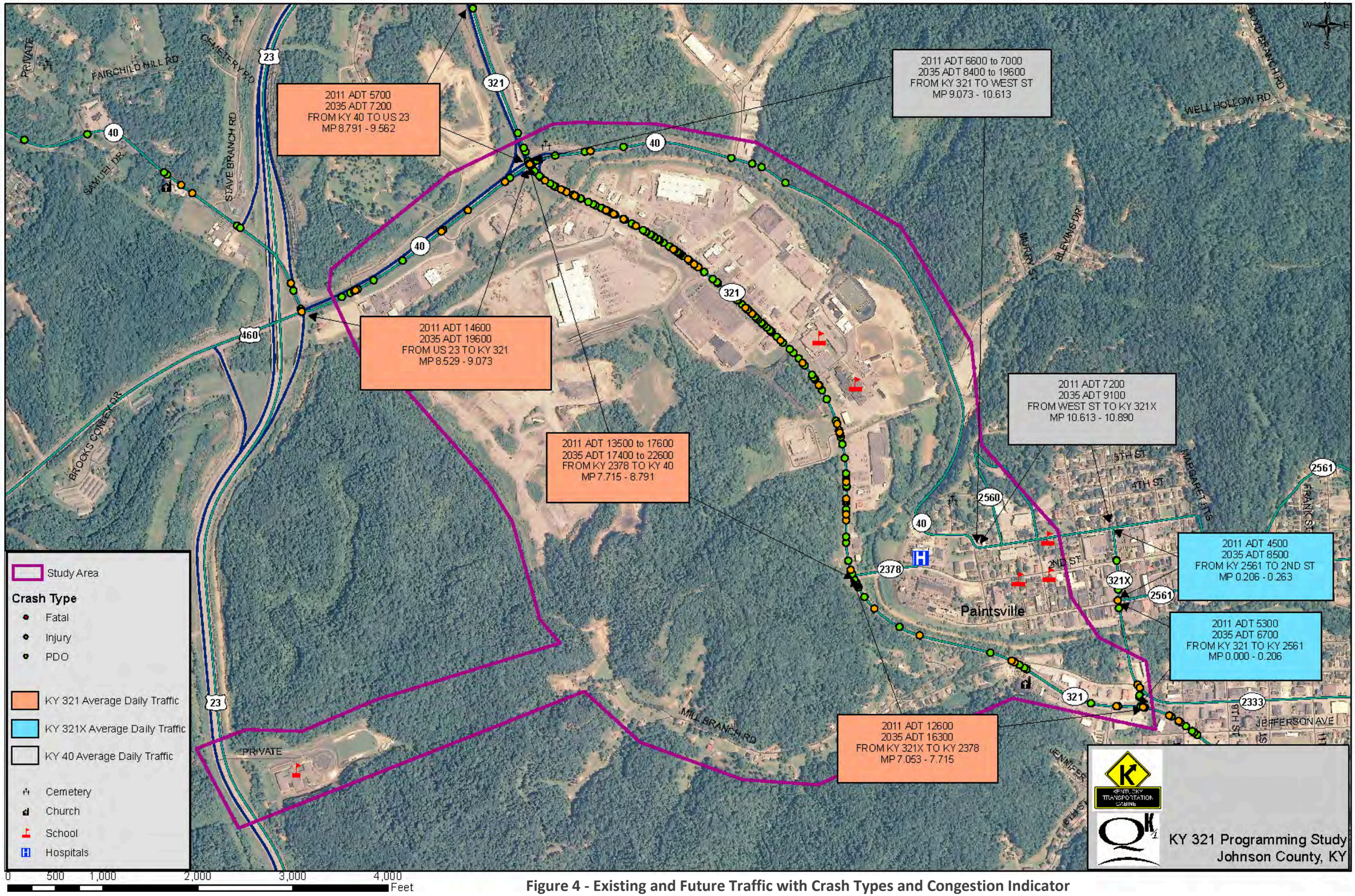


Figure 4 - Existing and Future Traffic with Crash Types and Congestion Indicator

KY 321 in Paintsville from KY 40 to KY 321X

Though no crashes resulted in a fatality, 45 crashes resulted in 63 injuries. 96% of the crashes involved more than one vehicle, with 52% being rear-end crashes and another 20% being angle crashes. These types of crashes are somewhat typical for congested streets. Table 1, Figures 3 and 4 summarize crash data for the study area.

3.4 Existing Levels of Service and v/c Ratios

The study segment of KY 321 is currently showing extensive delays and resulting Level-of-Service (LOS) issues. Tables 2, 3, and 4 depict respectively the delay and LOS for through movements on KY 321, other through movements, and selected turning movements—both from and to KY 321. Calculations are shown in Appendix G.

3.5 Existing Turn Lane Warrants

Right-turn lanes currently are in place northbound on KY 321 at James Trimble Boulevard (KY 2378) and at the entrance to Bob Evans restaurant opposite McCloud Street. Right-turn lanes on KY 321 northbound are also currently warranted at McDonald's, opposite the entrance to Kmart, in the AM peak hour for both school entrances, and at Apple Tree Plaza.

3.6 Adequacy Ratings

The Composite Adequacy Rating Percentile is a method originally developed by the Federal Highway Administration (FHWA) and subsequently refined by KYTC to assess a roadway's condition. The ratings are calculated by individual functional class and based upon three roadway components: safety, congestion, and pavement condition-with each component comprised of several measures. The rating scores 100 as a perfect, or near perfect, highway. The Adequacy Percentile ranks a particular roadway section compared to other Kentucky roads in the same functional class into a percentile. For example, a road section with a Composite Adequacy Percentile of 75.0 means that 25% of similar roads are rated better. KY 321, in the project area, has an adequacy rating ranging from a percentile of 22 to 47. The safety and service indices lower the adequacy rating percentile score. These ratings and other routes in the study area can be seen in Appendix A.

3.7 Structures

Three highway bridges are part of the study area. Structure Number B00067N, located on KY 321 over Paint Creek at MP 8.67, was last inspected in February 2010 with a resulting Bridge Sufficiency Rating (BSR) of 93.60. Structure Number B00059N, located on James Trimble Boulevard (KY 2378) just east of its intersection with KY 321, was also last inspected in February 2010 with a resulting BSR of 98.60. Finally, Structure Number B00047N on Broadway (KY 321X) was last inspected in June 2011. The resulting BSR was 76.30, though the structure is listed as functionally obsolete (see Appendix B).

3.8 Right-of-Way

Figure 5 shows the approximate KY 321 right of way limits (taken from the as-built plans) from KY 40 south to James Trimble Boulevard (KY 2378) owned by KYTC at present. Most of the right of way along KY 321 north of James Trimble Boulevard (KY 2378) is commercial with very large parcels

Table 1: Selected Crash Data for KY 321 Study Segment

ROUTE	KY 40		KY 321					
Beg MP	8.468	8.854	5.616	7.061	7.637	8.576	8.268	8.409
End MP	8.768	9.154	10.616	8.791	8.637	8.876	8.568	8.509
# Crashes	23	11	235	207	167	57	68	19
CRF	2.238	1.369	2.722	3.488	4.131	3.192	3.100	2.567
# Darkness Crashes	4	4	50	41	34	11	17	8
# Fatal Crashes	0	0	1	0	0	0	0	0
# Injury Crashes	8	5	45	36	31	11	11	5
# Wet Roadway Crashes	3	1	31	25	18	7	10	5
# Single Vehicle Crashes	2	0	11	8	9	1	2	0
# Rear End Crashes	6	5	18	108	87	24	31	14
# Angle Crashes	5	4	53	44	41	17	17	9
# Sideswipe Crashes	4	1	23	16	10	16	7	1

Table 2: Current Year Through Movement Delays and Levels-of-Service on KY 321

Intersecting Roadway	Northbound Through Traffic AM Peak Hours		Northbound Through Traffic PM Peak Hours		Southbound Through Traffic AM Peak Hours		Southbound Through Traffic PM Peak Hours	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
KY 321X	23.5	C	63.6	F	10.8	B	39.6	E
James Trimble Blvd	35.1	D	150.9	F	7.9	A	13.3	B
Apple Tree Shopping Plaza	17.6	B	N/A	F	4.3	A	11.0	B
Federal Way (Post Office)	11.8	B	5.5	A	2.8	A	6.0	A
Mayo Drive	31.7	C	176.8	F	29.5	C	24.5	C
Kmart Entrance	122.1	F	N/A	F	92.6	F	N/A	F
Walmart Entrance	10.1	B	30.9	C	26.6	C	193.5	F
KY 40	10.9	B	6.8	A	24.0	C	33.4	C

Note: N/A - With very high v/c ratios, delay calculations are unreliable.

Table 3: Other Current Year Through Movement Delays and Levels-of-Service Issues

Intersection	Through Traffic AM Peak Hours		Through Traffic PM Peak Hours	
	Delay	LOS	Delay	LOS
KY 40 EB @ KY 321	71.8	E	66.4	E
KY 40 WB @ KY 321	59.3	E	55.6	E

Note: N/A - With very high v/c ratios, delay calculations are unreliable.

Table 4: Turning Movements with Significant Current Delays

Turning Movement	Time of Day	Delay	LOS	Turning Movement	Time of Day	Delay	LOS
From KY 321 SB to James Trimble Blvd	AM Peak	69.4	E	From Johnson Co. Central High School to KY 321 (L/R)	AM Peak	160.6	F
From KY 321 SB to James Trimble Blvd	PM Peak	63.0	E	From Johnson Co. Central High School to KY 321 (L/R)	PM Peak	N/A	F
From James Trimble Blvd left to KY 321	AM Peak	37.9	D	From KY 321 NB left onto Mayo Drive	AM Peak	79.6	E
From James Trimble Blvd right to KY 321	AM Peak	45.3	D	From KY 321 NB left onto Mayo Drive	PM Peak	64.4	E
From James Trimble Blvd right to KY 321	PM Peak	35.1	D	From KY 321 SB left onto Mayo Drive	AM Peak	74.3	E
From Apple Tree Shopping Plaza left to KY 321	AM Peak	47.5	D	From KY 321 SB left onto Mayo Drive	PM Peak	68.1	E
From Apple Tree Shopping Plaza left to KY 321	PM Peak	37.6	D	From KY 321NB left to Walmart	AM Peak	73.0	E
From Apple Tree Shopping Plaza right to KY 321	AM Peak	48.0	D	From KY 321NB left to Walmart	PM Peak	59.6	E
From Apple Tree Shopping Plaza right to KY 321	PM Peak	38.0	D	From KY 321 SB left to opposite Walmart	AM Peak	79.3	E
From KY 321 NB to W Federal Way	AM Peak	78.2	E	From KY 321 SB left to opposite Walmart	PM Peak	68.3	E
From KY 321 NB to W Federal Way	PM Peak	66.4	E	From KY 321 NB left to KY 40	AM Peak	64.1	E
From W Federal Way to KY 321 (L/T/R)	AM Peak	55.6	E	From KY 321 NB left to KY 40	PM Peak	41.5	D
From W Federal Way to KY 321 (L/T/R)	PM Peak	53.7	D	From KY 321 SB left to KY 40	AM Peak	83.3	F
From E Federal Way to KY 321 (L/T/R)	AM Peak	71.3	E	From KY 321 SB left to KY 40	PM Peak	73.5	E
From E Federal Way to KY 321 (L/T/R)	PM Peak	62.0	E	From WKY 40 left to KY 321N	AM Peak	83.3	F
From E KY40 left to KY 321S	AM Peak	91.9	F	From WKY 40 left to KY 321N	PM Peak	73.2	E
From E KY40 left to KY 321S	PM Peak	74.4	E				

Note: N/A - With very high v/c ratios, delay calculations are unreliable. AM Peak: 7-9 am weekday; PM Peak: 2:30-4:30 pm weekday

Figure 5 – Approximate KY 321 Right-of-Way owned by KYTC to KY 2378

according to files obtained from the Johnson County Property Valuation Administrator's Office. One property, BB & T Bank, has a large retaining wall at the front of their property for which special care must be taken during any construction in that area to maintain structural integrity of the structure.

There are also large parcels along KY 40 with the exception of WH Dixon Boulevard, Mill Branch Road, the southern end of KY 321 in the project limits, and as expected in the Paintsville downtown area.

3.9 Utilities

Due to limited funding for this study, only visible or readily available utilities were identified. As visible in most aerial photographs, overhead utilities are located on both sides of KY 321 from KY 40 south to the Walmart entrance. The Paintsville City Engineer provided the location of gas, water, sewer and fire hydrants. Those locations are shown in Figure 6 and in more detail in Appendix C.

CHAPTER 4 ABBREVIATED ENVIRONMENTAL OVERVIEW

An abbreviated environmental overview of known resources was conducted to identify any fatal flaws in the project area. All identified resources are shown in Figures 7 and 8.

4.1 Architectural and Archaeological

Archival research performed in 2011 (refer to Appendix D) at the Kentucky Heritage Council as well as a windshield survey, sought potential historic and archaeological sites along the KY 321 corridor and nearby study area. Within the overview area there were five sites on the National Register of Historic Places (NRHP) and 26 sites have been previously identified as being fifty years or older. An additional potentially historic property was identified during the fieldwork for this overview. If future projects are developed in the study area, an architectural survey must be conducted when federal funds or a federal permit is involved.

One property, the Patterson House (Figure 9) located at the corner of James Trimble Boulevard (KY 2378) and West Street is currently listed on the National Register of Historic Places (NRHP). Improvements to KY 40 near "hospital curve" might affect the Patterson House if only visually, as well as a potentially historic cemetery north of KY 40 and west of KY 2560 shown in Figure 10.

A windshield survey revealed an additional potentially historic house (Figure 11), located just south of the Post Office, that may be impacted by improvements to KY 321.

In 2011, an archaeological archival review indicated that the project area has a high potential to contain undocumented prehistoric and historic archaeological sites. Due to its sensitive nature, this overview is not included in the body of this report, but rather is located in the project file in KYTC's Division of Planning.

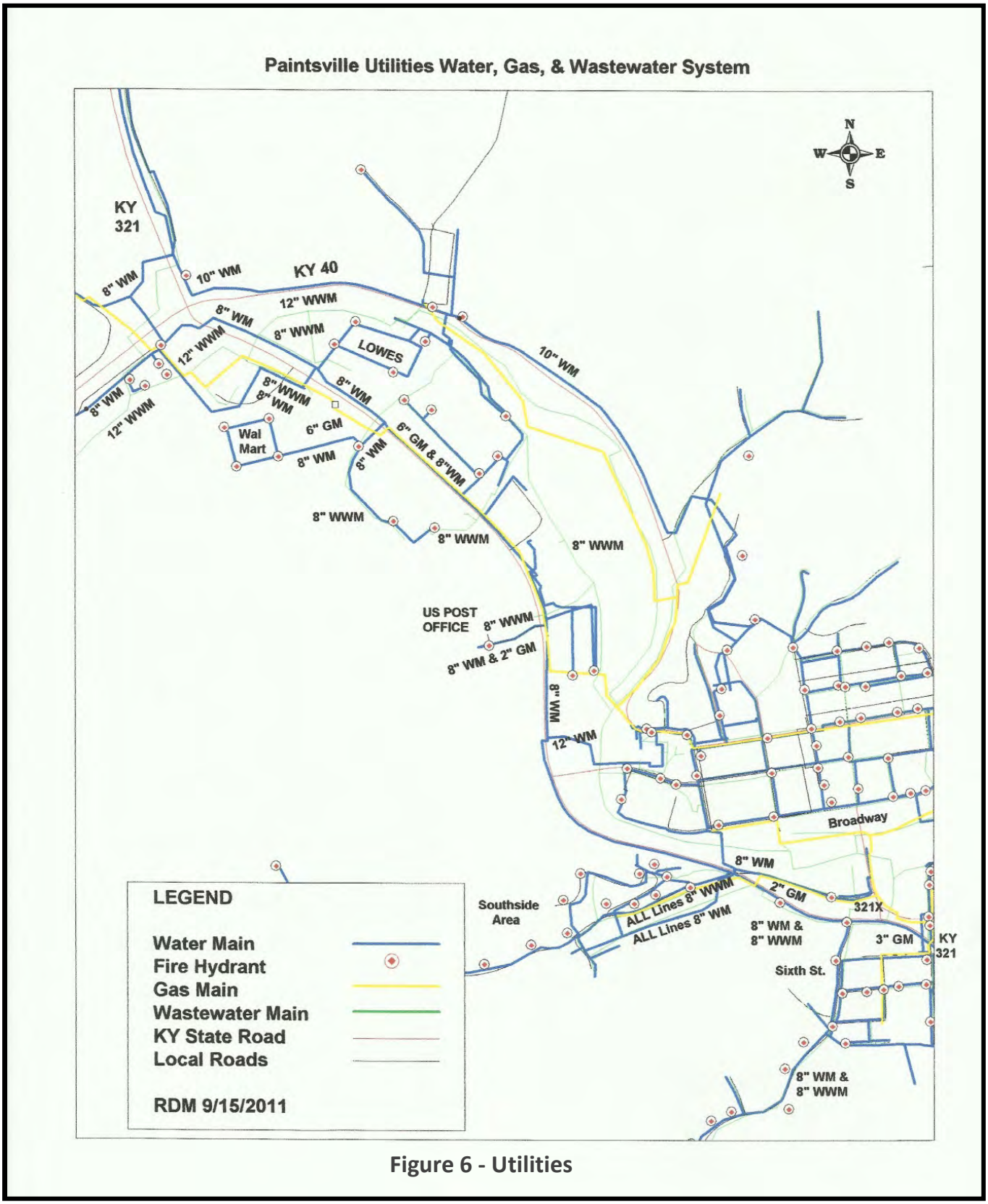


Figure 6 - Utilities

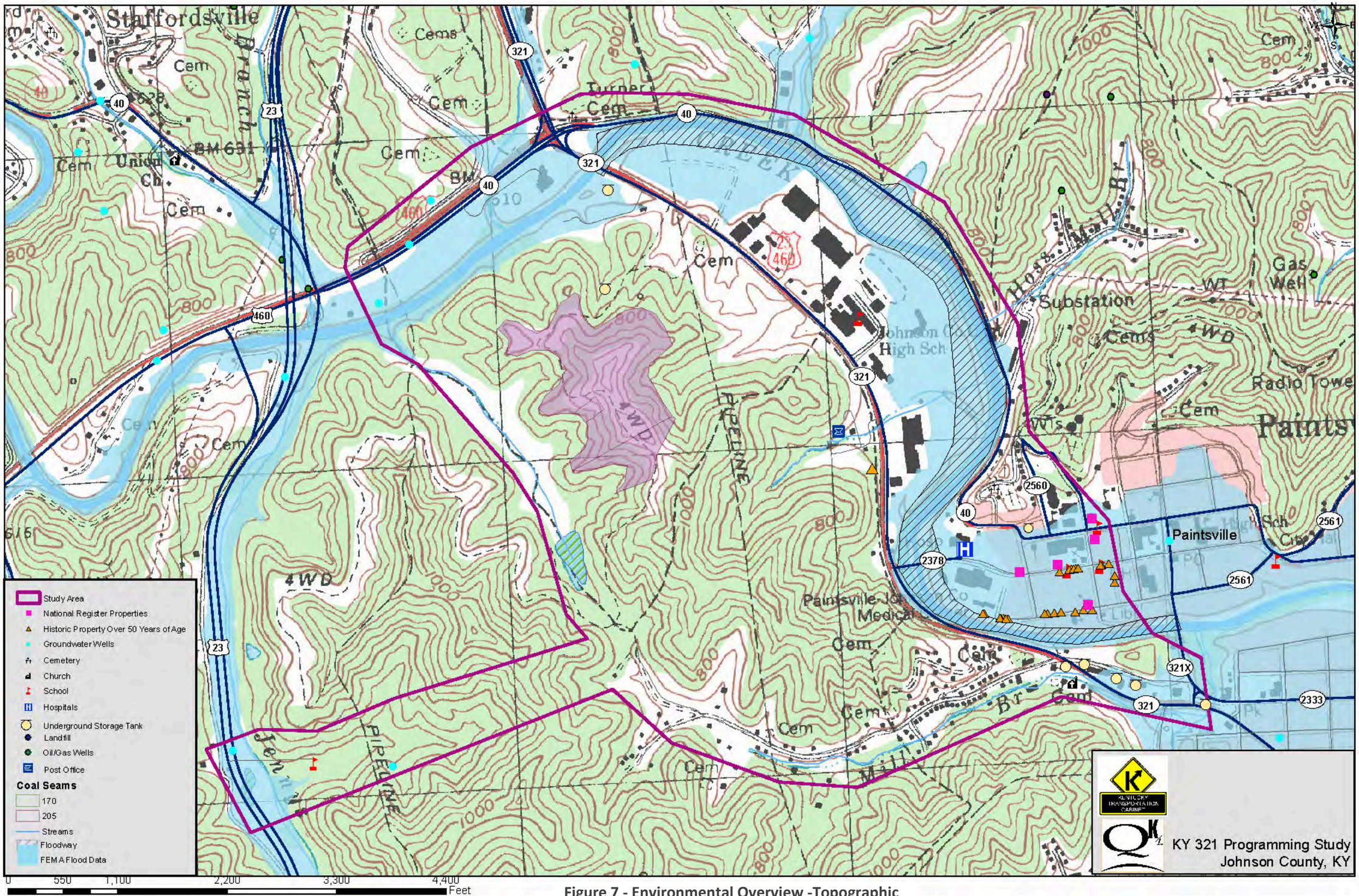


Figure 7 - Environmental Overview -Topographic

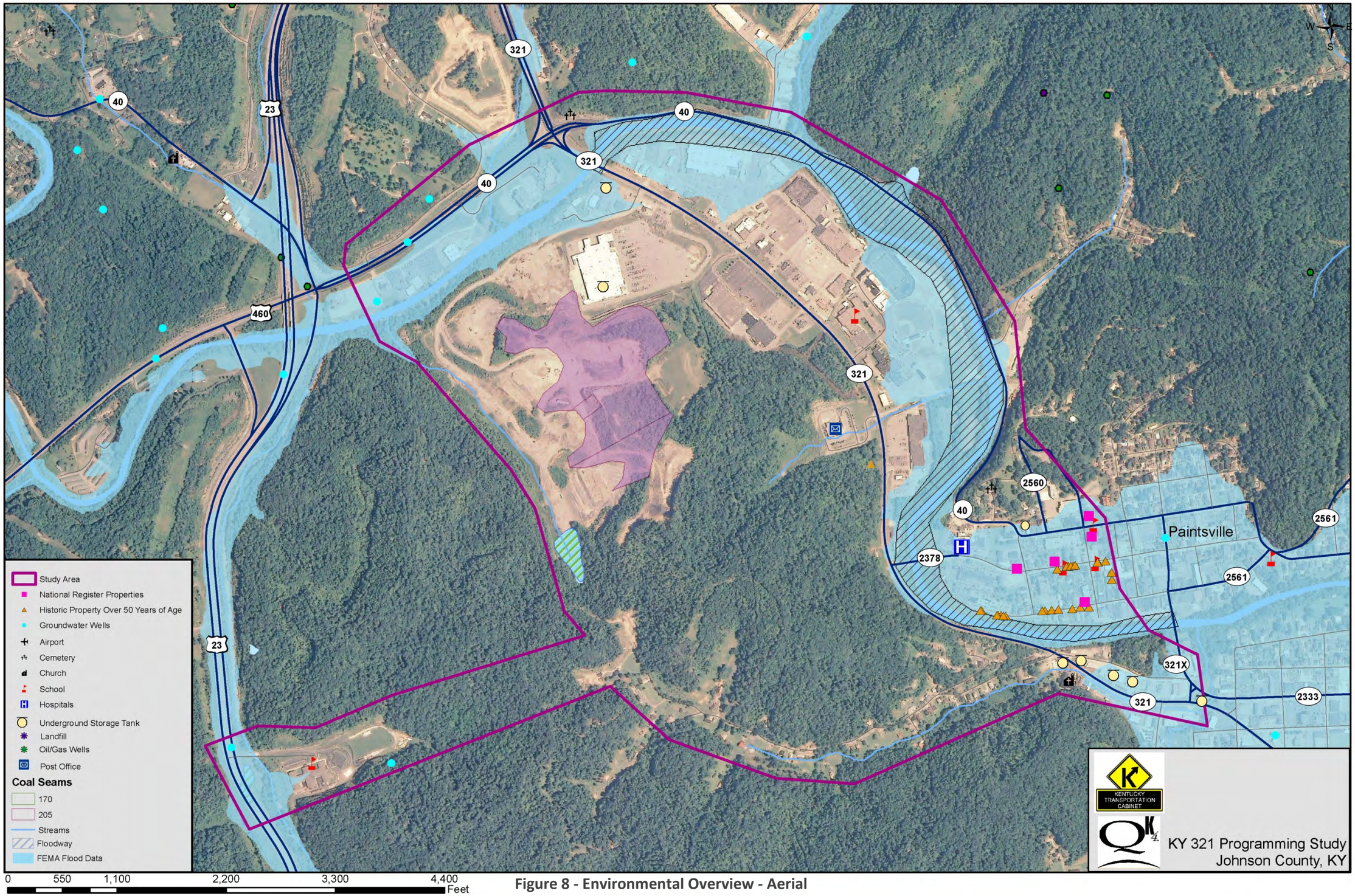


Figure 8 - Environmental Overview - Aerial

Figure 9 - Patterson House

Figure 10 - Potentially Historic Cemetery

Figure 11 – Potentially Historic House Adjacent to the Post Office on West Side of KY 321

4.2 Threatened and Endangered Species

A report from the U.S. Fish and Wildlife Service[3] indicated that the Indiana bat (Myotis sodalis), an endangered species, was found in Johnson County and might be present within the project area.

A list of 15 species identified in Johnson County by the Kentucky Department of Fish and Wildlife[4], as threatened, endangered, or of concern is located in Appendix D.

4.3 UST and HAZMAT

Due to limited funding for this study, a windshield survey, instead of a research of known databases was conducted. These sites identify potential constraints from possible environmental contamination within the study area. There were 7 potential UST/hazardous sites identified along the project. Each site is located on Figures 7 and 8.

4.4 100-year Floodplain and Floodway

A one-hundred-year flood is more accurately referred to as the 1% annual probability flood, since it is a flood that has a 1% chance of being equaled or exceeded in any single year.

Floodplains are land areas adjacent to rivers and streams that are subject to recurring inundation.

A floodway is the boundary set within a regulatory floodplain that shall not have encroachments. This boundary is set at the point encroachments in the floodplain cause the 100-year elevation to reach a maximum 1-foot increase. The floodway usually consists of the stream channel and land along its sides.

As shown in Figure 7, 8 and 12[5], the city of Paintsville is considered by Federal Emergency Management Agency (FEMA: the regulatory agency) to have a substantial 100-year floodplain area, and a large floodway. Taken from FEMA's digital data[6], this map has not been revised since 1990. However, a preliminary map dated June 1, 2009 (not available in study size) obtained from the floodplain regulator in Paintsville showed little if any change or updates in the Paintsville area. To be conservative, any new construction improvement options considered spanned any encroachment on the floodplain and floodway.

4.5 Environmental Justice

Because the majority of the study area has commercial development, a formal environmental justice report was not conducted. There is only one house on KY 321 in the study area (adjacent to the Post Office). The remaining residential development is on or near "hospital curve" on KY 40, WH Dixon Boulevard, Mill Branch Road, and Mill Street in downtown Paintsville. If alternatives are implemented that impact these areas, further investigation of possible Environmental Justice may be warranted.

[3] Source: http://www.fws.gov/endangered/
[4] Source: http://fw.ky.gov/kfwis/speciesInfo/
[5] Source: https://msc.fema.gov/webapp/wcs/stores
[6] Source: http://www.fema.gov/hazard/map/q3.shtm

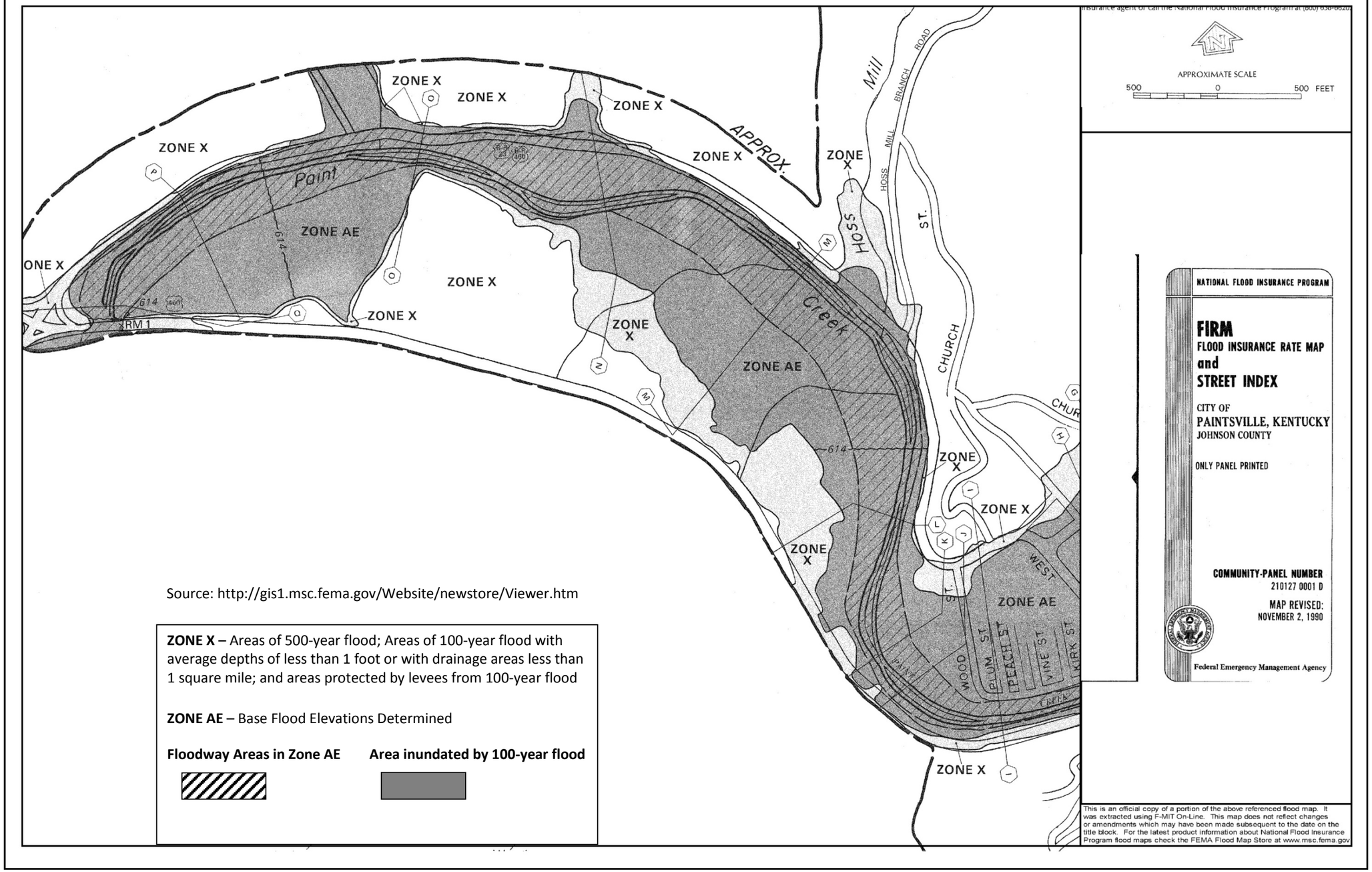


Figure 12 - 100-Year Floodplain and Floodway in Paintsville from FEMA

4.6 Geotechnical Overview

The study area lies within the Cumberland Plateau Physiographic Region of Kentucky known for economically rich coal seams, which have been extensively mined. Geologic mapping indicates the project traverses across the Lee and Breathitt Formations known to consist of thick to thinly interbedded layers of sandstone, shale and coal. Alluvium deposits composed of silt, sand and gravel are found in valleys along Teays Branch and Paint Creek (see Appendix D). The concerns are as follows:

1) Due to anticipated depths of the alluvial deposits (0-95 feet), bridge piers located in alluvium may need to be founded on piles or drilled shafts.

2) There are multiple underground mine openings in the Van Lear coal bed (shown in Appendix D geologic map) indicating evidence of deep mining near the study area. Available historic mine maps show underground, auger and strip mining has taken place in the Van Lear coal bed north of KY 40 between Teays and Hoss Mill Branch, and just north of Mill Branch. Mining activity in the Van Lear coal bed may affect alternatives that cut into the hillside along KY 40 from KY 321 to West Street, and KY 321 from US Post Office Road to Mill Branch Road. If proposed cut slopes extend to the Van Lear coal bed in these locations, remediation may be required to stabilize the rock cut slopes with flatter than normal slopes and additional costs such as backstowing of mine openings.

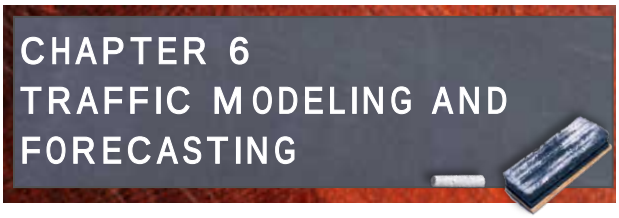
3) During a field review, an existing landslide was noted on KY 40 at MP 10.0. The embankment failure appeared to be stabilized utilizing railroad rails and lagging. Additional embankment failures may be present on KY 40 along Paint Creek due to erosion or rapid drawdown, but were not seen. Alternatives along KY 40 are recommended to move into the hillside opposite from Paint Creek to prevent existing and potential future embankment failures from affecting the roadway.

Public involvement consisted of two Project Stakeholders' meetings with representatives of the Big Sandy ADD, local businesses, developers, Johnson County Schools, Paul Hall Hospital, Midway College School of Pharmacy, and local and state officials.

At the first Stakeholders' Meeting, participants were briefed on the study process, the history of KY 321, previous efforts to identify improvements, and the existing roadway and traffic conditions. The key element of the initial Stakeholders' meeting, however, was to solicit comments and suggestions.

Issues raised by Stakeholders focused on:

- Difficulty in making turns
  - KY 321 southbound to schools
  - Onto KY 321 at unsignalized intersections
  - Combination turn of KY 40 to KY 321 and then KY 321 into Walmart (short, congested weave distance)
  - Left onto KY 40 from hospital
  - Sight distance restrictions turning left from Teays Branch Road to KY 40
- Traffic backups through intersections
  - Walmart signal back to KY 40
  - During school dismissal
- "Unusual" arrangement connecting KY 40 to KY 321 and KY 321 to hospital
- Safety concerns
  - Access to schools and hospital
  - KY 40 curve just north of hospital
  - Lack of pedestrian facilities
  - Rockfall concerns on KY 40 and KY 321 near hospital
- Concerns that future developments will overload current street network
  - Teays Branch Road at KY 40
  - Connection needed between KY 321 and KY 40
- Lack of frontage road interconnection on west side of KY 321 from Post Office to Walmart
- Driver behavior in KY 321 center lane



6.1 Traffic Counts

Data from an existing traffic classification study on KY 321 near MP 8.4 conducted in August 2009, was obtained from KYTC. Special counts for this study were conducted while school was still in session by KYTC at these locations (see Appendix E for map):

- KY 321 @ KY 321X
- KY 321X @ KY 2333 (Broadway)
- KY 2378 (James Trimble Boulevard) @ West Street
- KY 40 (3rd Street) @ West Street
- KY 40 @ Teays Branch Road
- KY 40 @ W. H. Dixon Blvd
- KY 321 @ KY 2378 (James Trimble Boulevard)
- KY 321 @ Post Office Drive
- KY 321 @ Entrance to Johnson County Central High School*
- KY 321 @ McDonald's*
- KY 321 @ Arby's/Kmart Entrance*
- KY 321 @ Walmart/Lowe's Entrance*
- KY 321 @ KY 40*

Counts were conducted during the morning peak hours (7:00-9:00), the midday peak hours (11:00-1:00), and the afternoon peak hours (2:45-5:00). Saturday counts between 10:30 and 2:00 were conducted at those locations marked with an asterisk. The count at KY 321 and Post Office Drive was conducted on a Saturday between 8:30 and 10:30, between 11:30 and 2:30, and between 4:00 and 5:00. Two peak times were carried through the remainder of this study for analysis and they are weekday morning and afternoon peaks.

6.2 Assumptions and Methodology

Growth analysis performed on historical data from KYTC count stations (58259, 58A35, 58A82, and 58250) in the project vicinity shows traffic volumes that have been growing at a rate ranging from -2.5% to 0.9% annually over the last 20 years. Johnson County population is projected to grow at a rate of 0.3% annually. Based upon these observations, a growth rate of 1.0% was used to forecast future-year traffic volumes on all roadways for the study.

Traffic on any new roadway segments was forecasted using the manual gravity method. AM and PM peak hour estimates were used using this method and then ADTs were found by dividing the higher of the peak hours by the average K Factor.

For the purposes of this study, the Build and No-Build traffic projections were assumed the same.

6.3 Highway Capacity Analysis

Existing and forecasted traffic was analyzed using both the Highway Capacity Software (HCS) and a CORSIM micro-simulation model. Both sets of analyses modeled the existing geometric layouts and existing signal timings provided by the KYTC district office where applicable. Results from the HCS analysis are reported using v/c Ratio, delay, and Level of Service. Table 5 below shows Year 2011 and 2035 metrics for through movements and selected turning movements on KY 321. Results from the CORSIM analysis are reported as travel time and delay through the KY 321 corridor collectively.

6.4 Turn Lane Warrants

To explore possible short-term spot improvements that might relieve traffic congestion of KY 321, right-turn lanes were considered at locations where turning movements were available. Right and left turn lane warrants were completed for KY 321 existing and future design hour volumes for AM and PM peaks. All left turns were warranted with the exception of the intersection of KY 321 and KY 321X NB. The right turn lane warrant calculations yielded the following results (see Figure 13). If a current right turn lane exists, it is not listed in the following listing from north to south:

2011 Right turns warranted

- NB at McDonald's/BB&T
- NB at JCMS (AM Only)
- NB at JCHS (AM Only)
- NB at Arby's
- NB at Apple Tree Plaza

Table 5: Selected Highway Capacity Software Metrics for KY 321

LOCATION	AM PEAK							PM PEAK						
	Northbound				Southbound			Northbound				Southbound		
Through Movements-2011	MP	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	
KY 321 @ KY 321X	7.06	0.01	8.2	A	0.26	10.3	B	0.01	8.4	A	0.29	10.5	B	
KY 321 @ James Trimble Blvd	7.72	0.70	35.1	D	0.59	7.9	A	1.04	150.9	F	0.76	13.3	B	
KY 321 @ Apple Tree Shopping Plaza	~7.89	0.83	17.6	B	0.62	4.3	A	1.15	N/A*	F	0.91	11.0	B	
KY 321 @ Federal Way (Post Office)	~7.98	0.77	11.8	B	0.58	2.8	A	0.78	5.5	A	0.84	6.0	A	
KY 321 @ McDonald's Entrance	~8.22	0.81	31.7	C	0.96	29.5	C	1.08	176.8	F	0.79	24.5	C	
KY 321 @ Kmart Entrance	~8.39	0.43	122.1	F	0.11	92.6	F	0.75	N/A*	F	1.42	N/A	F	
KY 321 @ Walmart	~8.54	0.48	10.1	B	0.93	26.6	C	0.95	30.9	C	1.08	193.5	F	
KY 321 @ KY 40	8.79	0.14	10.9	B	0.39	24.0	C	0.30	6.8	A	0.36	33.4	C	
LOCATION	**AM PEAK**							**PM PEAK**						
	Northbound				Southbound			Northbound				Southbound		
Through Movements-2035 "No-Build"	MP	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS	
KY 321 @ KY 321X	7.06	0.01	8.6	A	0.40	12.7	B	0.01	8.9	A	0.43	13.3	B	
KY 321 @ James Trimble Blvd	7.72	0.97	85.5	F	0.74	9.6	A	1.43	N/A	F	0.96	20.9	C	
KY 321 @ Apple Tree Shopping Plaza	~7.89	0.96	23.9	C	0.80	5.4	A	1.47	N/A	F	1.18	N/A	F	
KY 321 @ Federal Way (Post Office)	~7.98	1.13	N/A	F	0.80	7.7	A	1.12	N/A	F	1.19	N/A	F	
KY 321 @ McDonald's Entrance	~8.22	1.10	228.3	F	1.25	N/A	F	1.41	N/A	F	1.07	157.4	F	
KY 321 @ Kmart Entrance	~8.39	1.74	N/A	F	0.65	N/A	F	4.40	N/A	F	11.0	N/A	F	
KY 321 @ Walmart	~8.54	0.77	24.3	C	1.46	N/A	F	1.30	N/A	F	1.52	N/A	F	
KY 321 @ KY 40	8.79	0.21	19.4	B	0.61	39.5	D	0.43	11.9	B	0.68	56	E	

	AM PEAK			PM PEAK		
Selected Turning Movements-2011	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
KY 40 WB Left onto KY 321 SB	0.79	91.9	F	0.85	74.4	E
KY 321NB Left onto KY 40 WB	0.78	64.1	E	0.80	41.5	D
KY 321 NB Left into Walmart	0.85	73.0	E	0.92	59.6	E
KY 321 NB Left into Federal Way (Post Office)	0.53	78.2	E	0.78	66.4	E
KY 321 SB Left into JC Middle School	0.87	71.5	E	0.78	66.4	E
KY 321 SB Left onto James Trimble	0.89	69.4	E	0.85	63.0	E
James Trimble right onto KY 321NB	0.51	45.3	D	0.48	35.1	D
	AM PEAK			**PM PEAK**		
Selected Turning Movements-2035 "No-Build"	V/C Ratio	Delay	LOS	V/C Ratio	Delay	LOS
KY 40 WB Left onto KY 321 SB	0.82	89.0	F	0.88	78.1	E
KY 321NB Left onto KY 40 WB	0.79	60.2	E	0.83	35.6	D
KY 321 NB Left into Walmart	0.88	72.0	E	1.00	78.7	E
KY 321 NB Left into Federal Way (Post Office)	0.53	78.2	E	0.80	65.2	E
KY 321 SB Left into JC Middle School	0.90	70.5	E	0.80	65.2	E
KY 321 SB Left onto James Trimble	0.93	73.0	E	0.89	62.1	E
James Trimble right onto KY 321NB	0.68	51.6	D	0.64	39.4	D

Note: With very high v/c ratios, delay calculations are unreliable

Figure 13 – Locations Examined for Turn Lanes

2035 Right Turn Lanes Warranted (includes 2011 right turns)

- NB at Arby's
- NB at McDonald's
- NB at JCHS Drive
- NB at JCMS
- NB at Apple Tree Plaza
- NB at James Trimble Boulevard (KY 2378) (very short one exists now)
- NB at 321X
- SB at Kmart
- SB at Post Office (PM only)

Using the developed traffic model, existing crash locations, existing and forecasted future congestion levels, as well as comments from the KYTC Project Team and Project Stakeholders, alternative improvement projects were defined and evaluated for their effectiveness. Low cost improvements that would reduce congestion or somewhat improve congestion were also evaluated. Table 6 illustrates the amount of traffic alleviated at select KY 321 intersections as a result of various alternatives. Again, each alternative was developed keeping in mind the terrain, development and financial constraints.

The overall traffic in and around KY 321 was found to be heaviest in the PM peak. Most trips were determined to be to destinations within the project area, rather than "through" trips.

Costs for each alternative were based on a digital elevation model that has not been updated for recent development. Also, the FEMA Flood Insurance Rate Map (FIRM) floodplain information has not been updated since 1990. Some updated field–verified elevations were obtained through Bocook Engineering (a local engineering firm) and were used to supplement the digital elevation model and floodplain information. For purposes of cost estimating, it was assumed that the existing floodplain and floodway would be spanned with any new construction. This would result in higher costs for connectors, or any alternative that spanned the floodplain/floodway. Alternatives developed are illustrated in Figure 14 and on pages 32 through 60. For ease of reading, turn lanes (assumed 11-foot) associated with each connector and right turn lanes (assumed 11-foot) are not illustrated on Figure 14.

The typical sections illustrated in Figure 15 were utilized for cost estimating purposes. These typical sections may be modified as any project(s) moves forward or additional details become available.

Early in the study process, there were a few options considered but eliminated from consideration:

- An alternative for combining the Walmart and Kmart entrances at the northernmost Kmart entrance near MP 8.4 was considered impractical due to the steep grade required for the entrance (10%).
- A connector between KY 321 and KY 40 between Johnson Central High

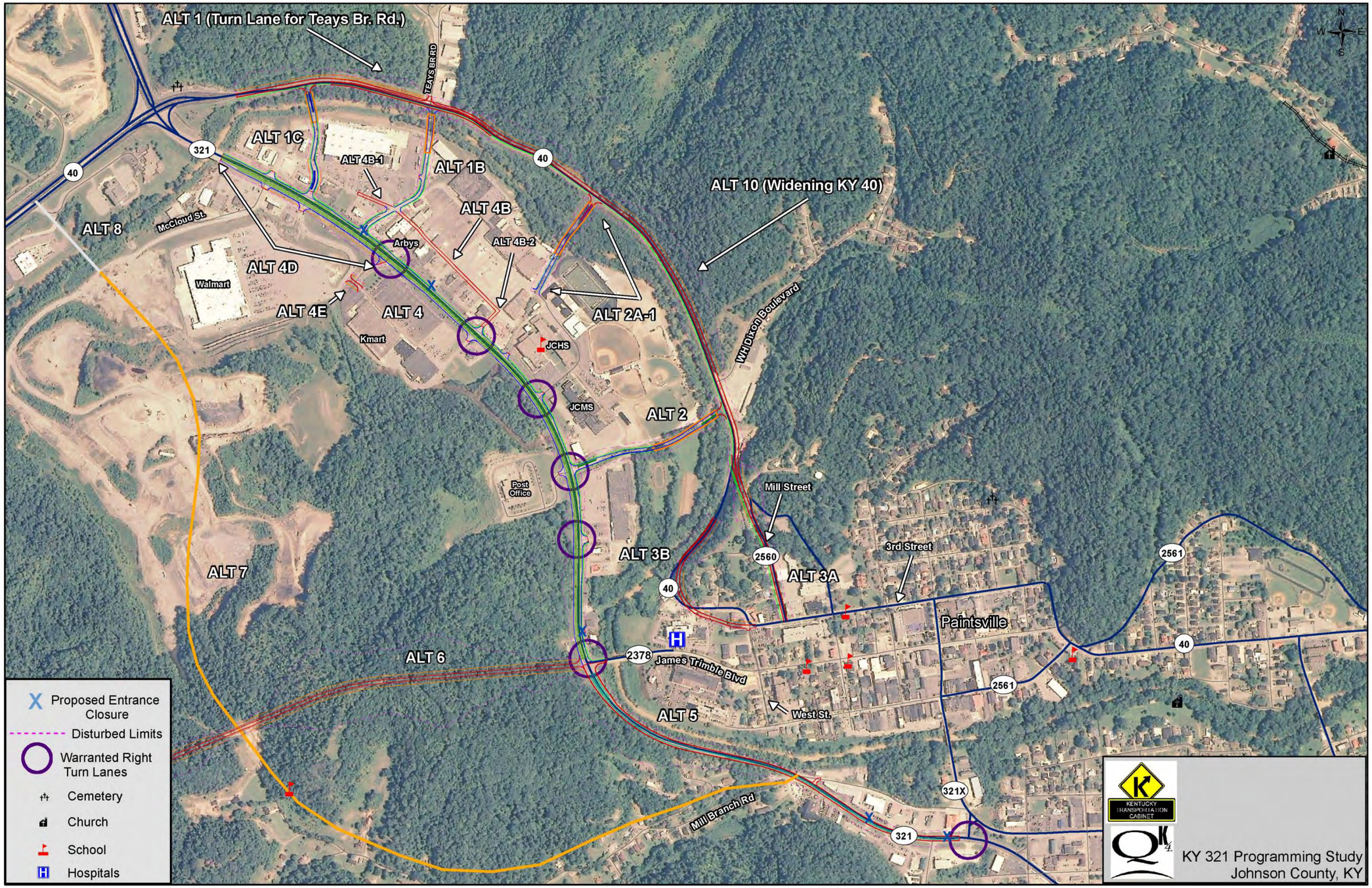
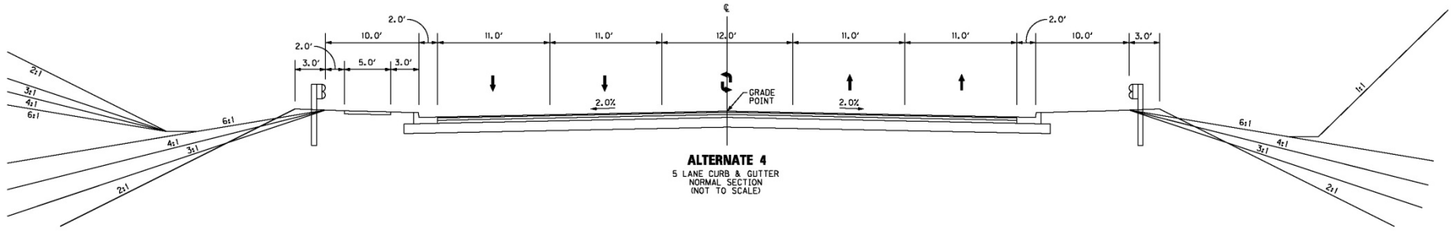
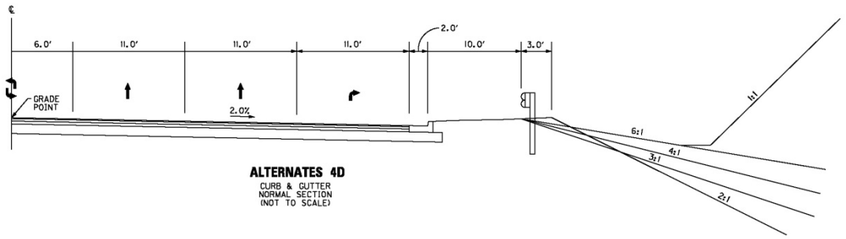


Figure 14 – Aerial Photography depicting KY 321 Alternatives

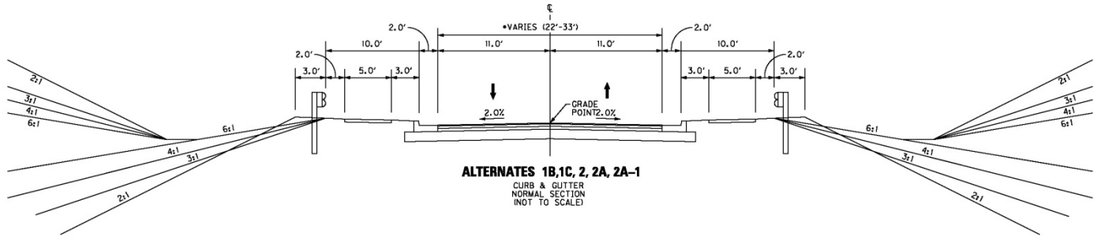
TYPICAL SECTIONS



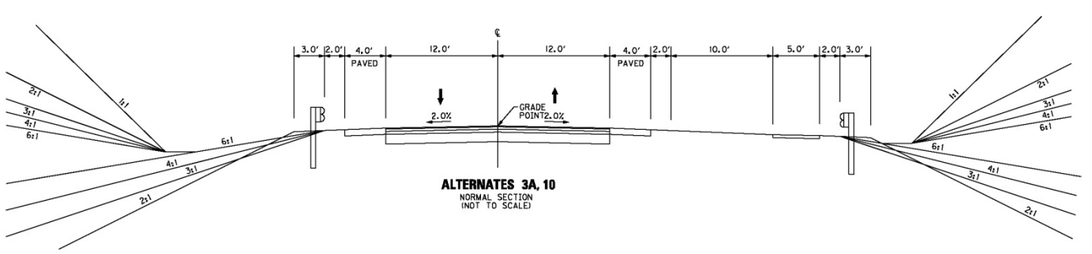
ALTERNATE 4
5 LANE CURB & GUTTER
NORMAL SECTION
(NOT TO SCALE)



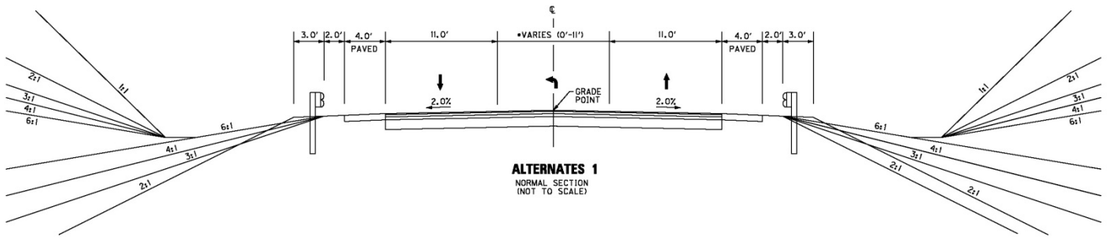
ALTERNATES 4D
CURB & GUTTER
NORMAL SECTION
(NOT TO SCALE)



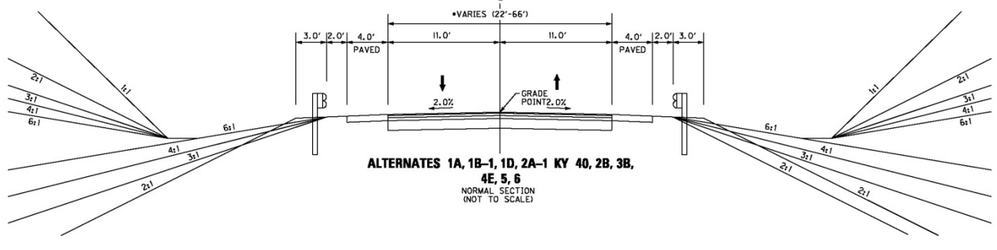
ALTERNATES 1B,1C, 2, 2A, 2A–1
CURB & GUTTER
NORMAL SECTION
(NOT TO SCALE)



ALTERNATES 3A, 10
NORMAL SECTION
(NOT TO SCALE)



ALTERNATES 1
NORMAL SECTION
(NOT TO SCALE)



ALTERNATES 1A, 1B–1, 1D, 2A–1 KY 40, 2B, 3B, 4E, 5, 6
NORMAL SECTION
(NOT TO SCALE)

* SEE ALTERNATIVE SHEETS
FOR TURN LANE LOCATIONS

KY 321 – JOHNSON COUNTY
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IMPROVEMENT ALTERNATIVES

Figure 15 - Alternative Typical Sections

School and McDonald's was not further considered because of the difficulty in providing access to the school (see Alternative 2A). Absent service to school traffic, a connector between KY 321 and KY 40 this far south would serve little traffic.

- A north-south connector from KY 40 that would utilize West Street and bridge Paint Creek near Mill Branch Road on KY 321 was considered very early. This connector was eliminated from further study due to the dense development and multiple businesses along the north side of the creek.

7.1 No Build

The "No Build" alternative simply assumes that no improvements will be made to the existing section of KY 321 between Milepoints 7.061 and 8.791 other than routine maintenance. Tables 2 through 5 indicate—between the intersection with James Trimble Boulevard (KY 2378) and the entrance to Walmart—projected Levels of Service range from C to F northbound, with the worst levels of service occurring in the afternoon peak hours. Southbound, levels of service are somewhat better in the morning peak times, especially south of the entrance to McDonald's, but break down north of James Trimble Boulevard (KY 2378) in the afternoon peak hours.

Absent any corrective actions, crash rates would likely remain high or even increase.

7.2 Improvements to Existing KY 321

7.2.1 Alternative 4: Five Lane KY 321 from KY 2378 (James Trimble Blvd) to KY 40

To meet the Purpose and Need and the goals for the project, a five-lane alternative with a center two-way left turn lane and eastside sidewalk was evaluated. In the design year, this alternative would improve KY 321 intersection delay or v/c ratio for 32 KY 321 both through and turning intersection movements in the AM and PM peak hours.

At James Trimble Boulevard (KY 2378) travelling southbound, a dedicated left turn lane may be required. Currently the left turn lane provided is too short (220 feet of storage) especially in the AM Peak where traffic backs up at least 11 vehicles.

KYTC owns much of the right of way through the area, which would help reduce costs. This was also the preferred alternative of the Stakeholders.

If this alternative were pursued, more in-depth access management study and signal timings would be necessary. A two-way left turn lane was used for cost estimating purposes however; a different typical section that varies the median type may also be used.

7.2.2 Alternative 4A: Right In/Right Out Only at McCloud Drive

This alternative examines the possibility of making the intersection of KY 321 and McCloud Street a right in/right out access only. It would eliminate left turns at the non-signalized intersection. The existing traffic at this intersection was not counted because initially traffic was observed as minimal. However, nine months into this study, Wendy's has moved to this location. In addition, during the second Stakeholders' meeting, a representative of the developer for this area stated they are currently working with a realtor for a restaurant on the former HRMC clinic property and have previously discussed a possible hotel on the current farm supply property. Their concern is this alternative would force traffic to the Walmart traffic signal, which in turn would adversely affect these businesses as well as the new Wendy's location, Marathon convenience store and City National Bank. Without a northbound left turn at the current entrance, traffic would have to go up to the Walmart parking lot, turn around and come back down to the traffic signal to go northbound on KY 321. An analysis of the traffic from trip generation tables for the development that is existing and proposed, for current year would result in a LOS F for the left turns both into and out of McCloud Street. These results are shown in Appendix F.

7.2.3 Alternative 4C: Right Turn Lanes at Various Intersections

As discussed in Section 6.4 of this study, for the intersections counted, there are four KY 321 right turn lanes warranted today in at least one peak hour, and an additional four right turn lanes in the design year. Right turn lanes will improve the operation of some movements for those intersections. Overall at least 11 KY 321 movements will be improved with eight right turn lanes. However, they do not meet all goals including provision of pedestrian access. They will also require reconstruction if overall widening of KY 321 were to be implemented at some point in the future.

7.2.4 Alternative 4D: Additional Southbound Lane and Exclusive Right Turn Lane on KY 321 from KY 40 past Walmart

Alternative 4D was developed as a low-cost alternative that would improve congestion, at a major intersection on KY 321. Currently, traffic traveling eastbound on KY 40 turning south onto KY 321 must make three decisions at one point: 1) whether to turn left 2) whether to turn right, 3) and how to merge from two lanes to one lane. This combination creates a bottleneck. This alternative provides additional lanes to move the merge to a lesser congested intersection by adding a dedicated SB through and a dedicated SB right turn lane to the first Kmart intersection.

7.2.5 Alternative 5: Four-Lane KY 321 from James Trimble Boulevard (KY 2378) to Mill Branch Road then Transition to Three-Lanes South to KY 321X

Alternative 5 widens KY 321 to four lanes from James Trimble Boulevard (KY 2378) south to Mill Branch Road. Due to terrain and lack of development on the west side, providing for four lanes minimizes the amount of steep hillside cut and renders a

center turn lane unnecessary. At the second Project Team Meeting, it was decided to transition to three lanes at Mill Branch Road to allow for a center left turn lane due to development at Mill Branch Road South and it makes for a logical transition to the existing three lane section south of KY 321X. Most widening would need to be into the hillside (west side) due to the proximity of Paint Creek east of KY 321. This alternative reduces delay or v/c ratios on 3 KY 321 movements.

This section does have a forecasted ADT of approximately 5,000-6,000 lower as compared to the adjacent section north of James Trimble Boulevard (KY 2378). Crashes do not appear to be an issue south of James Trimble Boulevard (KY 2378) either.

7.3 Other Options for Relieving Traffic on KY 321

7.3.1 Alternatives 4B, 4B-1, and 4B-2: Frontage Road East of, and Parallel to, KY 321

Currently a private frontage road parallels KY 321 from McDonald's to Arby's. This alternative would extend that frontage road to Lowe's behind Hardee's to the north and potentially close the unsignalized intersection between Burger King and Long John Silver's. Traffic counts were not made at this location, therefore, delays and or impacts are only estimated.

7.3.2 Alternative 4E: Merge Kmart and Walmart Entrance to KY 321

This alternative is in an effort to close several entrances on KY 321. It would connect the existing Walmart and Kmart entrances and allows closure or at least a right in/right out scenario for the first Kmart entrance. Signal timings would need to be adjusted at the Walmart signal and Kmart may lose some parking and internal circulation. Signing may have to be erected for Kmart and Food Lion customers. This connection may have to be moved farther toward the rear of the stores due to a berm and large pipe located between the two developments.

7.3.3 Alternative 6: New Connector Extending James Trimble Blvd west from KY 321 to US 23

This alternative was identified at the first Stakeholders' Meeting. Traffic analysis shows that it would remove traffic from KY 321 north of the schools, however, the cost is very high due to terrain.

7.3.4 Alternative 7: New Connector from, and west of, KY 321 Near Mill Branch Road behind Walmart to McCloud Street

This alternative was identified at the first Project Team Meeting in an effort to provide an alternative route to KY 321. This alternative removed traffic from KY 321 from James Trimble Boulevard (KY 2378) north to KY 40. However, it is costly and would closely parallel US 23 which already provides similar relief to KY 321.

7.3.5 Alternative 8: New Connector from, and west of, KY 321 from McCloud Street to KY 40 near Detention Center Road

This alternative was identified in the first Project Team Meeting. As with Alternative

7, it does remove traffic from James Trimble Boulevard (KY 2378) north to KY 40, however, it appears to serve private development. Due to the floodplain and terrain, the cost is expensive. This may be an alternative that would work in conjunction with Alternative 4A long-term.

7.4 Connectors from KY 321 to KY 40 (Alternatives: 1B, 1C, 2A-1, and 2)

For many years, some local leaders felt that an east/west route that would connect KY 321 and KY 40 would improve congestion on KY 321 and provide a back entrance for the schools. Therefore, several locations for connectors were evaluated along with improvements to KY 40 because of those connectors. Connector alternatives are outlined in the following pages 34 through 41. In summary, the connector that would carry the most traffic, likely have the least impacts, provide the most congestion relief for KY 321, and cost the least is Alternative 1B (see page 34), which is located on the south side of Lowe's. It removes between 1800 to 2600 vpd from KY 321 and would have a 2035 ADT of 4600 (see Table 6). However, congestion would remain on KY 321 with v/c ratios in excess of 1.0 with excessive delays (see Peak Hour Analysis in Appendix G).

Each connector alternative has accompanying turn lanes or improvement options on KY 40 that would improve their operation. Those improvements are also outlined on pages 34 through 41.

7.4.1 Alternative 9: Pedestrian Bridge from South Side of Lowe's to Teays Branch Road and Pedestrian Improvements to KY 2378 (James Trimble Blvd) at KY 321

These two sites were identified as sites that would be enhanced with pedestrian facilities. James Trimble Boulevard (KY 2378) currently has a 3.9-foot sidewalk behind barrier wall on the bridge over Paint Creek. This sidewalk is in disrepair and is not ADA accessible. There are three options to improve pedestrian movements to KY 321 (see pages 58 and 59).

Table 6: 2035 Traffic Reduction (in vpd) at Select Intersections for Various Alternatives

2035 TRAFFIC REDUCTION ON KY 321 AT SELECT INTERSECTIONS								
SELECT INTERSECTIONS	**ALT 1B**	**ALT 1C**	**ALT 2A-1**	**NO BUILD, ALT 3, ALT 4, & ALT 5**	**ALT 2+3**	**ALT 6**	**ALT 7**	**ALT 8**
NORTH OF WALMART	1800	1170	500	0	850	2950	850	3250
NORTH OF MCDONALDS	2610	2110	650	0	900	3540	900	0
NORTH OF SCHOOL	2500	2000	540	0	900	3000	900	0
NORTH OF 2ND ST/JAMES TRIMBLE BOULEVARD	2550	2050	500	0	1100	0	1100	0
NORTH OF KY 321X	2480	1650	440		1100	0	1100	0

The second site is from Teays Branch Road to the back parking lot of Lowe's. Development on Teays Branch Road includes a potential Pharmacy College, and a possible community center to name a few. Early in 2012, a sidewalk was constructed on Teays Branch Road. A pedestrian crossing directly across from Teays Branch Road would encourage pedestrian trips over to KY 321 rather than motorized trips.

7.5 Other Improvements Considered

7.5.1 Alternative 3A: Relocate KY 40 from W. H. Dixon Blvd to 3rd Street

This alternative addresses the sharp curve behind the hospital by routing KY 40 onto Mill Street and providing for a sidewalk on one side. This alternative does not remove congestion from KY 321 unless it is paired with a connector alternative (Alternative 2). But improves safety of KY 40 and improves access to the hospital (see page 42).

7.5.2 Alternative 3B: Improve Existing Alignment on KY 40 from WH Dixon Blvd to West Street

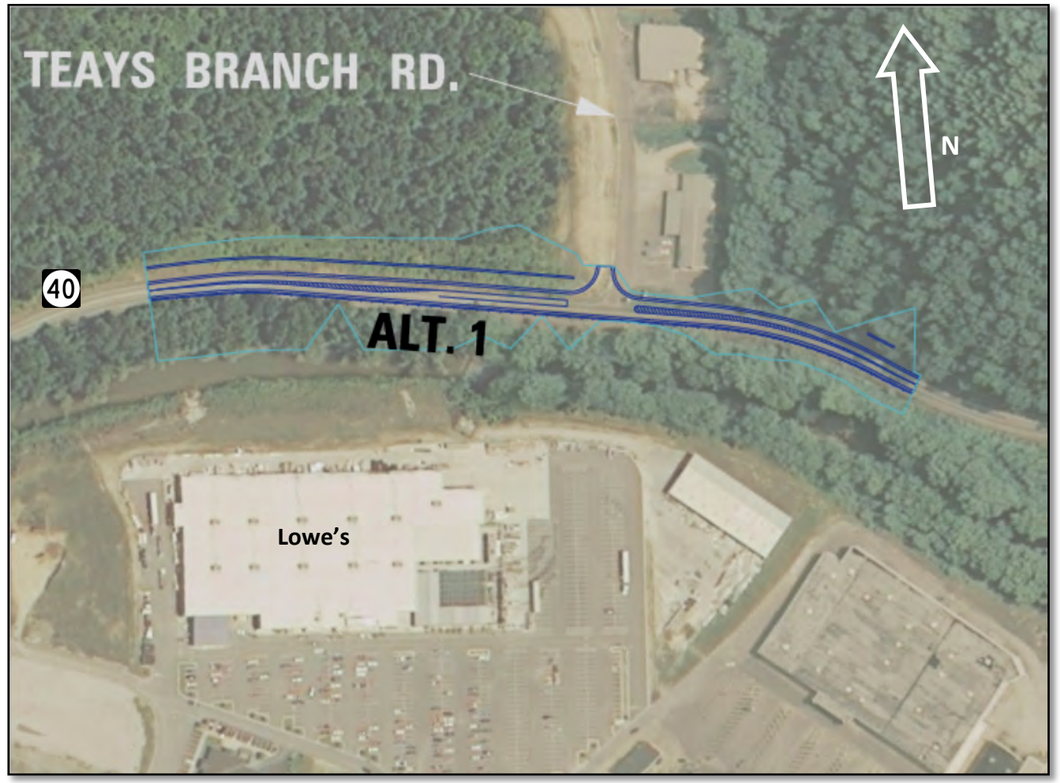
This alternative addresses the sharp curve behind the hospital by purchasing several vacant buildings and removing the blind curve intersection with West Street and KY 40. This alternative does not remove congestion from KY 321 unless it is paired with a connector alternative (Alternative 2). But improves safety on KY 40 and improves access to the hospital (see page 43).

7.5.3 Alternative 1: Left-Turn Lane on KY 40 eastbound to Teays Branch Road

This alternative allows for left turns at Teays Branch Road to improve safety for KY 40 motorists. This alternative does not remove congestion from KY 321 unless it is paired with a connector alternative (Alternative 2), but improves safety of KY 40 and access to new development.

7.5.4 Alternative 10: Improve Existing Alignment on KY 40 from near KY 321 to Alternative 3A or 3B

Because KY 40 between West Street and the KY 40/KY 321 Intersection is utilized as a "cut through" or alternative route to KY 321 improving KY 40 was considered as possible alternative. This alternative would have to be combined with either Alternative 3A or 3B to be effective. Again, this improvement would not relieve congestion on KY 321, however, would provide an alternate route, and would improve pedestrian movement (see page 60).



ALTERNATIVE 1

LEFT-TURN ON KY 40 EASTBOUND AT TEAYS BRANCH ROAD

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **NO, NO**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **YES**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **NO**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

PURPOSE: To facilitate turning movements into expected development on Teays Branch Road

PROPOSED PROJECT: Construct a left turn lane on eastbound KY 40 at Teays Branch Road

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 1 business, 10" water main, 6" force main wastewater, 2" gas main, 2 fire hydrants, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 1030 left turns

ADVANTAGES: Provides safer access to a new traffic generator on Teays Branch Road

DISADVANTAGES: No congestion relief for KY 321

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Projected safety improvements at KY 40/Teays Branch Road intersection, but no congestion relief on KY 321

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

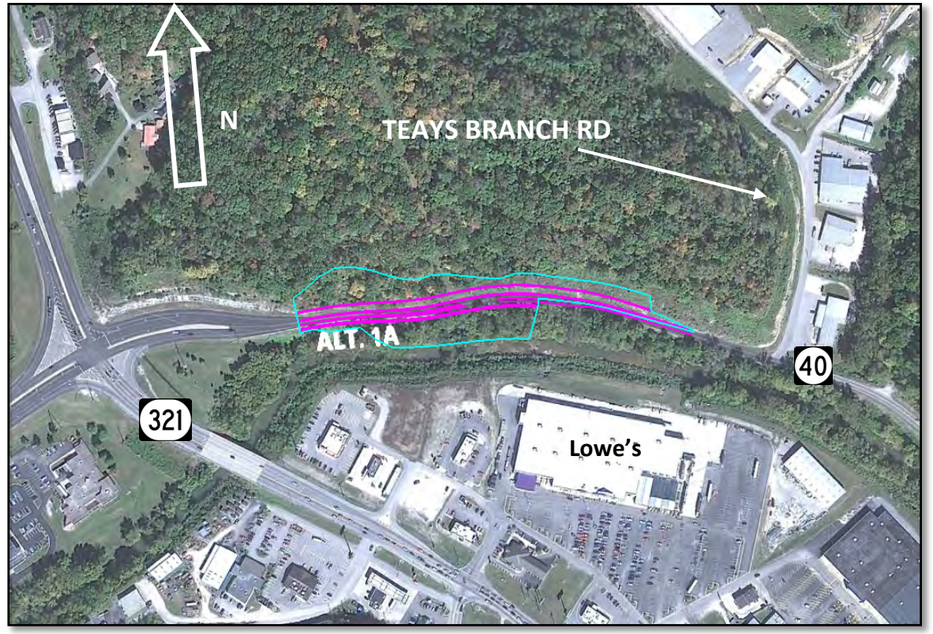
STAKEHOLDER INPUT: Scored 4.50 out of 5.00

RECOMMENDATIONS: Recommended for implementation and is now in KYTC's 2012-2018 Highway Plan as Item Number 12-194 (Construction phase funding not included.)

Alternative 1	
Length	0.30 miles
Design	$500,000*
Right-of-Way	$496,000*
Utilities	$510,000*
Construction	$2,300,000
TOTAL	**$3,806,000**

*Taken from KYTC 2012-2018 Highway Plan

At Teays Branch Road looking north



ALTERNATIVE 1A

IMPROVE KY 40 FROM KY 321 TO LEFT TURN LANE (ALTERNATIVE 1) APPROACHING TEAYS BRANCH ROAD

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: NO, NO
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: YES
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: NO
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: NO
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: NO

PURPOSE: To improve safety from Teays Branch Road to KY 40

PROPOSED PROJECT: Improve KY 40 to 11" lanes and 6" shoulders from Alternative 1 (proposed left-turn lane at Teays Branch Road) to the KY 321/KY 40 intersection (see Figure 15).

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 10" water main, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 10,300 (unaffected by this improvement)

ADVANTAGES: Provides safer access to a major future traffic generator on Teays Branch Road, and provides consistency from KY 321 to Teays Branch Road

DISADVANTAGES: Does not provide congestion relief on KY 321

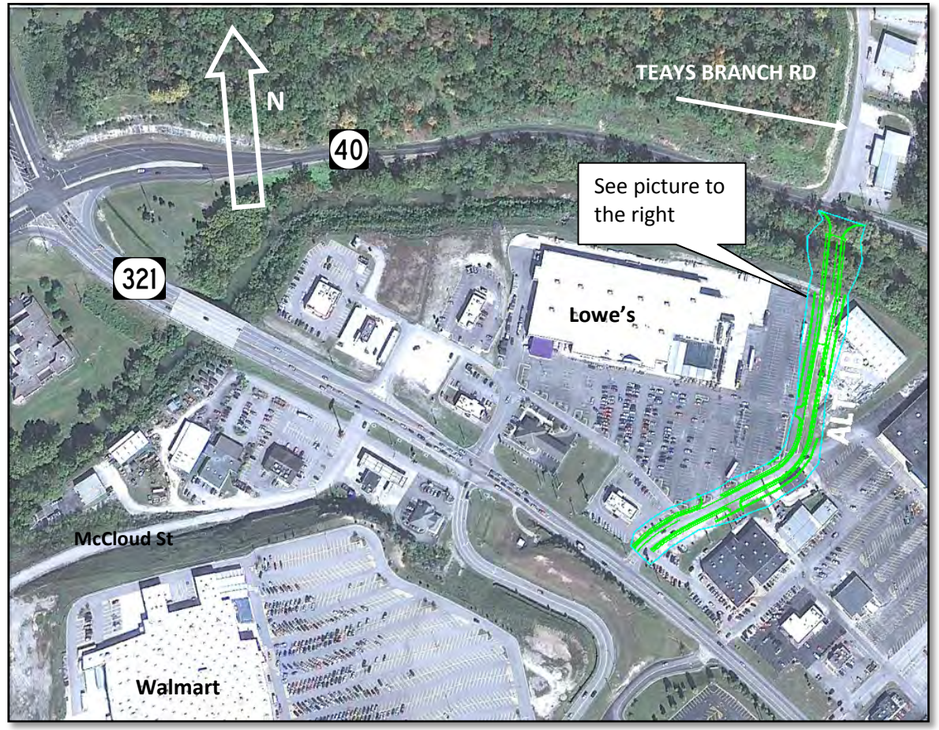
SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential 40% crash reduction for KY 40 between Teays Branch Road and KY 321/KY 40 intersection, but no congestion relief on KY 321

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

STAKEHOLDER INPUT: Scored 3.67 out of 5.00

RECOMMENDATIONS: This alternative would only be implemented if Alternative 1 or 1C were also implemented.

Alternative 1A	
Length	0.30 miles
Design	$200,000
Right-of-Way	$350,000
Utilities	$500,000
Construction	$1,339,000
TOTAL	**$2,389,000**



ALTERNATIVE 1B

CONNECTOR FROM KY 321 ON SOUTH SIDE OF LOWE'S TO KY 40 AT TEAYS BRANCH ROAD

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: YES, YES
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: YES
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: NO
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: NO
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: YES (ON CONNECTOR)

PURPOSE: To provide a more direct connection from Teays Branch Road to KY 321 to serve existing and future development

PROPOSED PROJECT: Construct a connector from KY 321 near the present Hardee's/Big Sandy Superstore entrance to KY 40 at its intersection with Teays Branch Road

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream, is in 100-year flood plain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 4 businesses, 10" water main, lift station, 2 fire hydrants, 6" force main wastewater, 2 6" gas main, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 4600

ADVANTAGES: Provides a shorter connection to KY 321 for Teays Branch Road traffic, reduces congestion on KY 321, fewer floodplains impacts

DISADVANTAGES: Will impact Lowe's internal circulation, places 3 major intersections (KY 40, Walmart, and Alternative 1B) close together on KY 321

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Reduces traffic volumes on KY 321 by between 1800 and 2600 vehicles per day

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 29

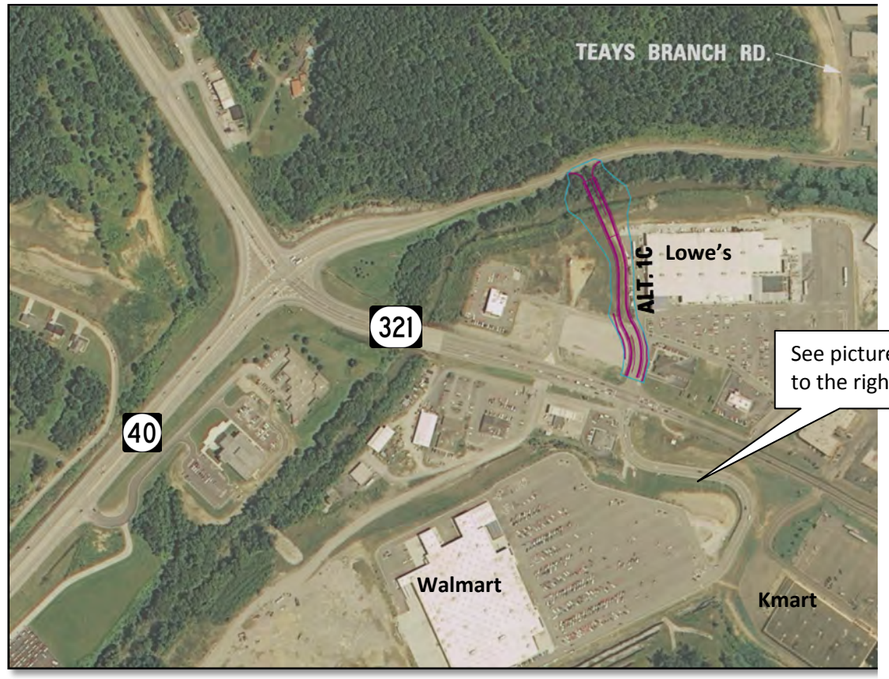
STAKEHOLDER INPUT: Scored 2.25 out of 5.00

RECOMMENDATIONS: Not recommended however, provides the most congestion relief of all KY 321/KY 40 connectors considered

Alternative 1B	
Length	0.24 miles
Design	$640,000
Right-of-Way	$1,203,400
Utilities	$275,000*
Construction	$4,260,000
TOTAL	**$,6378,400**

*Does not include 35% for KYTC personnel

Paint Creek south of the Lowe's building facing KY 321



ALTERNATIVE 1C

CONNECTOR FROM KY 321 ON NORTH SIDE OF LOWE'S TO KY 40 WEST OF TEAYS BRANCH ROAD

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **YES**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **NO**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES (ON CONNECTOR)**

RECOMMENDATIONS: Not recommended

Alternative 1C	
Length	0.18 miles
Design	$630,000
Right-of-Way	$1,590,900
Utilities	$350,000*
Construction	$4,149,000
TOTAL	**$6,719,900**

*Does not include 35% for KYTC personnel

PURPOSE: To provide an additional connection from KY 40 to KY 321

PROPOSED PROJECT: Construct a connector from KY 321 opposite the present Walmart entrance to KY 40 between KY 321 and Teays Branch Road

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream, is in 100-year flood plain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 fire hydrants, 4 businesses, 10" water main, 8" and 12" force main wastewater, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 4300

ADVANTAGES: Provides a shorter connection to KY 321 for Teays Branch Road traffic

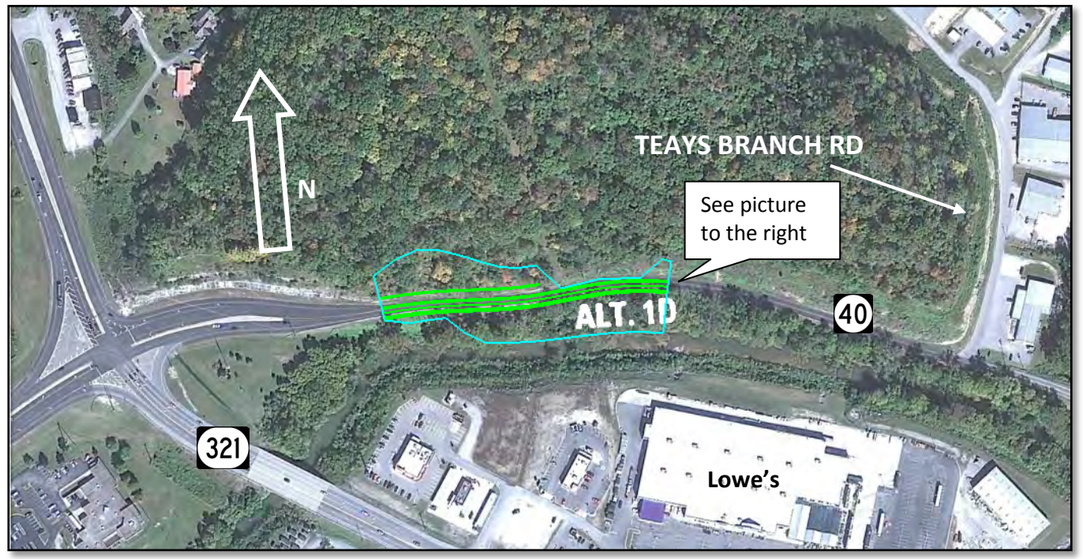
DISADVANTAGES: Places 2 major intersections (KY 40 and Alternative 1C) close together on KY 321

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Reduces traffic volumes on KY 321 by between 1170 and 2100 vehicles per day

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 21

STAKEHOLDER INPUT: Scored 1.50 out of 5.00

A view of KY 321 intersection with Alternative 1C



ALTERNATIVE 1D

IMPROVE KY 40 FROM KY 321 TO ALTERNATIVE 1C

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: NO, NO
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: YES
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: NO
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: NO
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: NO

PURPOSE: To improve safety by providing consistent driver expectation between two other improvements

PROPOSED PROJECT: Improve KY 40 to 11" lanes and 6" shoulders from Alternative 1C (KY 321/KY 40 Connector north of Lowe's) to the KY 321/KY 40 intersection (see Figure 15).

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: Pipelines, 10" water main, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 10,300 (unaffected by only this improvement)

ADVANTAGES: Provides consistency of driver expectations from KY 321 to Alternative 1C

DISADVANTAGES: Provides no congestion relief to KY 321

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: It would improve safety on KY 40 between Alternative 1C and the KY 321/KY 40 intersection, but provide no congestion relief to KY 321

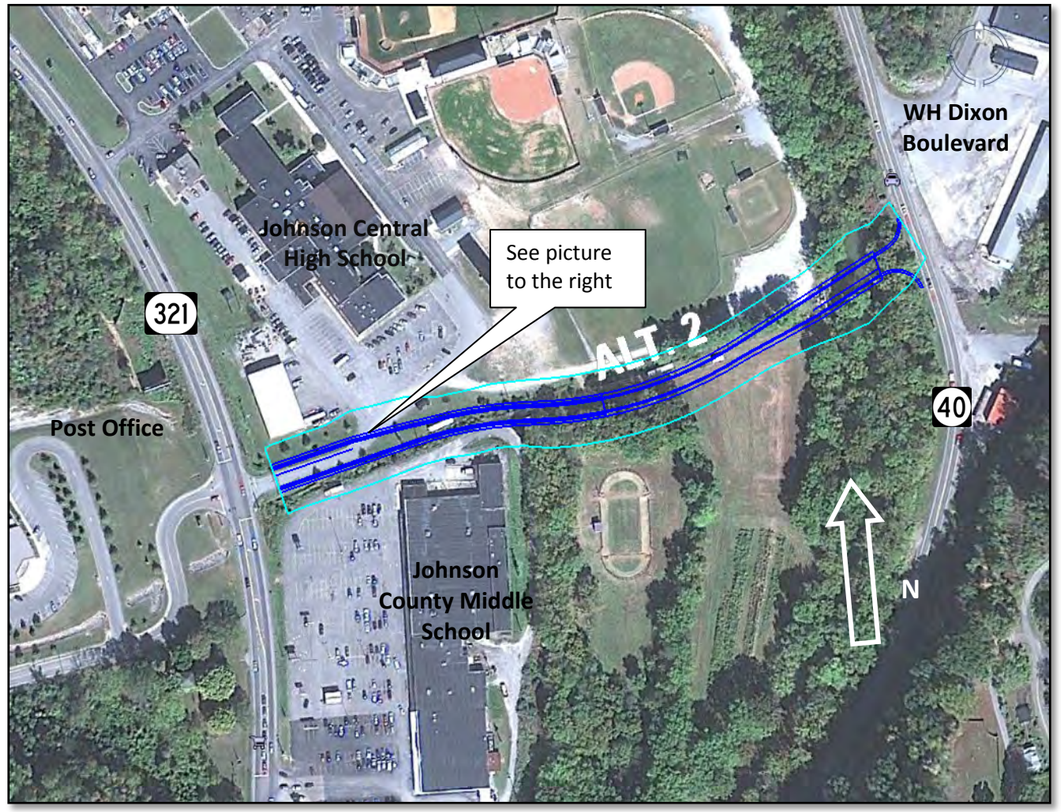
NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

STAKEHOLDER INPUT: Scored 1.50 out of 5.00

RECOMMENDATIONS: This alternative would likely only be developed if Alternative 1C were implemented.

Alternative 1D	
Length	0.15 miles
Design	$100,000
Right-of-Way	$175,000
Utilities	$250,000
Construction	$644,000
TOTAL	**$1,169,000**

Traveling northwest on KY 40 toward KY 321 intersection



PURPOSE: To provide an additional connection from KY 40 to KY 321

PROPOSED PROJECT: Construct a connector from KY 321 opposite the Post Office entrance to KY 40 near WH Dixon Boulevard

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream, located in 100-year flood plain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 1 business, 2 schools, 1 ball field, school traffic internal circulation, 2" and 6" gas main, 8" water main, 8" wastewater main, archaeological potential, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 4300

ADVANTAGES: Additional vehicular and pedestrian access for schools

DISADVANTAGES: Provides less congestion relief to KY 321 than other connector options. The school access to Alternative 2 would require a steeper grade which may affect parking. Alternative 2 must be coupled with either Alternative 3A or 3B to realize congestion relief on KY 321.

ALTERNATIVE 2

KY 321/KY 40 CONNECTOR ON SOUTH SIDE OF SCHOOL COMPLEX OPPOSITE POST OFFICE ENTRANCE

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: YES, YES
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: NO
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: YES
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: YES
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: YES

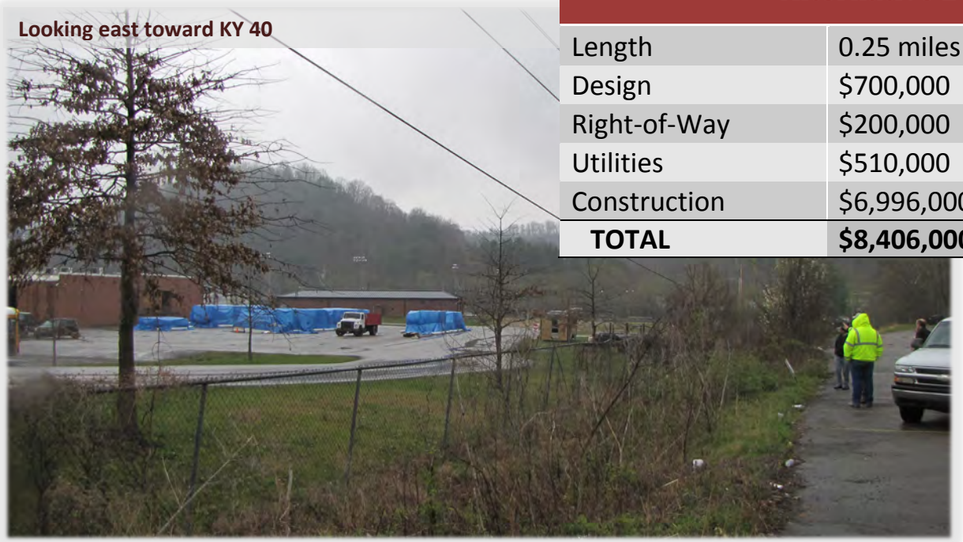
SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Provides slight congestion relief on KY 321 by between 850 and 1100 vehicles daily. The greatest congestion relief on KY 321 would occur south of this connector.

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 15, if coupled with Alternative 3A or 3B

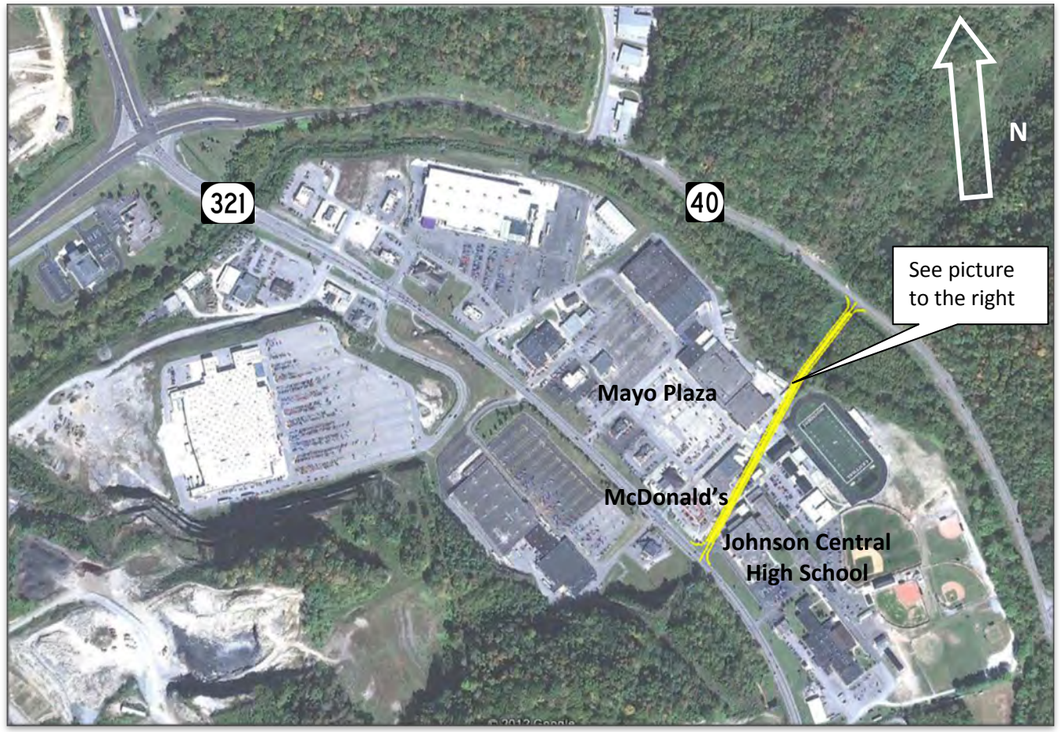
STAKEHOLDER INPUT: Scored 1.75 out of 5.00

RECOMMENDATIONS: Not recommended

Looking east toward KY 40



Alternative 2	
Length	0.25 miles
Design	$700,000
Right-of-Way	$200,000
Utilities	$510,000
Construction	$6,996,000
TOTAL	**$8,406,000**



ALTERNATIVE 2A

KY 321/KY 40 CONNECTOR ON NORTH SIDE OF SCHOOL COMPLEX

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **N/A**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NOT ABLE TO TIE INTO SCHOOL**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **LIMITED**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **LIMITED**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **LIMITED**

PURPOSE: To provide an additional connection from KY 40 to KY 321

PROPOSED PROJECT: Construct a connector from KY 321 just south of McDonald's to KY 40 between Teay's Branch Road and WH Dixon Boulevard

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream; located in 100-year flood plain; floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 1 business, school traffic internal circulation, 2" gas main, 8" water main, 8" wastewater main, archaeological potential

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: Not estimated due to infeasibility

ADVANTAGES: (This alternative not evaluated due to the impacts of the school traffic circulation)

DISADVANTAGES: Would impact internal school traffic circulation and very close to shopping center

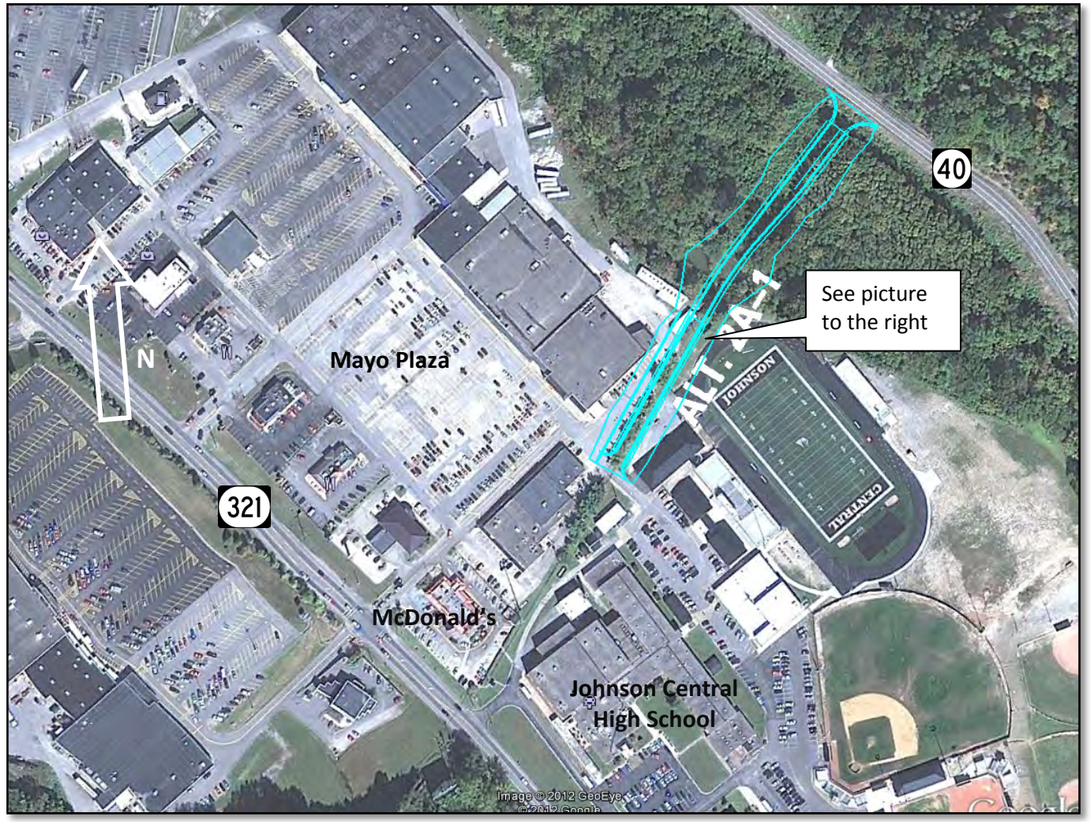
SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Not able to tie into school

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: N/A (Eliminated early in the process)

STAKEHOLDER INPUT: Scored 1.50 out of 5.00

RECOMMENDATIONS: Not feasible without totally disrupting school traffic flow therefore this alternative was eliminated from further consideration early.

Standing near school track/football field looking toward KY 321



ALTERNATIVE 2A-1

SHORTENED KY 321/KY 40 CONNECTOR ON NORTH SIDE OF SCHOOL COMPLEX

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **LIMITED**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **LIMITED**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES (ON CONNECTOR)**

PURPOSE: To provide an additional connection to KY 40

PROPOSED PROJECT: Construct a connector route from the shopping complex behind McDonald's on the north side of KY 321 to KY 40 between Teays Branch Road and WH Dixon Boulevard

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream, located in 100-year flood plain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 businesses; 2" gas main; 8" and 10" water main; 6" force main wastewater; 1 fire hydrant; overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 2200

ADVANTAGES: Provides additional vehicular and pedestrian access but does not impede internal school traffic circulation

DISADVANTAGES: Does not connect directly, or provide pedestrian access to KY 321

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Projected safety improvements at this intersection, but little congestion relief on KY 321 (440-650 vpd)

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 21

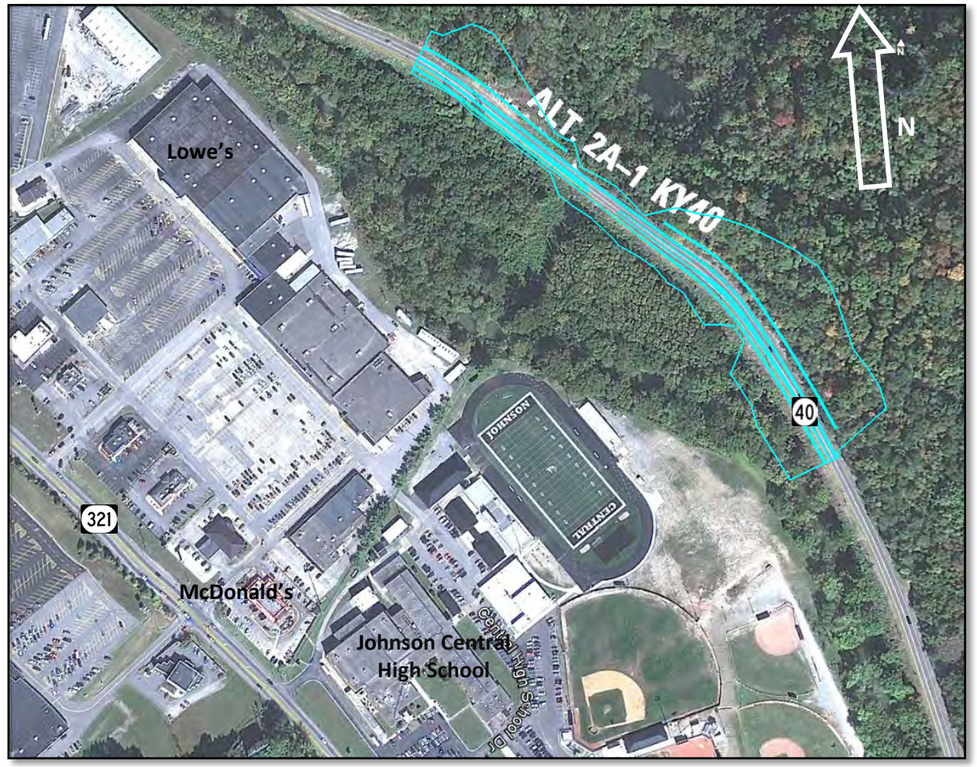
STAKEHOLDER INPUT: Scored 1.75 out of 5.00

RECOMMENDATIONS: Not recommended for implementation due to low traffic volumes expected.

Standing near school track looking toward KY 321

Alternative 2A-1	
Length	0.17 miles
Design	$650,000
Right-of-Way	*
Utilities	*
Construction	$4,400,000
TOTAL	*

*Was not estimated due to little congestion relief for KY 321



ALTERNATIVE 2A-1-KY 40

LEFT TURN LANE ON NORTHBOUND KY 40 AT INTERSECTION WITH ALTERNATIVES 2A AND 2A-1

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **NO, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **LIMITED**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **LIMITED**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES (ON CONNECTOR)**

PURPOSE: To provide improvements to KY 40 in the vicinity of Alternatives 2A and 2A-1 to accommodate the additional traffic either of those connector routes would generate on KY 40

PROPOSED PROJECT: Construct a left-turn lane northbound and a right-turn lane southbound, near the connector route proposed in Alternatives 2A and 2A-1

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: 100 year floodplain, floodway, steep cut slopes

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 10" water main, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 550 left turns

ADVANTAGES: Provides for safer KY 40 turns

DISADVANTAGES: No congestion relief on KY 321

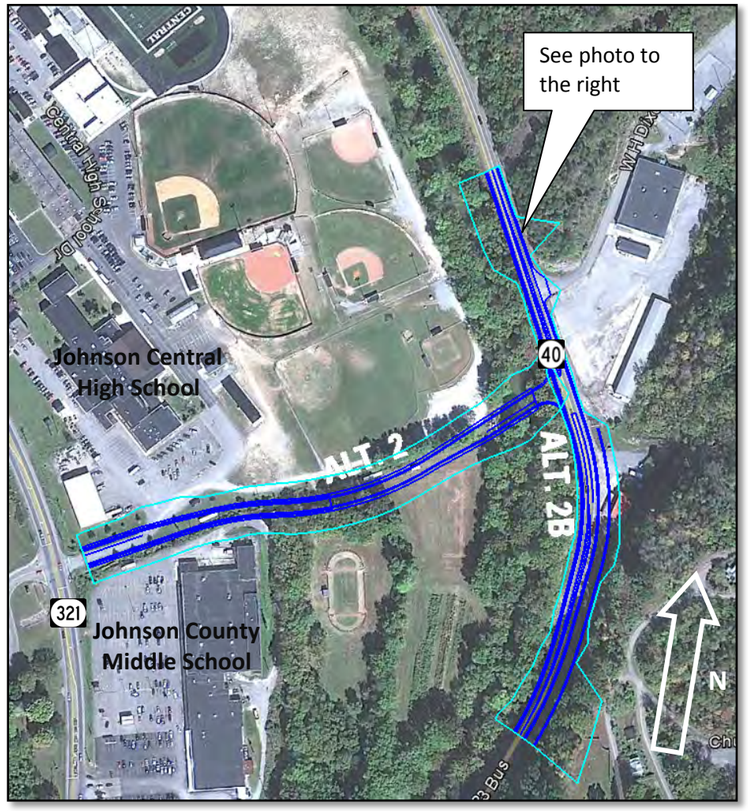
SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Some crash reduction on KY 40 in the vicinity of this improvement; no congestion relief on KY 321

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

STAKEHOLDER INPUT: Scored 1.75 out of 5.00

RECOMMENDATIONS: Not recommended for implementation

Alternative 2A-1-KY40	
Length	0.30 miles
Design	$235,000
Right-of-Way	$150,000
Utilities	$200,000
Construction	$1,585,000
TOTAL	**$2,170,000**



ALTERNATIVE 2B

LEFT TURN LANE ON KY 40 NORTHBOUND AT THE INTERSECTION WITH ALTERNATIVE 2

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **NO, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **LIMITED**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **LIMITED**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES (ON CONNECTOR)**

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0 (without connector)

STAKEHOLDER INPUT: Scored 1.75 out of 5.00

RECOMMENDATIONS: Not recommended for implementation

PURPOSE: To provide improvements to KY 40 in the vicinity of Alternative 2 to accommodate the additional traffic that connector routes would generate on KY 40

PROPOSED PROJECT: Construct a left-turn lane northbound and a right-turn lane southbound, in the vicinity of Alternative 2

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 businesses, 1 cemetery, 10" water main, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 1120 left turns daily

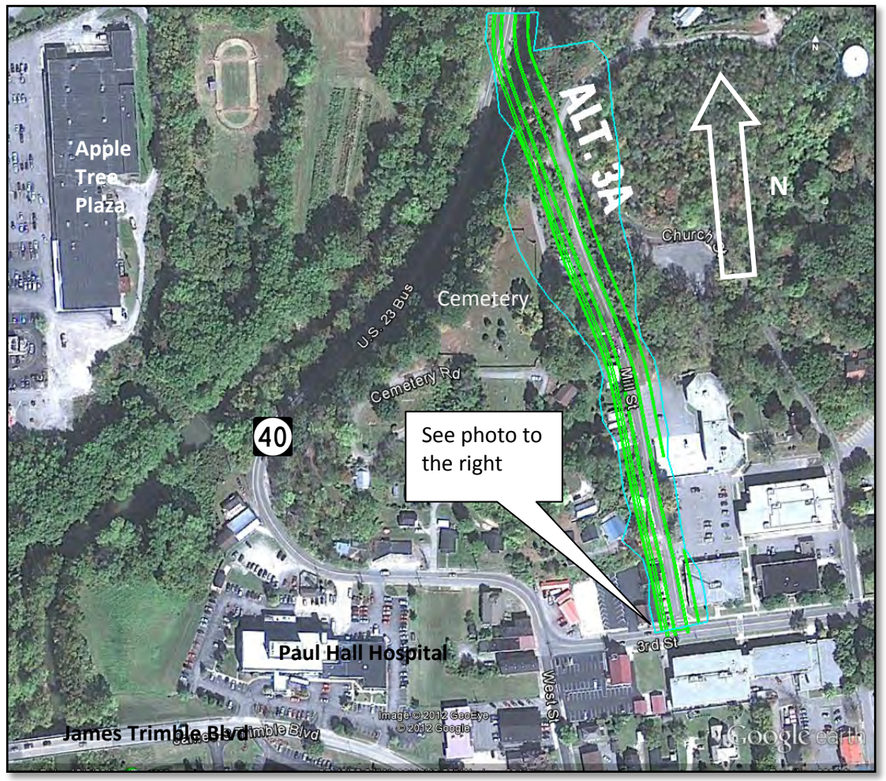
ADVANTAGES: Increased safety on KY 40 in this vicinity

DISADVANTAGES: No congestion relief of KY 321

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential crash reductions on KY 40, but no congestion relief on KY 321

Alternative 2B traveling south on KY 40 at WH Dixon

Alternative 2B	
Length	0.28 miles
Design	$119,000
Right-of-Way	$150,000
Utilities	$200,000
Construction	$793,000
TOTAL	**$1,262,000**



PURPOSE: To improve safety on KY 40 in the vicinity of the Paul Hall Hospital

PROPOSED PROJECT: Reconstruct KY 40 north of the hospital

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 businesses, 8 residences, cemetery, 10" water main, 6" force main wastewater, 2" gas line, fire hydrant

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 9300 (with Alternative 2)

ADVANTAGES: Improves a less than desirable curve and adds pedestrian movement. However, to be effective with pedestrian movement it must be coupled with Alternative 2.

DISADVANTAGES: Requires business and residential impacts; has steep cut slopes and the new alignment will have a steeper grade. It also cuts off access to Church Street at the very top of the hill that will need to access their property from WH Dixon Boulevard and may impact the cemetery. It must be coupled with Alternative 2 to realize any congestion improvement on KY 321.

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential 40% reduction in crashes; congestion relief on KY 321 (850 to 1100 vehicles daily) if coupled with Alternative 2.

ALTERNATIVE 3A

IMPROVEMENTS TO KY 40 NEAR HOSPITAL ON NEW ALIGNMENT

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES*, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES, IF COUPLED WITH ALTERNATIVE 2**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **YES**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

*ONLY IF COUPLED WITH ALTERNATIVE 2 CONNECTOR

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 15 (only if coupled with Alternative 2 Connector)

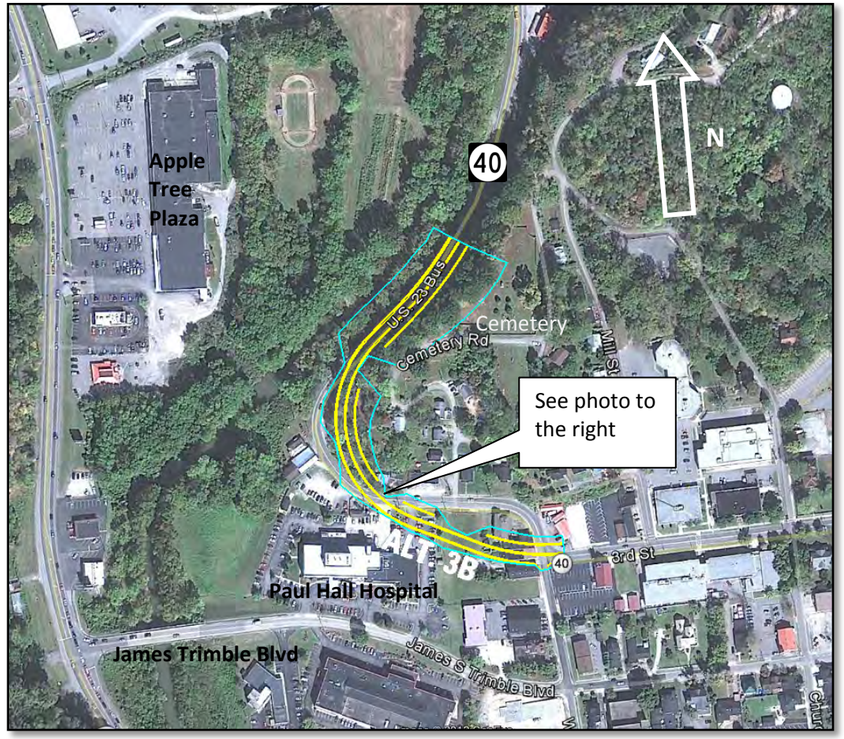
STAKEHOLDER INPUT: Scored 1.75 out of 5.00

RECOMMENDATIONS: Not recommended for implementation

Alternative 3A north on Mill Street

Alternative 3A	
Length	0.26 miles
Design	$450,000
Right-of-Way	$5,104,800
Utilities	$240,000*
Construction	$3,000,000
TOTAL	**$8,794,800**

*Does not include 35% for KYTC personnel



PURPOSE: To improve safety on KY 40 in the vicinity the Paul Hall Hospital

PROPOSED PROJECT: Construct geometric improvements to KY 40 in the vicinity of the hospital

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 1 business, 2 residences, 4 empty buildings, hospital parking lot, cemetery, 8" water main, 2" gas main, 3 fire hydrants, overhead utilities on south side of KY 40

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 9300 (with Alternative 2)

ADVANTAGES: Improves a less than desirable curve and adds pedestrian movement. However, to be effective with pedestrian movement it must be coupled with Alternative 2.

DISADVANTAGES: Requires some of the hospital parking lot, purchasing some vacant buildings, and will impact one business and residential properties. It must be coupled with a connector to realize any minimal congestion improvement on KY 321.

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential reduction in crashes up to 50%; congestion relief on KY 321 if coupled with Alternative 2.

ALTERNATIVE 3B

IMPROVEMENTS TO KY 40 NEAR HOSPITAL ALONG EXISTING ALIGNMENT

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: YES*, YES
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: NO
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: YES, IF COUPLED WITH ALTERNATIVE 2
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: YES
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: NO

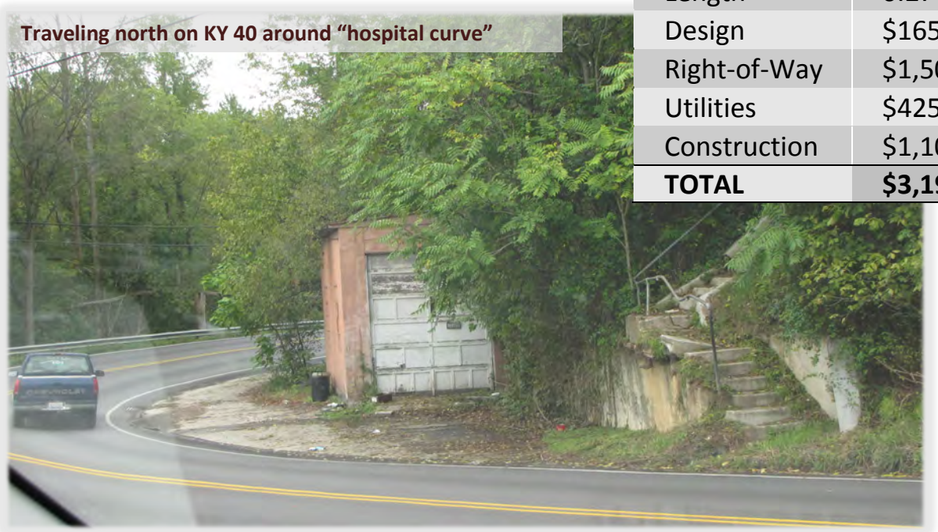
*ONLY IF COUPLED WITH ALTERNATIVE 2 CONNECTOR

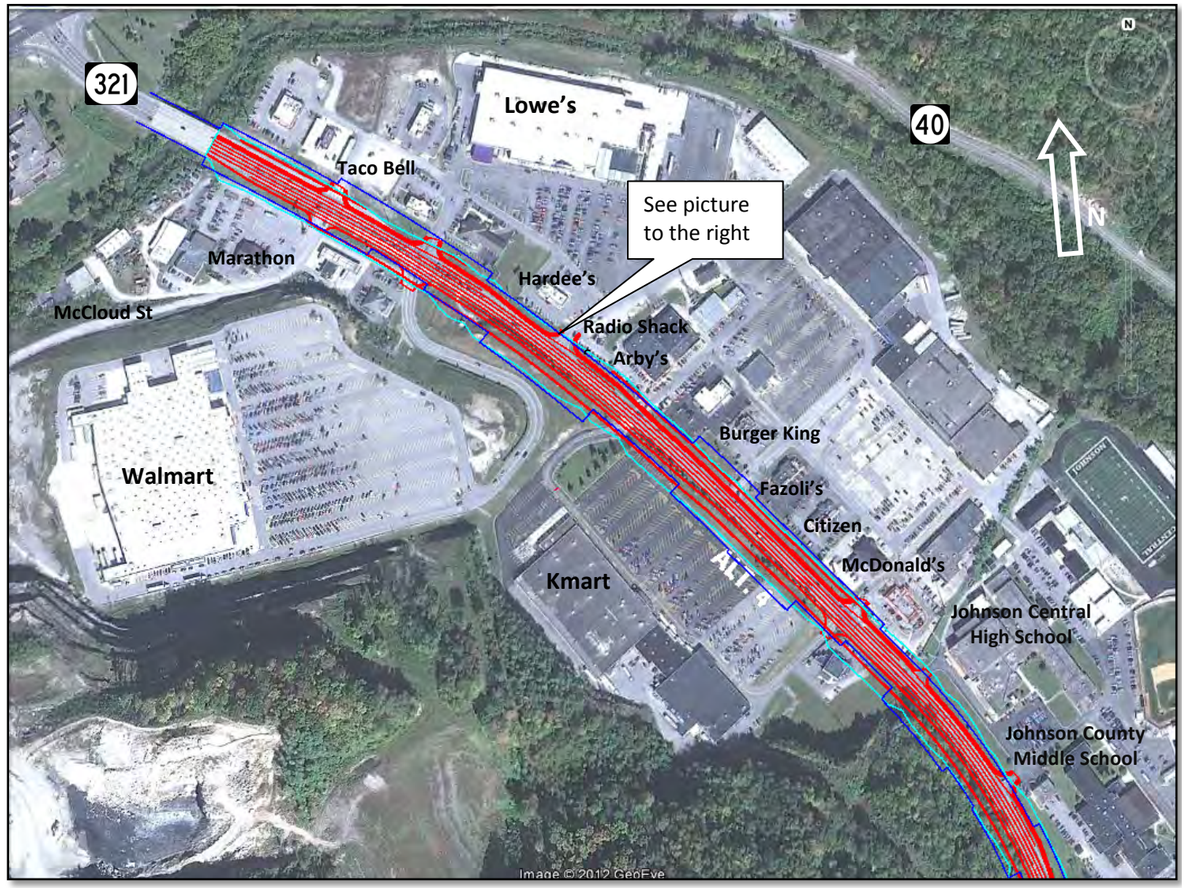
NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 15 (only if coupled with Alternative 2 Connector)

STAKEHOLDER INPUT: Scored 2.50 out of 5.00

RECOMMENDATIONS: Not recommended at this time

Alternative 3B	
Length	0.27 miles
Design	$165,000
Right-of-Way	$1,500,000
Utilities	$425,000
Construction	$1,100,000
TOTAL	**$3,190,000**


Traveling north on KY 40 around "hospital curve"



ALTERNATIVE 4

RECONSTRUCT KY 321 TO FIVE LANES FROM JAMES TRIMBLE BOULEVARD TO KY 40

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **YES**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES**

PURPOSE: To reduce congestion on a portion of KY 321

PROPOSED PROJECT: Reconstruct KY 321 to five lanes (4 lanes with center left turn lane) from James Trimble Boulevard north to KY 40

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 21 businesses, 2 residences, pipelines, 8" water and wastewater main, 2" and 6" gas main, water pump station, overhead utilities on both sides

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 18,100-22,200 (highest volumes just south of KY 40/KY 321 intersection and near schools)

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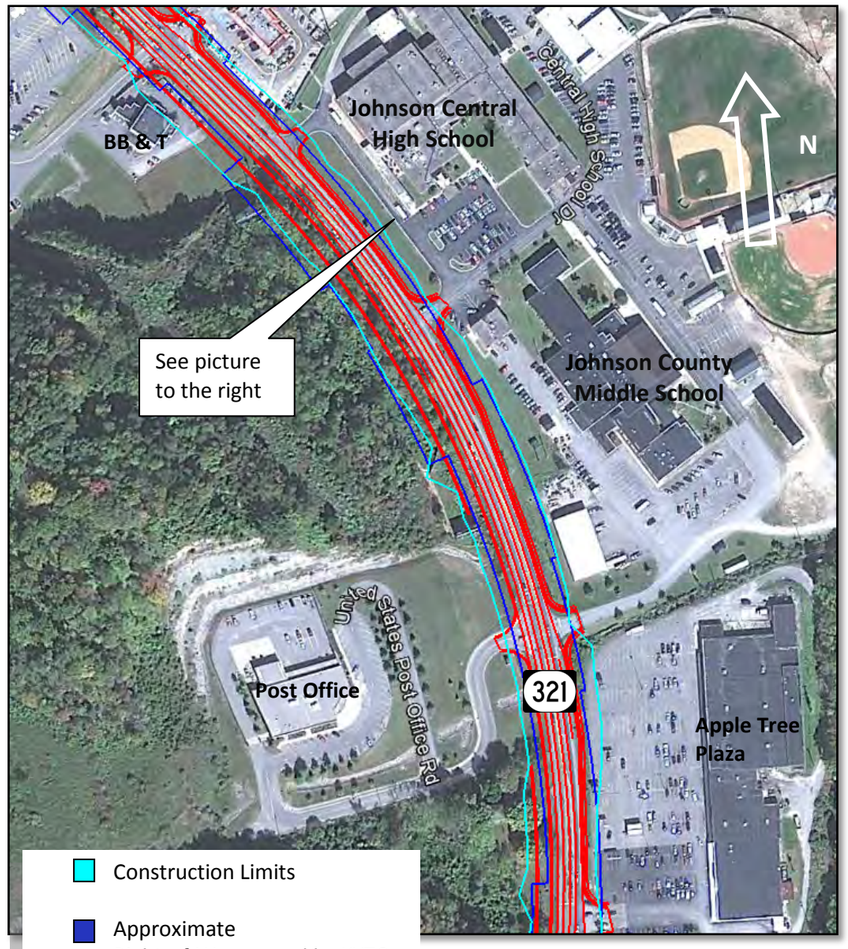
Traveling south on KY 321



ALTERNATIVE 4 (CONTINUED)

RECONSTRUCT KY 321 TO FIVE LANES FROM JAMES TRIMBLE BOULEVARD TO KY 40

STAKEHOLDER INPUT: Scored 5.00 out of 5.00

RECOMMENDATIONS: Recommended for implementation. If this project must be split into two construction segments, it is recommended that the break be at the school bus exit road.

ADVANTAGES: Reduces congestion by adding through lanes, adds safe pedestrian movement along the corridor, KYTC owns much RIGHT-OF-WAY along the corridor

DISADVANTAGES: Business impacts, right-of-way impacts, high utility costs

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential 25% reduction in crashes if right-turn lanes are included, provides congestion relief on KY 321 north of James Trimble Boulevard

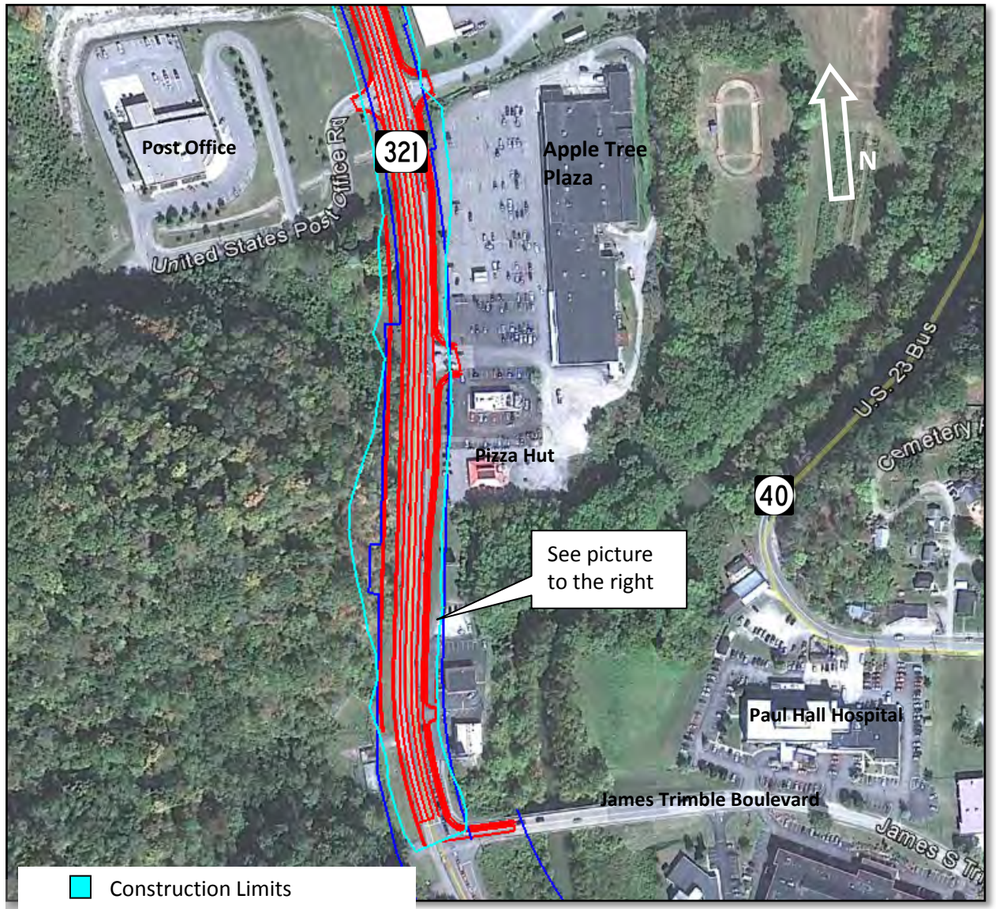
NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 32

(CONTINUED ON NEXT PAGE)

Traveling north on KY 321 near Johnson Central High School and McDonald's

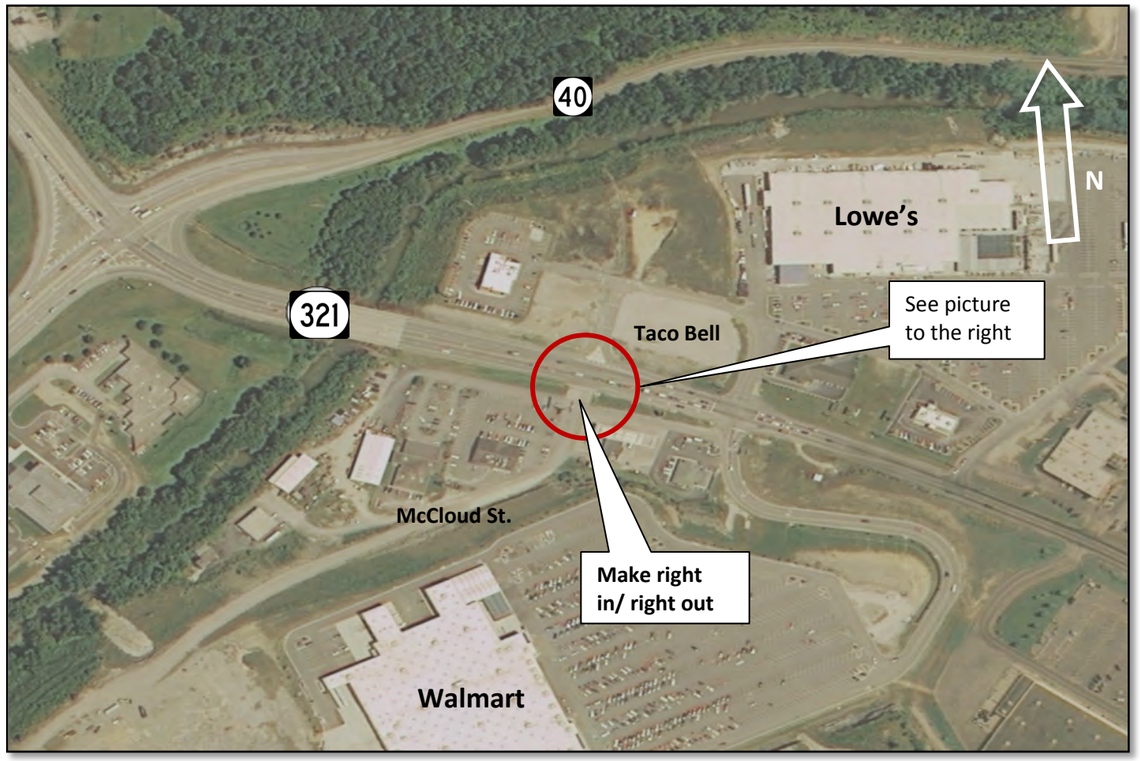
ALTERNATIVE 4 (CONTINUED)

RECONSTRUCT KY 321 TO FIVE LANES FROM JAMES TRIMBLE BOULEVARD TO KY 40



Alternative 4	
Length	1.01 miles
Design	$1,250,000
Right-of-Way	$4,250,000
Utilities	$2,200,000
Construction	$8,236,000
TOTAL	**$15,936,000**

Just north of James Trimble Boulevard traveling southbound



ALTERNATIVE 4A

RIGHT IN/RIGHT OUT ONLY TURN CONFIGURATION ON KY 321 AT McCLOUD DRIVE

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **MINIMAL, NO**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **NO**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

PURPOSE: To reduce congestion on a portion of KY 321

PROPOSED PROJECT: Convert existing intersection of KY 321 and McCloud Drive to right in/right out only

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Minimal

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 5 businesses, 12" wastewater main, 8" and 12" force main wastewater, 3" and 6" gas main, 1 UST, overhead utilities

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 22,200 on KY 321 (unaffected by this alternative)

ADVANTAGES: Eliminates left turns in a congested area

DISADVANTAGES: Left turning vehicles will have significant adverse travel distance, not desired by developer. Will require left turners to turn right on Walmart Road go to the top of the hill, turn around and come back down. If further development occurs on McCloud Street this may not be a viable option due to the number of left turns.

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential crash reduction if right-turn lanes are included; minimal congestion relief on KY 321 at McCloud Street. This alternative actually causes more congestion at the Walmart/KY 321 intersection.

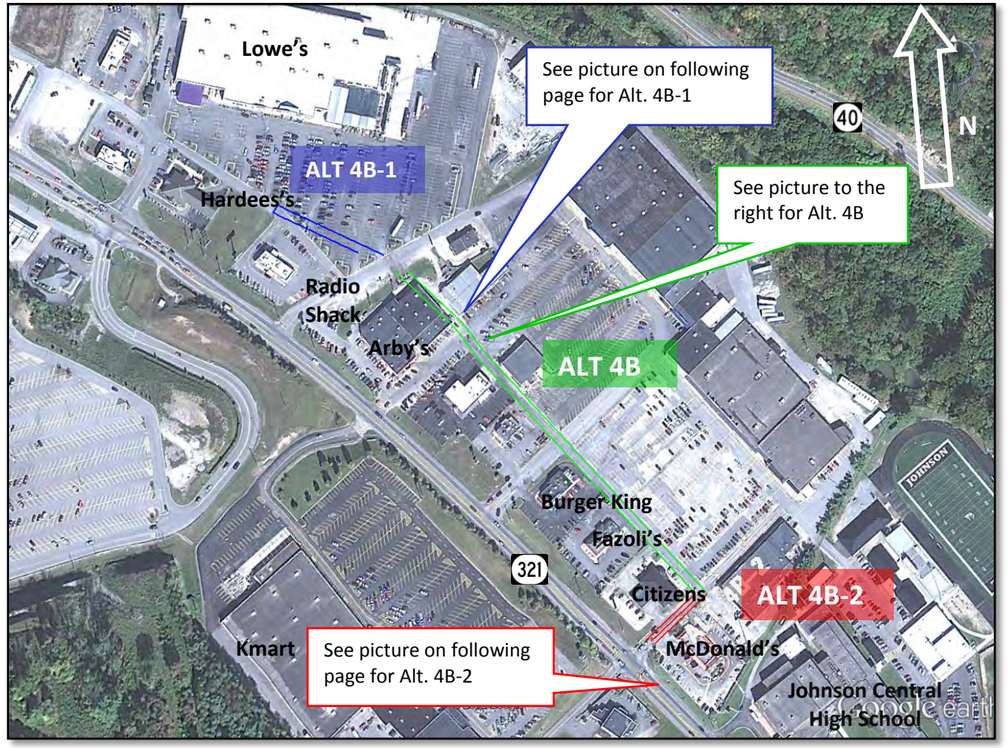
NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 1

STAKEHOLDER INPUT: Scored 3.75 out of 5.00

RECOMMENDATIONS: Recommended short-term

Approaching intersection for Alternative 4A

Alternative 4A	
Length	N/A
Design	$30,000
Right-of-Way	$30,000
Utilities	$60,000
Construction	$200,000
TOTAL	**$320,000**



ALTERNATIVE 4B, 4B-1, 4B-2

ACCESS ROAD THAT PARALLELS KY 321

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **NOT ESTIMATED**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **MINIMAL**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

PURPOSE: To reduce congestion along a portion of KY 321

PROPOSED PROJECT: Implement a frontage road north of KY 321 opposite Kmart and Walmart through striping, purchase of one business and a portion of the Lowe's parking lot, and traffic control modifications Possible closure of KY 321 Burger King entrance.

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: 100 year floodplain

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 3 businesses, 8" water and wastewater main

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: Not available

ADVANTAGES: Most of the route exists, just restriping and traffic control would be necessary. It provides minimal congestion relief for KY 321

DISADVANTAGES: Impacts 3 businesses; would have to be implemented by local businesses/developers

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Access management should mitigate congestion and reduce crashes on KY 321, but no quantifiable estimate was made

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Alternative 4B-1 Lowe's parking impact traveling 4B to 4B-1

ALTERNATIVE 4B, 4B-1, 4B-2 (CONTINUED)

ACCESS ROAD THAT PARALLELS KY 321

RECOMMENDATIONS: Should be considered if improvements to KY 321 are advanced

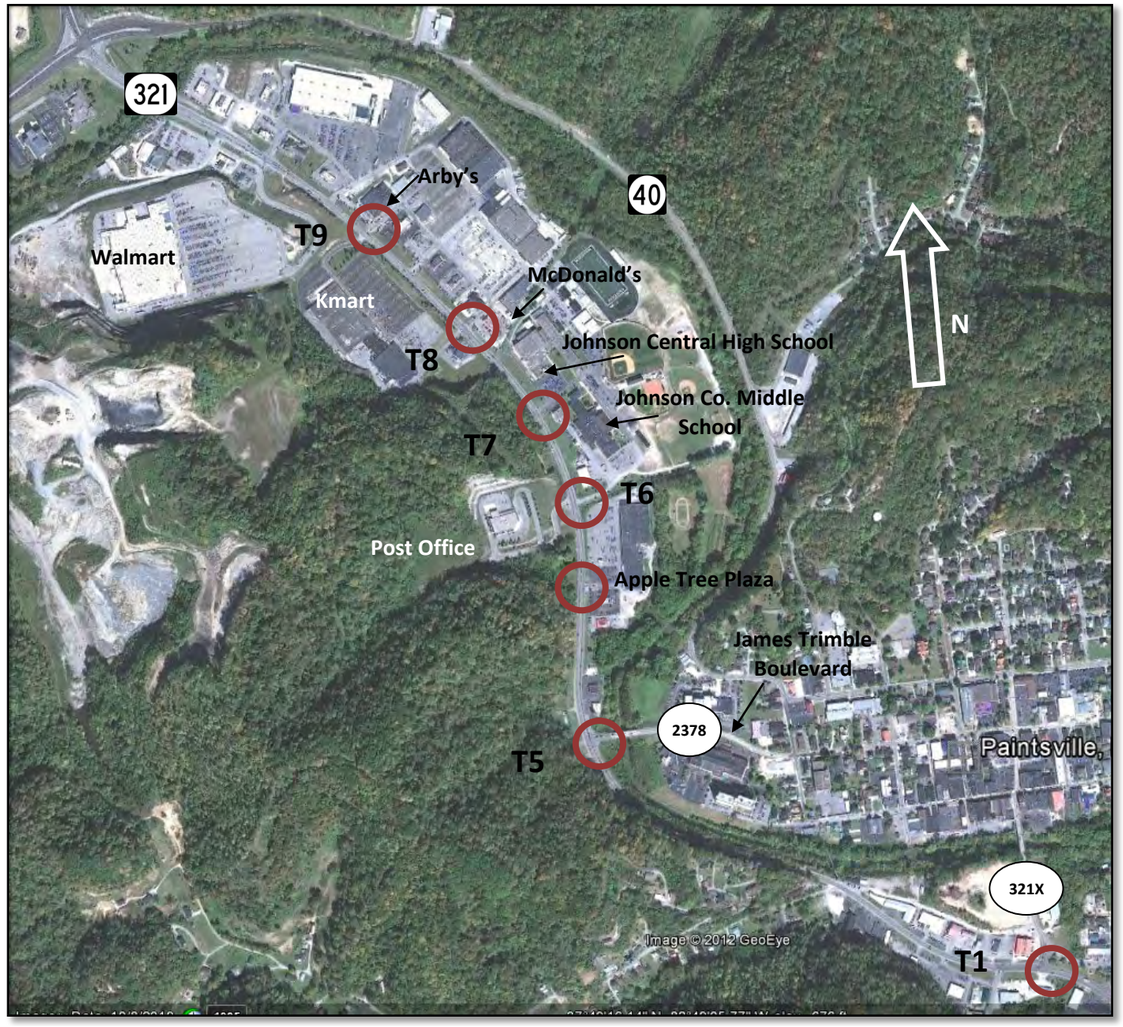
NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: Did not count traffic to determine the impacts

STAKEHOLDER INPUT: Scored 2.75 out of 5.00

Alternative 4B, 4B-1, 4B-2	
Length	0.50 miles
Design	$75,000
Right-of-Way	$7,985,200
Utilities	$300,000*
Construction	$500,000
TOTAL	**$9,182,200**

*Does not include 35% for KYTC personnel

Alternative 4B-2 Intersection where Alternative 4B-2 exists



ALTERNATIVE 4C

CONSTRUCT RIGHT TURN LANES ON KY 321 AT SEVEN LOCATIONS

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

PROPOSED PROJECT: Construct right turn lanes on KY 321 at seven locations:

Count Station*	Right Turn Lane Description (Year Warranted)
T9	NB at Arby's (2011 and 2035) SB at Kmart (2035)
T8	NB at McDonald's (2011 and 2035)
T7	NB at Johnson Central High School Drive (2011 AM and 2035)
T6	NB at Johnson County Middle School (2011 AM and 2035) SB at Post Office (2035 PM)
Apple Tree Plaza	Identified through traffic model (2011 and 2035)
T5	NB at James Trimble Boulevard (exists now needs lengthening 2035)
T1	NB at 321X (2035)

*Count Station identified in Appendix E

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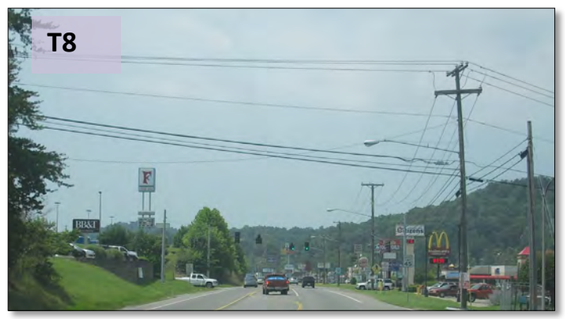
PURPOSE: To reduce congestion along a portion of KY 321



POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Minimal

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 businesses, 3" and 6" gas main, 8" water main, overhead utilities

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 18,100-22,200 (highest volumes just south of KY 40 and near schools)

ADVANTAGES: Improvement in KY 321 congestion for the right turn lane movements for all intersections and some through movements at those intersections, less cost and fewer impacts to businesses than full widening

DISADVANTAGES: Impacts to parking, business fronts, and utilities, if KY 321 is widened the turn lanes would require reconstruction.

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential 25% reduction in crashes at those intersections; congestion relief on KY 321 at those intersections.

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 11

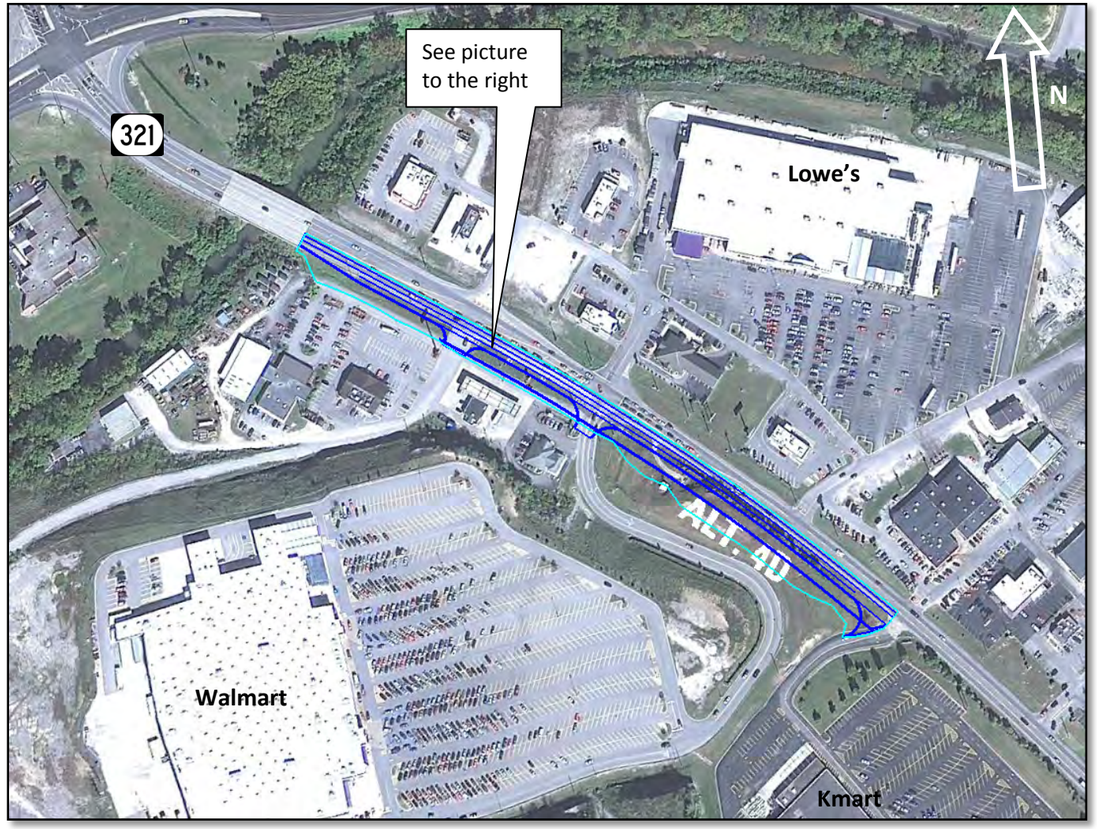
STAKEHOLDER INPUT: Scored 3.25 out of 5.00

RECOMMENDATIONS: Each turn lane would improve traffic flow but would not improve the overall operation of KY 321 to an acceptable level.

ALTERNATIVE 4C
(CONTINUED)
CONSTRUCT RIGHT TURN LANES ON KY 321 AT SEVEN LOCATIONS

Alternative 4C	
Length	0.33 miles
Design	$360,000
Right-of-Way	$1,566,000
Utilities	$350,000*
Construction	$2,400,000
TOTAL	**$4,676,000**

*Does not include 35% for KYTC personnel



ALTERNATIVE 4D

CARRY ADDITIONAL KY 321 SOUTHBOUND LANE AND TURN LANE FROM PAINT CREEK BRIDGE TO KMART ENTRANCE

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

PURPOSE: To reduce congestion along a portion of KY 321

PROPOSED PROJECT: Construct an additional southbound through lane and right turn lane on KY 321 from Paint Creek bridge south to Kmart entrance

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: 100 year floodplain

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 5 businesses, 1 UST, 3" and 6" gas main, 8" wastewater and water main, overhead utilities

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 21,000 on KY 321 in the vicinity of Walmart entrance

ADVANTAGES: Allows KY 40 traffic turning south onto KY 321 to travel south without having to merge until the Walmart traffic has turned right. KYTC owns a portion of the right-of-way. Alleviates motorists' confusion by separating decision points.

DISADVANTAGES: Provides little congestion relief to KY 321 as a whole

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential small reduction in crashes; congestion relief between KY 40 and Kmart entrance

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 1

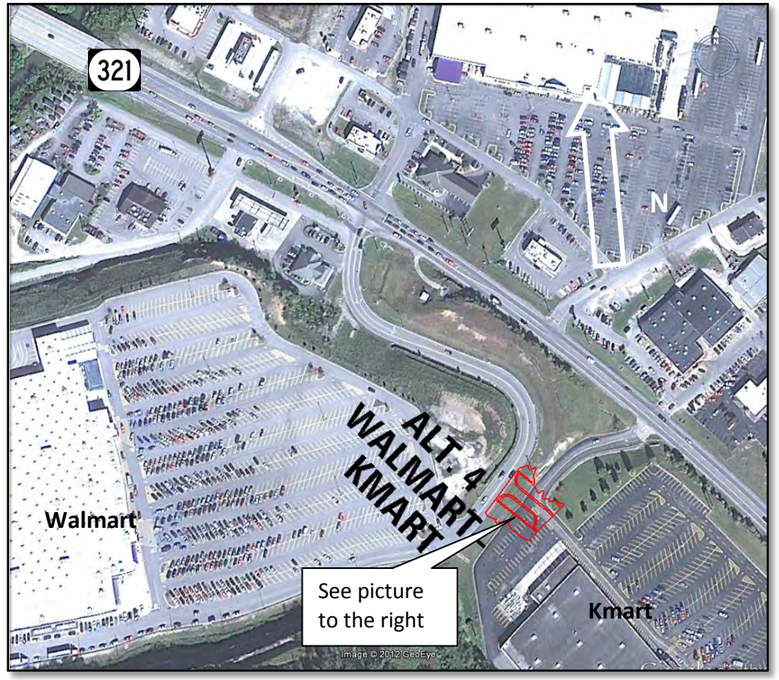
STAKEHOLDER INPUT: Scored 4.75 out of 5.00

RECOMMENDATIONS: Recommended short-term only if alternative 4 is not implemented.

KY 321 south approaching Walmart entrance

Alternative 4D	
Length	0.31 miles
Design	$275,000
Right-of-Way	$777,500
Utilities	$390,000*
Construction	$1,845,000
TOTAL	**$3,287,500**

*Does not include 35% for KYTC personnel



ALTERNATIVE 4E

MERGE KMART AND WALMART ENTRANCE TO KY 321

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **MINIMAL, MINIMAL**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **NO**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

RECOMMENDATIONS: Should be considered if improvements are made to KY 321.

PURPOSE: To improve traffic flow on KY 321 by eliminating one access point

PROPOSED PROJECT: Close separate entrance to Kmart near MP 8.4 and merge Kmart traffic into Walmart entrance

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Minimal

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 businesses, 6” gas main, 8” water main

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 2200

ADVANTAGES: Increases separation between access points on KY 321

DISADVANTAGES: Loss of Kmart parking spaces; need to accommodate more left turns at Walmart entrance. May necessitate the right turn lane at Walmart to be extended; would have to be implemented by local businesses/developers

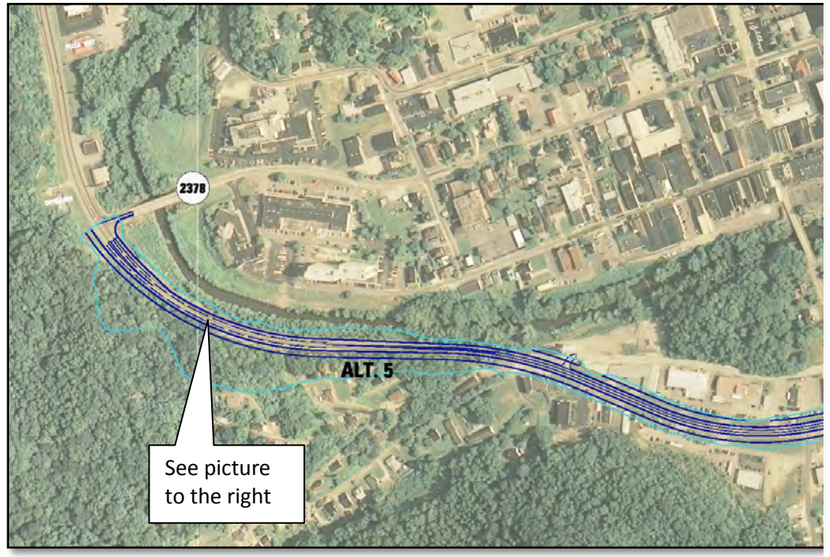
SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Minimal congestion relief on KY 321

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

STAKEHOLDER INPUT: Scored 1.75 out of 5.00

Berm between Walmart and Kmart parking lots

Alternative 4E	
Length	0.04 miles
Design	$13,000
Right-of-Way	$50,000
Utilities	$50,000
Construction	$87,000
TOTAL	**$200,000**



321

ALTERNATIVE 5

RECONSTRUCT KY 321 TO 4 LANES SOUTH OF KY 2378 / JAMES TRIMBLE BOULEVARD TRANSITIONING TO 3 LANES AT SOUTHSIDE DRIVE

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **NO**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **YES**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

PURPOSE: To reduce congestion on KY 321 south of James Trimble Boulevard

PROPOSED PROJECT: Reconstruct KY 321 to four lanes south of James Trimble Boulevard, transitioning to three lanes at Mill Branch Road

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 12 businesses, 1 church, 8 residences, 8” and 12” water main, 2” and 4” gas main, 8” wastewater main, 5 USTs, 2 fire hydrants, overhead utilities

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 16,820

ADVANTAGES: Improves congestion and safety along KY 321 South of James Trimble Boulevard. Will also allow for multiple entrances to be closed at southern end of project on the north side of KY 321

DISADVANTAGES: Requires business and residential impacts, very steep cuts along the southbound side of KY 321.

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Potential 25% crash reduction, congestion relief to KY 321 south of James Trimble Boulevard

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 3

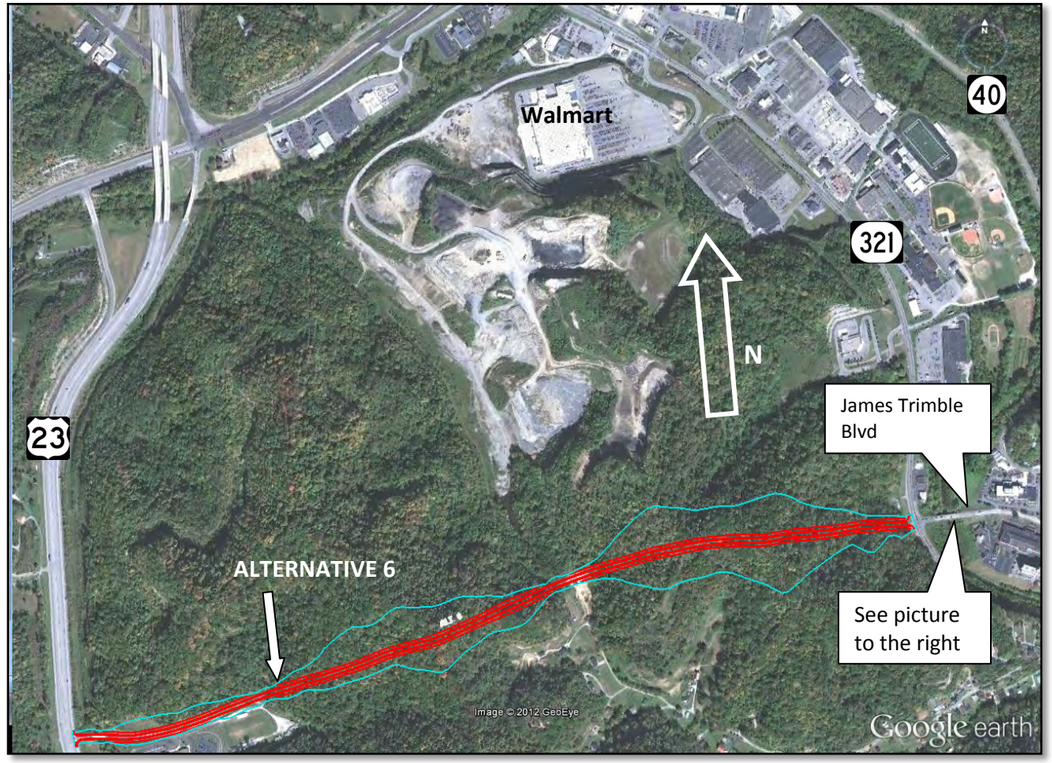
STAKEHOLDER INPUT: Scored 3.80 out of 5.00

RECOMMENDATIONS: Recommended only after Alternative 4 is constructed.

Traveling south on KY 321 south of James Trimble Boulevard

Alternative 5	
Length	0.65 miles
Design	$600,000
Right-of-Way	$2,407,600
Utilities	$880,000*
Construction	$3,955,000
TOTAL	**$7,842,600**

*Does not include 35% for KYTC personnel



ALTERNATIVE 6

EXTEND JAMES TRIMBLE BOULEVARD WEST FROM KY 321 TO US 23

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **YES**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 22

STAKEHOLDER INPUT: Scored 1.50 out of 5.00

RECOMMENDATIONS: Not recommended

PURPOSE: To reduce traffic congestion on KY 321 by diverting through traffic to a new route

PROPOSED PROJECT: Construct a new two-lane route between KY 321 at its intersection with James Trimble Boulevard and US 23 in the vicinity of mile point 6.0, approximately 1 mile south of US 460 interchange

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, 1 wetland

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: Possibly 2 residences, 1 school, 12" water main, pipeline

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 4700

ADVANTAGES: Routes through traffic around congested portion of KY 321 and diverts the most traffic from KY 321

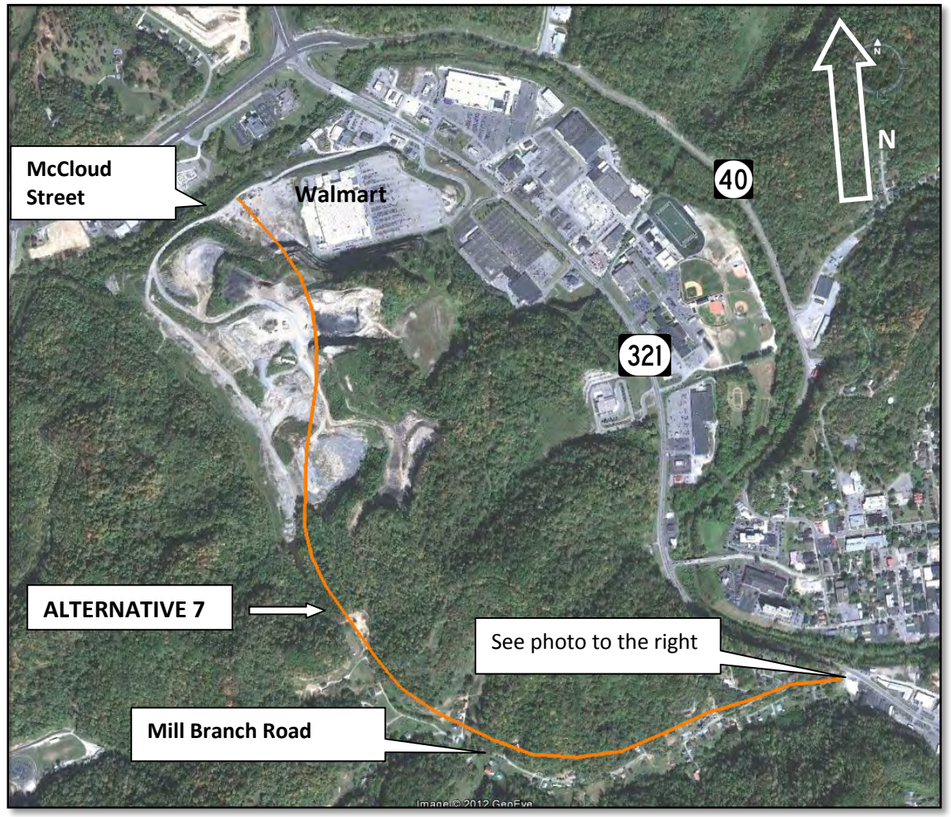
DISADVANTAGES: Added system mileage, costly, steep cuts

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Reduction in KY 321 congestion north of school complex by between 2950 and 3540 vehicles daily

Alternative 6	
Length	1.34 miles
Design	$1,500,000
Right-of-Way	$805,000
Utilities	$200,000*
Construction	$46,845,000
TOTAL	**$49,350,000**

*Does not include 35% for KYTC personnel

Looking west from James Trimble Boulevard – Alternative 6 is straight ahead



ALTERNATIVE 7

CONSTRUCT A KY 321 "BYPASS" FROM VICINITY OF MILL BRANCH ROAD TO McCLOUD STREET EXTENDED

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **YES, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **NO**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **YES**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **NO**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **NO**

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 19

STAKEHOLDER INPUT: Scored 1.25 out of 5.00

RECOMMENDATIONS: Eliminated early from consideration due to length and high cost.

PURPOSE: To reduce traffic congestion on KY 321 by diverting through traffic to a new route

PROPOSED PROJECT: Construct a new route between KY 321 near Mill Branch Road and McCloud Street extended

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses streams, 1 wetland, coal seams, 100 year floodplain

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 20 residences, pipeline, 8" water and wastewater main, 2" gas main, potential archaeology concerns, 1 wetland

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 2300

ADVANTAGES: Through traffic bypasses commercial strip, diverts traffic from KY 321

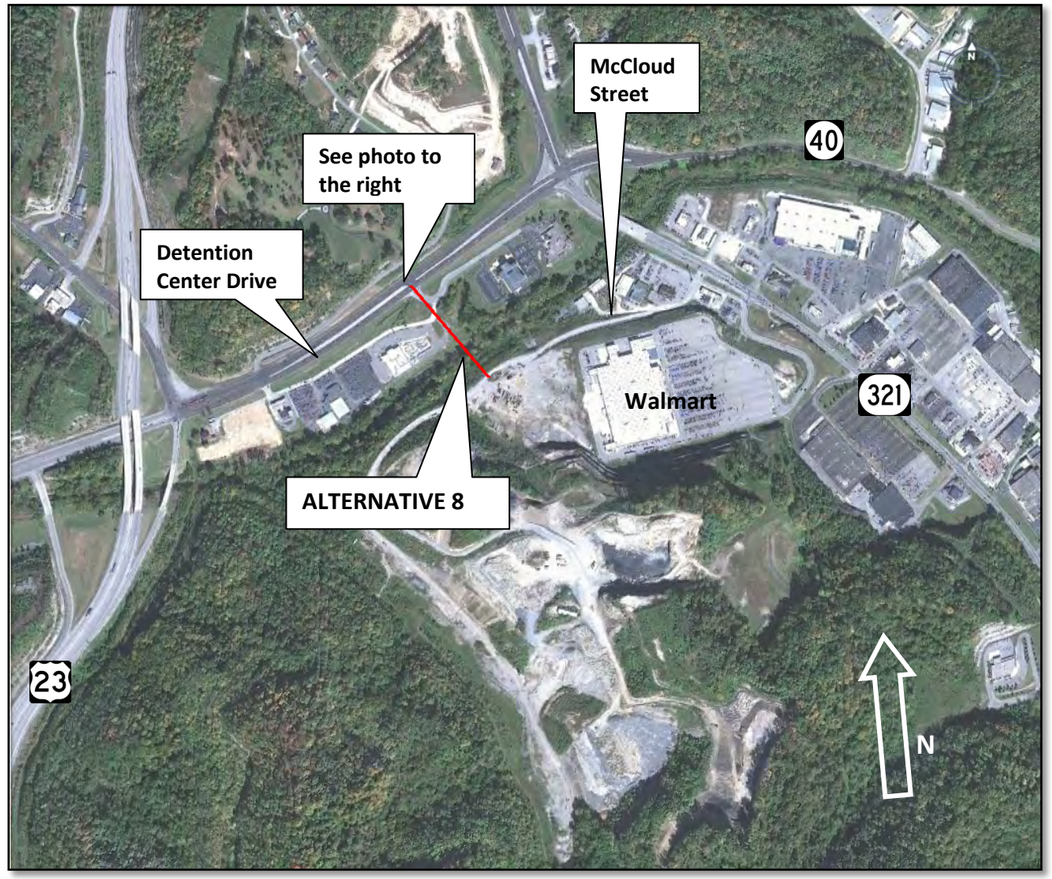
DISADVANTAGES: Added system mileage; high cost

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Congestion relief on KY 321 north of James Trimble Boulevard (2100 fewer vehicles daily)

Alternative 7 begins where the blue truck is exiting onto KY 321

Alternative 7	
Length	1.61 miles
Design	$1,700,000
Right-of-Way	*
Utilities	*
Construction	$56,479,000
TOTAL	*

* No estimates made since this alternative was eliminated early from consideration



PURPOSE: To reduce traffic congestion on KY 321 by diverting through traffic to a new route

PROPOSED PROJECT: Construct a new lane route between KY 40 near the Judicial Center to McCloud Street extended

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream, 100 year floodplain

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 2 businesses, 6" gas main, 8" water main, 3 fire hydrants, potential archaeology

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 4000

ADVANTAGES: Provides another entrance to a major traffic generator

DISADVANTAGES: Added system mileage, serves a small portion of the KY 321 corridor, would most likely add a new traffic signal on KY 40, long bridge (approximately 800 feet) necessary due to flood plain and mainly serves private development. Most of the alignment will be on structure.

ALTERNATIVE 8

CONSTRUCT A CONNECTOR FROM KY 40 NEAR THE JUDICIAL CENTER TO McCLOUD STREET EXTENDED

PROJECT GOALS:

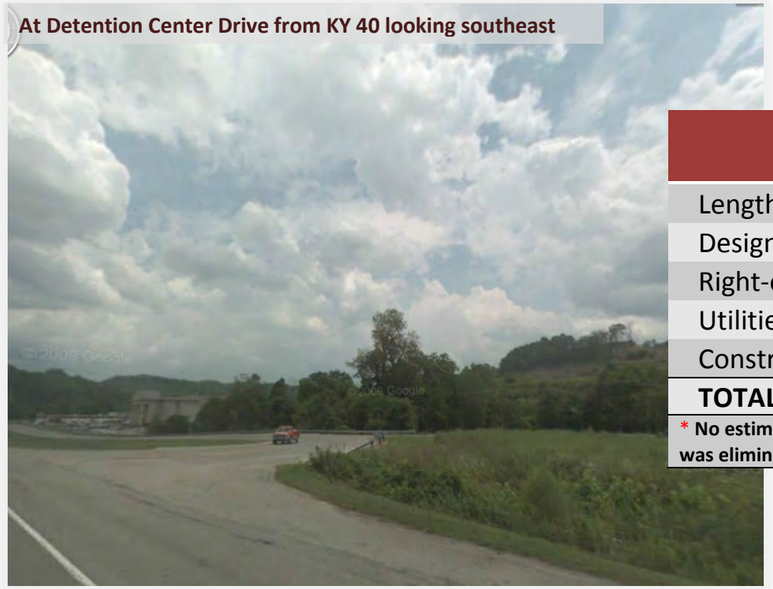
1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: YES, YES
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: NO
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: NO
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: NO
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: NO

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Congestion relief on KY 321 north of Walmart entrance

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 7

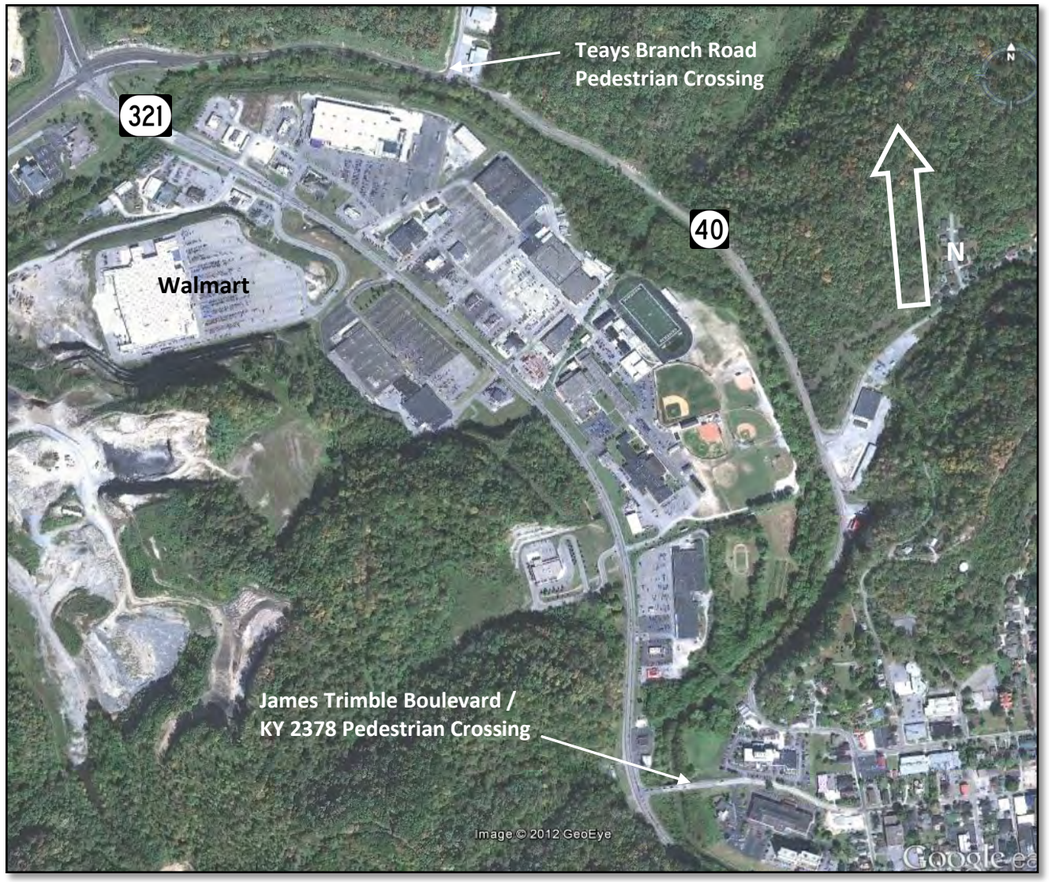
STAKEHOLDER INPUT: Scored 1.25 out of 5.00

RECOMMENDATIONS: Not recommended for implementation


At Detention Center Drive from KY 40 looking southeast

Alternative 8	
Length	0.16 miles
Design	$750,000
Right-of-Way	*
Utilities	*
Construction	$16,600,000
TOTAL	*

* No estimates made since this alternative was eliminated early from consideration



ALTERNATIVE 9

CONSTRUCT PEDESTRIAN OPPORTUNITIES ON JAMES TRIMBLE BOULEVARD AT KY 321 AND TEAYS BRANCH ROAD

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **NO, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **PEDESTRIANS ONLY**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **NO**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **PEDESTRIANS ONLY**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES**

PURPOSE: To improve service to pedestrians at two locations within the study area

PROPOSED PROJECT: To construct a pedestrian crossing over Paint Creek just south of Teays Branch Road and improve pedestrian provisions on James Trimble Boulevard at KY 321

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Crosses stream, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: Hospital, 1 business, 12” water main, 8” wastewater main, archaeology potential

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: Pedestrian usage not estimated

ADVANTAGES: Low cost improvements for non-vehicular traffic

DISADVANTAGES: No congestion relief for KY 321

(CONTINUED ON NEXT PAGE)

KY 2378 pedestrian walk

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Less likelihood of pedestrian-related crashes. Provides no congestion relief for KY 321.

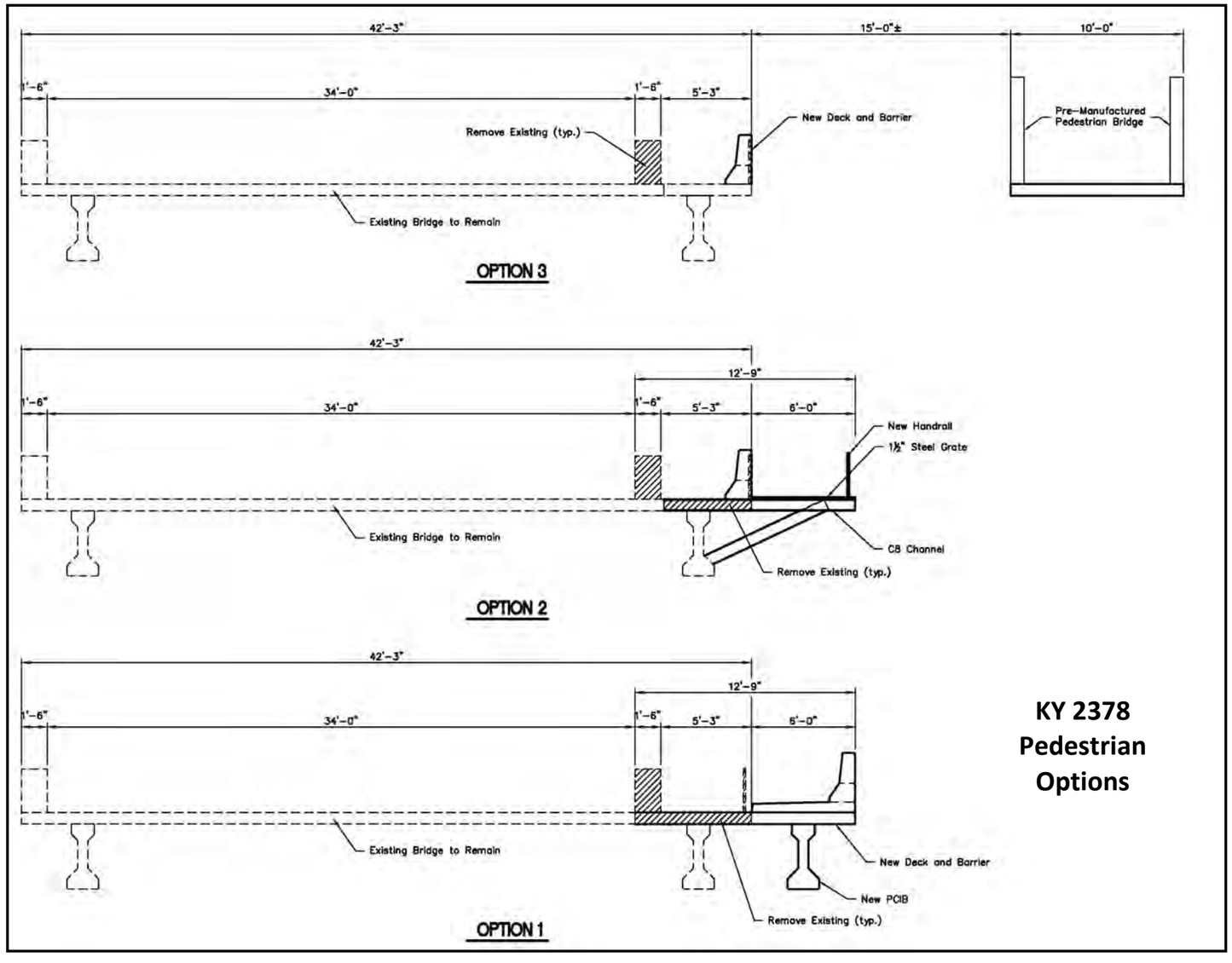
NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

STAKEHOLDER INPUT: Scored 3.75 out of 5.00

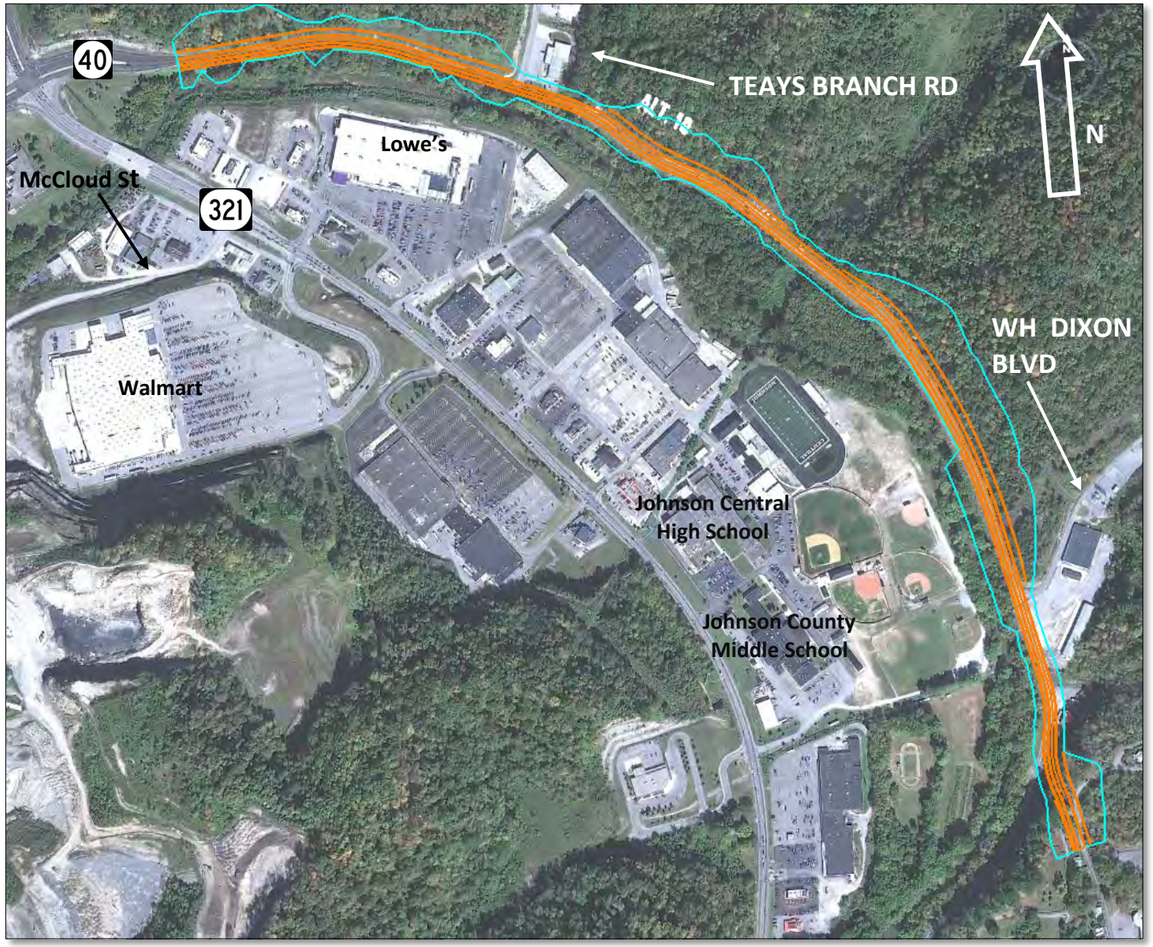
RECOMMENDATIONS: Not recommended

COST OF THE ABOVE: $390,000 - $540,000 per bridge

ALTERNATIVE 9
(CONTINUED)
CONSTRUCT PEDESTRIAN OPPORTUNITIES ON JAMES TRIMBLE BOULEVARD AT KY 321 AND TEAYS BRANCH ROAD



KY 2378 Pedestrian Options



ALTERNATIVE 10

WIDEN KY 40 FROM KY 321 TO EITHER ALTERNATIVE 3 A OR 3B WITH SIDEWALK ON WEST SIDE

PROJECT GOALS:

1. PROVIDE CONGESTION RELIEF ON KY 321 AND IMPROVE SAFETY: **NO, YES**
2. PROVIDE IMPROVED SERVICE TO TEAYS BRANCH ROAD: **YES**
3. PROVIDE IMPROVED ACCESS TO JOHNSON COUNTY SCHOOLS: **ONLY WITH A NEW CONNECTOR BETWEEN KY 40 AND KY 321**
4. PROVIDE IMPROVED ACCESS TO PAUL HALL HOSPITAL: **YES**
5. PROVIDE IMPROVEMENTS FOR PEDESTRIANS: **YES**

PURPOSE: To improve safety and geometrics on KY 40

PROPOSED PROJECT: Improve geometrics on KY 40 between KY 321 and 0.5 mile north of the hospital including a sidewalk on the south side of KY 40

POTENTIAL IMPACTS TO NATURAL ENVIRONMENT: Steep cut slopes, 100 year floodplain, floodway

POTENTIAL IMPACTS TO HUMAN ENVIRONMENT: 4 businesses, cemetery, overhead utilities

FORECAST AVERAGE DAILY TRAFFIC IN YEAR 2035: 10,000

ADVANTAGES: Improves safety on KY 40 and provides for pedestrian movements

DISADVANTAGES: Still leaves KY 321 congested, must be combined with either alternative 3A or 3B

SAFETY IMPROVEMENTS OR CONGESTION RELIEF TO KY 321: Probable reduction in pedestrian related crashes. No congestion relief on KY 321.

NUMBER OF INTERSECTION MOVEMENTS ON KY 321 IMPROVED BY THIS ALTERNATIVE: 0

STAKEHOLDER INPUT: Scored 3.00 out of 5.00

RECOMMENDATIONS: Not recommended

Alternative 10	
Length	1.13 miles
Design	$800,000
Right-of-Way	$3,300,000
Utilities	$4,000,000
Construction	$8,306,000
TOTAL	**$16,406,000**

CHAPTER 8
ALTERNATIVES DISCUSSION

A second Project Team Meeting was held on November 21, 2011 (see Appendix H). The alternatives discussed in Chapter 7 and several that were originally considered and dropped from consideration were discussed at length along with the advantages and disadvantages of each.

These alternatives were presented graphically and evaluated in terms of cost, potential environmental impacts, current and future year traffic, service to Johnson Central High School, Johnson County Middle School, and the pharmacy school.

A detailed traffic congestion evaluation for current and future year traffic for eight of these alternatives was presented and discussed. Locations along KY 321 where the volume to capacity (v/c) ratio and/or the average delay time were improved when compared to the no-build option, except where the improved v/c ratio would still be greater than 1.0, were highlighted. Nine critical intersections along KY 321 in both the morning and afternoon peak periods were identified (see Appendix G).

The 100-year floodplain and flooding of Mill Branch Road near the south end of the project area were discussed in detail.

The alternatives that have the most impact on KY 321 are Alternatives 4 and 5 with Alternative 6 following next. Optimizing signal timings would also improve the volume to capacity ratio even more.

Alternative 5 was modified to transition from four lanes to three lanes at Mill Branch Road to provide for a transition to KY 321 south of KY 321X.

A second Stakeholders' Meeting was held March 13, 2012. Alternatives from the second Project Team Meeting were presented and discussed with handouts and an preliminary matrix (see Appendix H). Stakeholders were also given opportunity to ask questions and make verbal and written comments.

The alternatives were summarized as follows: any KY 321/KY 40 Connector that is constructed still leaves congestion on KY 321. Based on traffic modeling, impacts to the floodplain/floodway, cost, measures of congestion, and general impacts, Alternative 1B appears to be the best "connector" solution to relieve congestion on KY 321 but Alternatives 4 and 5 are the most effective overall solution to relieve congestion on KY 321. Alternative 4D which is construction of an additional southbound lane and exclusive right turn lane on KY 321 from Paint Creek bridge to the first Kmart entrance does relieve congestion in one of the most congested areas and could be considered a short-term improvement. Lastly, construction of right turn lanes on KY 321 at eight locations identified in Chapter 6, Section 6.4 of this study, would improve the operation of those intersections and any of those right turns could be considered a short-term alternative.

Given the information presented, the comments were as follows:

- Prohibit left turns at unsignalized intersections
- If funding is an issue, Alternative 4 widening could be divided into two sections with the first section being

from the school exit for busses north to the project terminus.

- Consideration should be given to right in/right out scenarios rather than completely closing an entrance
- BB & T bank retaining wall should be avoided if possible, for the stability of the bank building
- An additional three acres of development around the northern terminus of the project near the current Marathon/Wendys development is probable and should be considered as entrance closings are considered.
- It may be desirable to add Alternative 4B, 4B-1, and 4B-2 to Alternative 4.

Seven completed questionnaires were returned and results were tabulated (refer to Appendix H). One respondent simply articulated a preference for Alternative 4 and, ultimately, Alternative 5. Another ideally preferred a combination of Alternatives 2, 4D, and 6 but recognized the fiscal difficulties with that scenario and preferred Alternative 4B as a cost-effective solution. The remaining five respondents scored alternatives with a score of 5 being "very important" and 1 being "least important".

Given input from the Project Team, Stakeholders, traffic and capacity analyses, alternative impacts, terrain, and financial constraints, the Project Team recommended widening KY 321 from Paint Creek Bridge south to James Trimble Boulevard (KY 2378) (Alternative 4). This alternative appears to have the most impact on congestion, safety, and provides better access to the hospital and schools. At present, KY 321 between KY 40 and James Trimble Boulevard (KY 2378) has nearly reached capacity. Other alternatives examined did not satisfy the purpose and need for the project and project goals as well as Alternative 4. KYTC owns a good portion of the right of way, which will help reduce costs. An updated alternative matrix is shown in Figure 16. The cost estimates for the project team recommendations shown in Figure 17 were developed utilizing the typical section shown in Figure 15 with:

- A two-way left turn lane - However, because of left turn volumes, James Trimble Boulevard (KY 2378) and perhaps Walmart may be better served with a separate left turn lane.
- The northernmost Kmart/Arby's intersection closed.
- The entrance next to Burger King closed.
- The last two business entrances north of James Trimble Boulevard (KY 2378) would be consolidated into one.
- Construction of the right turns addressed in Chapter 6, Section 6.4 of this study (except where recommendations are to close the intersection).

ALTERNATIVE COMPARISON MATRIX

				POTENTIAL IMPACTS TO					GOAL 1		GOAL 2	GOAL 3	GOAL 4	GOAL 5		
ALTERNATIVE NUMBER	**DESCRIPTION**	**LENGTH**	**CONSTRUCTION COST ESTIMATE ******	**NATURAL ENVIRONMENT**	**HUMAN ENVIRONMENT**	**2011 ADT (vehicles per day)**	**2035 ADT (vehicles per day)**	**# OF KY 321 IMPROVED INTERSECTION MOVEMENTS**	**PROVIDES CONGESTION RELIEF ON KY 321**	**ESTIMATED CRASH REDUCTION**	**PROVIDES SERVICE TO TEAYS BRANCH**	**PROVIDES ACCESS TO JOHNSON COUNTY SCHOOLS**	**PROVIDES ACCESS TO HOSPITAL**	**PROVIDES FOR PEDESTRIAN MOVEMENTS**	**ADVANTAGES**	**DISADVANTAGES**
DO NOTHING	**NO BUILD**		$0	None	None	13000-17400	15000-22300	0	No	0%	No	No	No	No	No investment other than routine maintenance	Conditions remain the same, congestion, crashes
1	**LEFT TURN LANE AT TEAYS BRANCH ROAD**	0.30 mile	$2,300,000 *	·Steep cut slopes ·100 year floodplain ·floodway	·1 business ·10" water main ·6" force main wastewater ·2" gas main ·2 fire hydrants ·overhead utilities creek side	810	1030	0	No	Yes on KY 40 If unsignalized, up to 35% reduction in all crashes and up to 50% reduction in left turn crashes	Yes	No	No	No	Provides safer access to a new traffic generator	Provides inconsistency and driver expectation of the route; still no congestion relief for KY 321
**1A	Improve KY 40 from the Left Turn Lane (ALT 1) to KY 321	0.30 mile	$1,339,000	·Steep cut slopes ·100 year floodplain ·floodway	·10" water main ·overhead utilities creek side	7000	10300	0	No	Yes Up to 40%	Yes	No	No	No	Provides consistency and safer access to a new traffic generator	No congestion relief for KY 321
1B	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF LOWES TERMINATING AT TEAYS BRANCH ROAD**	0.24 mile	$4,260,000	·Crosses stream ·100 year floodplain ·floodway	·4 businesses ·10" water main ·lift station ·2 fire hydrants ·6" force main wastewater ·6" gas main (two) ·overhead utilities on Paint Creek side of KY 40	3800	4600	29	Reduces future year ADT in the vicinity of this route by 1800-2600 vpd	Likely reduction in KY 321 crashes due to reduced traffic volume.	Yes	No	No	Yes (on connector)	Provides a shorter connection to KY 321 for Teays Branch Road traffic; reduces KY 321 congestion; less floodplain impacts	Places two intersections on KY 321 (KY 40 and the Connector) very close together; will also impact Lowe's internal circulation
1C	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE NORTH SIDE OF LOWES with Bridge**	0.18 mile	$4,149,000	·Crosses stream ·100 year floodplain ·floodway	·4 businesses ·10" water main ·2 fire hydrants, ·8" and 12" force main wastewater ·overhead utilities on Paint Creek side of KY 40	3400	4300	21	Reduces future year ADT in the vicinity of this route by 1200-2100 vpd	Likely reduction in KY 321 crashes due to reduced traffic volume.	Yes	No	No	Yes (on connector)	Provides a shorter connection to KY 321 for Teays Branch Road traffic	Places two intersections on KY 321 (KY 40 and the Connector) very close together
1D	Improve KY 40 from the Connector North of Lowes (1C) to KY 321/KY 40 Intersection	0.15 mile	$644,000	·Steep cut slopes ·100 year floodplain ·floodway	·pipeline ·10" water main, ·Overhead utilities on Paint Creek side of KY 40	7000	10300	0	No	Potential reduction in crashes by up to 40% as a result of improvements to horizontal alignment.	Yes	No	No	No	Provides consistency and safer access to a new traffic generator	No congestion relief for KY 321
2	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF JOHNSON CENTRAL SCHOOLS**	0.25 mile	$6,996,000	·Crosses stream ·100 year floodplain ·floodway	·1 business ·2 schools and school ball field ·school traffic internal circulation ·2" and 6" gas mains, ·8" water and wastewater mains ·archaeological ·Overhead utilities on Paint Creek side of KY 40 and along path of connector	3000	4300	15 (MUST BE COUPLED WITH ALTERNATIVE 3A OR 3B TO ACHIEVE THIS IMPROVEMENT)	Reduces future year ADT in the vicinity of this route by 850 - 1100 vpd	Likely reduction in KY 321 crashes due to reduced traffic volume.	No	Yes	Yes	Yes	Provides for a "backdoor" entrance/exit and pedestrian access for the Johnson County schools.	Provides less relief to KY 321 congestion than other connector options and the connection to school will have a steeper grade
2A	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS**	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	·100 year floodplain ·floodway	·1 business ·school traffic internal circulation ·2 " and 6" gas main ·8"water and wastewater main ·archaeological potential	NOT FEASIBLE	NOT FEASIBLE	N/A	Not able to tie into school	N/A	Not able to tie into School	Limited	Limited	Limited	Not considered due to the impacts of the school traffic circulation	Would impact the schools internal circulation and cut off one of their main exits
2A-1	**SHORTENED KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS**	0.17 mile	$4,440,000	·100 year floodplain ·floodway	·2 businesses ·2" gas main ·8" and 10" water main ·6" force main wastewater ·1 fire hydrant ·Overhead utilities on Paint Creek side of KY 40	1700	2200	21	Reduces future year ADT in the vicinity of this route by 500-650 vpd.	N/A	Limited	Yes	Limited	Yes (on connector)	Provides for a "backdoor" entrance/exit and pedestrian access for the schools for Johnson County Schools	Does not provide vehicular or pedestrian access to KY 321; begins in what is almost a parking lot; provides very little congestion relief
**2A-1 KY 40	Left Turn Lane on KY 40 at Connector 2A-1	0.30 mile	$1,585,000	·100 year floodplain ·floodway	·10" water main ·overhead utilities on Paint Creek side of KY 40	450	550	0	No	Yes on KY 40 If unsignalized, up to 35% reduction in all crashes and up to 50% reduction in left turn crashes	Limited	Yes	Limited	Yes (on connector)	Provides for safer KY 40 turns	No congestion relief for KY 321
**2B	Left Turn Lane on KY 40 for Alt 2	0.28 mile	$793,000	·100 year floodplain ·floodway	·2 businesses ·1 cemetery ·10" water main ·Overhead utilities on Paint Creek side of KY 40	780	1120	0	No	Yes on KY 40 If unsignalized, up to 35% reduction in all crashes and up to 50% reduction in left turn crashes	Limited	Yes	Limited	Yes (on connector)	Provides for safer KY 40 turns	No congestion relief for KY 321
3A	**IMPROVE KY 40 SHARP CURVE ON NEW ALIGNMENT**	0.26 mile	$3,000,000	·Steep cut slopes	·8 residences ·2 businesses ·cemetery ·10" water main ·6" force main wastewater ·2" gas main ·1 fire hydrant	6700	9300 (with Alternative 2)	0	Yes; if coupled with a connector, future year ADT is reduced by 850-1100 vpd in the vicinity of that connector.	Potential crash reductions of up to 40%	No	Yes if coupled with Alternative 2.	Yes	No	Improves a less than desirable curve and adds pedestrian movement. However, to be effective with pedestrian movement it must be coupled with the KY 321/KY 40 connector.	Requires business and residential impacts and has steep cut slopes and the new alignment will have a steeper grade. It also cuts off access to Church Street at the very top of the hill that will need to access their property from WH Dixon Boulevard and may impact the cemetery. It must be coupled with a connector to realize any minimal congestion improvement on KY 321.

Figure 16: Alternatives Matrix

ALTERNATIVE COMPARISON MATRIX

									GOAL 1		GOAL 2	GOAL 3	GOAL 4	GOAL 5			
ALTERNATIVE NUMBER	DESCRIPTION	LENGTH	CONSTRUCTION COST ESTIMATE ****	POTENTIAL IMPACTS TO NATURAL ENVIRONMENT	POTENTIAL IMPACTS TO HUMAN ENVIRONMENT	2011 ADT (vehicles per day)	2035 ADT (vehicles per day)	# OF KY 321 IMPROVED INTERSECTION MOVEMENTS	PROVIDES CONGESTION RELIEF ON KY 321	ESTIMATED CRASH REDUCTION	PROVIDES SERVICE TO TEAYS BRANCH	PROVIDES ACCESS TO JOHNSON COUNTY SCHOOLS	PROVIDES ACCESS TO HOSPITAL	PROVIDES FOR PEDESTRIAN MOVEMENTS	ADVANTAGES	DISADVANTAGES
3B	**IMPROVE KY 40 SHARP CURVE TO PAUL HALL HOSPITAL**	0.27 mile	$1,100,000	·Steep cut slopes ·100 year floodplain ·floodway	·1 business ·hospital parking lot ·2 residences ·4 empty buildings ·cemetery ·2" gas main ·8" water main ·3 fire hydrants ·overhead utilities on Paint Creek side of KY 40	6700	9300 (with Alternative 2)	0	Yes; if coupled with a connector, future year ADT is reduced by 850-1100 vpd in the vicinity of that connector.	Potential crash reductions of up to 50%	No	Yes if coupled with Alternative 2.	Yes	No	Improves a less than desirable curve and adds pedestrian movement. However, to be effective with pedestrian movement it must be coupled with Alternative 2. It is less expensive than Alternative 3A but has more residential impacts	Requires some of the hospital parking lot, requires purchasing some vacant buildings, and will impact one business and residential properties. It must be coupled with a connector to realize any minimal congestion improvement on KY 321.
4	**FIVE LANE KY 321 FROM KY 40 TO KY 2378 / JAMES TRIMBLE BOULEVARD**	1.01 mile	$8,236,000	·Steep cut slopes ·100 year floodplain ·floodway	·21 businesses ·2 residences ·pipeline ·8" water and wastewater main, ·2" and 6" gas main ·water pump station ·Overhead utilities on both sides	12600	16280	32	Yes North of James Trimble Boulevard	Yes; as much as 25% if right-turn lanes are included	No	Yes	Yes	Yes	Improves congestion by adding through lanes and adds safe pedestrian movement along the corridor.	Business and some residential impacts, right of way and utility costs will most likely be high
*, **4A	Right In/Right Out Configuration at McCloud Drive	N/A	$200,000	Minimal	·5 businesses ·12" wastewater main ·8" and 12" force main wastewater ·3" and 6" gas main ·1 UST	Not available	Not available	1	Minimal	No	No	No	No	No	Eliminates left turns	Left turning vehicles will have adverse travel
4B, 4B-1, 4B-2	Access Road that parallels KY 321 (Restriping, Purchase of Business, and Restriping and purchase of some of Lowes Parking Lot)	0.50 mile	$500,000	·100 year floodplain	·3 businesses ·8" water and wastewater main	Not available	Not available	Did not count traffic to determine but access management improves slightly	Did not count traffic to determine, but should help	N/A	No	Minimal	No	No	Most of the route is already there, just restriping and traffic control would be necessary. It does little to help with congestion on KY 321	Impacts 3 businesses
**4C	Right Turn Lanes at: NB Apple Tree Plaza NB Middle School NB High School NB McDonalds Intersection SB Kmart NB 321X NB James Trimble Boulevard	0.33 mile	$2,400,000	Minimal	·2 businesses, ·3" and 6" gas main ·8" water main ·overhead utilities	1430, 400, and 820	1810, 510, and 1050	11	Yes for those intersections	Yes; up to 25%	No	Yes	No	No	Improvement in KY 321 congestion for the right turn lane movements for all 6 intersections and some through movements at those intersections, less cost and impacts to businesses	Business impacts to parking and business fronts; utility issues.
4D	Carry additional KY 321 SB lane and Turn Lane from Paint Creek Bridge SB past Walmart entrance dropping at Kmart Entrance	0.31 mile	$1,845,000	·100 year floodplain	·5 businesses ·1 UST ·3" and 6" gas main ·8" wastewater and water main ·overhead utilities	1870	2730	1	Yes Between Kmart entrance and KY 40	Yes; up to 10%	No	Yes	No	No	Allows WB KY 40 traffic turning south onto KY 321 to travel south without having to merge until the Walmart traffic has turned right	Provides little congestion relief to KY 321 as a whole
4E	Connects the entrances of Walmart and K-Mart and would close the K-mart entrance	0.04 mile	$87,000	Minimal	·Two businesses ·8" water main ·6" gas main			0	Minimal	Minimal	No	No	No	No	Puts more separation between entrances on KY 321	Loss of Kmart parking spaces, longer left turn signal at Walmart
5	**FOUR LANE KY 321 FROM KY 2378/JAMES TRIMBLE BOULEVARD TO KY 321X**	0.65 mile	$3,955,000	·Steep cut slopes ·100 year floodplain ·floodway	·12 businesses ·1 church ·8 residences ·8" and 12" water main ·2" and 4" gas main ·8" wastewater main ·5 USTs ·2 fire hydrants ·overhead utilities	12600	16280	3	Yes South of James Trimble Boulevard	Yes; up to 25%	No	No	Yes	Yes, if sidewalk is included in reconstruction.	Improves congestion and safety along KY 321 South of James Trimble Boulevard	Business and residential impacts, very steep cuts along the southbound side of KY 321, right of way and utility costs will most likely be high
6	**CONNECTOR FROM KY 2378/JAMES TRIMBLE BOULEVARD TO US 23**	1.34 miles	$46,845,000	·Steep cut slopes ·100 year floodplain ·1 wetland	·2 residences, ·1 school, ·12" water main ·pipeline	3700	4700	22	Yes; a reduction in future year ADT of 3000-3500 vpd north of the schools	Likely reduction in KY 321 crashes due to reduced traffic volume.	No	Yes	Yes	No	Routes through traffic around congested portion of KY 321 and diverts the most traffic from KY 321	Added system mileage, very costly, and has steep cuts
7* **	**CONNECTOR FROM KY 321 AROUND MILL BRANCH ROAD TERMINATING AT Walmart CIRCULATOR ROAD**	1.61 miles	$56,479,000	·Crosses streams ·1 wetland ·Coal seams ·100 year floodplain	·20 residences · pipeline ·8" water and wastewater main, ·2" gas main ·archaeological potential ·1 wetland	1800	2300	19	Yes; a reduction in future year ADT of 2100 vpd north of James Trimble Boulevard	Likely reduction in KY 321 crashes due to reduced traffic volume.	No	Yes	No	No	Through traffic bypasses commercial strip, diverts traffic from KY 321	Added system mileage; high costly, requires a very long bridge because of the floodplain
8* **	**CONNECTOR FROM KY 40 TO Walmart CIRCULATOR ROAD WITH BRIDGE OVER PAINT CREEK AND TRAFFIC SIGNAL ON KY 40**	0.16 mile	$16,600,000	·Crosses stream ·100 year floodplain ·floodway	·2 businesses, ·6" gas main ·8" water main ·3 fire hydrants · archaeological potential	3100	4000	7	Yes, north of the Walmart entrance	Likely reduction in KY 321 crashes due to reduced traffic volume.	No	No	No	No	Provides another entrance to a major traffic generator	Added system mileage, serves a small portion of the KY 321corridor; and adds a new traffic signal on KY 40
9	**PEDESTRIAN OPPORTUNITIES FOR KY 2378 TO KY 321 AND HOSPITAL and to TEAYS BRANCH ROAD**	0.04	$280,000-$430,000 per bridge	·Crosses stream ·100 year floodplain ·floodway	·1 hospital, ·1 business, ·12" water main ·8" wastewater main ·archaeological potential	4300 (KY 2378)	5900 (KY 2378)	0	No	Yes Up to 65% less likelihood of pedestrian crashes	Yes - Pedestrian	No	Yes - Pedestrian	Yes	Low cost improvements for non-vehicular traffic	No congestion relief for KY 321
10	**WIDEN KY 40 FROM KY 321 TO EITHER ALTERNATIVE 3A OR 3B WITH SIDEWALK ON PAINT CREEK SIDE**	1.13 miles	$8,306,000	·Steep cut slopes ·100 year floodplain ·floodway	·4 businesses ·cemetery ·overhead utilities	7000	10000	0	No	Yes Up to 65% less likelihood of pedestrian crashes	Yes	Yes (if coupled with a connector)	Yes	Yes	Improves safety on KY 40 and provides for pedestrian movements	Still leaves KY 321 congested

*At McCloud Drive
**Not shown on exhibit
***Eliminated from further consideration does not
****Does not include R/W and Utilities
+Taken from KYTC 2012-2018 Highway Plan

Figure 16: Alternatives Matrix (continued)

At the second Stakeholders' Meeting, it was requested that consideration be given to prohibiting the remaining left turns (not targeted for closure with Alternative 4) at three unsignalized intersections:

- Central High School Drive,
- The bus exit at Johnson Central High School, and
- Hardee's/Radio Shack or Southern-most Lowe's Intersection.

Additional options that may perhaps improve benefits of implementation of Alternative 4 are as follows:

- Alternative 4E (connection of Kmart and Walmart entrances),
- Alternative 4B, 4B-1 and 4B-2 (parallel access road to KY 321 connecting McDonald's intersection to Lowe's,
- Convert Johnson County Middle School Drive to right in/right out, expand the southernmost intersection to the schools and allow all movements at that intersection. Busses would use the northernmost entrance for right turns only. Another option is to allow for a midblock U turn at the present Burger King intersection. This midblock u-turn would necessitate a section of raised median with a minimum separator width of 40 feet.
- Convert southernmost Lowe's entrance (which is Hardee's/Radio Shack/Lowe's) to right in/right out and direct left turns to the signalized intersection at Walmart/Lowe's intersection.

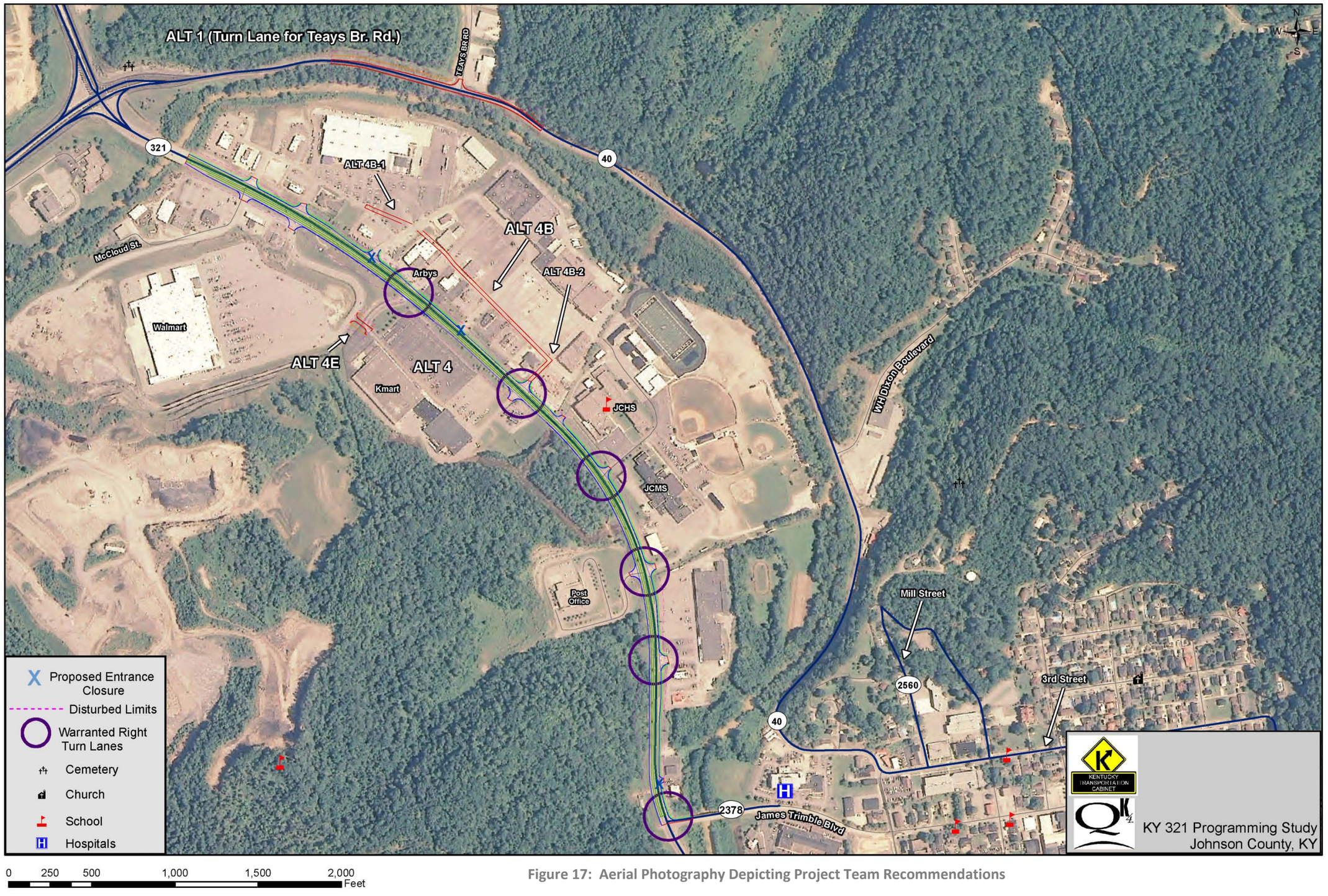


Figure 17: Aerial Photography Depicting Project Team Recommendations

KY 321
KY 40 TO KY 321X
JOHNSON COUNTY, KY

QK4

KENTUCKY
2225 LAWRENCEBURG ROAD
BUILDING C, SUITES 3 & 4
FRANKFORT, KENTUCKY 40601
PH. 502-352-2197

KENTUCKY - CORPORATE HEADQUARTERS
815 WEST MARKET STREET, SUITE 300
LOUISVILLE, KENTUCKY 40202
PH. 502-585-2222
FX. 502-581-0406
WWW.QK4.COM

APPENDIX A

PHOTO TOUR

KY 321 Southbound Beginning Near KY 40

Walmart Entrance onto KY 321

KY 321 Southbound South of Walmart Entrance

Major Gas Line just West of KY 321

KY 321 Southbound in front of Schools

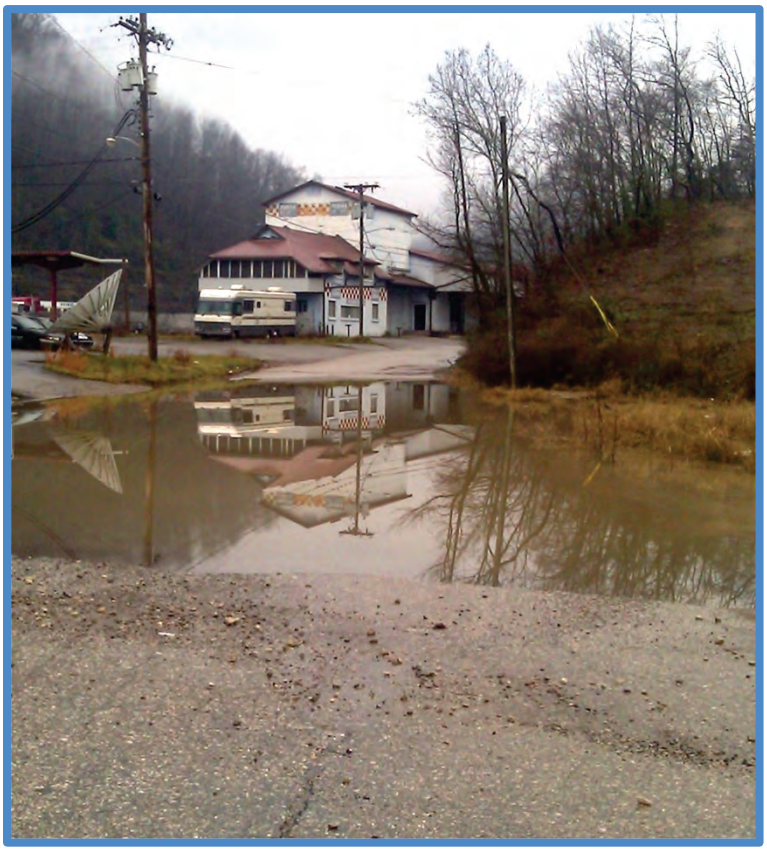
KY 321 Southbound in front of Post Office

KY 321 Southbound near Pizza Hut

KY 321 Southbound at KY 2378 (James Trimble Boulevard)

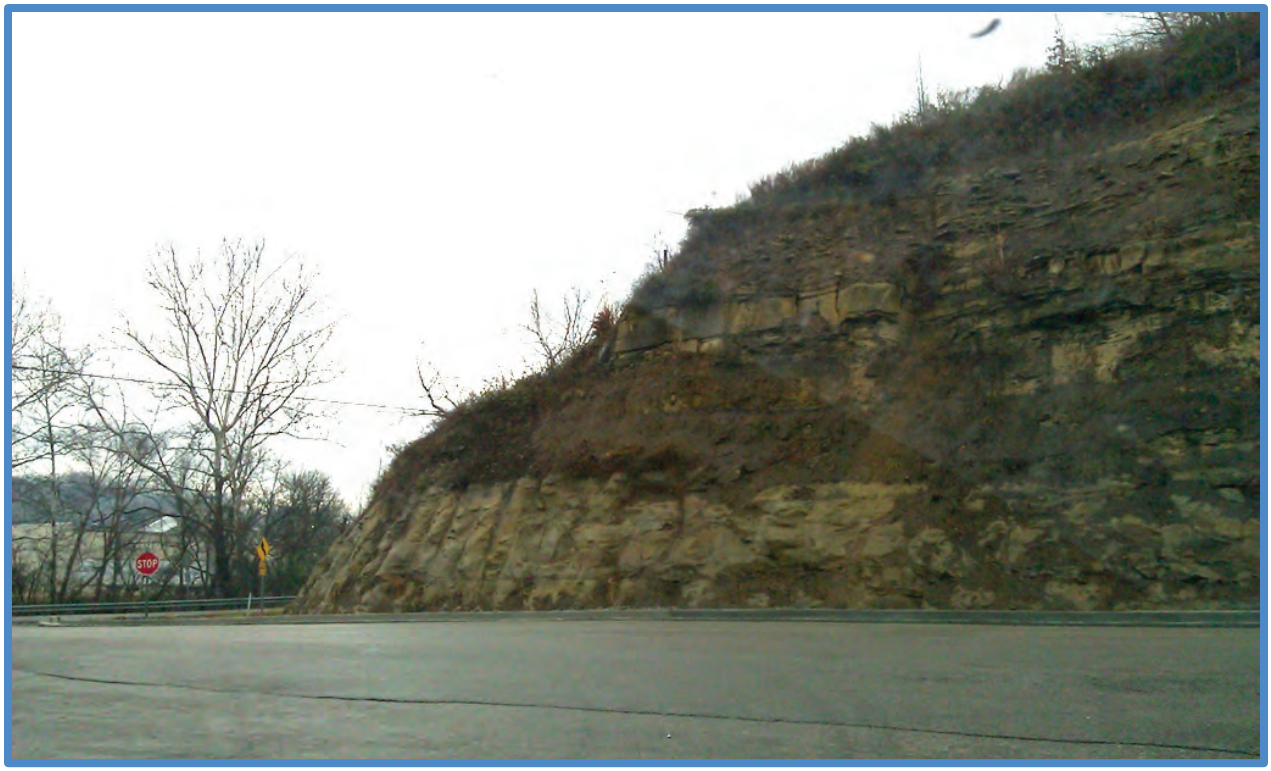
KY 321 Southbound South of KY 2378

KY 321 Southbound approaching Mill Branch Road



Mill Branch Road flooded after a rain at KY 321X (Broadway)

KY 321 South End of Project looking North



Teays Branch Road Embankment at KY 40 Intersection

KY 40 Horizontal Curvature South of Teays Branch Road Intersection

KY 40 Horizontal Curvature North of WH Dixon Road Intersection

Extreme Horizontal Curvature on KY 40 near Paul Hall Hospital

Blind curve at the South end of KY 40

Sidewalk on KY 2378 at KY 321 Intersection

KY 321 headed north with pedestrian on shoulder of road

NRHP Property on West Street just off KY 40

Sidewalk on KY 2378 vanishes on KY 321

Beside the Post Office on the same side of KY 321 potentially eligible for the NRHP

Cemetery very close to sharp “hospital curve” on KY 40 potentially historic

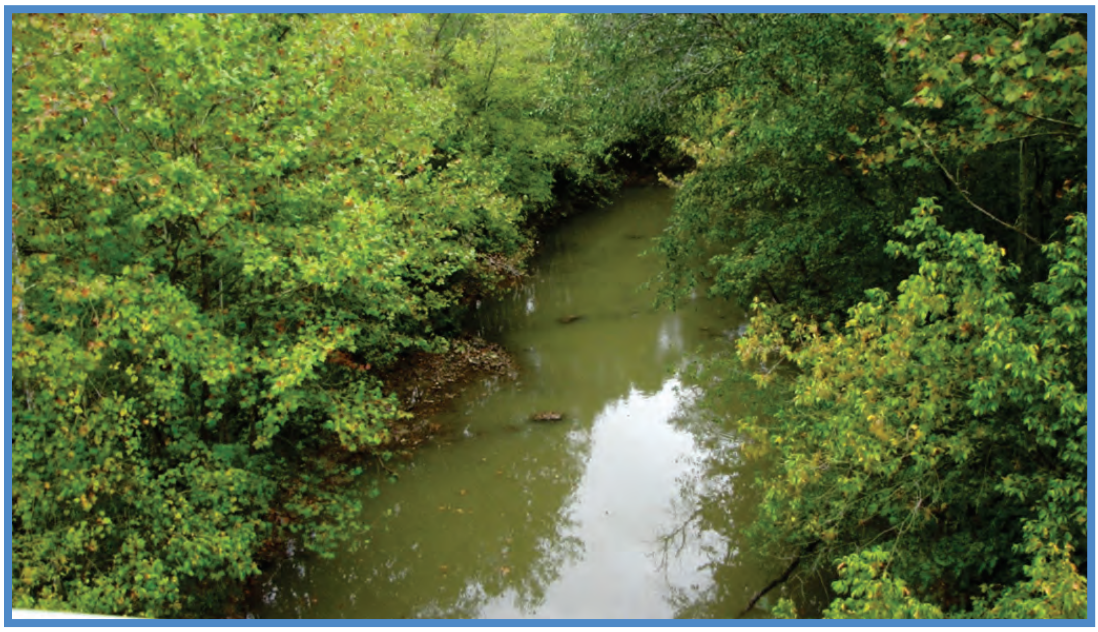
Johnson Central High School and Johnson County Middle School complex

Paul Hall Hospital on the right – KY 2378 heading west

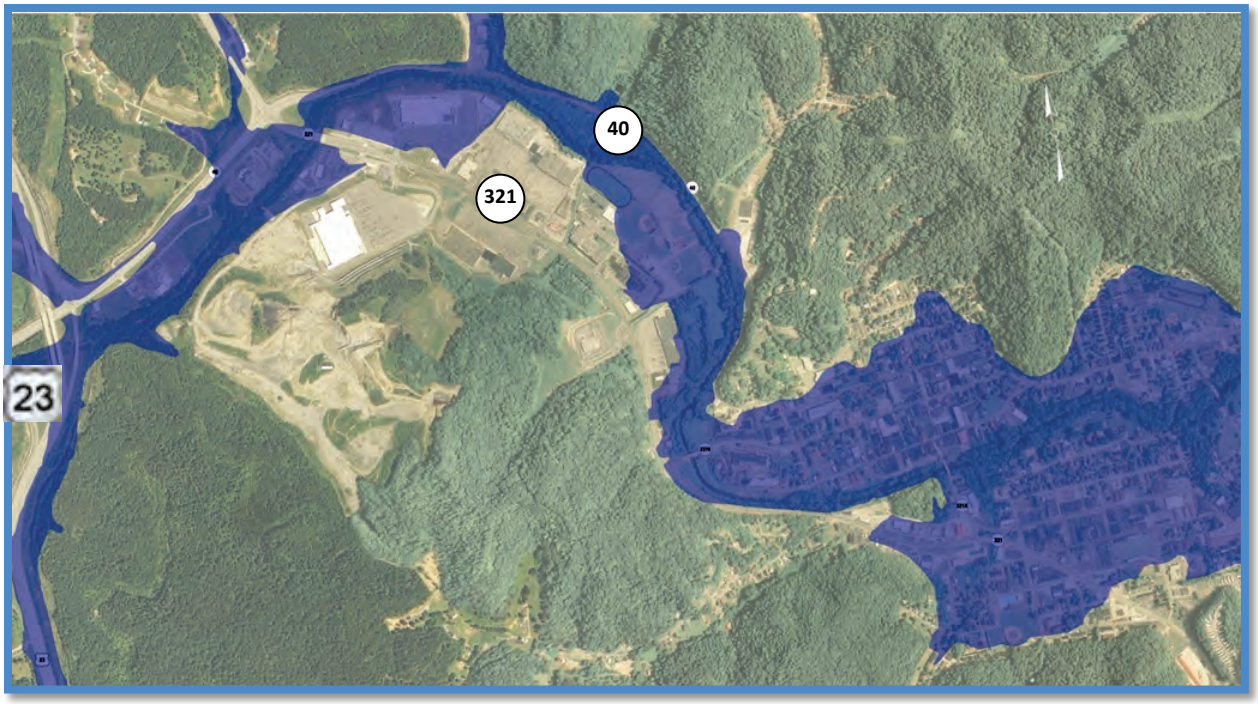
New Pharmacy School Site on Teays Branch Road

Dense development along KY 321 (headed southbound)

Steep cuts along the West side of KY 321 (southbound beyond KY 2378)



Paint Creek traverses the area



100 Year Floodplain for Paintsville

Southbound on KY 321 – Driver decisions include: right turn lane to go to Marathon station or continue on in the turn lane to Walmart, left turn lane and merge into one lane from two all at one point.

CRASHES

KY 321
JOHNSON COUNTY
CRASH ANALYSIS
2008-2010

Prefix	Route	Suffix	Beg MP	End MP	SEG/ SPOT	Number of Crashes	# of Darkness Crashes	# of Darkness Crashes % of total	# of Run-Off-Road Crashes	Run-Off-Road Crashes % of Total	#of Fatal Crashes	# of Fatal Crashes % of Total	# of Injury Crashes	# of Injury Crashes % of total	# Killed	# Injured	ADT	Actual Crash Rate	Average Crash Rate	Critical Crash Rate	Road Type	CRF	Wet Roadway Crashes	Wet Roadway Crashes % of Total	Single Vehicle Crashes	Single Vehicle Crashes % of Total	Rear-End Crashes	Rear-End Crashes % of Total	Angle Crashes	Angle Crashes% of Total	SSSD	SSSD % of Total	OLT	OLT % of Total	SSOD	SSOD % of Total
KY	321		7.061	8.791	SEGMENT	207	41	20%	2	1%	0	0%	36	17%	0	52	16000	682.952	209.231	278.562	Rural 2-lane	2.452	25	12%	8	4%	108	52%	44	21%	18	9%	6	3%	2	1%
KY	321		7.637	8.637	1 MILE	167	34	20%	2	1%	0	0%	31	19%	0	44	17500	871.494	209.231	296.961	Rural 2-lane	2.935	18	11%	9	5%	87	52%	41	25%	11	7%	5	3%	1	1%
KY	321		8.638	9.638	1 MILE	35	9	26%	0	0%	0	0%	5	14%	0	9	7500	426.180	209.231	345.343	Rural 2-lane	1.234	3	9%	0	0%	2	6%	3	9%	2	6%	0	0%	0	0%
KY	321		5.616	10.616	SEGMENT	235	50	21%	2	1%	1	0%	45	19%	1	63	8550	502.016	209.231	264.760	Rural 2-lane	1.896	31	13%	11	5%	18	8%	53	23%	23	10%	9	4%	2	1%
KY	321		6.934	7.034	0.1 MILE	7	1	14%	0	0%	0	0%	2	29%	0	4	6710	0.953	0.214	0.722	Rural 4-lane Undiv.	1.319	3	43%	0	0%	2	29%	3	43%	2	29%	0	0%	0	0%
KY	321		7.637	7.737	0.1 MILE	11	2	18%	2	18%	0	0%	2	18%	0	3	14510	0.692	0.210	0.538	Rural 2-lane	1.288	2	18%	3	27%	7	64%	1	9%	0	0%	0	0%	0	0%
KY	321		7.855	7.955	0.1 MILE	11	3	27%	0	0%	0	0%	3	27%	0	3	17500	0.574	0.210	0.506	Rural 2-lane	1.135	1	9%	1	9%	5	45%	0	0%	1	9%	0	0%	0	0%
KY	321		7.967	8.067	0.1 MILE	17	0	0%	0	0%	0	0%	5	29%	0	7	17500	0.887	0.210	0.506	Rural 2-lane	1.754	1	6%	0	0%	10	59%	5	29%	1	6%	0	0%	0	0%
KY	321		8.076	8.176	0.1 MILE	16	2	13%	0	0%	0	0%	2	13%	0	2	17500	0.835	0.210	0.506	Rural 2-lane	1.651	2	13%	1	6%	10	63%	2	13%	1	6%	0	0%	1	6%
KY	321		8.194	8.294	0.1 MILE	23	4	17%	0	0%	0	0%	5	22%	0	7	17500	1.200	0.210	0.506	Rural 2-lane	2.373	3	13%	1	4%	15	65%	4	17%	1	4%	0	0%	0	0%
KY	321		8.300	8.400	0.1 MILE	14	2	14%	1	7%	0	0%	1	7%	0	1	17500	0.731	0.210	0.506	Rural 2-lane	1.444	3	21%	1	7%	6	43%	4	29%	2	14%	0	0%	0	0%
KY	321		8.409	8.509	0.1 MILE	19	8	42%	0	0%	0	0%	5	26%	0	9	17500	0.992	0.210	0.506	Rural 2-lane	1.960	5	26%	0	0%	14	74%	9	47%	1	5%	1	5%	0	0%
KY	321		8.511	8.611	0.1 MILE	32	8	25%	0	0%	0	0%	6	19%	0	9	17500	1.670	0.210	0.506	Rural 2-lane	3.302	0	0%	1	3%	9	28%	12	38%	3	9%	0	0%	3	9%
KY	321		8.613	8.713	0.1 MILE	23	4	17%	0	0%	0	0%	4	17%	0	8	17500	1.200	0.210	0.506	Rural 2-lane	2.373	5	22%	1	4%	12	52%	4	17%	3	13%	2	9%	0	0%
KY	321		8.726	8.826	0.1 MILE	12	2	17%	0	0%	0	0%	2	17%	0	2	13400	0.818	0.210	0.552	Rural 2-lane	1.481	1	8%	0	0%	5	42%	3	25%	3	25%	0	0%	0	0%
KY	321		6.927	7.127	0.2 MILE	14	4	29%	0	0%	0	0%	4	29%	0	6	9200	1.390	0.428	1.009	Rural 4-lane Undiv.	1.378	4	29%	0	0%	5	36%	6	43%	2	14%	0	0%	1	7%
KY	321		7.779	7.979	0.2 MILE	19	6	32%	0	0%	0	0%	5	26%	0	5	17500	0.992	0.420	0.828	Rural 2-lane	1.198	2	11%	2	11%	14	74%	1	5%	1	5%	0	0%	0	0%
KY	321		7.980	8.180	0.2 MILE	33	2	6%	0	0%	0	0%	7	21%	0	9	17500	1.722	0.420	0.828	Rural 2-lane	2.081	3	9%	1	3%	19	58%	7	21%	2	6%	0	0%	1	3%
KY	321		8.194	8.394	0.2 MILE	36	6	17%	1	3%	0	0%	6	17%	0	8	17500	1.879	0.420	0.828	Rural 2-lane	2.270	5	14%	2	6%	21	58%	9	25%	2	6%	0	0%	8	22%
KY	321		8.409	8.609	0.2 MILE	62	17	27%	0	0%	0	0%	11	18%	0	18	17500	3.235	0.420	0.828	Rural 2-lane	3.910	6	10%	1	2%	23	37%	21	34%	3	5%	4	6%	0	0%
KY	321		8.613	8.813	0.2 MILE	36	6	17%	0	0%	0	0%	6	17%	6	11	16200	2.029	0.420	0.845	Rural 2-lane	2.403	6	17%	1	3%	17	47%	7	19%	6	17%	3	8%	0	0%
KY	321		6.731	7.031	0.3 MILE	13	2	15%	0	0%	1	8%	3	23%	1	5	6710	589.773	214.176	490.783	Rural 4-lane Undiv.	1.202	3	23%	1	8%	2	15%	6	46%	2	15%	2	15%	0	0%
KY	321		7.667	7.967	0.3 MILE	30	6	20%	0	0%	0	0%	6	20%	0	7	16840	542.305	209.231	376.693	Rural 2-lane	1.440	3	10%	3	10%	22	73%	2	7%	1	3%	0	0%	0	0%
KY	321		7.967	8.267	0.3 MILE	47	5	11%	0	0%	0	0%	9	19%	0	10	17500	817.568	209.231	373.336	Rural 2-lane	2.190	4	9%	2	4%	29	62%	10	21%	2	4%	0	0%	1	2%
KY	321		8.268	8.568	0.3 MILE	68	17	25%	1	1%	0	0%	11	16%	0	12	17500	1182.865	209.231	373.336	Rural 2-lane	3.168	10	15%	2	3%	31	46%	17	25%	7	10%	2	3%	0	0%
KY	321		8.576	8.876	0.3 MILE	57	11	19%	0	0%	0	0%	11	19%	0	18	14100	1230.609	209.231	393.160	Rural 2-lane	3.130	7	12%	1	2%	24	42%	17	30%	7	12%	4	7%	0	0%
KY	40		8.468	8.568	0.1 MILE	12	2	17%	0	0%	0	0%	4	33%	0	8	12200	0.898	0.210	0.570	Rural 2-lane	1.575	2	17%	1	8%	5	42%	3	25%	2	17%	1	8%	0	0%
KY	40		8.572	8.672	0.1 MILE	9	1	11%	0	0%	0	0%	4	44%	0	12	14700	0.559	0.096	0.326	Rural 4-lane Div.	1.715	1	11%	0	0%	1	11%	3	33%	1	11%	2	22%	0	0%
KY	40		8.995	9.095	0.1 MILE	7	4	57%	0	0%	0	0%	3	43%	0	6	13000	0.492	0.096	0.343	Rural 4-lane Div.	1.435	0	0%	0	0%	2	29%	3	43%	1	14%	1	14%	0	0%
KY	40		8.911	9.111	0.2 MILE	9	4	44%	0	0%	0	0%	4	44%	0	7	13200	0.623	0.192	0.523	Rural 4-lane Div.	1.189	0	0%	0	0%	4	44%	3	33%	1	11%	1	11%	0	0%
KY	40		8.468	8.768	0.3 MILE	23	4	17%	0	0%	0	0%	8	35%	0	20	13900	1.511	0.288	0.675	Rural 4-lane Div.	2.238	3	13%	2	9%	6	26%	5	22%	4	17%	3	13%	0	0%
KY	40		8.854	9.154	0.3 MILE	11	4	36%	0	0%	0	0%	5	45%	0	9	12600	265.758	96.105	232.311	Rural 4-lane Div.	1.144	1	9%	0	0%	5	45%	4	36%	1	9%	1	9%	0	0%
KY	321	X	0.191	0.291	0.1 MILE	6	0	0%	0	0%	0	0%	2	33%	0	2	4200	1.305	0.210	0.869	Rural 2-lane	1.501	1	17%	0	0%	3	50%	2	33%	0	0%	0	0%	0	0%
KY	321	X	0.014	0.214	0.2 MILE	9	2	22%	0	0%	0	0%	4	44%	0	5	5300	1.551	0.420	1.199	Rural 2-lane	1.293	3	33%	0	0%	3	33%	4	44%	0	0%	0	0%	0	0%
KY	321	X	0.014	0.314	0.3 MILE	13	2	15%	0	0%	0	0%	4	31%	0	5	4800	2.473	0.630	1.617	Rural 2-lane	1.530	3	23%	0	0%	5	38%	5	38%	0	0%	0	0%	0	0%

HIGHWAY INFORMATION SUMMARY

Route	Beginning MP	Beginning Feature	Ending MP	Ending Feature	Length	Functional Class	State System	NHS	NTN	Truck Weight Class	# of Lanes	Lane Width	Shoulder Type
KY 321	7.061	KY 321X	7.113	6TH ST	0.052	Rural Minor Arterial	State Secondary	No	No	AAA	2	12	Paved with Bituminous Material
	7.113	6TH ST	7.350	MILL BRANCH RD	0.237	Rural Minor Arterial							
	7.350	MILL BRANCH RD	7.715	KY 2378	0.365	Rural Minor Arterial							
	7.715	KY 2378	8.100	JOHNSON CENTRAL HIGH SCHOOL DR	0.385	Rural Minor Arterial							
	8.100	JOHNSON CENTRAL HIGH SCHOOL DR	8.602	MCCLOUD ST	0.502	Rural Minor Arterial							
	8.602	MCCLOUD ST	8.670	PAINT CREEK BRIDGE	0.068	Rural Minor Arterial					2/4		
	8.670	PAINT CREEK BRIDGE	8.791	KY 40	0.121	Rural Minor Arterial					4		
KY 40	8.317	US 23 SOUTHBOUND OFF RAMP	8.388	US 23 OVER KY 40 IN PAINTSVILLE	0.071	Rural Major Collector	State Secondary	No	No	AAA	2	12	Paved with Bituminous Material
	8.388	US 23 OVER KY 40 IN PAINTSVILLE	8.395	US 23 UNDERPASS	0.007	Rural Major Collector							
	8.395	US 23 UNDERPASS	8.494	OVERPASS KY 40 @ MUDLICK	0.099	Rural Major Collector							
	8.494	OVERPASS KY 40 @ MUDLICK	8.529	US 460	0.035	Rural Major Collector							
	8.529	US 460	8.632	HIDDEN VALLEY RD	0.103	Rural Major Collector					4		
	8.632	HIDDEN VALLEY RD	8.850	DETENTION CENTER RD	0.218	Rural Major Collector							
	8.850	DETENTION CENTER RD	9.073	KY 321	0.223	Rural Major Collector							
	9.073	KY 321	9.487	TEAYS BRANCH RD	0.414	Rural Major Collector					2/4	10/12	
	9.487	TEAYS BRANCH RD	10.111	WH DIXON BLVD	0.624	Rural Major Collector					2	10	
	10.111	WH DIXON BLVD	10.549	CEMETERY RD	0.438	Rural Major Collector					2		Paved w/ Bit. Material/Curbed
	10.549	CEMETERY RD	10.613	WEST ST	0.064	Rural Major Collector					2	14	Curbed
	10.613	WEST ST	10.668	KY 2560	0.055	Rural Major Collector					2		
	10.668	KY 2560	10.743	CHURCH ST/KY 2560	0.075	Rural Major Collector					2		
	10.743	CHURCH ST/KY 2560	10.799	DAVIS ST	0.056	Rural Major Collector					2		
	10.799	DAVIS ST	10.821	COURT ST	0.022	Rural Major Collector					2		
	10.821	COURT ST	10.890	KY321X/COLLEGE ST	0.069	Rural Major Collector					2		
KY 321 X	0.027	KY 2333	0.151	PAINT CREEK BRIDGE	0.124	Rural Local	Supplemental	No	No	AAA	2	15	Earth/Curbed
	0.151	PAINT CREEK BRIDGE	0.206	KY 2561/MAIN ST	0.055	Rural Local						12	Curbed
	0.206	KY 2561/MAIN ST	0.263	2ND ST	0.057	Rural Local							
	0.263	2ND ST	0.333	KY 40	0.070	Rural Local							
KY 2378	0.000	KY 321	0.053	PAINT CREEK BRIDGE	0.053	Rural Local	Supplemental	No	No	A	2	12	Paved with Portland Cement
	0.053	PAINT CREEK BRIDGE	0.125	JAMES S TRIMBLE BLVD	0.072	Rural Local							

Route	Beginning MP	Beginning Feature	Ending MP	Ending Feature	Shoulder Width	Speed Limit	Pavement Type	Condition Index	Safety Index	Service Index	Percentile	VSF	CRF	Speed Limit	Critical Rate Factor	Design Speed	Actual Rate	Average Rate	Critical Rate
KY 321	7.061	KY 321X	7.113	6TH ST	11	35	High Flexible	30	41	5	47.05	0.47	0.3763321	35	0.54	60	50.7176205	64.04118161	134.7682693
	7.113	6TH ST	7.350	MILL BRANCH RD															
	7.350	MILL BRANCH RD	7.715	KY 2378	5	35/45													
	7.715	KY 2378	8.100	JOHNSON CENTRAL HIGH SCHOOL DR		45			20	13	22.72	0.94	1.5355018	45	2.55	60	180.6289529	64.04118161	117.6351299
	8.100	JOHNSON CENTRAL HIGH SCHOOL DR	8.602	MCCLOUD ST	5/10														
	8.602	MCCLOUD ST	8.670	PAINT CREEK BRIDGE	10														
	8.670	PAINT CREEK BRIDGE	8.791	KY 40					18.5	20	28.89	0.17	0.914677	45	1.59	65	72.06770619	26.6749678	78.7903353
KY 40	8.317	US 23 SOUTHBOUND OFF RAMP	8.388	US 23 OVER KY 40 IN PAINTSVILLE	12	55	High Flexible	24	46.5	0	46.97	0.33	0.525853	55	0.25	55	75.41217966	64.04118161	143.4092505
	8.388	US 23 OVER KY 40 IN PAINTSVILLE	8.395	US 23 UNDERPASS															
	8.395	US 23 UNDERPASS	8.494	OVERPASS KY 40 @ MUDLICK															
	8.494	OVERPASS KY 40 @ MUDLICK	8.529	US 460															
	8.529	US 460	8.632	HIDDEN VALLEY RD	10	45		30	26		25.01	1.15	1.7795008	45	2.44	70	137.9798388	26.6749678	77.53850889
	8.632	HIDDEN VALLEY RD	8.850	DETENTION CENTER RD															
	8.850	DETENTION CENTER RD	9.073	KY 321															
	9.073	KY 321	9.487	TEAYS BRANCH RD	10/3				8.9	15	22.87	0.14	0.4982673	35	1.3	60	65.72221596	64.04118161	131.9015136
	9.487	TEAYS BRANCH RD	10.111	WH DIXON BLVD	3														
	10.111	WH DIXON BLVD	10.549	CEMETERY RD	3/0	45/35													
	10.549	CEMETERY RD	10.613	WEST ST	0	25		9	49		51.94	0.39	0.2782577	25	0.58	60	49.9674859	64.04118161	179.5726802
	10.613	WEST ST	10.668	KY 2560															
	10.668	KY 2560	10.743	CHURCH ST/KY 2560															
	10.743	CHURCH ST/KY 2560	10.799	DAVIS ST															
	10.799	DAVIS ST	10.821	COURT ST															
	10.821	COURT ST	10.890	KY321X/COLLEGE ST															
KY 321 X	0.027	KY 2333	0.151	PAINT CREEK BRIDGE	2/0	25	High Flexible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	0.151	PAINT CREEK BRIDGE	0.206	KY 2561/MAIN ST	0		High Flexible/Rigid												
	0.206	KY 2561/MAIN ST	0.263	2ND ST			High Rigid												
	0.263	2ND ST	0.333	KY 40															
KY 2378	0.000	KY 321	0.053	PAINT CREEK BRIDGE	5	35	High Flexible	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	0.053	PAINT CREEK BRIDGE	0.125	JAMES S TRIMBLE BLVD															

APPENDIX B

STRUCTURES

NATIONAL BRIDGE INVENTORY

KENTUCKY INVENTORY AND APPRAISAL REPORT

Use of this document subject to 23 USC SEC 409

(8) STRUCTURE NUMBER: 058B00067N

*******IDENTIFICATION*******

(1) STATENAME:	**KENTUCKY**
(5) INVENTORY ROUTE (ON/UNDER):	**131003210**
(2) DISTRICT AGENCY DISTRICT:	**12**
(3) COUNTY CODE: **58**	(4) PLACECODE: **0000**
(6) FEATURES INTERSECTED:	**PAINT CREEK**
(9) LOCATION:	**.05 MI S OF JCT KY 40**
(11) MILE POINT:	**8.69**
(7) FACILITY CARRIED:	**KY-321**
(12) BASE HIGHWAY NETWORK:	**On**
(13) LRS INVENTORY ROUTE & SUBROUTE:	**KY0321_00000**
(16) LATITUDE:	**37.8261451 N DEGREES**
(17) LONGITUDE:	**-82.825411 W DEGREES**
(98) BORDER BRIDGE STATECODE **Unknown -**	%SHARED: **Unknown**
(99) BORDER BRIDGE STRUCTURE NUMBER:	

*******STRUCTURE TYPE AND MATERIAL*******

(43) STRUCTURE TYPE MAIN:	**602 - Prestressed concrete continuous Stringer/Multi-beam or Girder**
(44) STRUCTURE TYPE APPR:	**!Not Applicable -Not Coded**
(45) NUMBER OF SPANS IN MAIN UNIT:	**3**
(46) NUMBER OF APPROACH SPANS:	**0**
(107) DECK STRUCTURE TYPE	**1 - Concrete Cast-in-Place**
(108) WEARING SURFACE/PROTECTIVE SYSTEM	
(108A) TYPE OF WEARING SURFACE:	**0 - None**
(108B) TYPE OF MEMBRANE:	**0 - None**
(108C) TYPE OF DECK PROTECTION:	**0 - None**

*******AGE AND SERVICE*******

(27) YEAR BUILT:	**1987**
(106) YEAR RECONSTRUCTED:	**0**
(42A) TYPE OF SERVICE-ON:	**1 - Highway**
(42B) TYPE OF SERVICE-UNDER	**5 - Waterway**
(28) LANES ON STRUCTURE: **4**	UNDER STRUCTURE: **0**
(29) AVERAGE DAILY TRAFFIC: **17100**	
(30) YEAR OF ADT: **2010**	(109) TRUCK ADT%: **5**
(19) BYPASS DETOUR LENGTH:	**5 mi.**

*******GEOMETRIC DATA*******

(48) LENGTH OF MAXIMUM SPAN:	**80.1 ft.**
(49) STRUCTURE LENGTH:	**202.1 ft.**
(50) CURB OR SIDE WALK LEFT: **0.0 ft.**	RIGHT: **0.0 ft.**
(51) BRIDGE ROADWAY WIDTH CURB TO CURB:	**82.0 ft.**
(52) DECK WIDTH OUT TO OUT:	**85.3 ft.**
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS):	**82.0**
(33) BRIDGE MEDIAN:	**No**
(34) SKEW: **0**	STRUCTURED FLARED: **No**
(10) INVENTORY ROUTE MIN VERT CLEAR:	**100.0 ft.**
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR:	**81.6 ft.**
(53) MIN VERT CLEAR OVER BRIDGE RDWY:	**99.99 ft.**
(54) MIN VER UNDER CLEAR REF: **N**	**(b) 0 ft.**
(55) MIN LAT UNDER CLEAR RT REF: **N**	**(b) 0 ft.**
(56) MIN LAT UNDER CLEAR LEFT:	**0 ft.**

*******NAVIGATION DATA*******

(38) NAVIGATION CONTROL:	**0 - No navigation control on waterway**
(111) PIER PROTECTION:	**1 - Navigation protection not required**
(39) NAVIGATION VERTICAL CLEARENCE:	**0.0 ft.**
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEARENCE:	**ft.**
(40) NAVIGATION HORIZONTAL CLEARENCE:	**0.0 ft.**
SUFFICIENCY RATING:	**93.60**
STATUS:	**0 - Not Deficient**

*******CLASSIFICATION*******

(112) NBIS BRIDGE LENGTH:	**Yes**
(104) HIGHWAY SYSTEM:	**0 - Inventory Route is not on the NHS**
(26) FUNCTIONAL CLASS	**06 - Minor Arterial**
(100) STRAHNET HIGHWAY:	**0 - The inventory route is not a STRAHNET route**
(101) PARALLEL STRU	**N - No parallel structure exists**
(103) TEMPORARY STRUCTURE:	**Not Applicable**
(102) DIRECTION OF T	**2 - 2-way traffic**
(105) FEDERAL LANDS HIGHWAYS:	**0 - Not applicable**
(110) DESIGNATED NATIONAL NETWORK:	**0 - The inventory route is not part of the national network for trucks**
(20) TOLL:	**3 - On Free Road**
(21) MAINTAIN:	**01 - Not Coded**
(22) OWNER:	**01 - State Highway Agency**
(37) HISTORICAL SIGNIFICANCE:	**5 - Bridge is not eligible for the National Register of Historic Places**

*******CONDITION*******

(58) DECK:	**7**
(59) SUPERSTRUCTURE:	**7**
(60) SUBSTRUCTURE:	**8**
(61) CHANNEL AND CHANNEL PROTECTION:	**8**
(62) CULVERTS:	**N**

*******LOAD RATING AND POSTING*******

(31) DESIGN LOAD:	**5 - HS 20**
(63) OPERATING RATING METHOD:	**1 - Load Factor**
(64) OPERATING RATING:	**72.0 Tons**
(65) INVENTORY RATING METHOD:	**1 - Load Factor**
(66) INVENTORY RATING:	**43.0 Tons**
(70) BRIDGE POSTING:	**5 - Equal to or above the legal loads**
(41) STRUCTURE OPEN, POSTED OR CLOSED:	**A - Open, no restriction**

*******APPRAISAL*******

(67) STRUCTURAL EVALUATION:	**7**
(68) DECK GEOMETRY:	**9**
(69) UNDERCLEARENCE, VERTICAL & HORIZONTAL:	**N**
(71) WATERWAY ADEQUACY:	**8**
(36) TRAFFIC SAFETY FEATURES:	**1111**
(113) SCOUR CRITICAL BRIDGES:	**8**

*******PROPOSED IMPROVEMENTS*******

(75) TYPE OF WORK:	**Unknown**
(76) LENGTH OF STRUCTURE IMPROVEMENT:	**0 ft.**
(94) BRIDGE IMPROVEMENT COST:	**$0.00**
(95) ROADWAY IMPROVEMENT COST:	**$0.00**
(96) TOTAL PROJECTION COST:	**$0.00**
(97) YEAR OF IMPROVEMENT COST ESTIMATE:	**2000**
(114) FUTURE ADT:	**25479**
(115) YEAR OF FUTURE ADT:	**2030**

*******INSPECTIONS*******

(90 INSPECTION DATE:	**2/18/2010**
(92) CRITICAL FEATURE INSPECTION:	
(92A) FRACTURE CRITICAL DETAIL:	**N**
(92B) UNDERWATER INSPECTION:	**N**
(92C) OTHER SPECIAL INSP:	**N**
(91) FREQUENCY:	**24 months**
(93) CFI DATE:	
(93A):	**1/1/1901**
(93B):	**3/1/2005**
(93C):	**1/1/1901**

NATIONAL BRIDGE INVENTORY

KENTUCKY INVENTORY AND APPRAISAL REPORT

Use of this document subject to 23 USC SEC 409

(8) STRUCTURE NUMBER: 058B00047N

*******IDENTIFICATION*******	
(1) STATENAME:	**KENTUCKY**
(5) INVENTORY ROUTE (ON/UNDER):	**136003210**
(2) DISTRICT AGENCY DISTRICT:	**12**
(3) COUNTY CODE:	**58** (4) PLACECODE: **1525**
(6) FEATURES INTERSECTED:	**PAINT CREEK**
(9) LOCATION:	**.15MI N OF S-JCT US23&460**
(11) MILE POINT:	**0.15**
(7) FACILITY CARRIED:	**KY-321X**
(12) BASE HIGHWAY NETWORK:	
(13) LRS INVENTORY ROUTE & SUBROUTE:	
(16) LATITUDE:	**37.813075319 N DEGREES**
(17) LONGITUDE:	**-82.805803786 W DEGREES**
(98) BORDER BRIDGE STATECODE	**Unknown -** %SHARED: **Unknown**
(99) BORDER BRIDGE STRUCTURE NUMBER:	
*******STRUCTURE TYPE AND MATERIAL*******	
(43) STRUCTURE TYPE MAIN:	**302 - Steel Stringer/Multi-beam or Girder**
(44) STRUCTURE TYPE APPR:	**!Not Applicable -Not Coded**
(45) NUMBER OF SPANS IN MAIN UNIT:	**4**
(46) NUMBER OF APPROACH SPANS:	**0**
(107) DECK STRUCTURE TYPE	**1 - Concrete Cast-in-Place**
(108) WEARING SURFACE/PROTECTIVE SYSTEM	
(108A) TYPE OF WEARING SURFACE:	**3 - Latex Concrete or similar additive**
(108B) TYPE OF MEMBRANE:	**0 - None**
(108C) TYPE OF DECK PROTECTION:	**0 - None**
*******AGE AND SERVICE*******	
(27) YEAR BUILT:	**1936**
(106) YEAR RECONSTRUCTED:	**0**
(42A) TYPE OF SERVICE-ON:	**1 - Highway**
(42B) TYPE OF SERVICE-UNDER	**5 - Waterway**
(28) LANES ON STRUCTURE: **2**	UNDER STRUCTURE: **0**
(29) AVERAGE DAILY TRAFFIC: **5460**	
(30) YEAR OF ADT: **2010**	(109) TRUCK ADT%: **8**
(19) BYPASS DETOUR LENGTH:	**3.1 mi.**
*******GEOMETRIC DATA*******	
(48) LENGTH OF MAXIMUM SPAN:	**69.9 ft.**
(49) STRUCTURE LENGTH:	**294.9 ft.**
(50) CURB OR SIDE WALK LEFT: **0.0 ft.**	RIGHT: **4.6 ft.**
(51) BRIDGE ROADWAY WIDTH CURB TO CURB:	**24.0 ft.**
(52) DECK WIDTH OUT TO OUT:	**28.9 ft.**
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS):	**24.0**
(33) BRIDGE MEDIAN:	**No**
(34) SKEW: **0**	STRUCTURED FLARED: **No**
(10) INVENTORY ROUTE MIN VERT CLEAR:	**100.0 ft.**
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR:	**23.9 ft.**
(53) MIN VERT CLEAR OVER BRIDGE RDWY:	**99.99 ft.**
(54) MIN VER UNDER CLEAR REF: **N**	**(b) 0 ft.**
(55) MIN LAT UNDER CLEAR RT REF: **N**	**(b) 0 ft.**
(56) MIN LAT UNDER CLEAR LEFT:	**0 ft.**
*******NAVIGATION DATA*******	
(38) NAVIGATION CONTROL	**0 - No navigation control on waterway**
(111) PIER PROTECTION:	**1 - Navigation protection not required**
(39) NAVIGATION VERTICAL CLEARENCE:	**0.0 ft.**
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEARENCE:	**ft.**
(40) NAVIGATION HORIZONTAL CLEARENCE:	**0.0 ft.**
SUFFICIENCY RATING:	**76.30**
STATUS:	**2 - Functionally Obsolete**

*******CLASSIFICATION*******	
(112) NBIS BRIDGE LENGTH:	**Yes**
(104) HIGHWAY SYSTEM:	**0 - Inventory Route is not on the NHS**
(26) FUNCTIONAL CLASS	**09 - Local**
(100) STRAHNET HIGHWAY:	**0 - The inventory route is not a STRAHNET route**
(101) PARALLEL STRU	**N - No parallel structure exists**
(103) TEMPORARY STRUCTURE:	**Not Applicable**
(102) DIRECTION OF T	**2 - 2-way traffic**
(105) FEDERAL LANDS HIGHWAYS:	**0 - Not applicable**
(110) DESIGNATED NATIONAL NETWORK:	**0 - The inventory route is not part of the national network for trucks**
(20) TOLL:	**3 - On Free Road**
(21) MAINTAIN:	**01 - Not Coded**
(22) OWNER:	**01 - State Highway Agency**
(37) HISTORICAL SIGNIFICANCE:	**5 - Bridge is not eligible for the National Register of Historic Places**
*******CONDITION*******	
(58) DECK:	**7**
(59) SUPERSTRUCTURE:	**5**
(60) SUBSTRUCTURE:	**7**
(61) CHANNEL AND CHANNEL PROTECTION:	**7**
(62) CULVERTS:	**N**
*******LOAD RATING AND POSTING*******	
(31) DESIGN LOAD:	**4 - H 20**
(63) OPERATING RATING METHOD:	**2 - Allowable Stress**
(64) OPERATING RATING:	**70.0 Tons**
(65) INVENTORY RATING METHOD:	**2 - Allowable Stress**
(66) INVENTORY RATING:	**41.0 Tons**
(70) BRIDGE POSTING:	**5 - Equal to or above the legal loads**
(41) STRUCTURE OPEN, POSTED OR CLOSED:	**A - Open, no restriction**
*******APPRAISAL*******	
(67) STRUCTURAL EVALUATION:	**7**
(68) DECK GEOMETRY:	**2**
(69) UNDERCLEARENCE, VERTICAL & HORIZONTAL:	**N**
(71) WATERWAY ADEQUACY:	**8**
(36) TRAFFIC SAFETY FEATURES:	**0000**
(113) SCOUR CRITICAL BRIDGES:	**8**
*******PROPOSED IMPROVEMENTS*******	
(75) TYPE OF WORK:	**341**
(76) LENGTH OF STRUCTURE IMPROVEMENT:	**29.5 ft.**
(94) BRIDGE IMPROVEMENT COST:	**$1,069,000.00**
(95) ROADWAY IMPROVEMENT COST:	**$0.00**
(96) TOTAL PROJECTION COST:	**$1,069,000.00**
(97) YEAR OF IMPROVEMENT COST ESTIMATE:	**1995**
(114) FUTURE ADT:	**6661**
(115) YEAR OF FUTURE ADT:	**2030**
*******INSPECTIONS*******	
(90 INSPECTION DATE:	**6/24/2011**
(92) CRITICAL FEATURE INSPECTION:	
(92A) FRACTURE CRITICAL DETAIL:	**N**
(92B) UNDERWATER INSPECTION:	**N**
(92C) OTHER SPECIAL INSP:	**N**
(91) FREQUENCY:	**24 months**
(93) CFI DATE:	
(93A):	**1/1/1901**
(93B):	**10/1/2004**
(93C):	**1/1/1901**

NATIONAL BRIDGE INVENTORY

KENTUCKY INVENTORY AND APPRAISAL REPORT

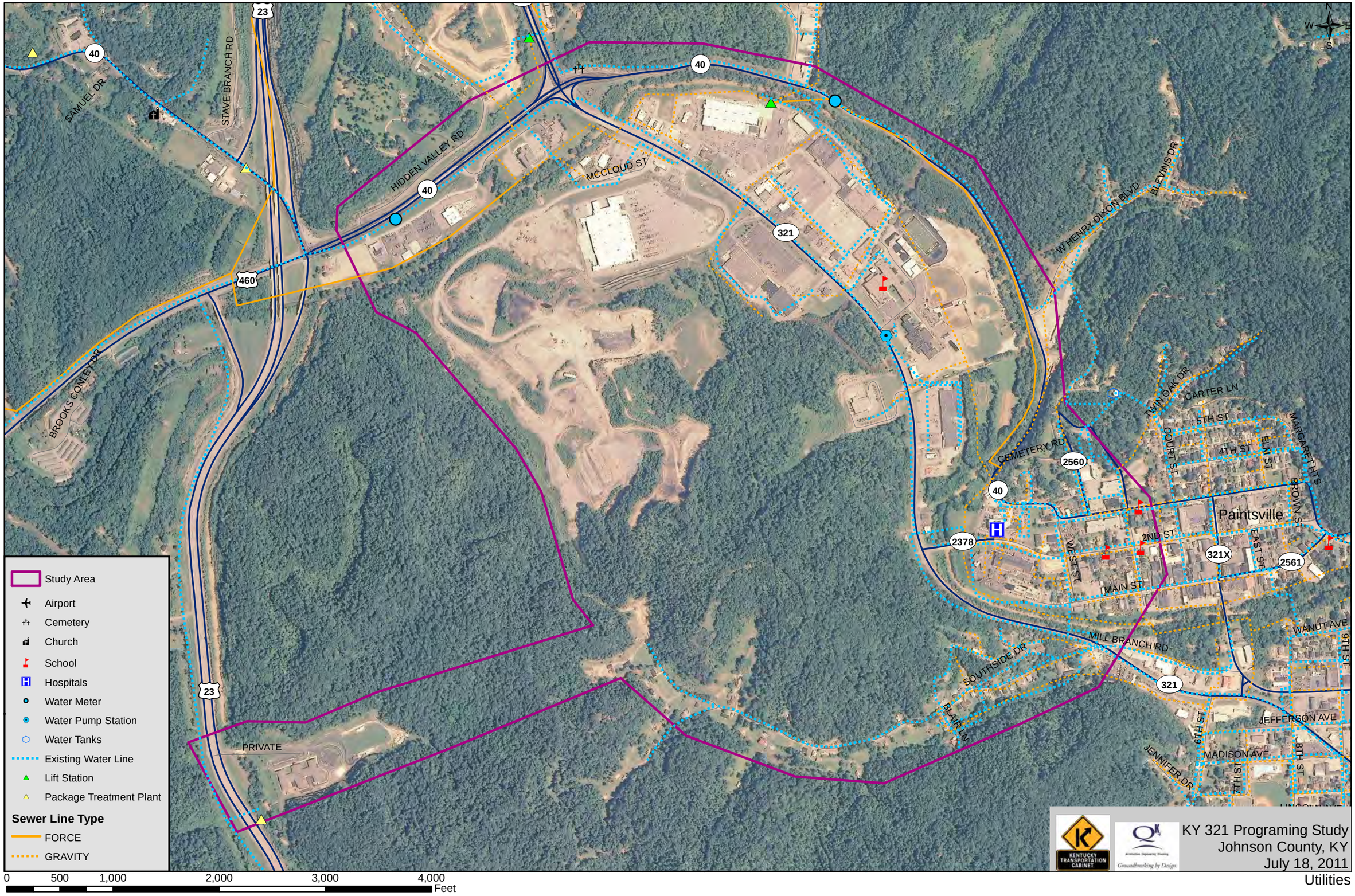
Use of this document subject to 23 USC SEC 409

(8) STRUCTURE NUMBER: 058B00059N

*******IDENTIFICATION*******	
(1) STATENAME:	**KENTUCKY**
(5) INVENTORY ROUTE (ON/UNDER):	**131023780**
(2) DISTRICT AGENCY DISTRICT:	**12**
(3) COUNTY CODE: **58**	(4) PLACECODE: **1525**
(6) FEATURES INTERSECTED:	**PAINT CREEK**
(9) LOCATION:	**JCT KY321BY-PASS**
(11) MILE POINT:	**0.05**
(7) FACILITY CARRIED:	**KY-2378**
(12) BASE HIGHWAY NETWORK:	
(13) LRS INVENTORY ROUTE & SUBROUTE:	
(16) LATITUDE:	**37.814986415 N DEGREES**
(17) LONGITUDE:	**-82.814595522 W DEGREES**
(98) BORDER BRIDGE STATECODE **Unknown -**	%SHARED: **Unknown**
(99) BORDER BRIDGE STRUCTURE NUMBER:	
*******STRUCTURE TYPE AND MATERIAL*******	
(43) STRUCTURE TYPE MAIN:	**602 - Prestressed concrete continuous Stringer/Multi-beam or Girder**
(44) STRUCTURE TYPE APPR:	**!Not Applicable -Not Coded**
(45) NUMBER OF SPANS IN MAIN UNIT:	**3**
(46) NUMBER OF APPROACH SPANS:	**0**
(107) DECK STRUCTURE TYPE	**1 - Concrete Cast-in-Place**
(108) WEARING SURFACE/PROTECTIVE SYSTEM	
(108A) TYPE OF WEARING SURFACE:	**1 - Monolithic Concrete**
(108B) TYPE OF MEMBRANE:	**8 - Unknown**
(108C) TYPE OF DECK PROTECTION:	**8 - Unknown**
*******AGE AND SERVICE*******	
(27) YEAR BUILT:	**1979**
(106) YEAR RECONSTRUCTED:	**0**
(42A) TYPE OF SERVICE-ON:	**5 - Highway-pedestrian**
(42B) TYPE OF SERVICE-UNDER	**5 - Waterway**
(28) LANES ON STRUCTURE: **2**	UNDER STRUCTURE: **0**
(29) AVERAGE DAILY TRAFFIC: **4450**	
(30) YEAR OF ADT: **2010**	(109) TRUCK ADT%: **0**
(19) BYPASS DETOUR LENGTH:	**1.2 mi.**
*******GEOMETRIC DATA*******	
(48) LENGTH OF MAXIMUM SPAN:	**77.1 ft.**
(49) STRUCTURE LENGTH:	**204.1 ft.**
(50) CURB OR SIDE WALK LEFT: **3.9 ft.**	RIGHT: **0.0 ft.**
(51) BRIDGE ROADWAY WIDTH CURB TO CURB:	**34.1 ft.**
(52) DECK WIDTH OUT TO OUT:	**42.3 ft.**
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS):	**24.9**
(33) BRIDGE MEDIAN:	**No**
(34) SKEW: **0**	STRUCTURED FLARED: **No**
(10) INVENTORY ROUTE MIN VERT CLEAR:	**100.0 ft.**
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR:	**33.7 ft.**
(53) MIN VERT CLEAR OVER BRIDGE RDWY:	**99.99 ft.**
(54) MIN VER UNDER CLEAR REF: **N**	**(b) 0 ft.**
(55) MIN LAT UNDER CLEAR RT REF: **N**	**(b) 0 ft.**
(56) MIN LAT UNDER CLEAR LEFT:	**0 ft.**
*******NAVIGATION DATA*******	
(38) NAVIGATION CONTROL:	**0 - No navigation control on waterway**
(111) PIER PROTECTION:	**1 - Navigation protection not required**
(39) NAVIGATION VERTICAL CLEARENCE:	**0.0 ft.**
(116) VERT-LIFT BRIDGE NAV MIN VERT CLEARENCE:	**ft.**
(40) NAVIGATION HORIZONTAL CLEARENCE:	**0.0 ft.**
SUFFICIENCY RATING:	**98.60**
STATUS:	**0 - Not Deficient**

*******CLASSIFICATION*******	
(112) NBIS BRIDGE LENGTH:	**Yes**
(104) HIGHWAY SYSTEM:	**0 - Inventory Route is not on the NHS**
(26) FUNCTIONAL CLASS	**09 - Local**
(100) STRAHNET HIGHWAY:	**0 - The inventory route is not a STRAHNET route**
(101) PARALLEL STRU	**N - No parallel structure exists**
(103) TEMPORARY STRUCTURE:	**Not Applicable**
(102) DIRECTION OF T	**2 - 2-way traffic**
(105) FEDERAL LANDS HIGHWAYS:	**0 - Not applicable**
(110) DESIGNATED NATIONAL NETWORK:	**0 - The inventory route is not part of the national network for trucks**
(20) TOLL:	**3 - On Free Road**
(21) MAINTAIN:	**01 - Not Coded**
(22) OWNER:	**01 - State Highway Agency**
(37) HISTORICAL SIGNIFICANCE:	**5 - Bridge is not eligible for the National Register of Historic Places**
*******CONDITION*******	
(58) DECK:	**7**
(59) SUPERSTRUCTURE:	**7**
(60) SUBSTRUCTURE:	**7**
(61) CHANNEL AND CHANNEL PROTECTION:	**8**
(62) CULVERTS:	**N**
*******LOAD RATING AND POSTING*******	
(31) DESIGN LOAD:	**5 - HS 20**
(63) OPERATING RATING METHOD:	**2 - Allowable Stress**
(64) OPERATING RATING:	**110.0 Tons**
(65) INVENTORY RATING METHOD:	**2 - Allowable Stress**
(66) INVENTORY RATING:	**72.0 Tons**
(70) BRIDGE POSTING:	**5 - Equal to or above the legal loads**
(41) STRUCTURE OPEN, POSTED OR CLOSED:	**A - Open, no restriction**
*******APPRAISAL*******	
(67) STRUCTURAL EVALUATION:	**7**
(68) DECK GEOMETRY:	**5**
(69) UNDERCLEARENCE, VERTICAL & HORIZONTAL:	**N**
(71) WATERWAY ADEQUACY:	**8**
(36) TRAFFIC SAFETY FEATURES:	**1111**
(113) SCOUR CRITICAL BRIDGES:	**8**
*******PROPOSED IMPROVEMENTS*******	
(75) TYPE OF WORK:	**Unknown**
(76) LENGTH OF STRUCTURE IMPROVEMENT:	**0 ft.**
(94) BRIDGE IMPROVEMENT COST:	**$0.00**
(95) ROADWAY IMPROVEMENT COST:	**$0.00**
(96) TOTAL PROJECTION COST:	**$0.00**
(97) YEAR OF IMPROVEMENT COST ESTIMATE:	**2000**
(114) FUTURE ADT:	**5429**
(115) YEAR OF FUTURE ADT:	**2030**
*******INSPECTIONS*******	
(90 INSPECTION DATE:	**2/18/2010**
(92) CRITICAL FEATURE INSPECTION:	
(92A) FRACTURE CRITICAL DETAIL:	**N**
(92B) UNDERWATER INSPECTION:	**N**
(92C) OTHER SPECIAL INSP:	**N**
(91) FREQUENCY:	**24 months**
(93) CFI DATE:	
(93A):	**1/1/1901**
(93B):	**1/1/1901**
(93C):	**1/1/1901**

APPENDIX C


N
W
E
S
23
40
460
321
2560
2378
321X
2561
SAMUEL DR
STAVE BRANCH RD
HIDDEN VALLEY RD
MCCLOUD ST
W HENRY DIXON BLVD
BLEVINS DR
BROOKS CONLEY DR
TWIN OAK DR
CARTER LN
5TH ST
4TH ST
COURT ST
ELM ST
MARGARET H'S
CEMETERY RD
BROWN ST
Paintsville
2ND ST
WEST ST
EAST ST
MAIN ST
WALNUT AVE
9TH ST
MILL BRANCH RD
SOUTHSIDE DR
BLAIR LN
JEFFERSON AVE
8TH ST
MADISON AVE
7TH ST
JENNIFER DR
PRIVATE
Study Area
Airport
Cemetery
Church
School
Hospitals
Water Meter
Water Pump Station
Water Tanks
Existing Water Line
Lift Station
Package Treatment Plant
Sewer Line Type
FORCE
GRAVITY
0
500
1,000
2,000
3,000
4,000
Feet
KENTUCKY TRANSPORTATION CABINET
Groundbreaking by Design.
KY 321 Programing Study
Johnson County, KY
July 18, 2011
Utilities

From:	rdmeecepu
To:	Coffey, Annette
Cc:	Rick Meece
Subject:	Re: Gas, Water, and Wastewater lines
Date:	Thursday, September 15, 2011 1:11:12 PM
Attachments:	Paintsville Utilities KY 321 South to KY 321X with main sizes.pdf

Annette,
Due to weather conditions - rain delays in Paintsville, I was able to complete the size information today.

Note that the 24" Water main ties into the 10" Water main @ Fire Hydrant on KY 321 North of the KY 40 Intersection and runs parallel with and 10 LF from the Wastewater Main

If you have any questions or if I missed labeling a crossing location please mark up that area and I will find an answer for your question.

FYI : I pulled up the map with Adobe reader and magnified to 400% it appears to be legible enough for what you needed.

Rick Meece
Engineer - Paintsville Utilities
P.O. Box 630; 137 Main Street
Paintsville, KY 41240-0630
Phone 606.789.2630
Fax 606.789.2631
Email: rdmeecepu@bellsouth.net

From: "Coffey, Annette" <acoffey@qk4.com>
To: rdmeecepu <rdmeecepu@bellsouth.net>
Sent: Thu, September 15, 2011 12:48:05 PM
Subject: RE: Gas, Water, and Wastewater lines

Thank you very much for the information. We will look forward to the size information. We will probably only look at options 500' in each directions on all legs of the KY 40/KY 321 intersection. What you gave me is great.

Annette Coffey, P. E.
Senior Transportation Engineer
Qk4
Architecture Engineering Planning
1410 Versailles Road, Suite 11
Frankfort, KY 40601
Phone (502) 352-2197
Cell (502) 471-9602
Email: acoffey@qk4.com

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of this message or any attachment, nor any error in transmission or misdelivery shall constitute waiver of any applicable legal privilege.

From: rdmeecepu [mailto:rdmeecepu@bellsouth.net]
Sent: Thursday, September 15, 2011 9:37 AM
To: Coffey, Annette
Cc: Rick Meece
Subject: Re: Gas, Water, and Wastewater lines

Annette,
This is the format I can provide you with for our Utilities. I will have to manually add the line sizes along the KY 321 route and may be next week before I finish.
However, I wanted to find out if this will work for your needs prior to adding the sizes.

We have a new 24" Water main currently being installed North of the KY 321 and KY 40 intersection which is not shown on this map. Will you be working North of this intersection?
I have color coded all of Paintsville Utilities Water (Blue), Gas (Yellow), and Wastewater (Green) per the map LEGEND.
Thanks for a quick reply.

Rick Meece
Engineer - Paintsville Utilities
P.O. Box 630; 137 Main Street
Paintsville, KY 41240-0630
Phone 606.789.2630
Fax 606.789.2631
Email: rdmeecepu@bellsouth.net

From: "Coffey, Annette" <acoffey@qk4.com>
To: rdmeecepu@bellsouth.net
Cc: "Siria, Bruce" <bsiria@qk4.com>
Sent: Wed, September 14, 2011 10:36:43 AM
Subject: Gas, Water, and Wastewater lines

Mr. Meece,
As a follow-up to our phone conversation, I would like to have locations of the above utilities in and around KY 321 from KY 40 to KY 321X south of Paintsville. We can handle GIS shape files if you have them, if not paper will most certainly do. If we could also get the size and type of the utilities that is also very helpful. Thank you in advance! And below is my information, feel free to call or mail the information also.

Annette Coffey, P. E.
Senior Transportation Engineer

Qk4
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Paintsville Utilities Water, Gas, & Wastewater System

From:	rdmeecepu
To:	Coffey, Annette
Cc:	Rick Meece
Subject:	Re: Gas, Water, and Wastewater lines
Date:	Thursday, March 08, 2012 10:29:01 AM
Attachments:	Paintsville Additional Gas Lines 3-8-2012.pdf

Annette,
I have marked up a copy of the map I previously submitted and labeled the gas mains you asked about.
All PE gas lines 2", 3", & 4" with the 6" one is Coated Steel.
I have also indicated a 6" Force Main Waste Water Line is 6" PVC which runs from LOWES toward the Hospital on KY 40.
If you need any further let me know.

Rick Meece
Engineer - Paintsville Utilities
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Paintsville, KY 41240-0630
Phone 606.789.2630
Fax 606.789.2631
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To: rdmeecepu <rdmeecepu@bellsouth.net>
Cc: "Siria, Bruce" <bsiria@qk4.com>
Sent: Wed, March 7, 2012 1:19:23 PM
Subject: RE: Gas, Water, and Wastewater lines

Mr. Meece, I have two more questions regarding the map you provided. The gas mains shown that parallels Paint Creek, is it 6" or 2"? Same question for downtown. Thank you for your time.

Annette Coffey, P. E.
Senior Transportation Engineer
Qk4
Architecture Engineering Planning
2225 Lawrenceburg Road, Building C, 2nd Floor
Frankfort, KY 40601
Phone (502) 352-2197
Cell (502) 471-9602
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Sent: Thursday, September 15, 2011 1:11 PM
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Cc: Rick Meece
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Note that the 24" Water main ties into the 10" Water main @ Fire Hydrant on KY 321 North of the KY 40 Intersection and runs parallel with and 10 LF from the Wastewater Main

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Email: rdmeecepu@bellsouth.net

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To: rdmeecepu <rdmeecepu@bellsouth.net>
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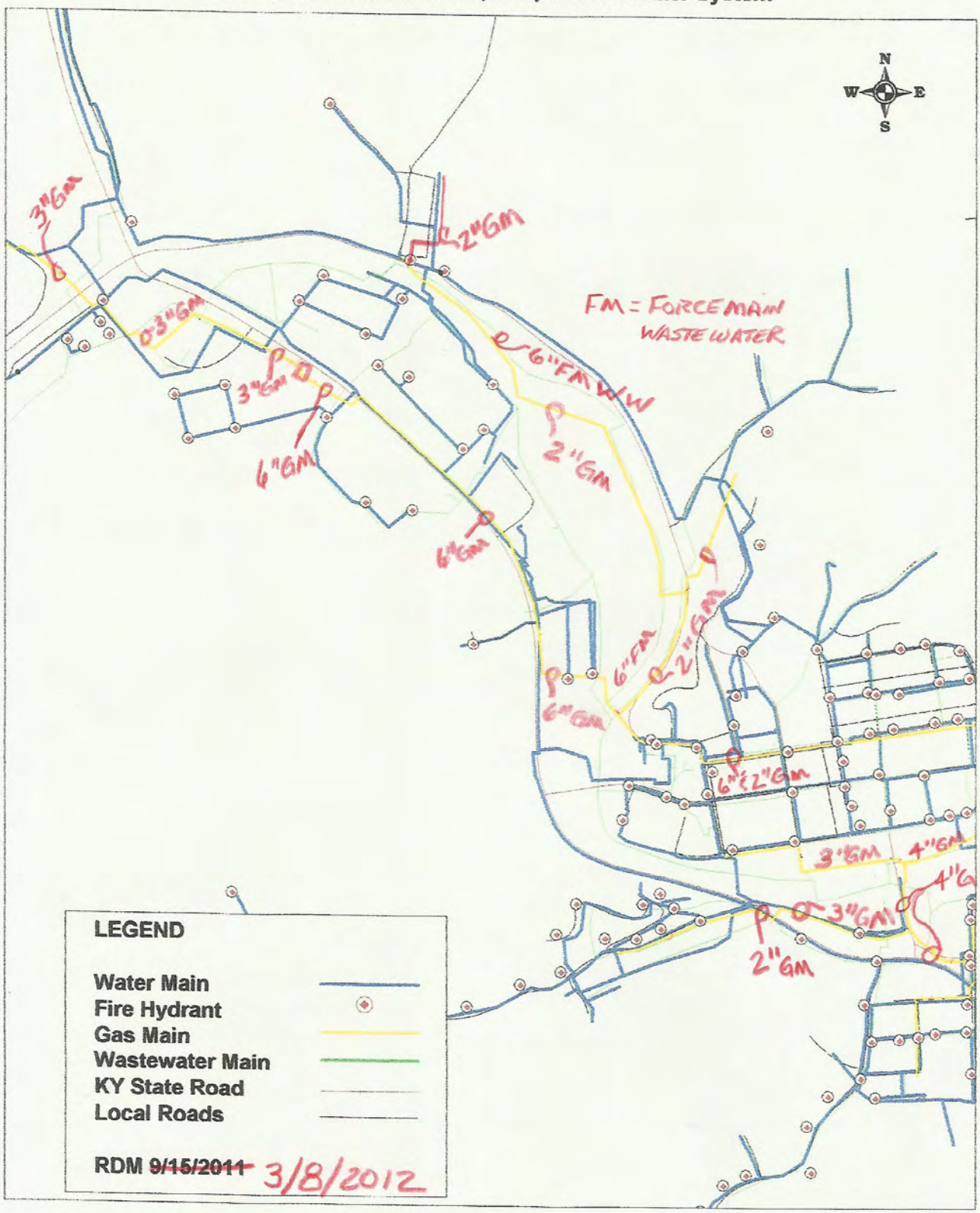
Paintsville Utilities Water, Gas, & Wastewater System



APPENDIX D

ARCHITECTURAL OVERVIEW

20 February 2012

Mr. Tom Springer
Qk4, Inc.
814 West Market Street, Suite 300
Louisville, KY 4202

Re: Updated Architectural Overview Along KY321 in Johnson County, Kentucky

Dear Mr. Springer,

AMEC Environment & Infrastructure (AMEC) is pleased to provide an email describing the results of a windshield survey of architectural resources along KY321 in Johnson County, Kentucky. The purpose of this email is to identify potential historic architectural resources within the study area proposed for development.

Architectural Resource Overview
This cultural resource overview identifies potential historic architectural sites likely to require consideration during the needs assessment for the KY321 project. This overview summarizes the results of architectural researches based on available archival literature located at the Kentucky Heritage Council in Frankfort, Kentucky. The study of archival material, including historic maps was completed to gain a better comprehension of the property's development and potential for sites of historic significance.

The overview was prepared for planning purposes only. It does not provide a detailed analysis or assessment of any potential impacts to architectural resources. Moreover, it must be stressed that the information presented in this overview report does not meet the requirements of Section 106 of the National Historic Preservation Act (NHPA) of 1966 (36 CFR 400.4, as amended). Consultation is required between the Kentucky Heritage Council and the Kentucky Transportation Cabinet to determine the level of additional investigations necessary to fully comply with Section 106 regulations. To meet these requirements, an architectural assessment must be conducted by professional architectural historians.

Architectural Resources
According to the Kentucky Heritage Council site file and database research, five properties that are on the NRHP, and 26 previously identified historic structures (**Figure 1; Table 1**). For the 26 previously identified historic architectural sites, the eligibility for listing on the NRHP has not been determined (see **Table 1)**. None of the site boundaries for the surveyed properties or the coded properties have been identified. One house was identified within the project area as 50 years or older that has not been previously surveyed, FS 1 (**Figures 1 and 2**). The house was likely built between 1905 and 1930 according to the architectural details of the house. These architectural details indicate that it is a vernacular Craftsman style house with the square pillars on the porch that extend to ground level.

AMEC Earth & Environmental, Inc.
2456 Fortune Dr.
Suite 100
Lexington, Kentucky 40509
Phone: (859) 566-3719
Fax: (859) 254-2327 www.amec.com

Table 1. Sites Listed on the NRHP within the study area.

SITE NUMBER	HISTORIC SITE NAME	LOCATION	STATUS
JOP 43	HOUSE	221 2ND	UNDETERMINED
JOP 48	HELTON MEAT MARKET	245-249 SECOND STREET	UNDETERMINED
JOP 49	HOBBS 5 AND 10	326-320 MAIN STREET	UNDETERMINED
JOP 51	ORA ANN BUILDING	216 MAIN STREET	UNDETERMINED
JOP 53	PHARMACY	316 MAIN STREET	UNDETERMINED
JOP 54	SIPP THEATER	336 MAIN STREET	UNDETERMINED
JOP 57	PAINTSVILLE FUNERAL HOME	236 SECOND ST	UNDETERMINED
JOP 64	WEBB BUILDING	209-225 MAIN STREET	UNDETERMINED
JOP 81	MARY PHELPS RESIDENCE	252 SECOND STREET	UNDETERMINED
JOP 82	MOVIE HOUSE	318 SECOND STREET	UNDETERMINED
JOP 83	S PARKS BUILDING	338 SECOND STREET	UNDETERMINED
JOP 84	COMMERCIAL BUILDING	140 MAIN STREET	UNDETERMINED
JOP 86	HOWARD COMMERCIAL BUILDING	312 MAIN STREET	UNDETERMINED
JOP 89	HAROLD MEADE BUILDING	229 MAIN STREET	UNDETERMINED
JOP 98	COMMERCIAL BUILDING	327 MAIN ST PAINTSVILLE	UNDETERMINED
JOP 100	COMMERCIAL BUILDING	337 MAIN STREET	UNDETERMINED
JOP 8	MCKENZIE BRANCH SCHOOL	ADJ HIG 2ND ADJ.	UNDETERMINED
JOP 45	PAINTSVILLE HOSPITAL	141 MAIN STREET	UNDETERMINED
JOP 59	JOHNSON COUNTY COURTHOUSE	MAIN STREET PAINTSVILLE	UNDETERMINED
JOP 66	MAGGARD'S FURNITURE	SECOND STREET	UNDETERMINED
JOP 68	BIG SANDY HARDWARE CO	MAIN STREET PAINTSVILLE	UNDETERMINED
JOP 74	PAINTSVILLE SUNDRY STORE	204 MAIN STREET	UNDETERMINED
JOP 95	COMMERCIAL BUILDING	DAVIS STREET PAINTSVILLE	UNDETERMINED
JOP 96	THE SECOND NATIONAL BANK	MAIN STREET PAINTSVILLE	UNDETERMINED
JOP 99	COMMERCIAL BUILDING	DAVIS STREET PAINTSVILLE	UNDETERMINED
JOP 44	BIG SANDY FEDERAL BANK	220-224 MAIN STREET	UNDETERMINED
JOP 5	JUDGE JIM TURNER HOME	315 3RD	NATIONAL REGISTER
JOP 39	TOM MAYO HOUSE	228 2ND	NATIONAL REGISTER
JOP 1	JOHN C C MAYO MANSION	3RD	NATIONAL REGISTER

JOP 10	FIRST METHODIST CHURCH	MAIN	NATIONAL REGISTER
JOP 40	PATTERSON HOUSE	2ND AT WEST	NATIONAL REGISTER

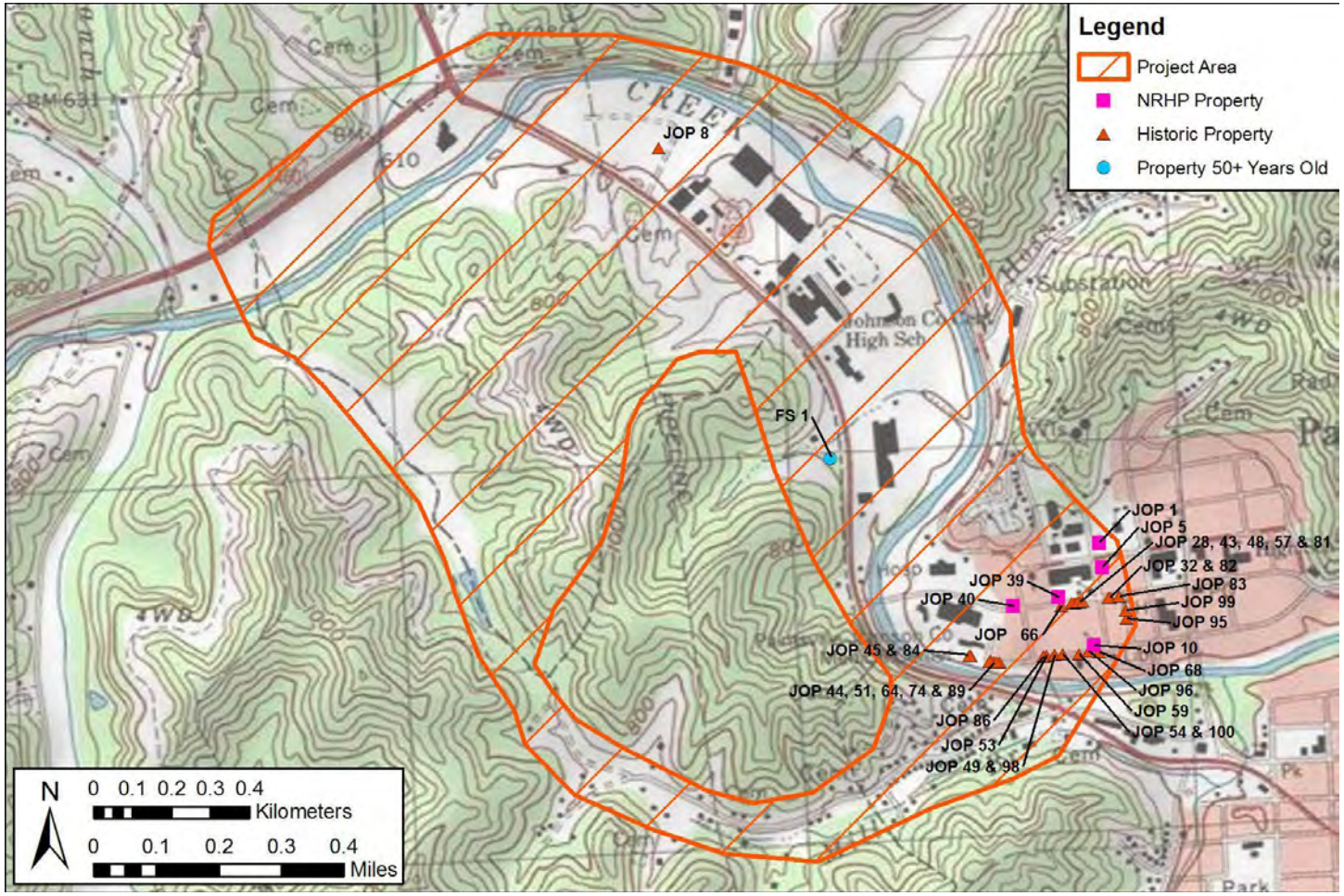


Figure 1. Results of Kentucky Heritage Council File Search.

Figure 2. FS 1, northwest of 229 N. Mayo Trail.

Figure 3. JOP 43, 221 Second St.

Figure 4. JOP 49, 326-330 Main St.

Figure 5. JOP 51, 216 Main St.

Figure 6. JOP 86, 312 Main St.

Figure 7. JOP 54 and JOP 96, 336 Main St.

Figure 8. JOP 82, 318 Second St.

Figure 9. JOP 59, Main Street Court House

RECOMMENDATIONS

Within the overview area there were five sites on the NRHP and 26 sites have been previously identified as being fifty years or older. An additional historic property was identified during the field work for this overview (FS 1). If future projects are developed in the study area, an architectural survey must be conducted when federal funds or a federal permit is involved.

The architectural survey will identify historic architectural sites and help determine whether a site is eligible for listing on the NRHP to comply with Section 106 of the National Historic Preservation Act of 1966 (as amended), 16 U.S.C. 470(f), and Presidential Executive Order 11593, Protection and Enhancement of the Cultural Environment. A Section 4(f) evaluation must be conducted and avoidance options considered if the right of way overlaps any NRHP listed or eligible for listing architectural site requiring preservation in place.

THREATENED AND ENDANGERED SPECIES

Both US and KY Species Information for Johnson County, KY

Records may include both recent and historical observations.

List Species observations in 1 selected county.
Selected county is: Johnson.

Scientific Name and Life History	Common Name and Pictures	Class	County	US Status	KY Status
Accipiter striatus	Sharp-shinned Hawk	Aves	Johnson	PS	S
Anas clypeata	Northern Shoveler	Aves	Johnson	N	E
Anas discors	Blue-winged Teal	Aves	Johnson	N	T
Buteo platypterus	Broad-winged Hawk	Aves	Johnson	PS	N
Cervus elaphus	Elk	Mammalia	Johnson	PS	N
Circus cyaneus	Northern Harrier	Aves	Johnson	N	T
Coccyzus americanus	Yellow-billed Cuckoo	Aves	Johnson	PS	N
Colinus virginianus	Northern Bobwhite	Aves	Johnson	PS	N
Corvus corax	Common Raven	Aves	Johnson	N	T
Fulica americana	American Coot	Aves	Johnson	N	E
Fusconaia subrotunda subrotunda	Longsolid	Bivalvia	Johnson	N	S
Haliaeetus leucocephalus	Bald Eagle	Aves	Johnson	N	T
Ichthyomyzon fossor	Northern Brook Lamprey	Cephalaspidomorphi	Johnson	N	T
Junco hyemalis	Dark-eyed Junco	Aves	Johnson	N	S
Lampropeltis triangulum elapsoides	Scarlet Kingsnake	Reptilia	Johnson	N	S
Microtus pennsylvanicus	Meadow Vole	Mammalia	Johnson	PS	N
Odocoileus virginianus	White-tailed Deer	Mammalia	Johnson	PS	N
Oncorhynchus mykiss	Rainbow Trout	Actinopterygii	Johnson	PS	N
Pandion haliaetus	Osprey	Aves	Johnson	N	T
Percopsis omiscomaycus	Trout-Perch	Actinopterygii	Johnson	N	S
Phalacrocorax auritus	Double-crested Cormorant	Aves	Johnson	N	E
Podilymbus podiceps	Pied-billed Grebe	Aves	Johnson	N	E
Sciurus niger	Eastern Fox Squirrel	Mammalia	Johnson	PS	N
Ursus americanus	American Black Bear	Mammalia	Johnson	PS	S

US Status Definitions

NatureServe Explorer Abbreviation	Status Under the U.S. Endangered Species Act
LE	Listed endangered
LT	Listed threatened
PE	Proposed endangered
PT	Proposed threatened
C	Candidate
PDL	Proposed for delisting
E(S/A) or T(S/A)	Listed endangered or threatened because of similarity of appearance
XE	Essential experimental population
XN	Nonessential experimental population
PS	Partial status - indicating that the status applies only to a portion of the species' range.
N or Blank	Usually indicates that the taxon does not have any federal status. However, because of potential lag time between publication in the Federal Register and entry in the central databases and refresh of this website, some taxa may have a status which does not yet appear.

KY Status Definitions

Abbreviation	Kentucky State Nature Preserves Commission status
E	endangered
T	threatened
S	special concern
H	historic
X	extirpated
N or Blank	none

http://fw.ky.gov/kfwis/speciesInfo/countyListSpecies.asp

GEOTECHNICAL OVERVIEW

M E M O R A N D U M **P-002-2012**

TO: **Keith Damron, PE**
Director
Division of Planning

FROM: **Bart Asher, PE, PLS**
Geotechnical Branch Manager
Division of Structural Design

BY: **Christian Wallover, PG**
Geotechnical Branch

DATE: **March 29, 2012**

SUBJECT: **Johnson County**
KY 321
MARS No. 8534008P
Planning Study

At your request, a geotechnical overview has been conducted for the proposed alternates from the KY 40/KY 321 interchange to Paintsville. In this report is an assessment of site conditions and potential geologic impacts to the project based upon available data and a field visit. A geologic map identifying areas of concern is attached.

The study area lies within the Cumberland Plateau Physiographic Region of Kentucky. This Region is known for economically rich coal seams which have been extensively mined. Geologic mapping indicates the project traverses across the Lee and Breathitt Formations known to consist of thick to thinly interbedded layers of sandstone, shale and coal. Alluvium deposits composed of silt, sand and gravel are found in valleys along Tays Branch and Paint Creek. Refer to the Geologic Map of the Paintsville Quadrangle (GQ-495) for more detailed information.

Geotechnical Concerns:

1) Due to anticipated depths of the alluvial deposits (0-95 feet), bridge piers located in alluvium may need to be founded on piles or drilled shafts.

2) Multiple adits (underground mine openings) in the Van Lear coal bed can be found on the attached geologic map indicating evidence of deep mining in the vicinity of the study area. Available historic mine maps (see attached mine maps: SFN 18707, 10573-1, and 94006) show underground, auger and strip mining has taken place in the Van Lear coal bed north of KY 40 between Tays and Hoss Mill Branch, and just north of Mill Branch. The labeled shaded areas found on the attached geologic map indicate the extent of know mined out areas. Mining activity in the Van Lear coal bed may affect alternates that cut into the hillside along KY 40

from KY 321 to West Street, and KY 321 from US Post Office Road to Mill Branch Road. If proposed cut slopes extend to the Van Lear coal bed (approximately elevation 800 along KY 40 and elevation 730 along KY 321) in these locations, remediation may be required to stabilize the rock cut slopes with flatter than normal slopes and additional costs such as backstowing of mine openings.

3) During a field review an existing landslide was noted on KY 40 at mile marker 10.0. The embankment failure appeared to be stabilized utilizing railroad rails and lagging. Additional embankment failures may be present on KY 40 along Paint Creek due to erosion or rapid drawdown, but were not seen. Alternates along KY 40 are recommended to move into the hillside opposite from Paint Creek to prevent existing and potential future embankment failures from affecting the roadway.

Should there be any questions, please call the Geotechnical Branch at 502-564-2374.

Johnson County - KY 321
Geologic Map

Contour Strip Mine

Underground Mine

94006

10573-1

18707

18600

VL

Qal

Pb

Pl

Paint Creek

CREEK

Existing Landslide

23

321

40

2560

2561

2378

321X

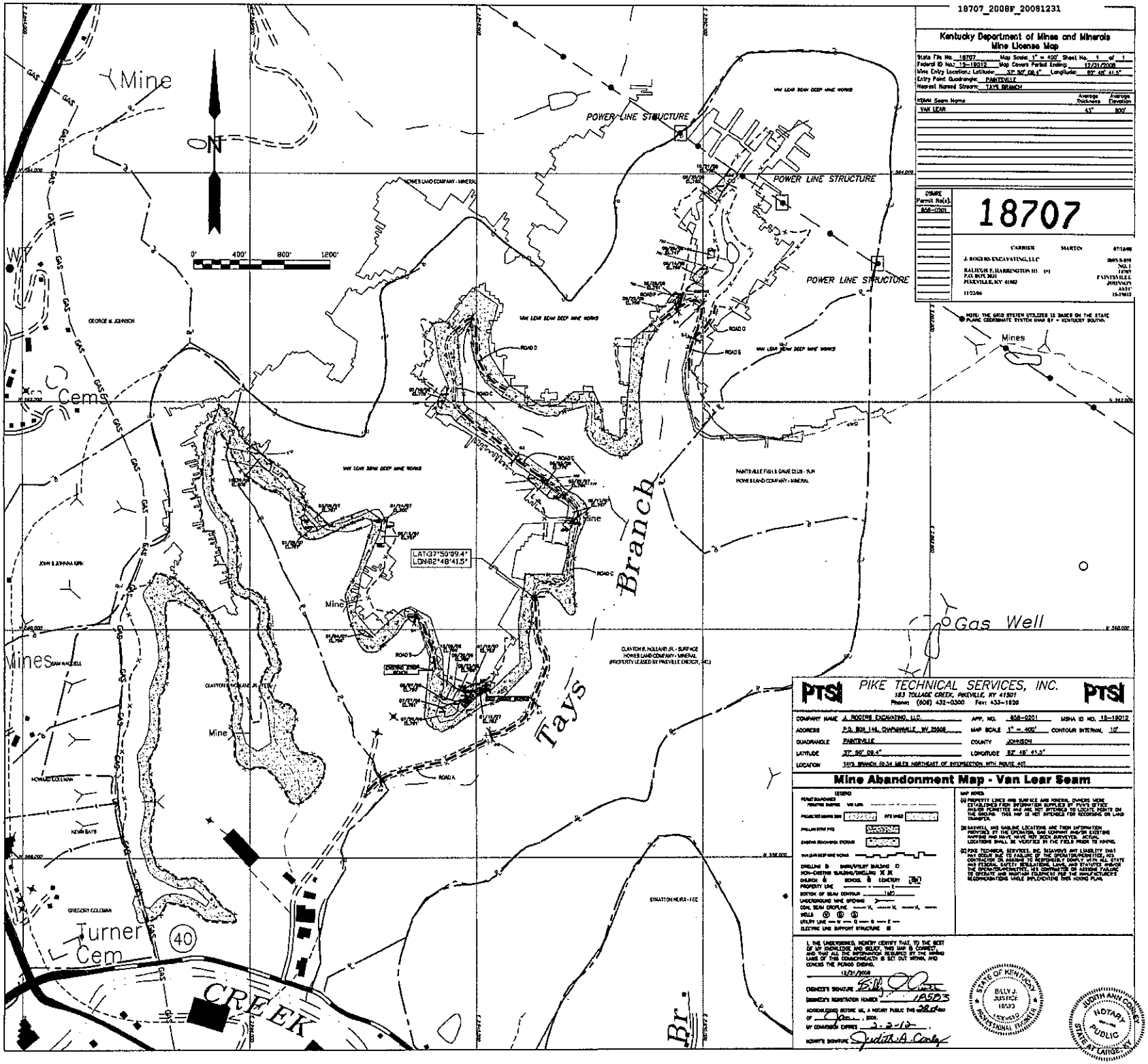
2333

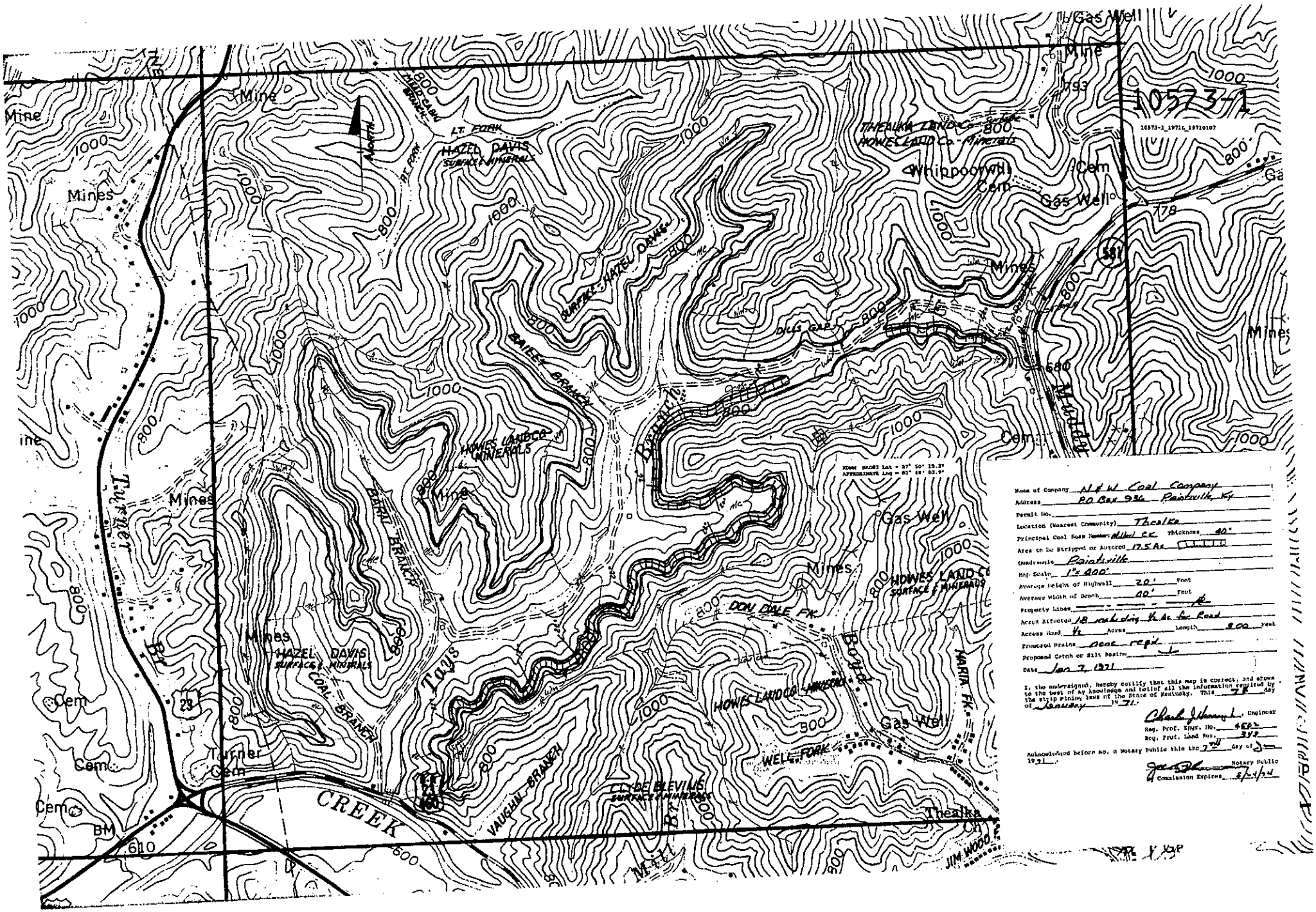
N

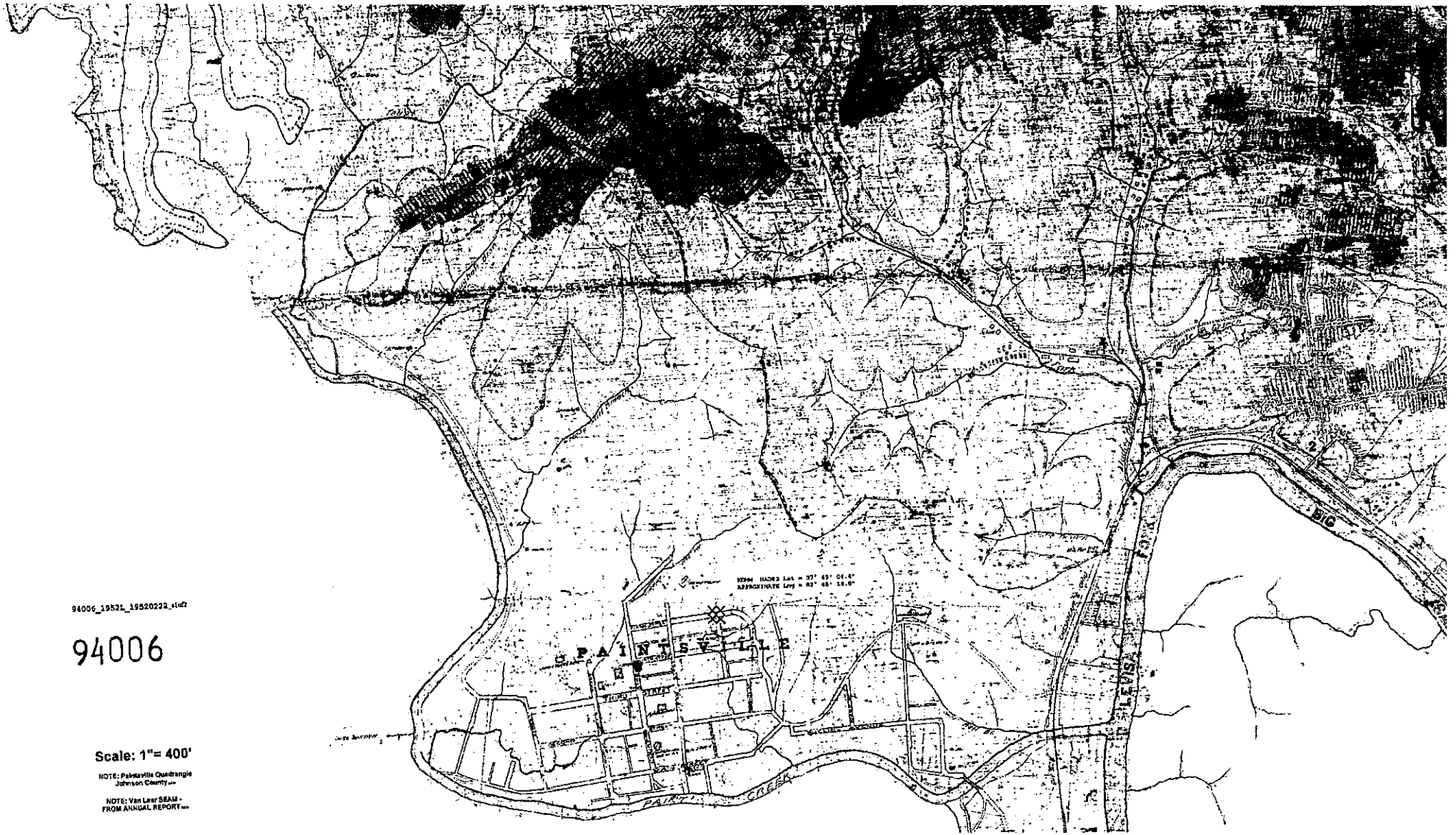
Legend

- US Highways
- State Roads
- Local Roads
- Oil Well
- Combined Oil & Gas Well
- Gas Well
- Dry and Abandoned Well
- Mine Adit
- VL — Van Lear Coalseam
- Qal — Alluvium
- Pb — Breathitt Formation
- Pl — Lee Formation

0 625 1,250 2,500 Feet


18707_2008P_20091231
Kentucky Department of Mines and Minerals
Mine License Map
State File No. 18707 Map Scale 1" = 400' Sheet No. 1 of 1
Federal ID No.: 15-18012 Map Covers Period Ending: 12/31/2008
Mine Entry Location: Latitude 37° 50' 09.4" Longitude 82° 48' 41.5"
Entry Point Quadrangle: PAINTSVILLE
Nearest Named Stream: TAYS BRANCH
KGMM Seam Name | Average Thickness | Average Elevation
VAN LEAR | 43" | 800'
OSMRE Permit No(s).
858-0201
18707
CARRIER
J. ROGERS EXCAVATING, LLC
RALEIGH T. HARRINGTON III
P.O. BOX 2631
PAINTSVILLE, KY 41802
112286
PAINTSVILLE
JOHNSON
15-18012
Mine
POWER LINE STRUCTURE
POWER LINE STRUCTURE
POWER LINE STRUCTURE
N
0' 400' 800' 1200'
WP
Cems
Mines
Mine
Mine
Mine
Gas Well
Tays Branch
LAT:37°50'09.4"
LON:82°48'41.5"
Turner Cem
40
CREEK
Br.
GEORGE M. JOHNSON
JOHN B. & ANNA KIRK
HOWARD COLEMAN
KEVIN DAYS
GREGORY COLEMAN
CLAYTON E. HOLLAND JR. - SURFACE
HOWES LAND COMPANY - MINERAL
(PROPERTY LEASED BY PREVILLE ENERGY, INC.)
PAINTSVILLE FISH & GAME CLUB - SUR
HOWES LAND COMPANY - MINERAL
ROAD A
ROAD B
ROAD C
ROAD D
ROAD E
VAN LEAR SEAM DEEP MINE WORKS
NOTE: THE GRID SYSTEM UTILIZED IS BASED ON THE STATE PLANE COORDINATE SYSTEM OF KY - KENTUCKY SOUTH.
PTSI
PIKE TECHNICAL SERVICES, INC.
183 TOLLAGE CREEK, PREVILLE, KY 41501
Phones (606) 432-0300 Fax: 433-1820
COMPANY NAME J. ROGERS EXCAVATING, LLC
APP. NO. 858-0201
MSHA ID NO. 15-18012
ADDRESS P.O. BOX 144, CHAPMANVILLE, WV 25508
MAP SCALE 1" = 400'
CONTOUR INTERVAL 10'
QUADRANGLE PAINTSVILLE
COUNTY JOHNSON
LATITUDE 37° 50' 09.4"
LONGITUDE 82° 48' 41.5"
LOCATION TAYS BRANCH (0.34 MILES NORTHEAST OF INTERSECTION WITH ROUTE 40)
Mine Abandonment Map - Van Lear Seam
LEGEND
MAP NOTES
(1) PROPERTY LINES AND SURFACE AND MINERAL OWNERS WERE ESTABLISHED FROM INFORMATION SUPPLIED BY PVA'S OFFICE AND FIELD SURVEYED. THIS MAP IS NOT INTENDED TO LOCATE ROBOT ON THE GROUND. THIS MAP IS NOT INTENDED FOR DEEDING OR LAND TRANSFER.
(2) RAILROAD AND GASLINE LOCATIONS ARE FROM INFORMATION PROVIDED BY THE OPERATOR, GAS COMPANY AND/OR EXISTING MAPPING AND MAY/MAY NOT BEEN SURVEYED. ACTUAL LOCATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO MINING.
(3) PIKE TECHNICAL SERVICES, INC. DISAVOWS ANY LIABILITY THAT MAY OCCUR DUE TO FAILURE OF THE OPERATOR/PERMITTEE, HIS CONTRACTOR OR ASSIGNS TO RESPONSIBLY COMPLY WITH ALL STATE AND FEDERAL SAFETY REGULATIONS, LAWS, AND STATUTES AND/OR THE OPERATOR/PERMITTEE, HIS CONTRACTOR OR ASSIGNS FAILURE TO OPERATE AND MAINTAIN EQUIPMENT PER THE MANUFACTURER'S RECOMMENDATIONS WHILE IMPLEMENTING THIS MINING PLAN.
I, THE UNDERSIGNED, HEREBY CERTIFY THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, THIS MAP IS CORRECT AND THAT ALL THE INFORMATION REQUIRED BY THE MINING LAWS OF THIS COMMONWEALTH IS SET OUT HEREIN, AND CONCERNS THE MINING DRAWN.
12/31/2008
DRAWER'S SIGNATURE
DRAWER'S REGISTRATION NUMBER 18523
ACKNOWLEDGED BEFORE ME, A NOTARY PUBLIC THIS 28th DAY OF January, 2009.
MY COMMISSION EXPIRES 1-2-12.
NOTARY'S SIGNATURE
BILLY J. JUSTICE 18523 REGISTERED PROFESSIONAL ENGINEER STATE OF KENTUCKY
JUDITH ANN CONLEY NOTARY PUBLIC STATE AT LARGE, KY


10573-1
10573-1_19711_19710107
Name of Company N & W Coal Company
Address P.O. Box 934 Paintsville, Ky.
Permit No.
Location (Nearest Community) Thealka
Principal Coal Seam Number Elkhorn Thickness 40"
Area to be Stripped or Augered 17.5 Ac.
Quadrangle Paintsville
Map Scale 1" = 400'
Average Height of Highwall 20' Feet
Average Width of Bench 40' Feet
Property Lines
Acres Affected 18 including ½ Ac. for Road
Access Road ½ Acres Length 800 Feet
Proposed Drains none req'd.
Proposed Catch or Silt Basins
Date Jan 7, 1971
I, the undersigned, hereby certify that this map is correct, and shows to the best of my knowledge and belief all the information required by the strip mining laws of the State of Kentucky. This 7th day of January 19 71.
Engineer
Reg. Prof. Engr. No. 4692
Reg. Prof. Land Surv. No. 394
Acknowledged before me, a Notary Public this the 7th day of Jan 1971.
Notary Public
Commission Expires 5-4-74
Mine
Gas Well
Cem
Mines
Whippoorwill Cem
Turner Cem
Turner
Tays
Boyd
Bailey Branch
Coal Branch
Vaughn Branch
Don Dale Fk.
Maria Fk.
Well Fork
Creek
Hazel Davis Surface & Minerals
Howes Land Co. Surface & Minerals
Thealka Land Co. - Surface
Howes Land Co. - Minerals
Clyde Blevins Surface & Minerals
Jim Wood
Dilg Gap
Lt. Fork
North
BM 610
23
581
680
778
793



94006_19521_19520222_stuff

94006

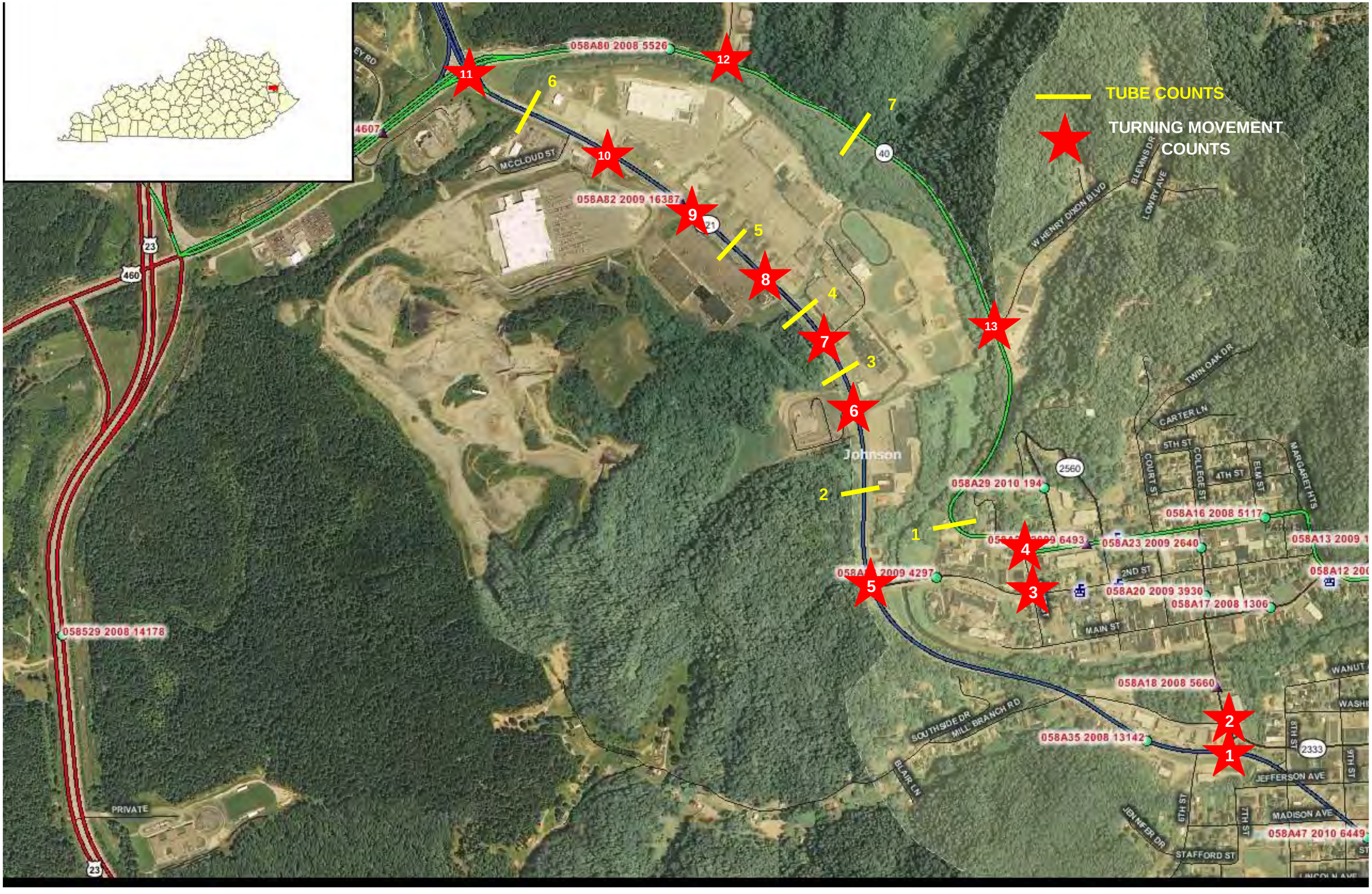
Scale: 1"= 400'

NOTE: Paintsville Quadrangle Johnson County

NOTE: Van Lear SEAU - FROM ANNUAL REPORT

APPENDIX E

TRAFFIC COUNT LOCATIONS


TUBE COUNTS
TURNING MOVEMENT COUNTS
058A80 2008 5526
058A82 2009 16387
058529 2008 14178
058A29 2010 194
058A16 2008 5117
058A23 2009 2640
058A20 2009 3930
058A17 2008 1306
058A18 2008 5660
058A35 2008 13142
058A47 2010 6449
MCCLOUD ST
W HENRY DIXON BLVD
BLEVINS DR
LOWRY AVE
TWIN OAK DR
CARTER LN
5TH ST
4TH ST
2ND ST
MAIN ST
SOUTHSIDE DR
MILL BRANCH RD
BLAIR LN
JEFFERSON AVE
MADISON AVE
STAFFORD ST
JENNIFER DR
PRIVATE
Johnson
460
23
40
2560
2333
11
12
6
7
10
9
5
8
4
7
3
6
2
1
4
3
5
13
2
1

TURNING MOVEMENTS

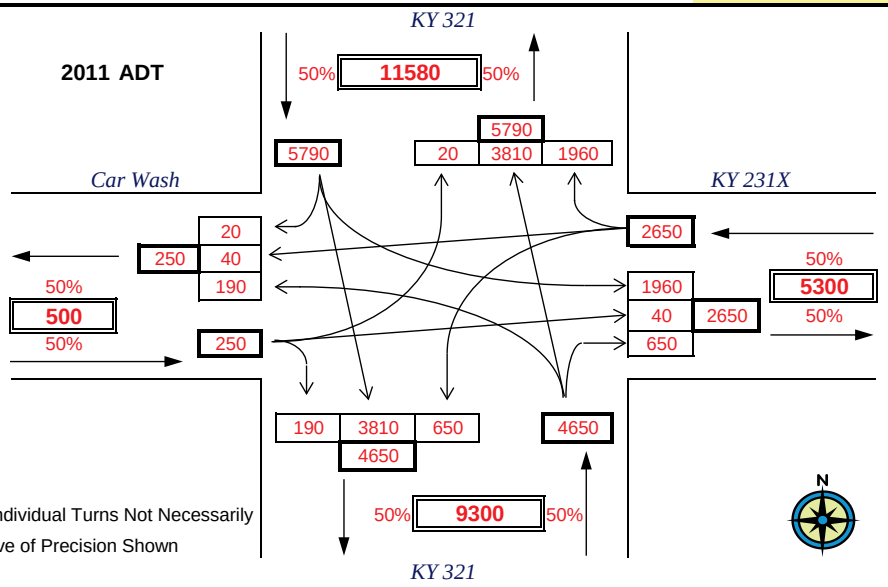
ALTERNATIVE 1B

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

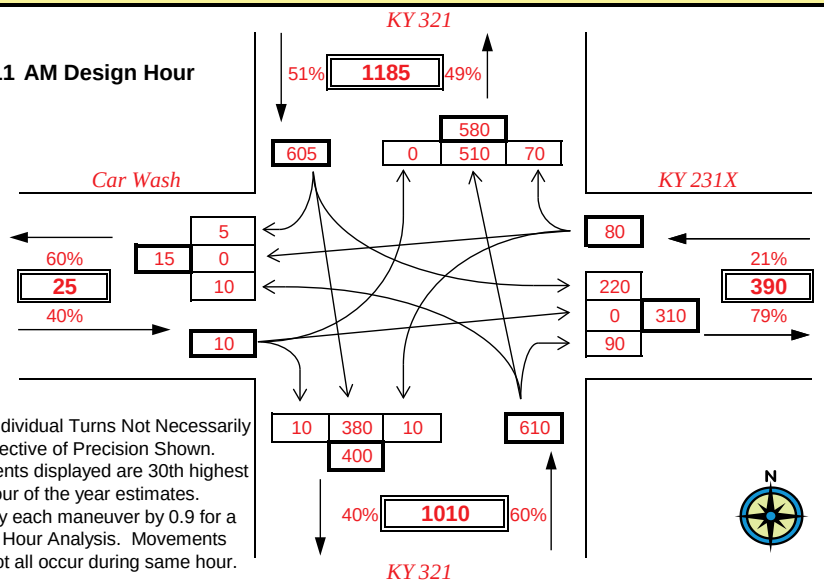
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



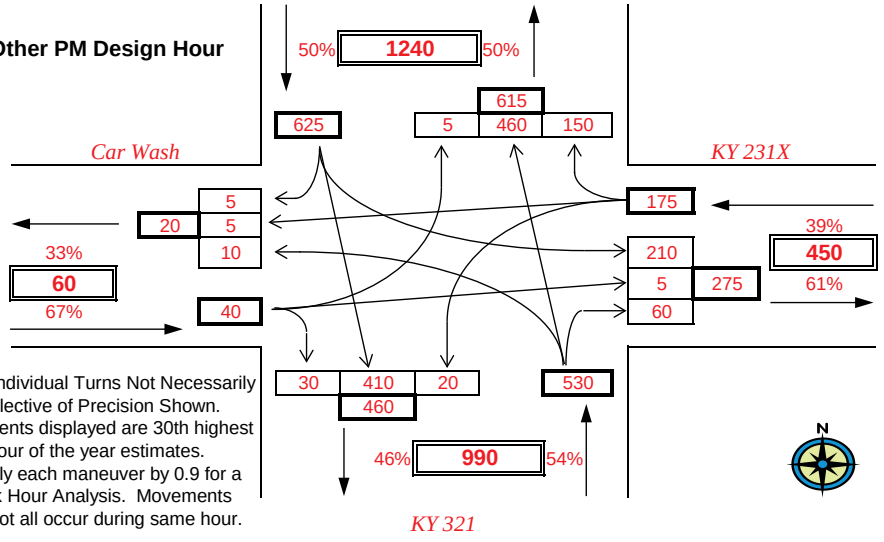
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



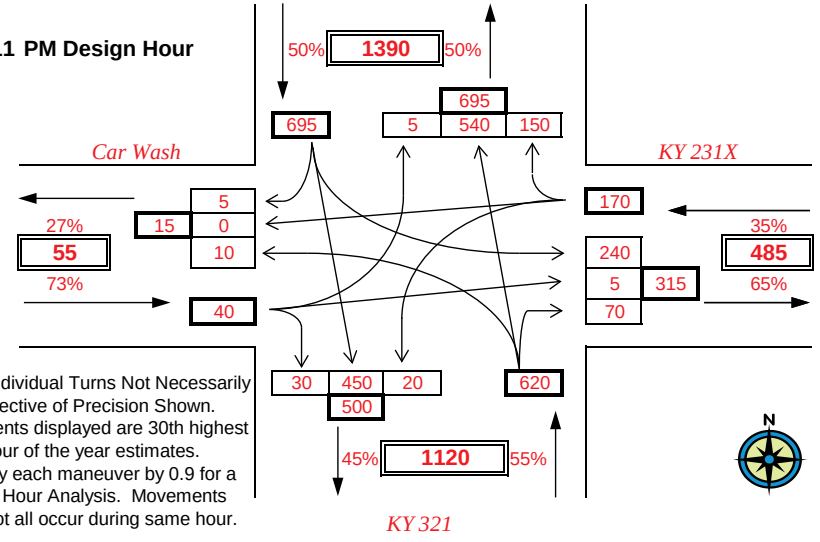
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



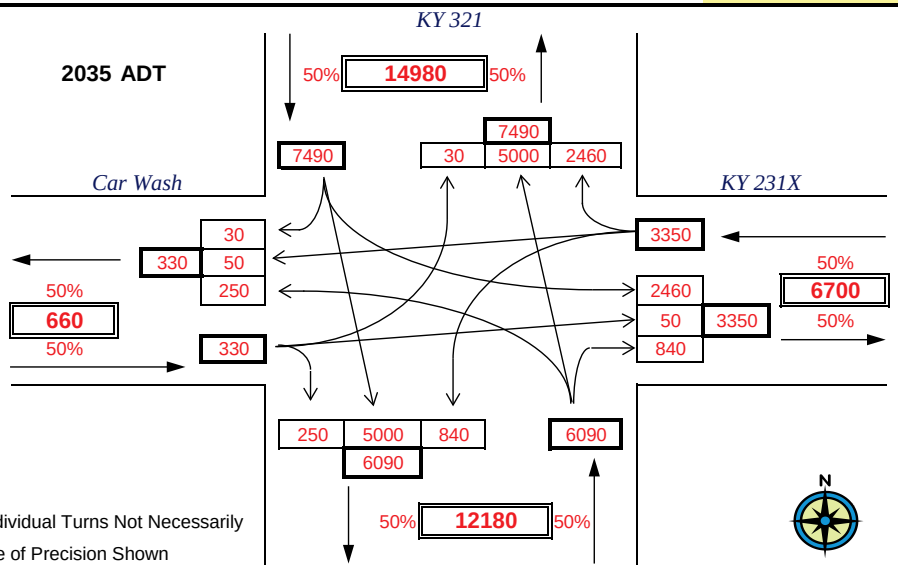
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

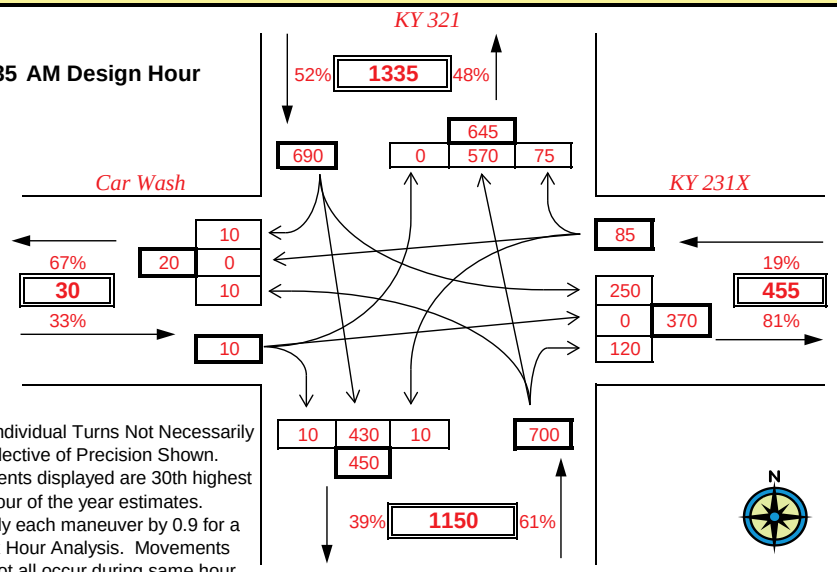
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



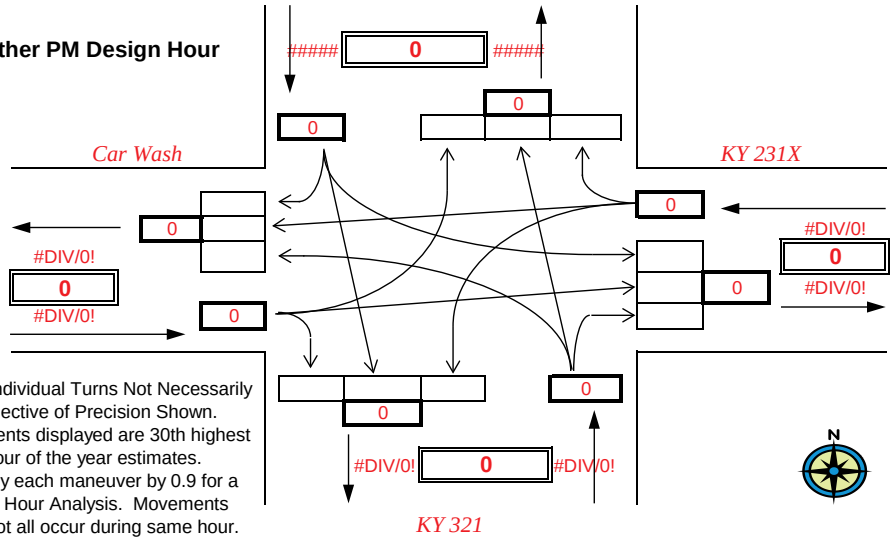
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



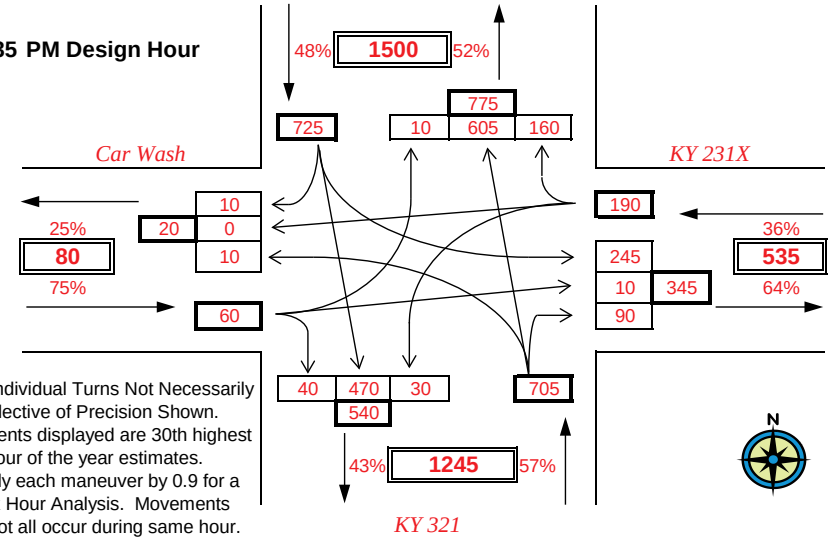
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

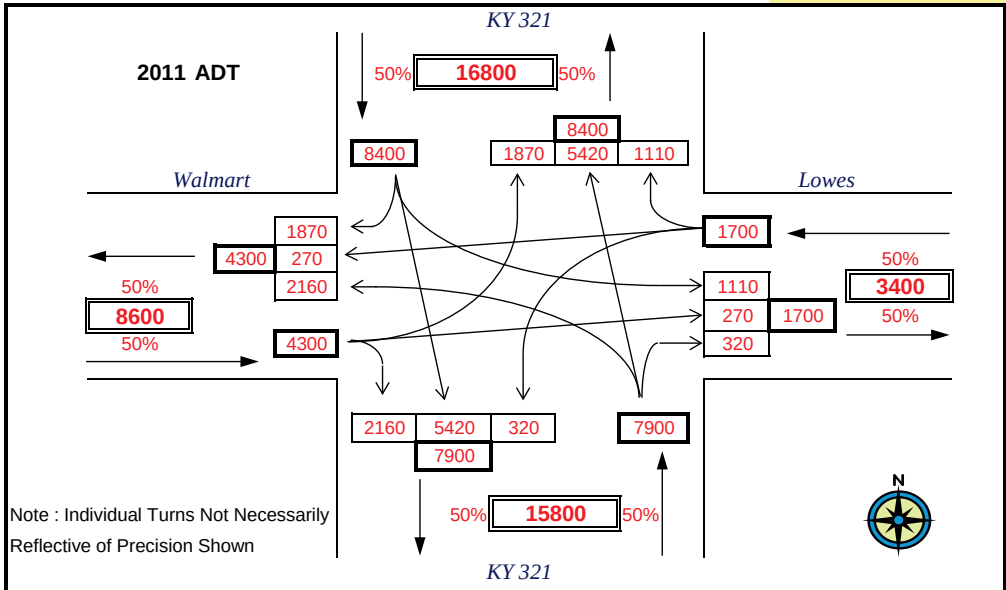


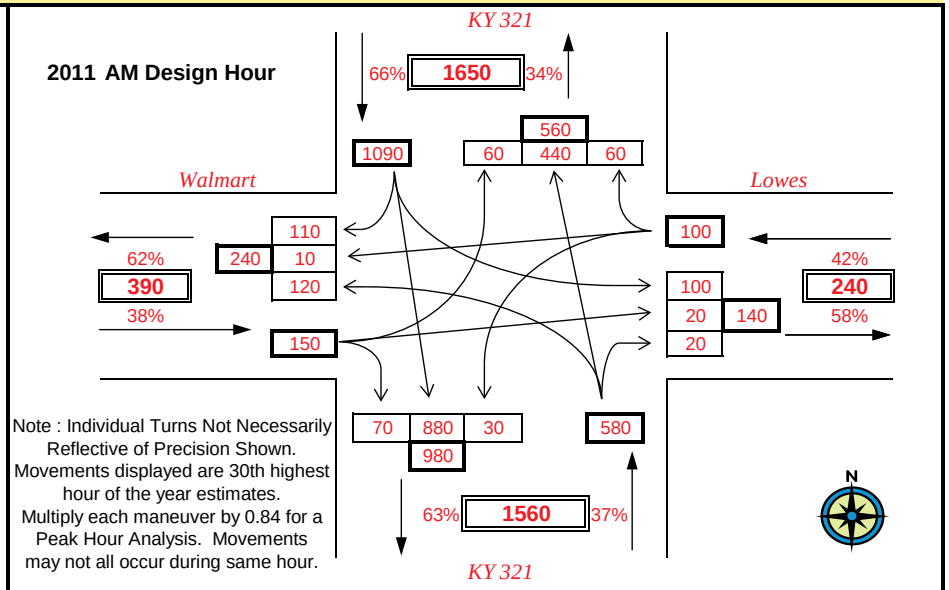
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

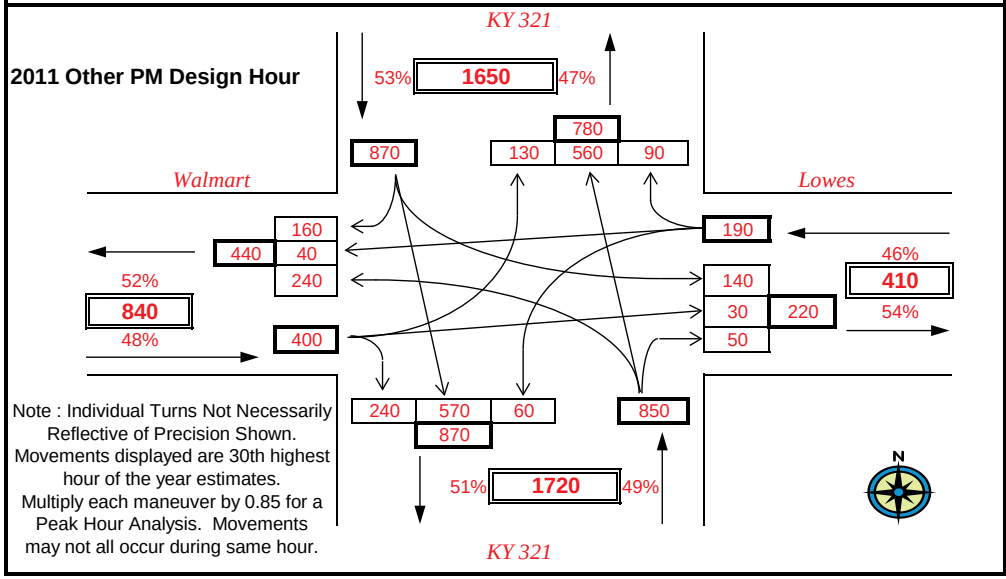
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

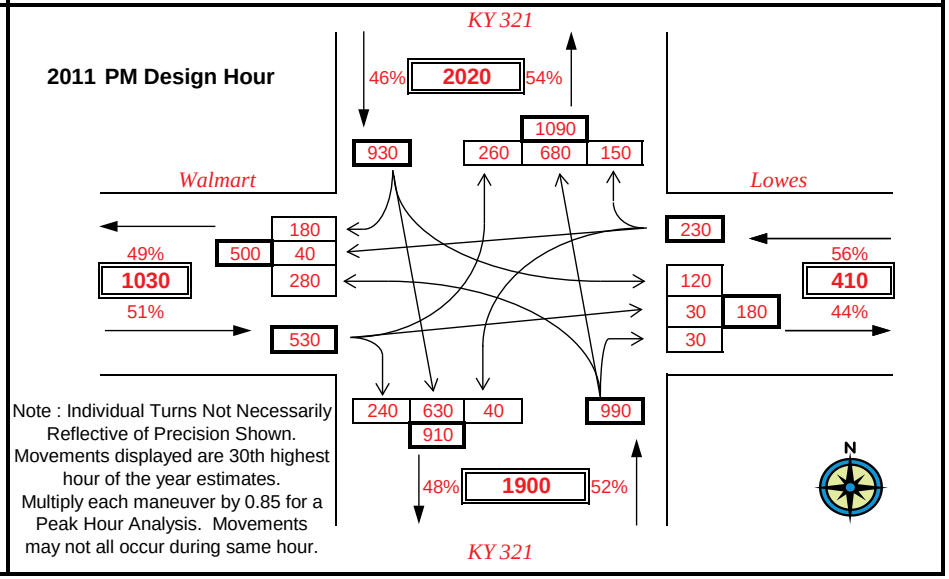
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







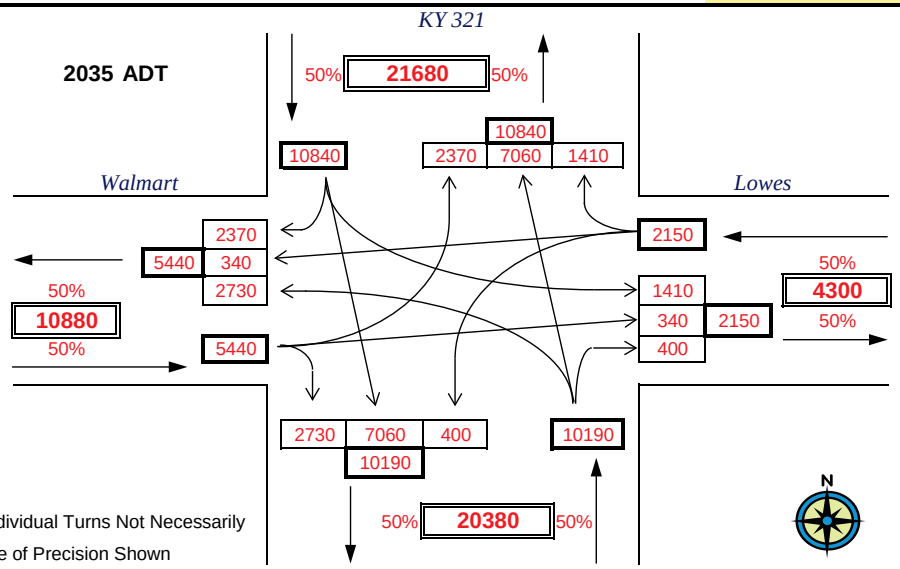


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

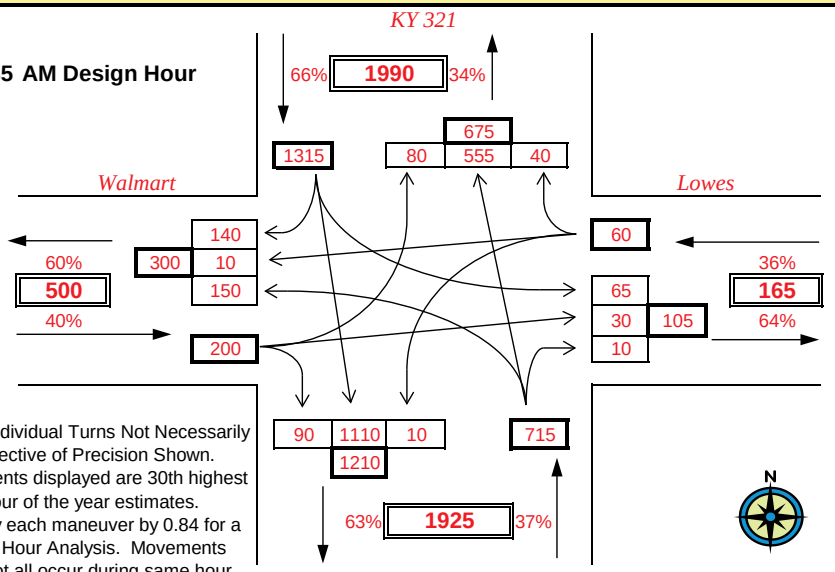
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



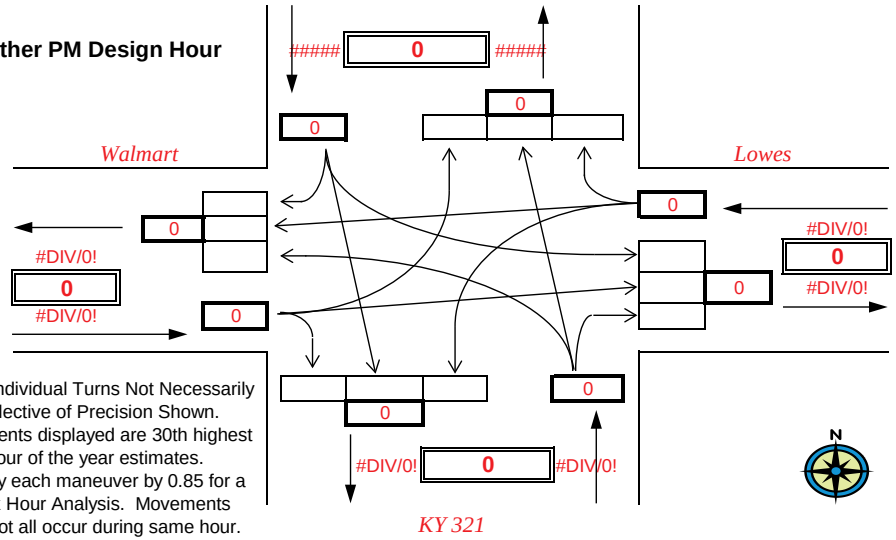
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



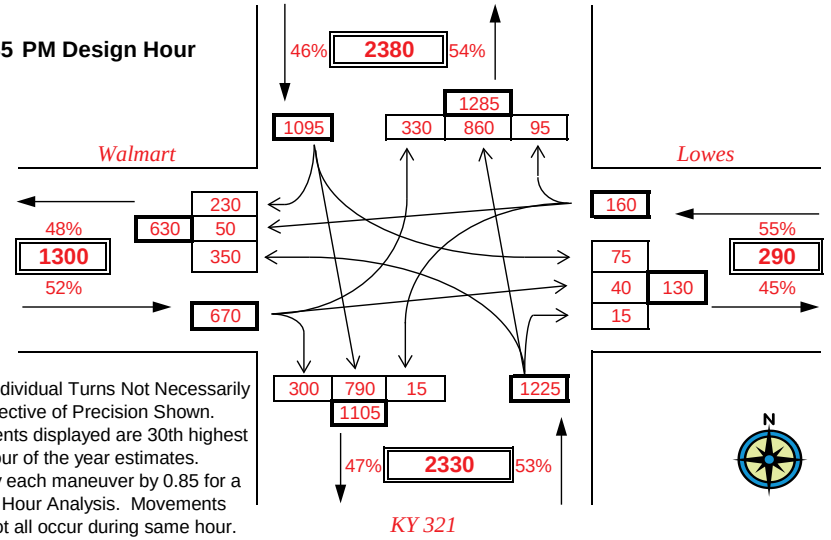
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



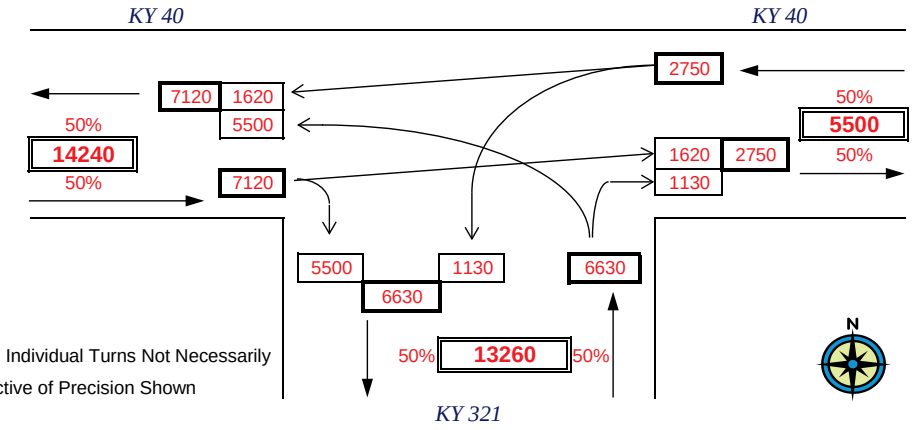
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

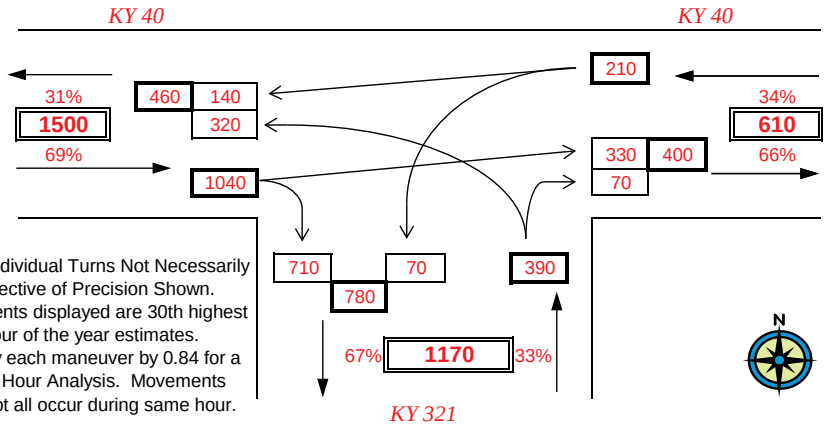
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



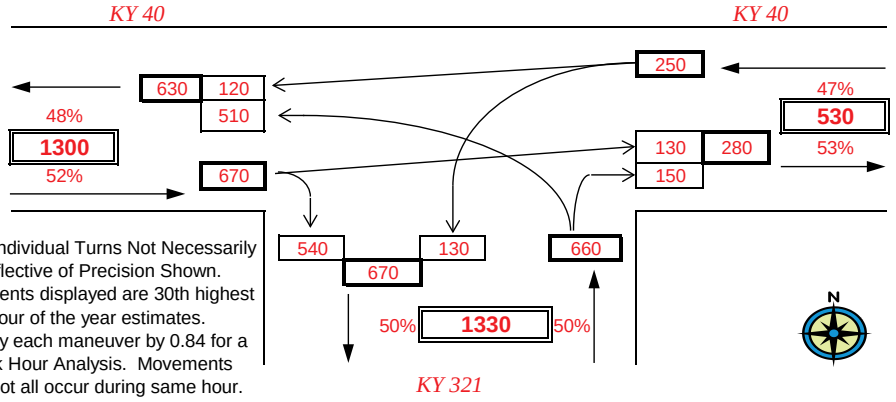
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



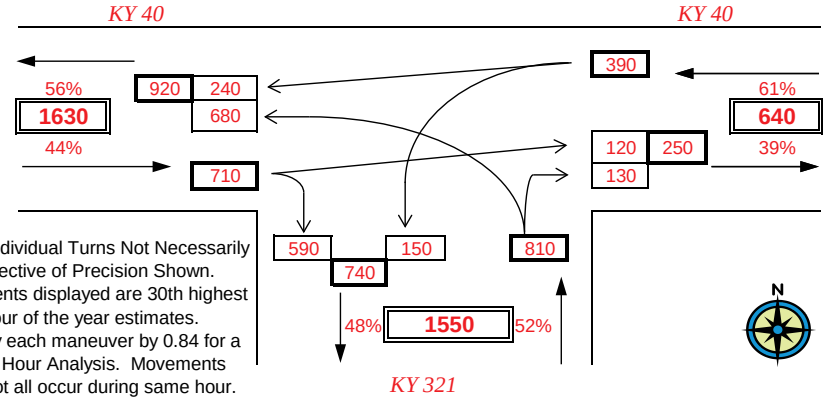
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



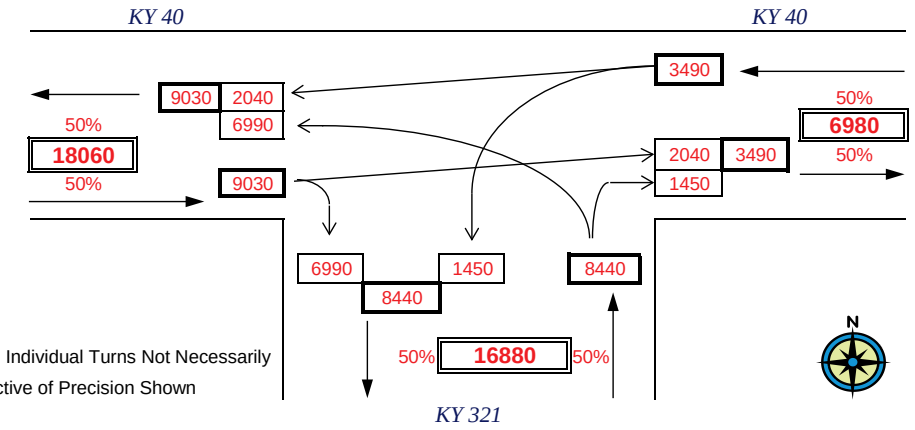
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

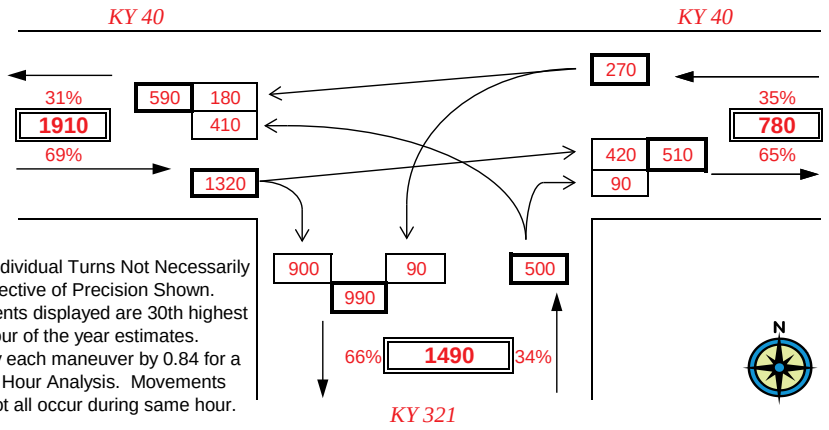
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



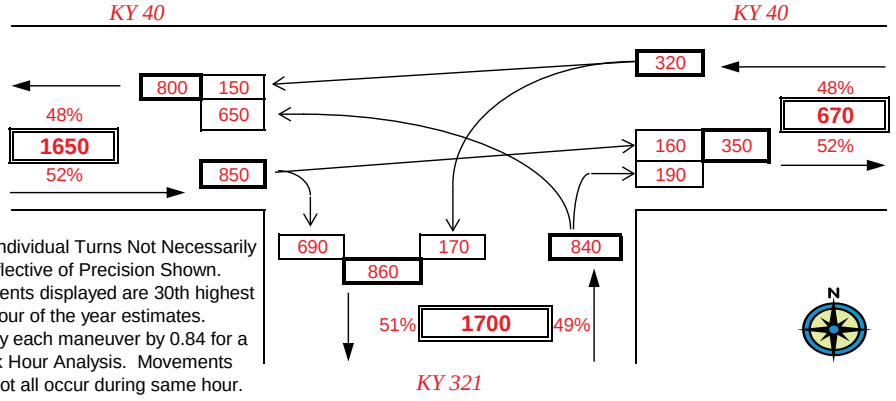
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



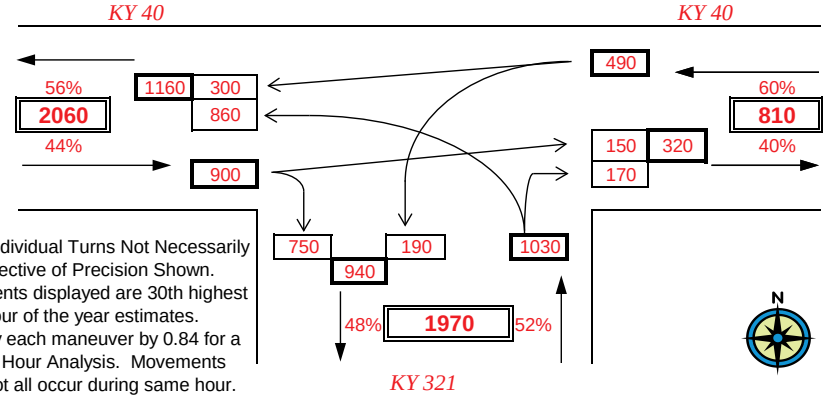
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



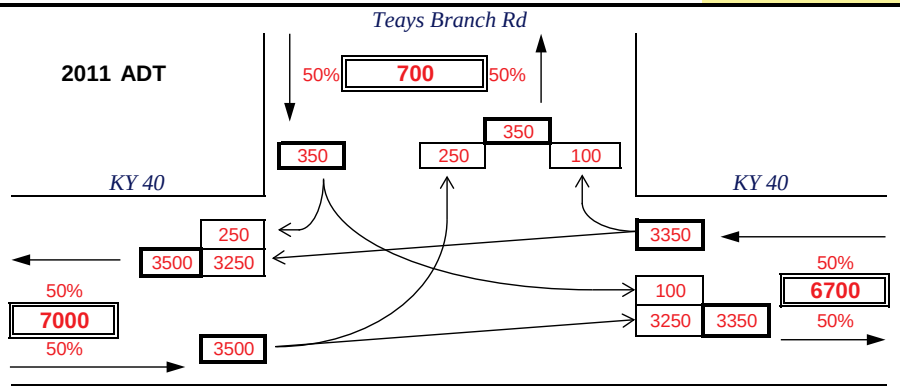
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

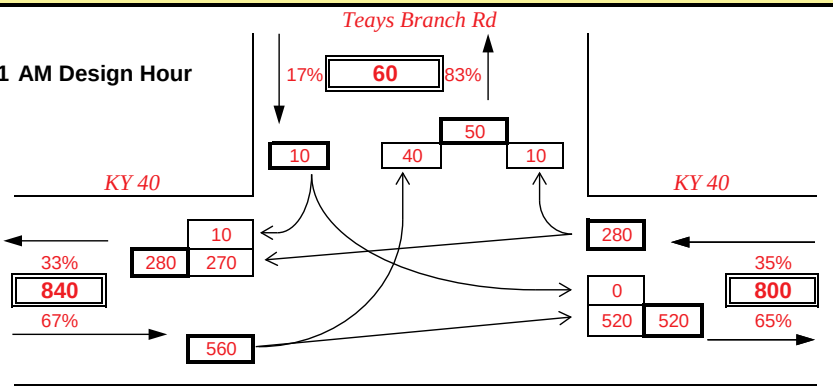
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



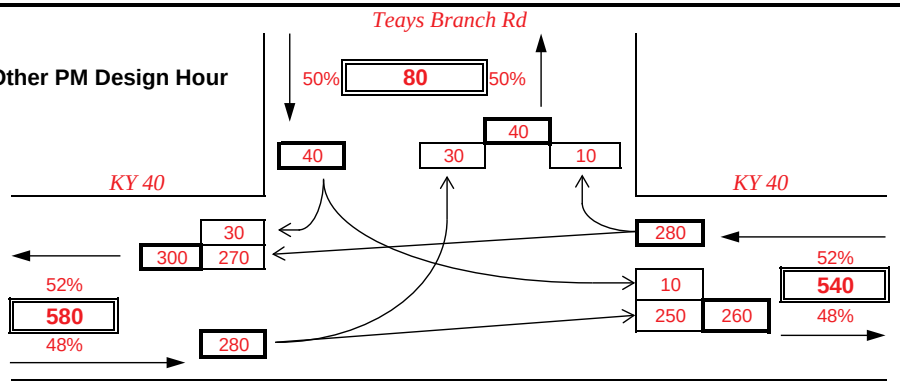
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



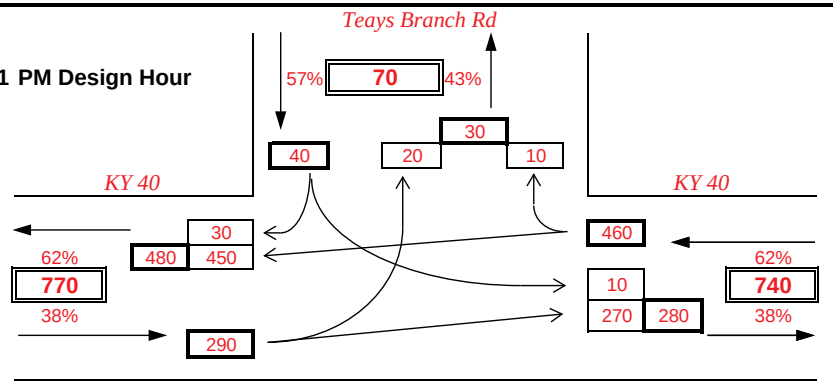
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour

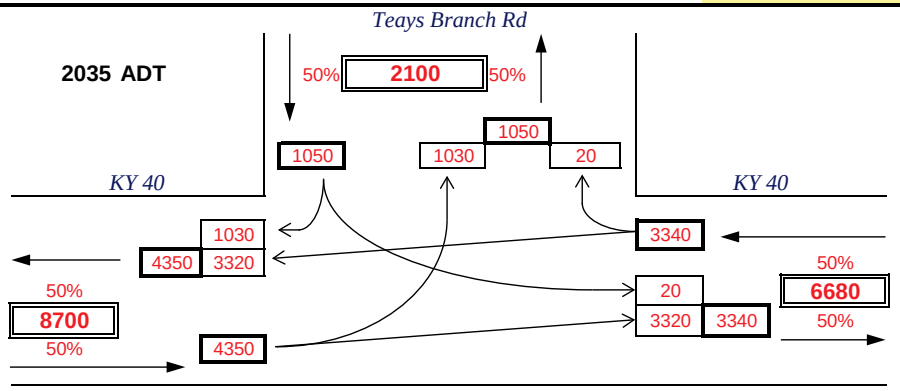


Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

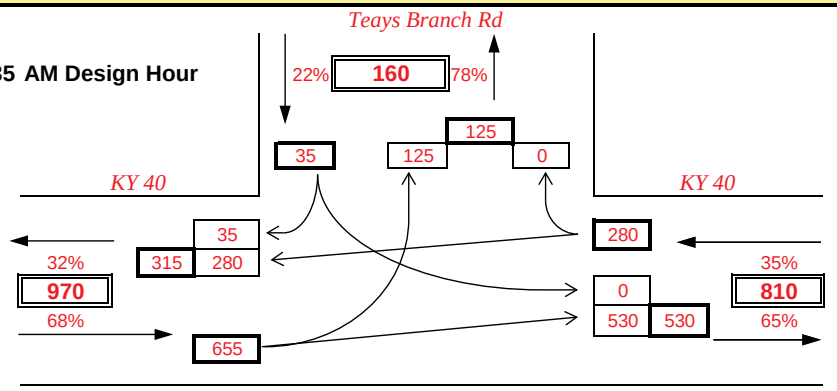
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

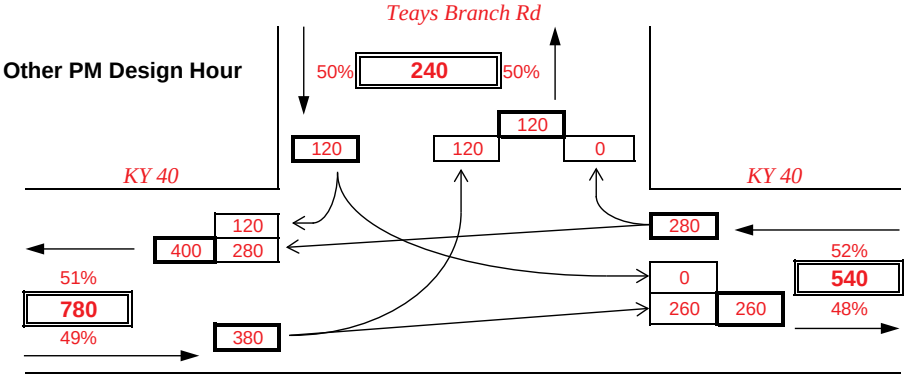
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



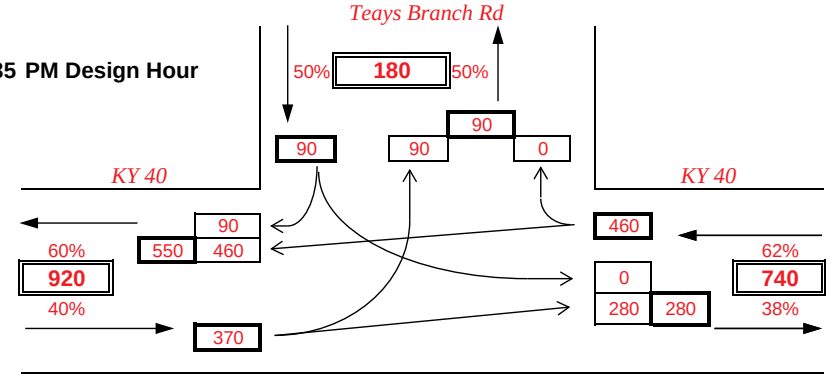
Note : Individual Turns Not Necessarily Reflective of Precision Shown



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



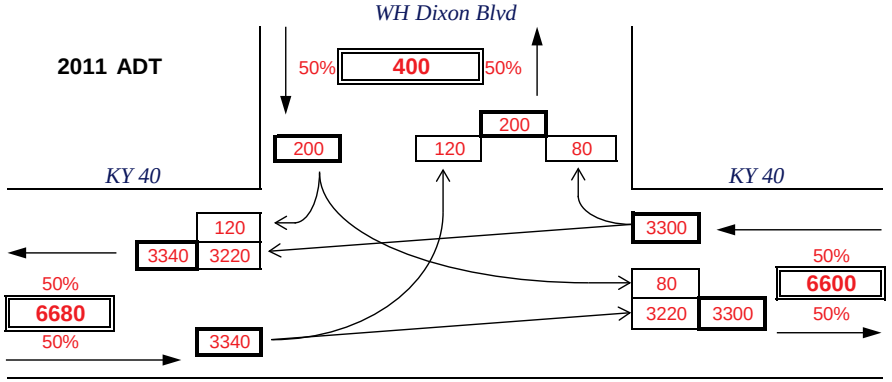
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

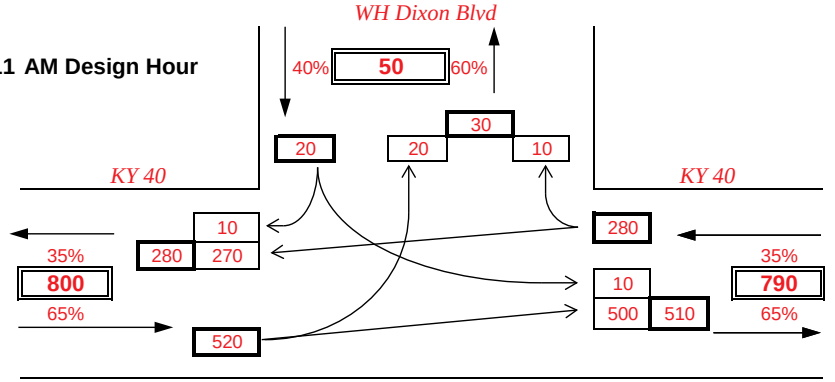
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



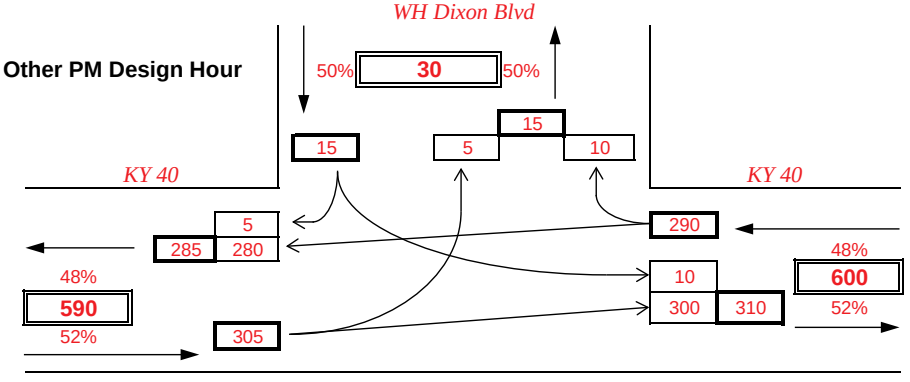
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



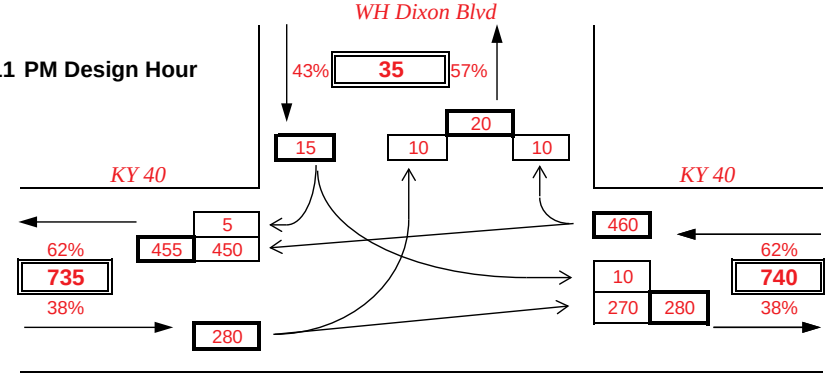
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



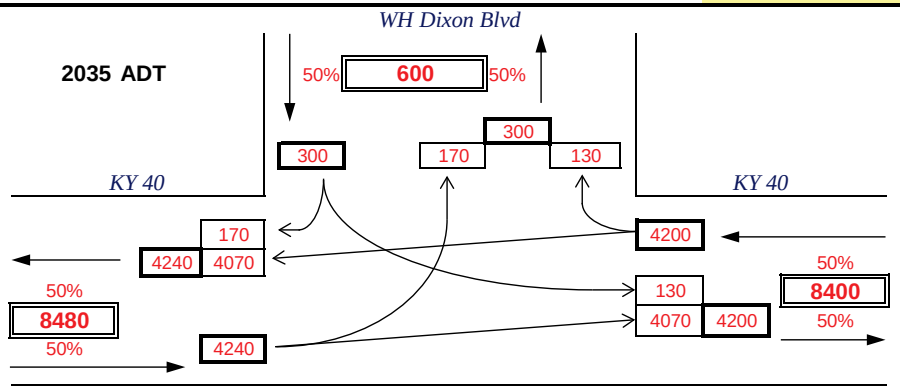
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

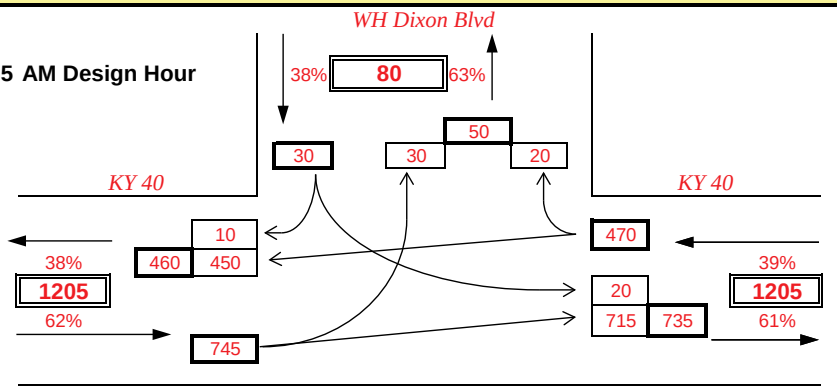
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



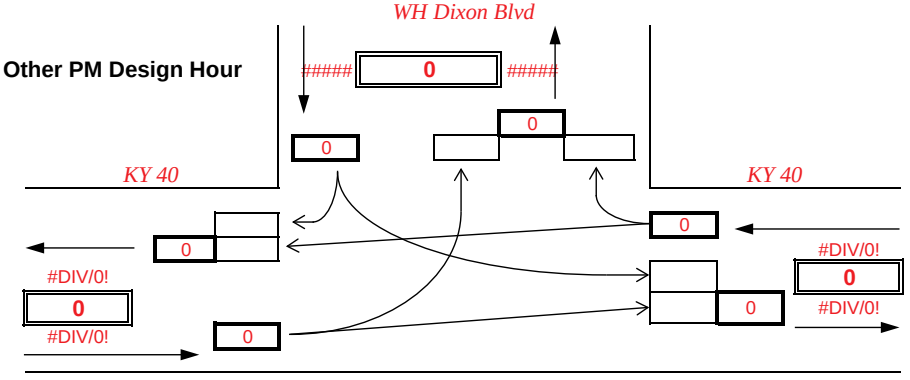
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



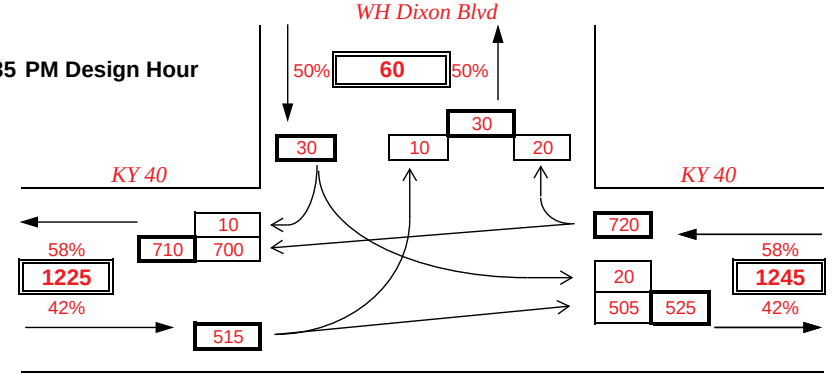
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



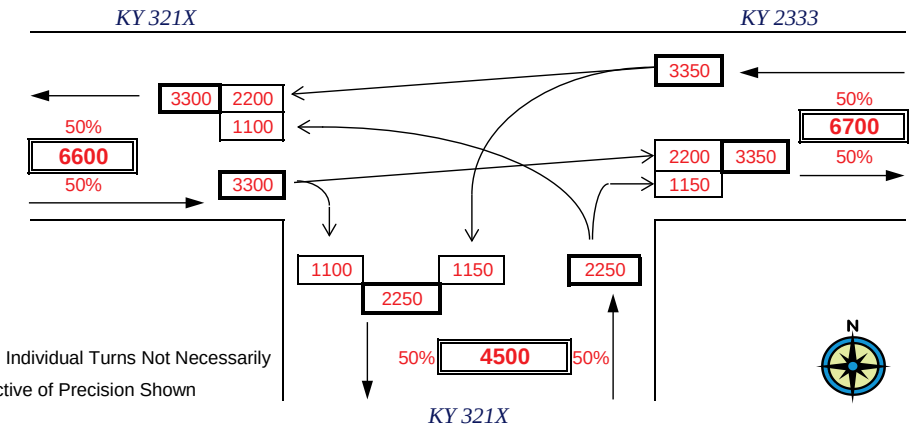
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

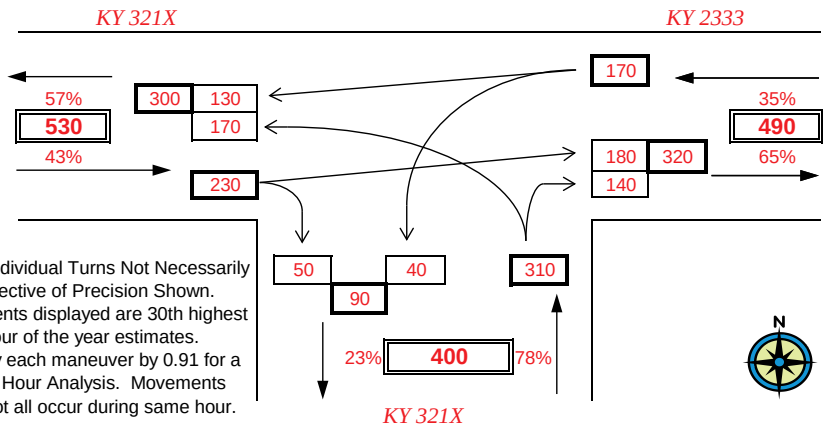
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



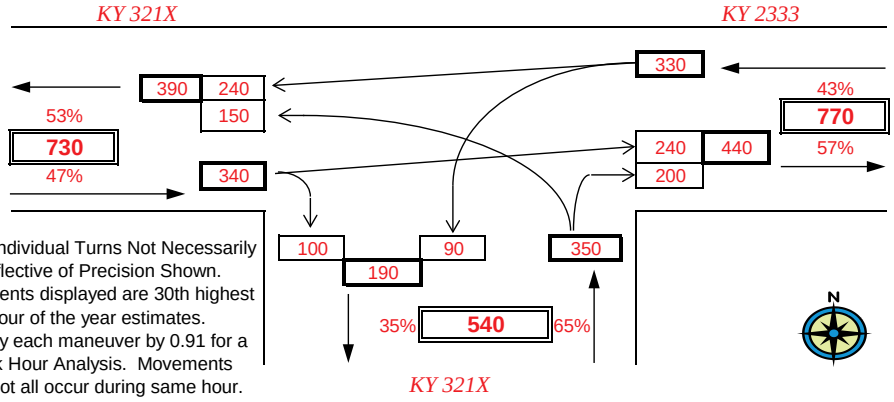
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



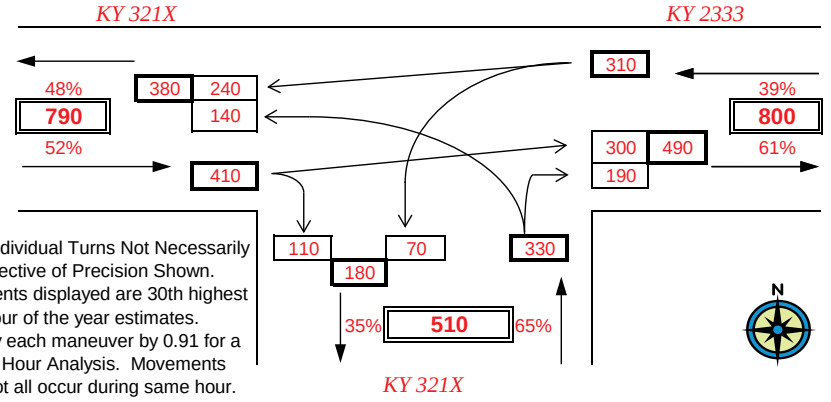
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



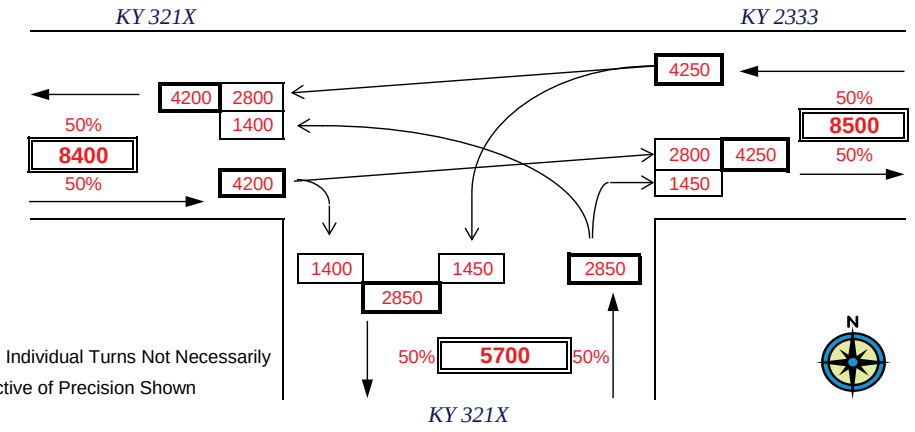
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

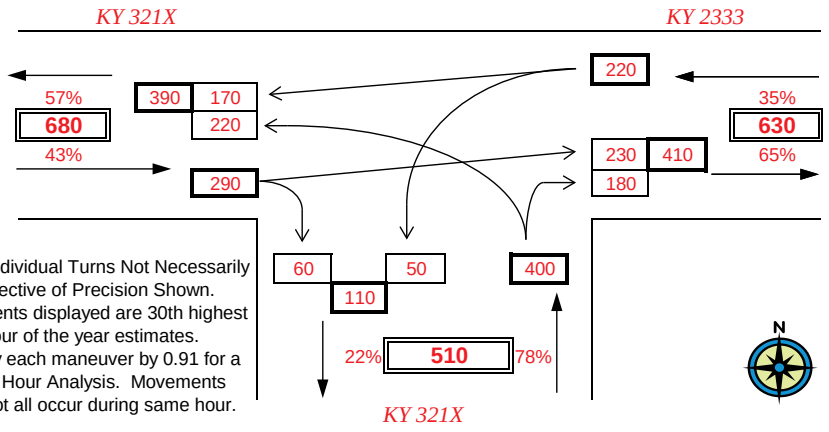
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



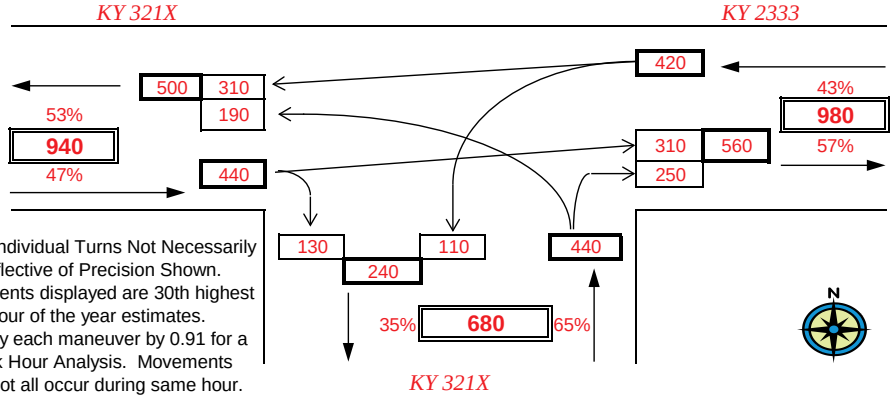
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



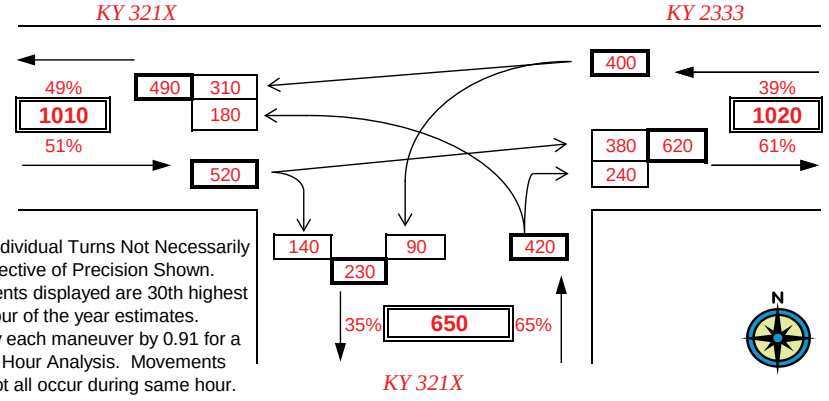
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



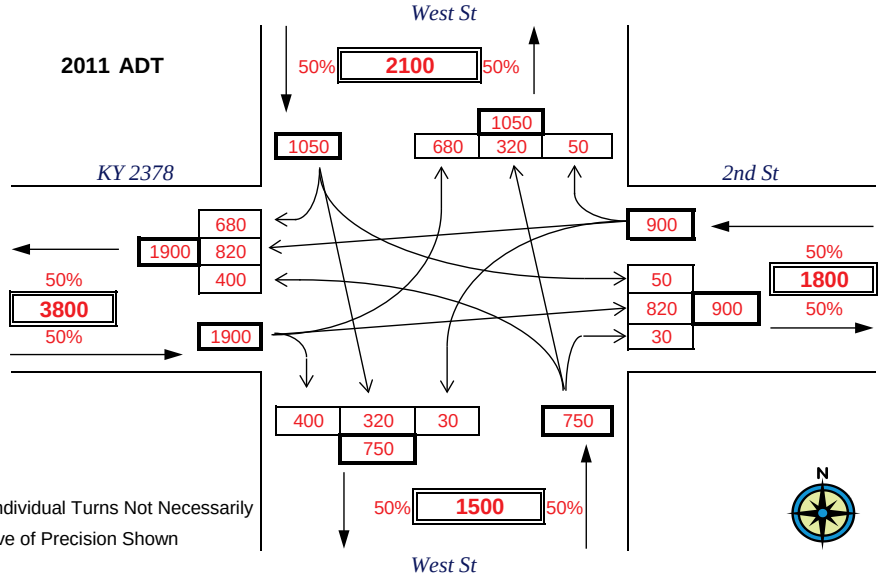
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

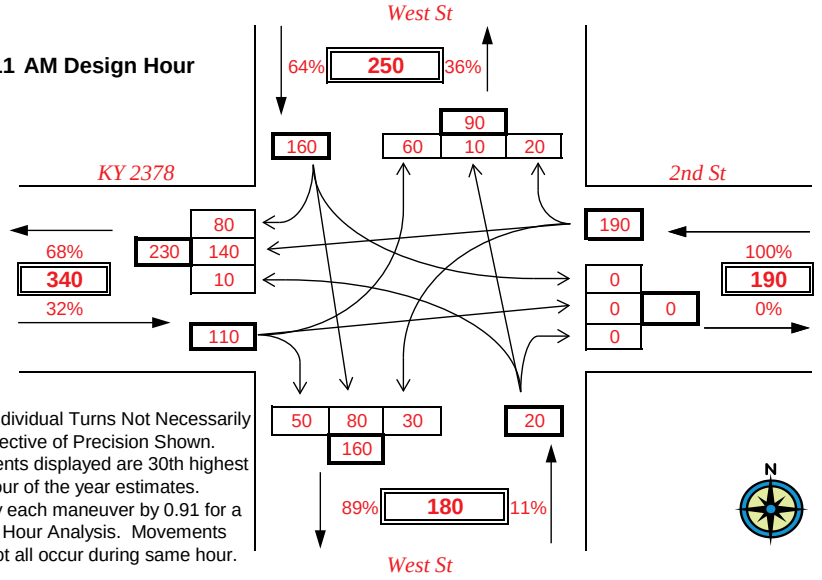
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



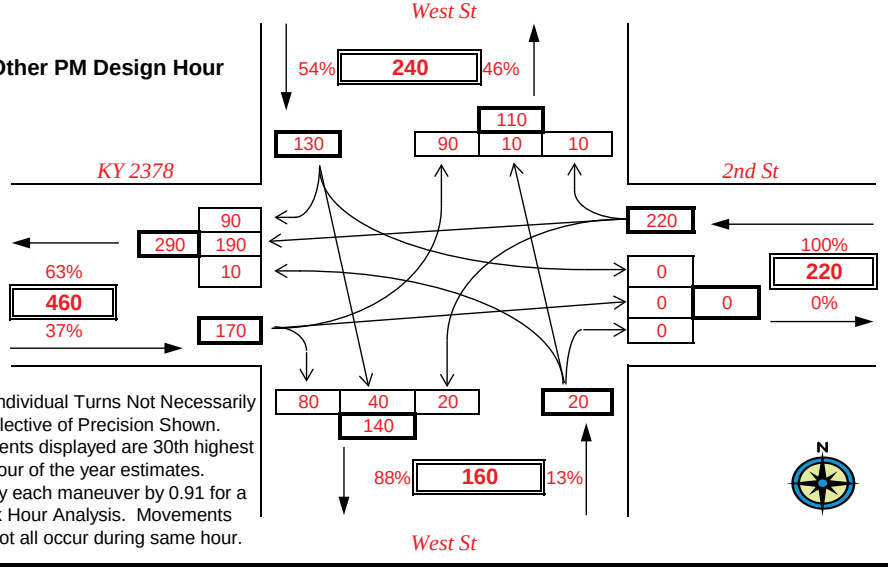
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



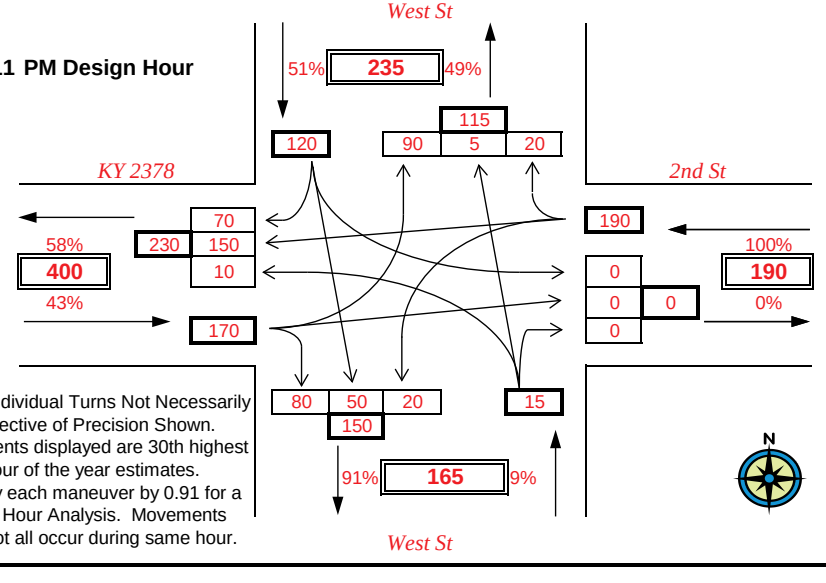
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



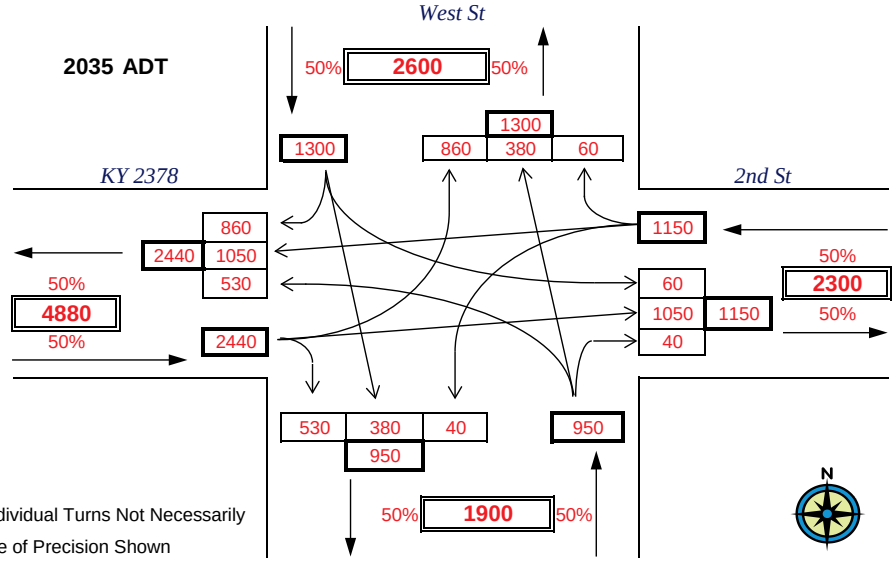
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

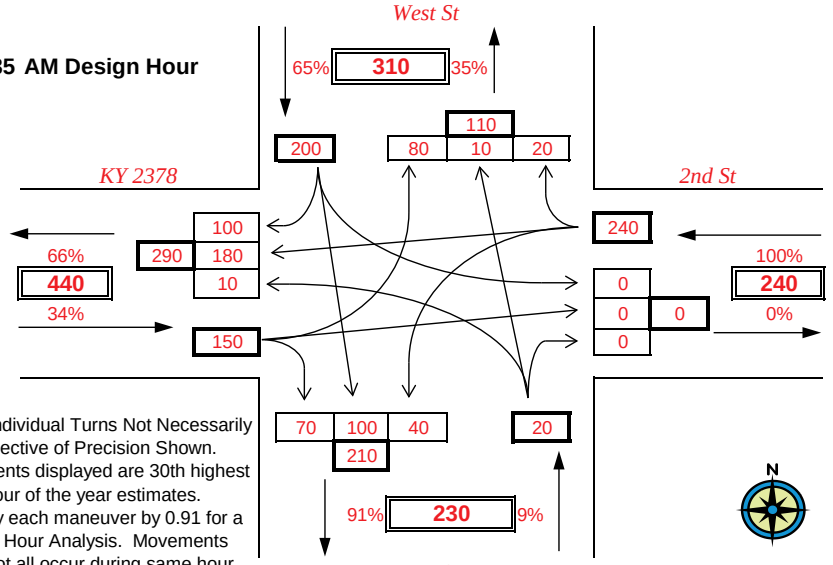
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



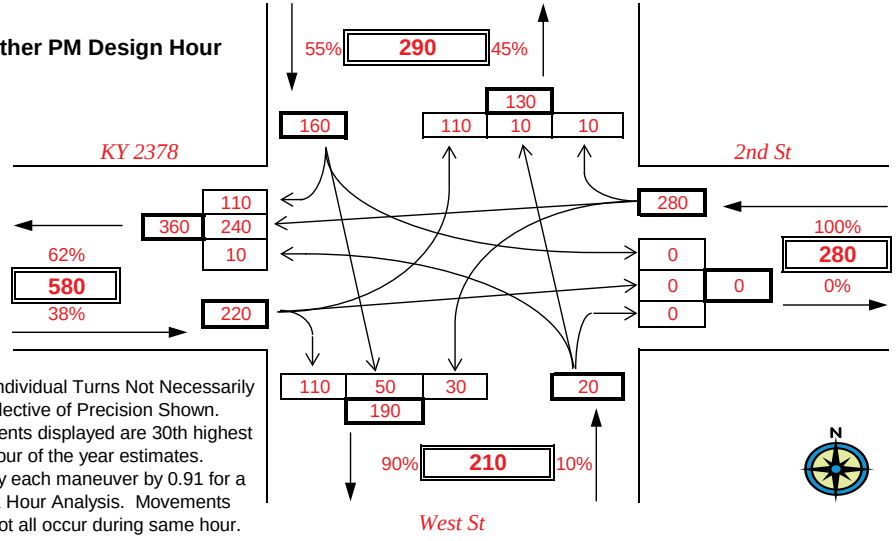
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



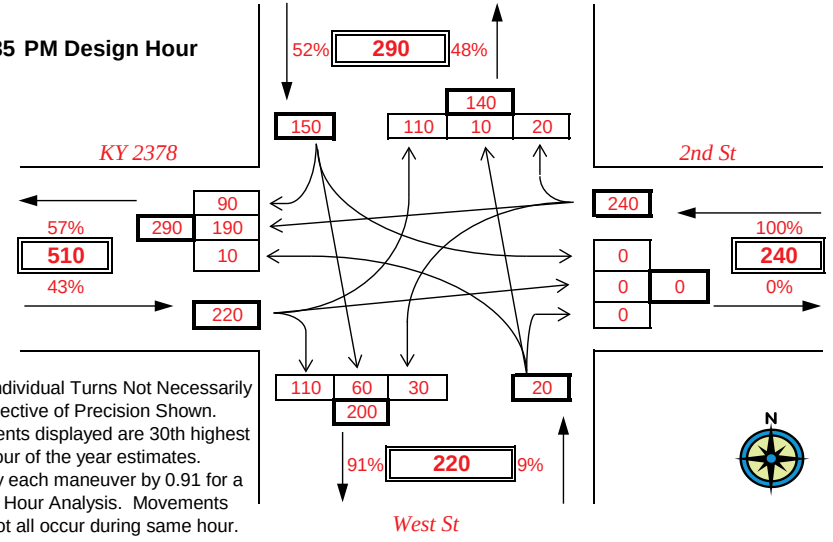
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



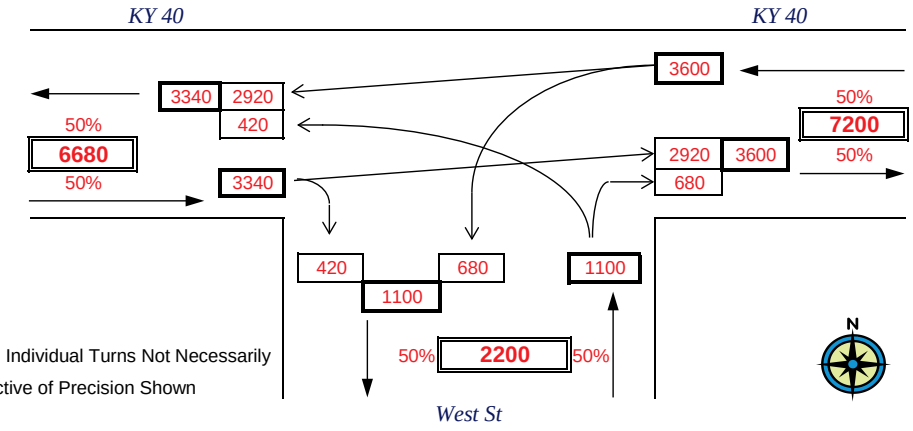
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

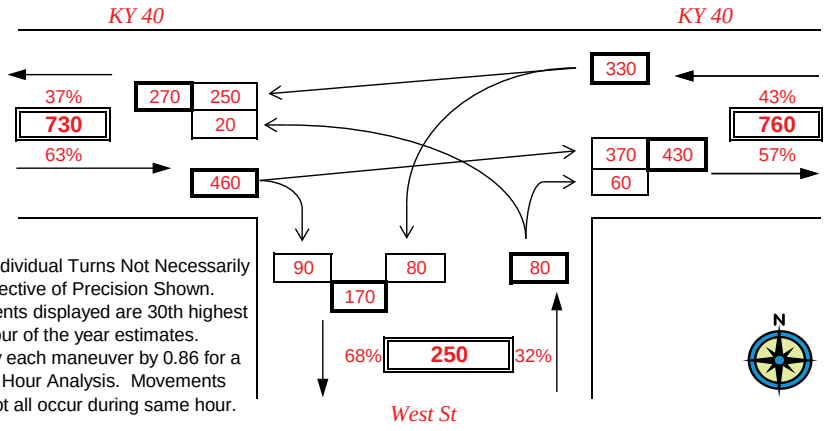
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



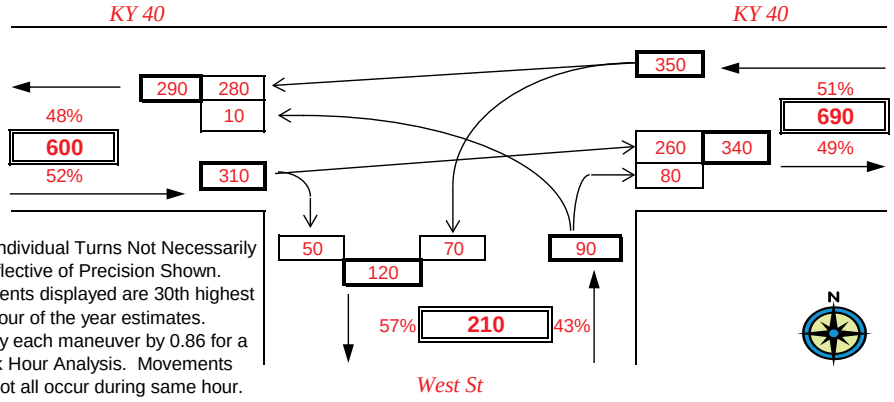
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



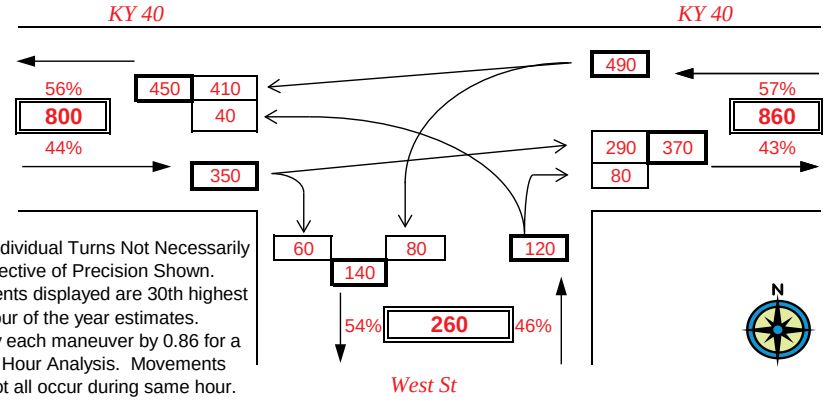
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



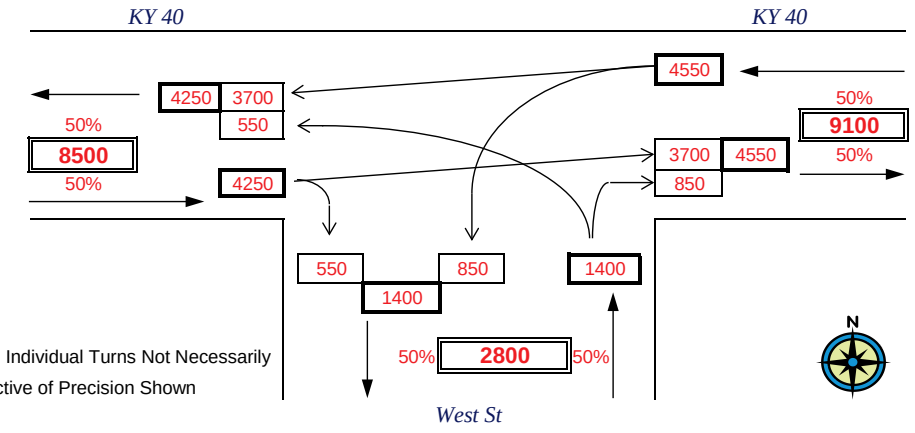
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

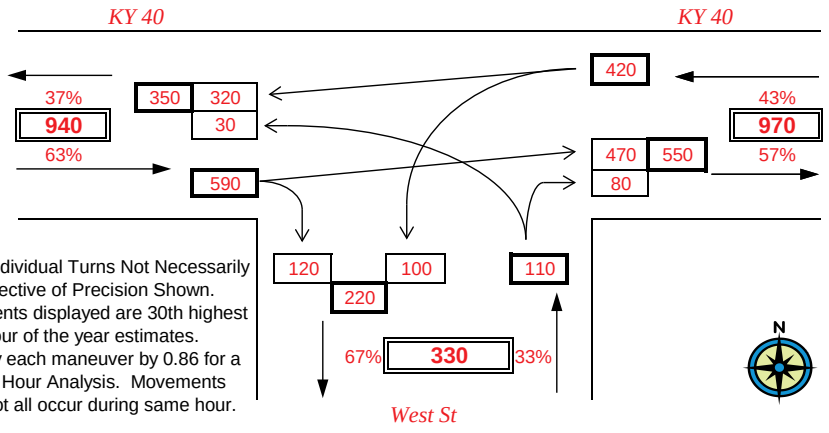
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



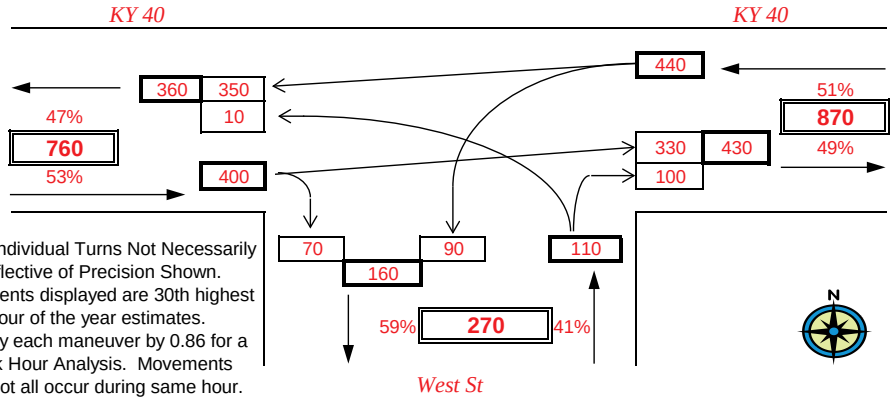
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



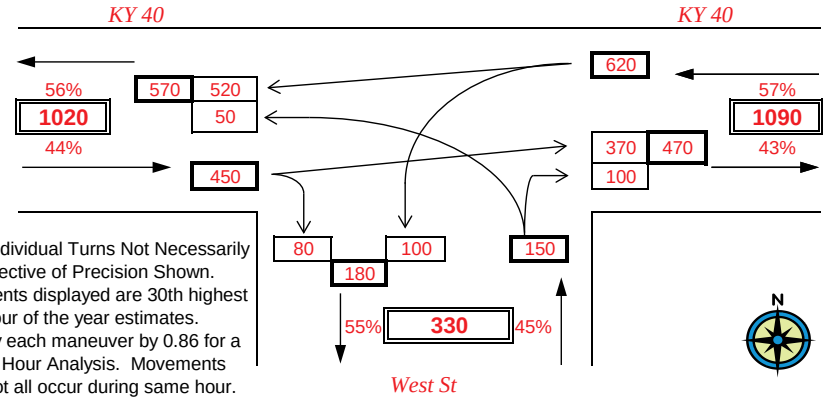
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



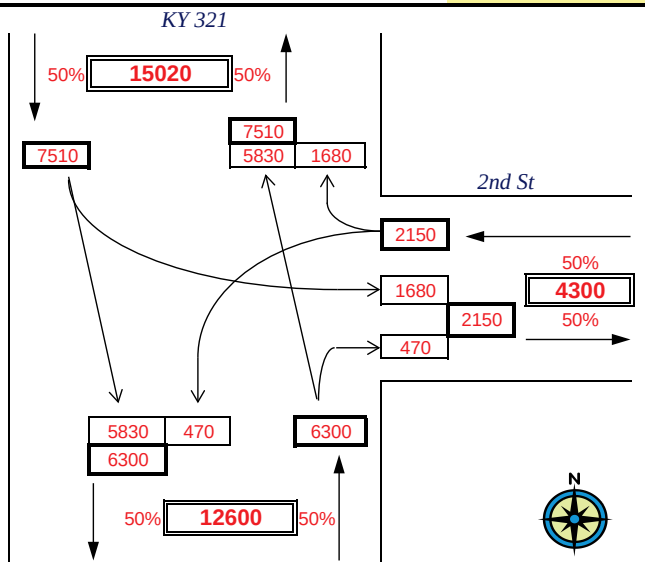
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

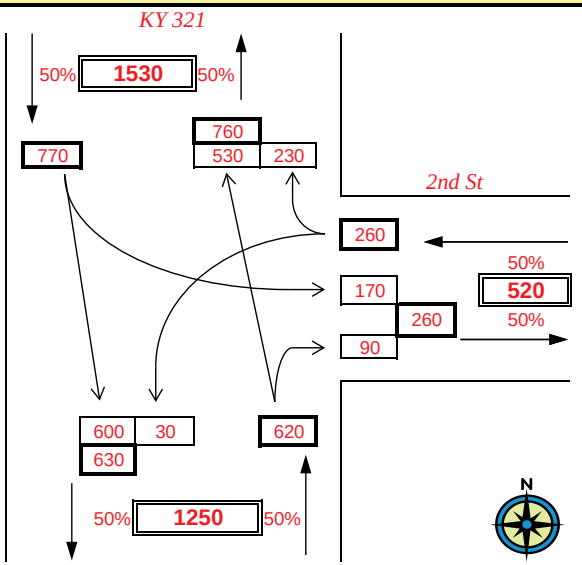
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



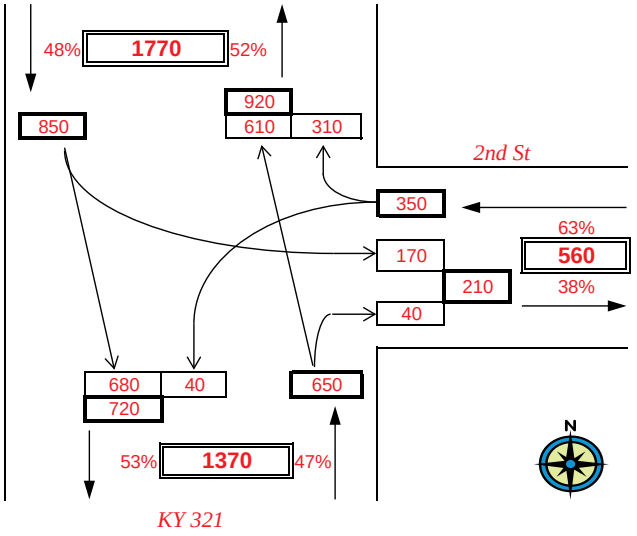
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



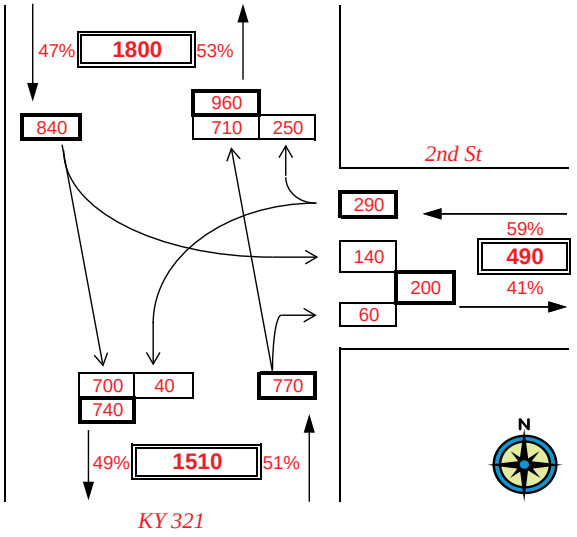
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



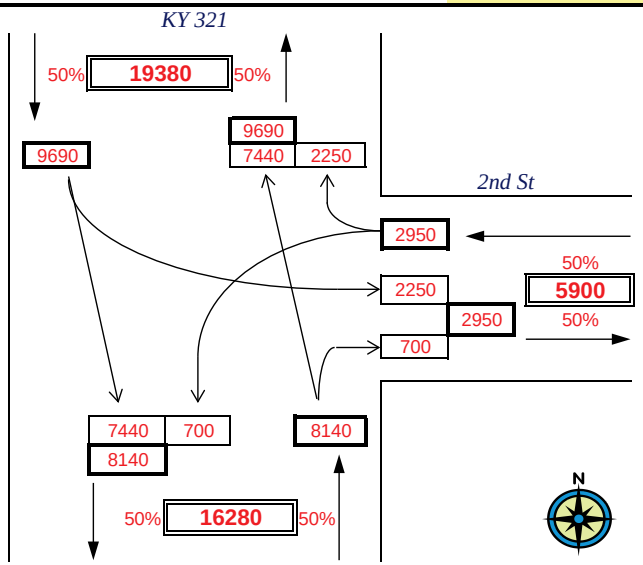
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

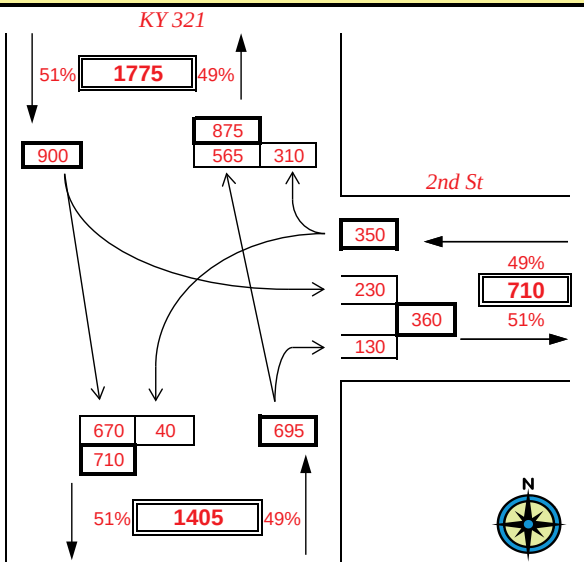
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



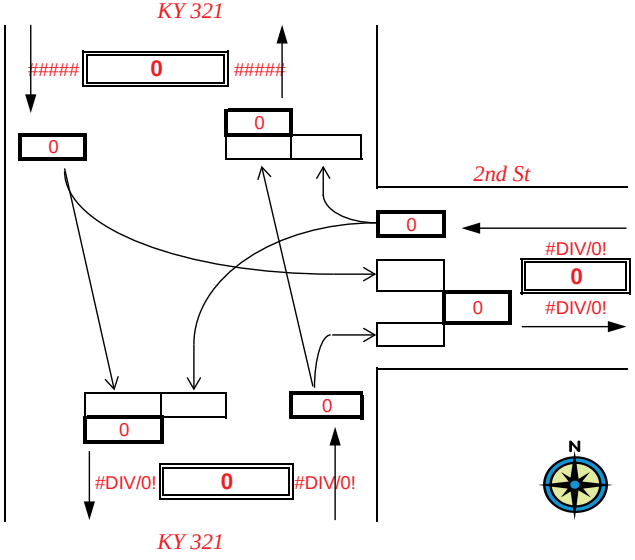
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



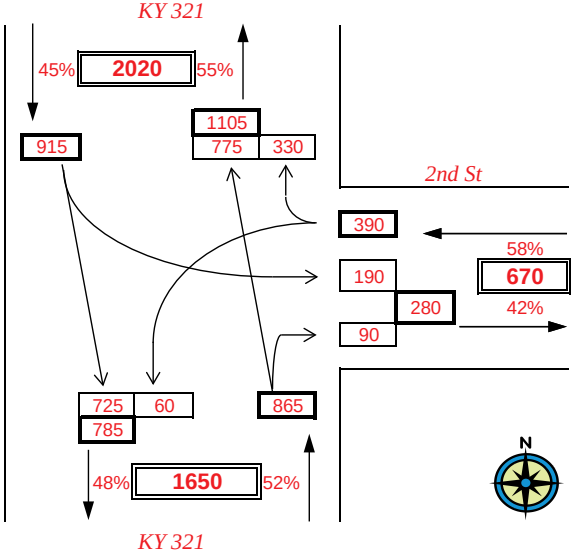
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



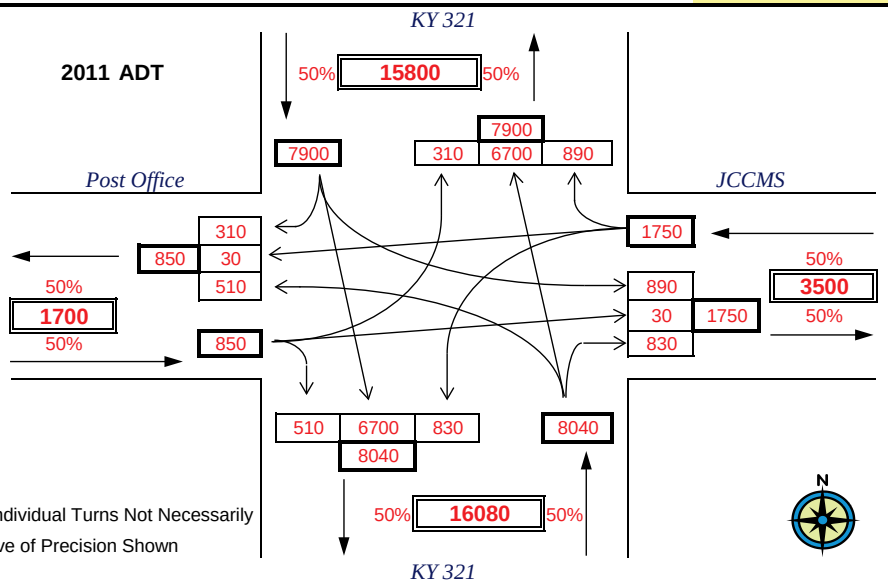
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

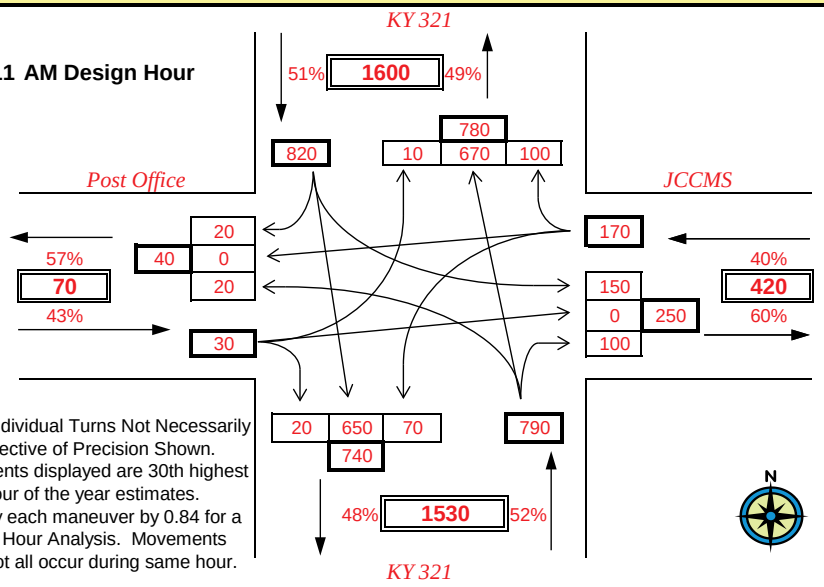
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



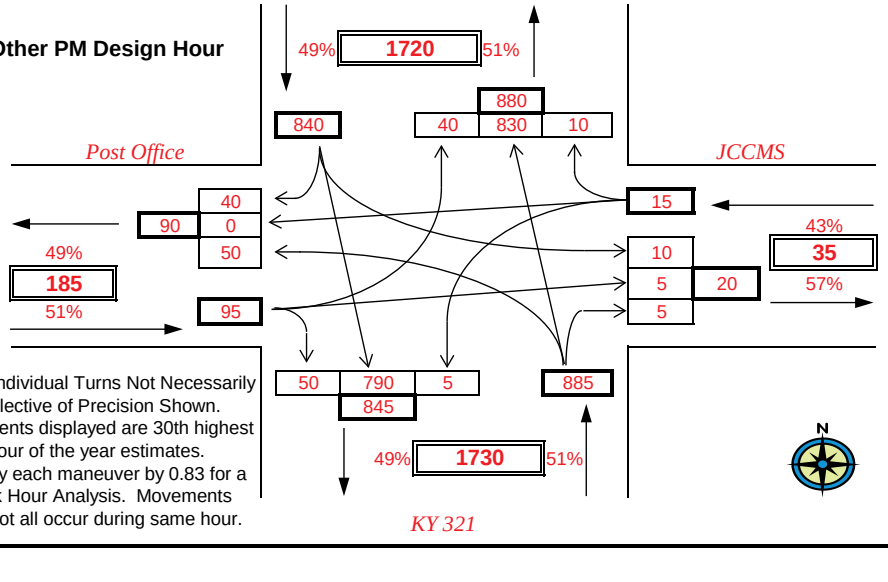
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



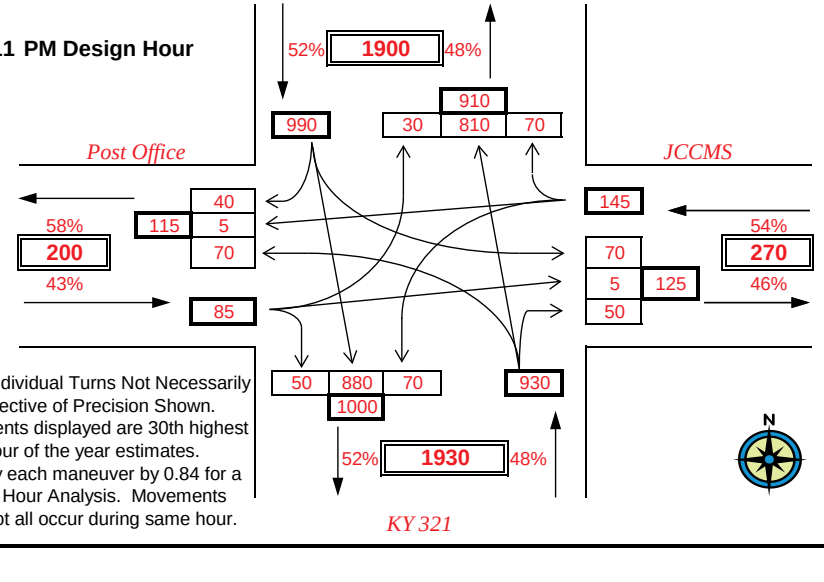
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



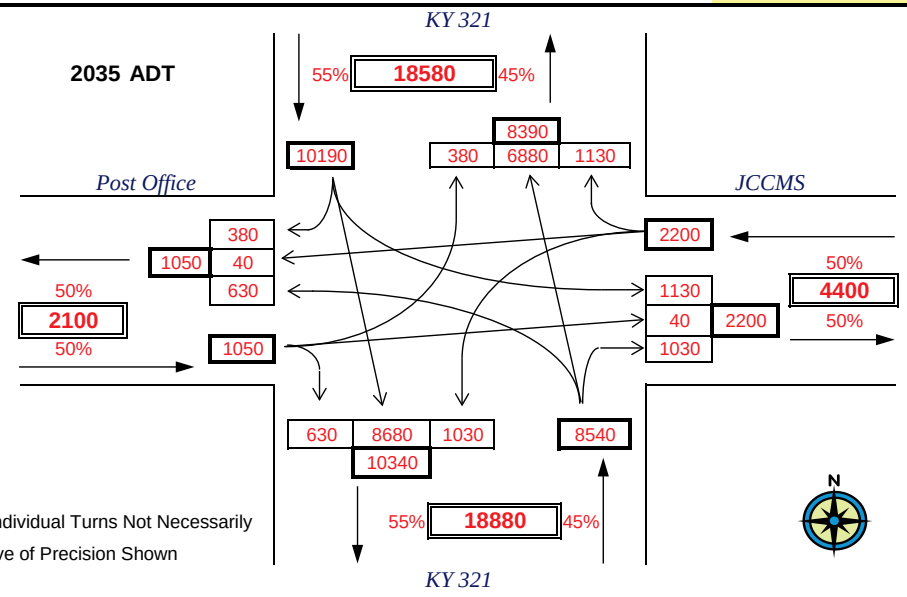
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

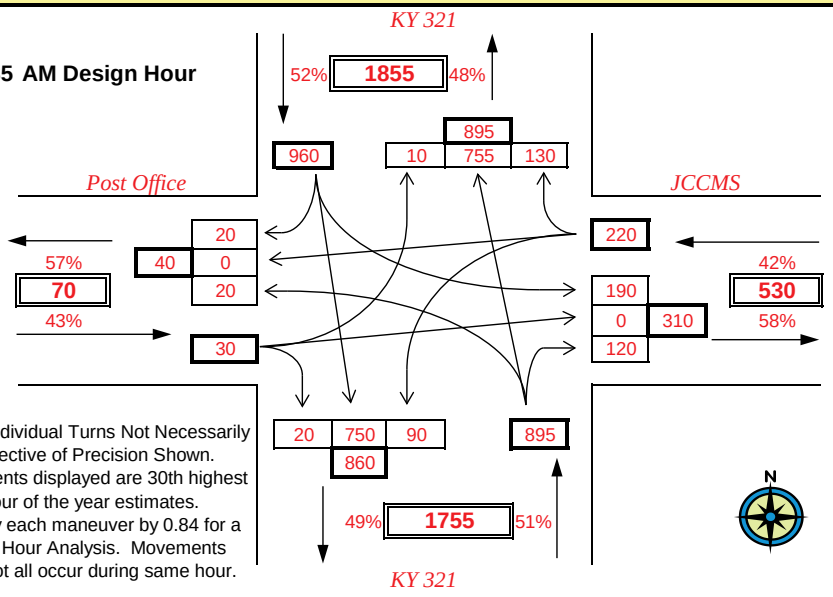
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



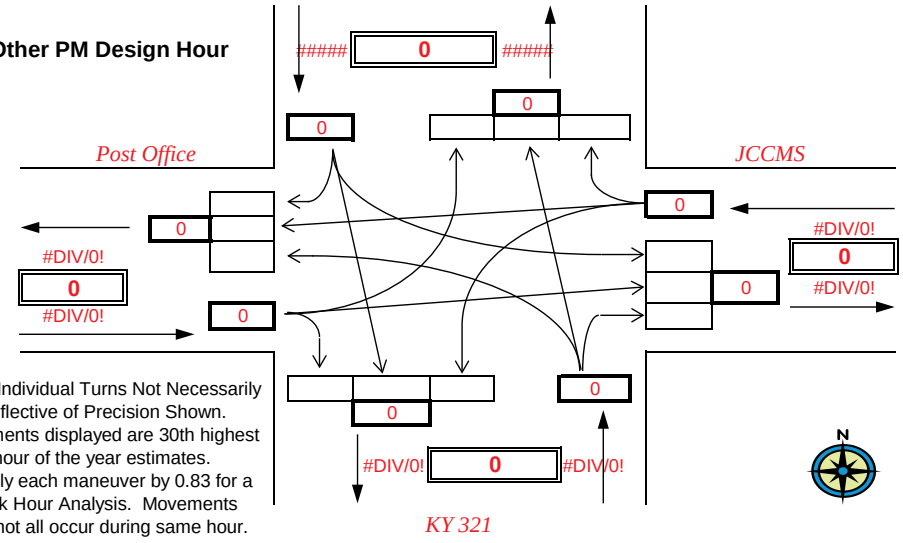
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



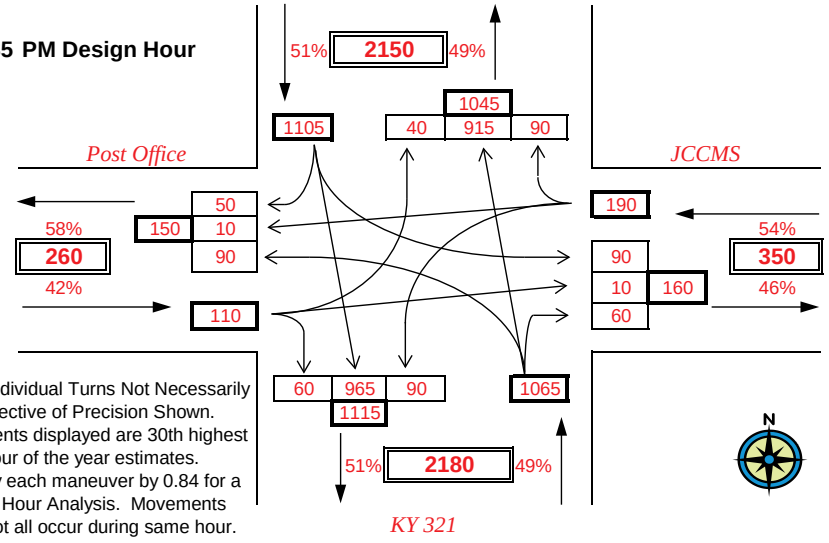
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



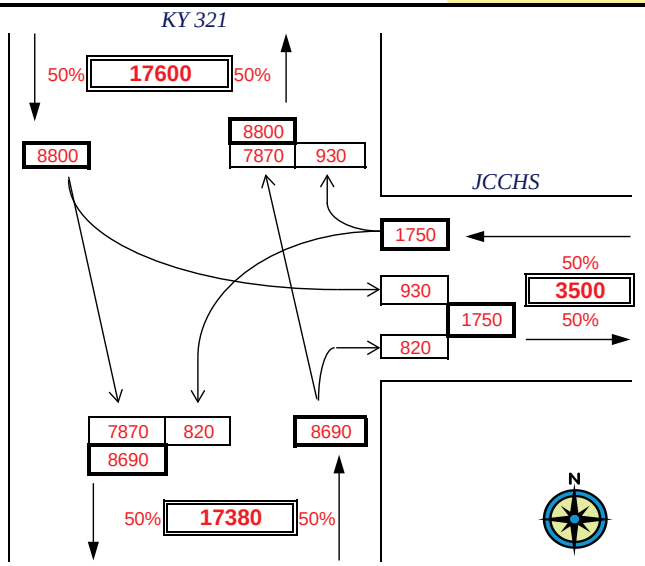
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

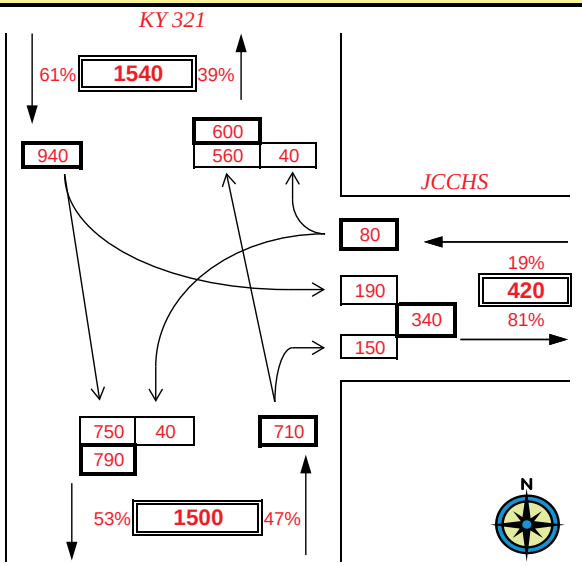
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



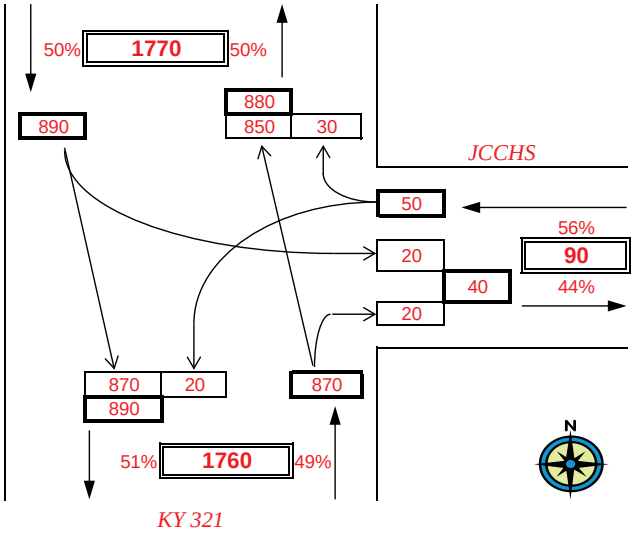
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



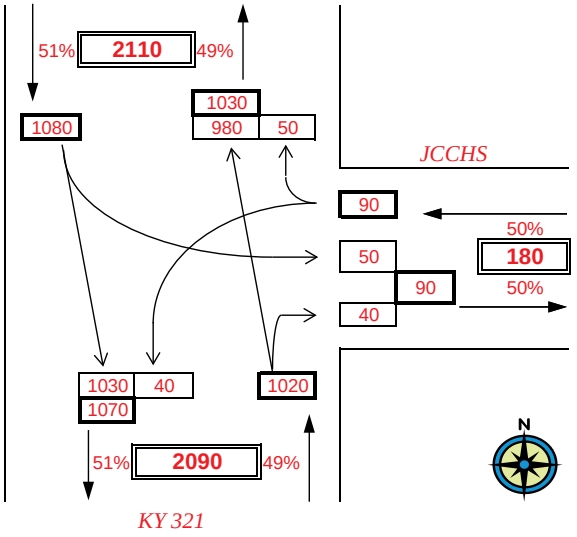
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



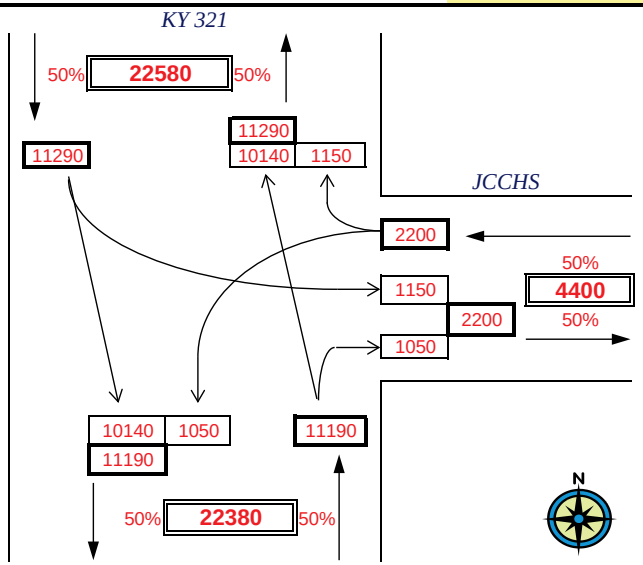
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

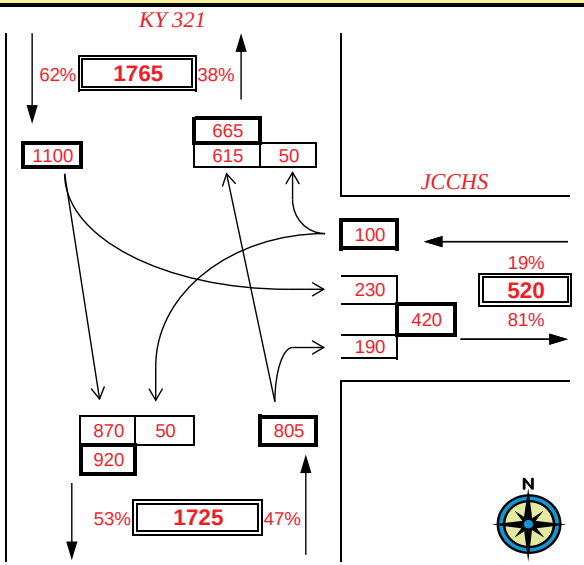
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



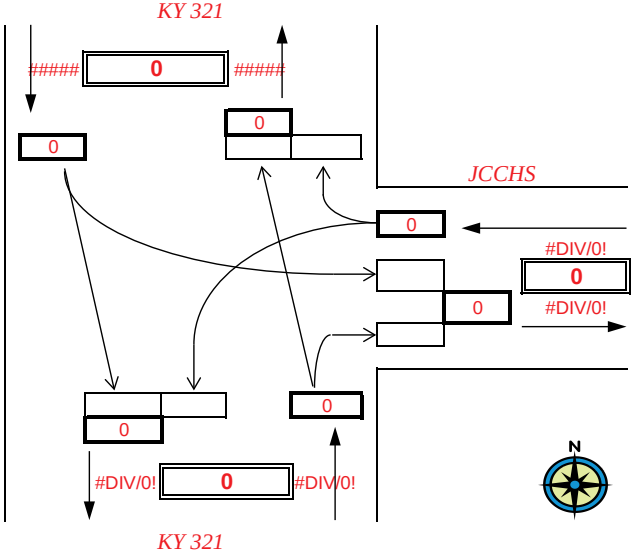
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



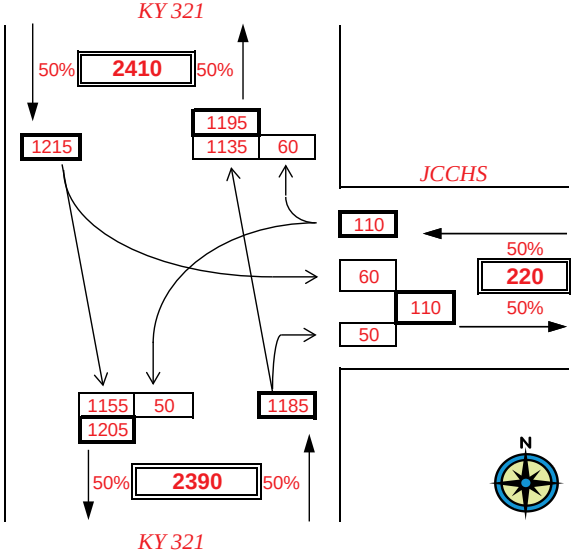
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



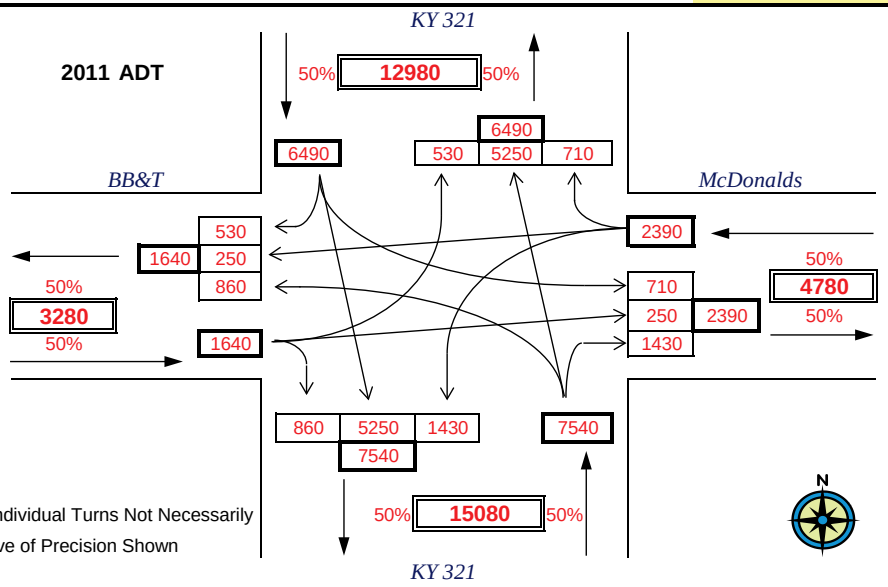
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

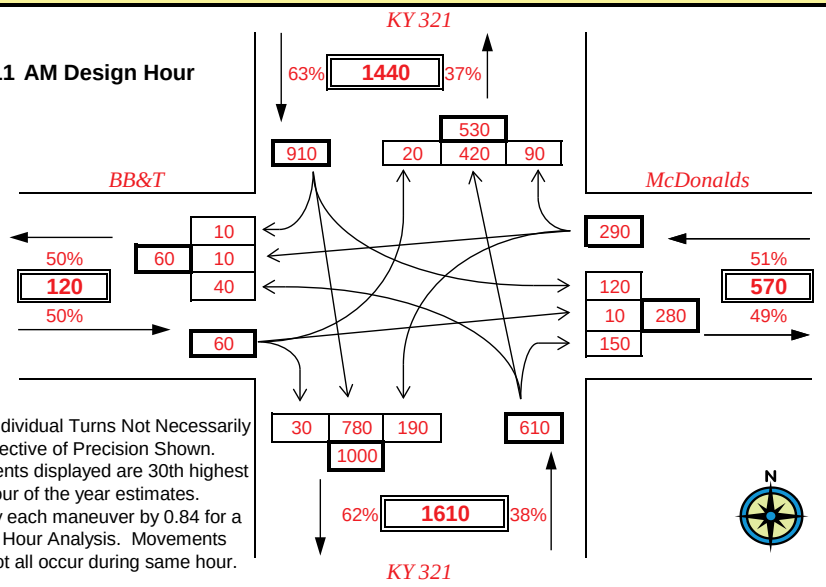
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



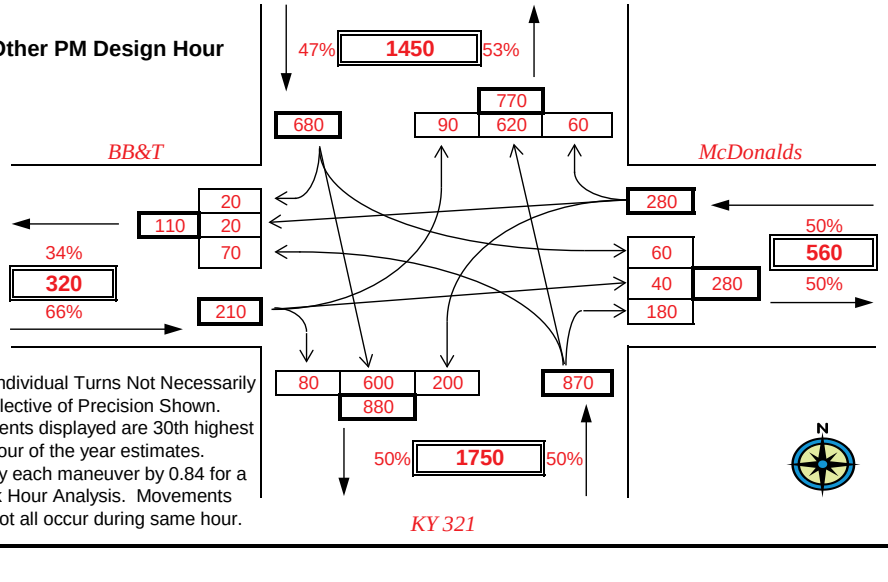
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



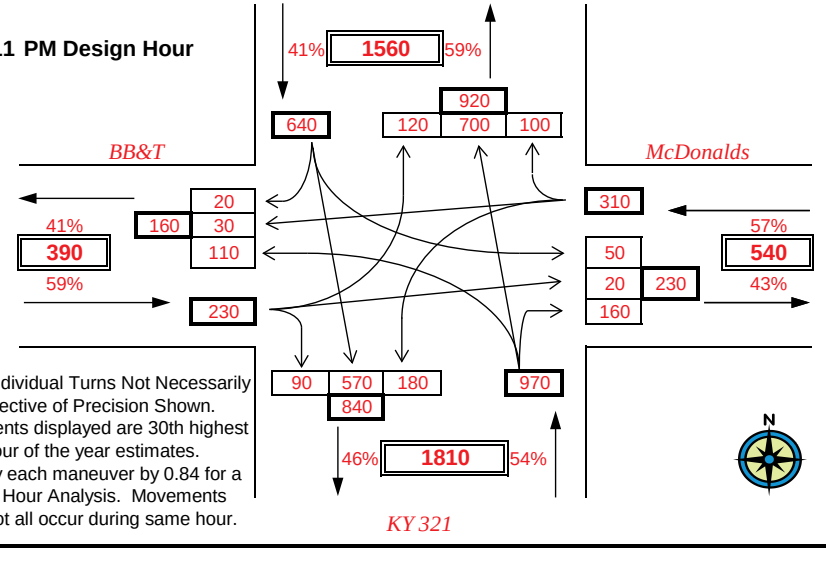
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



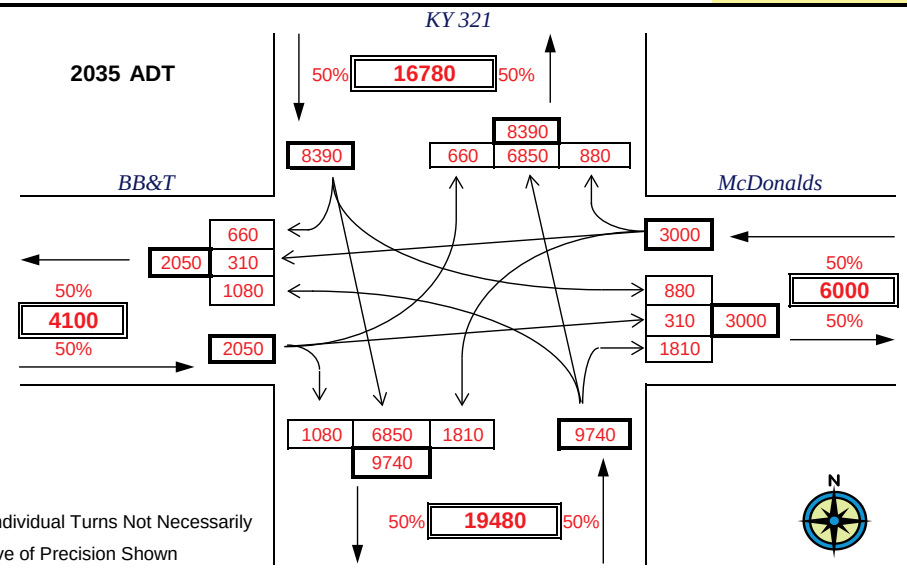
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

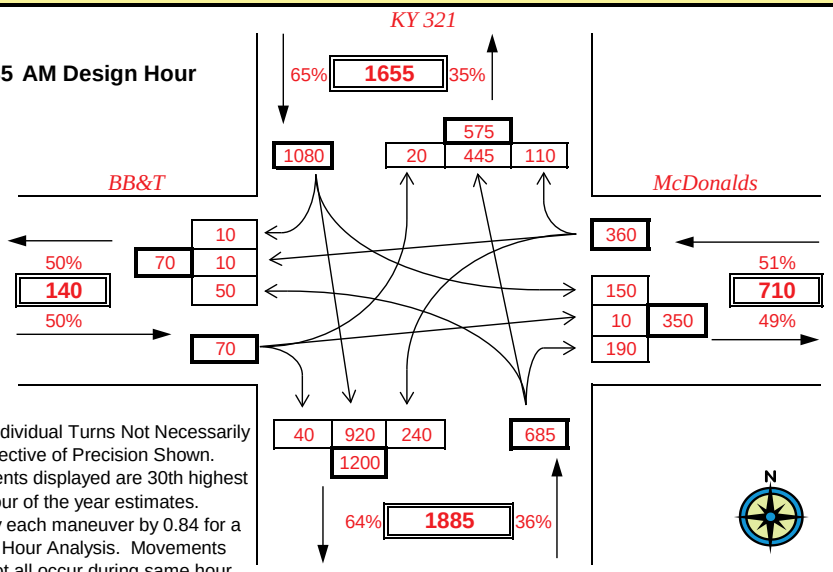
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



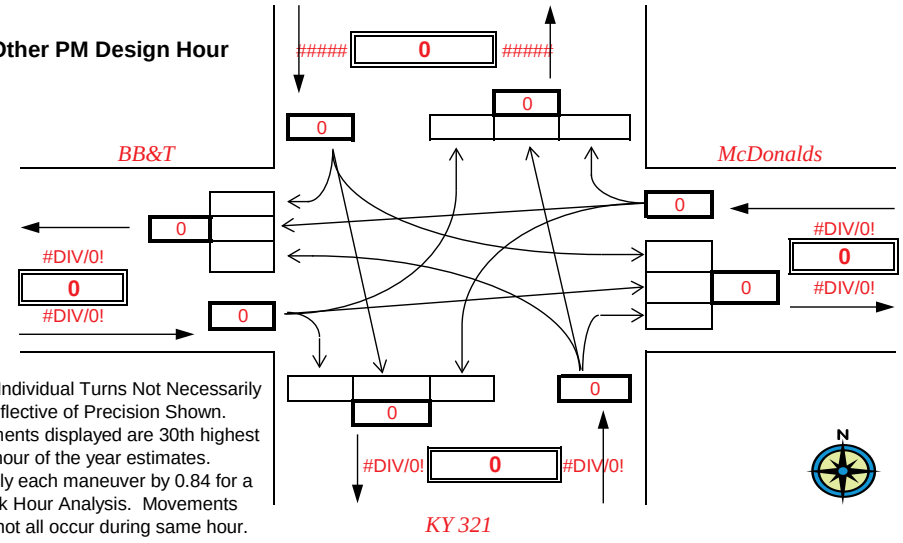
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



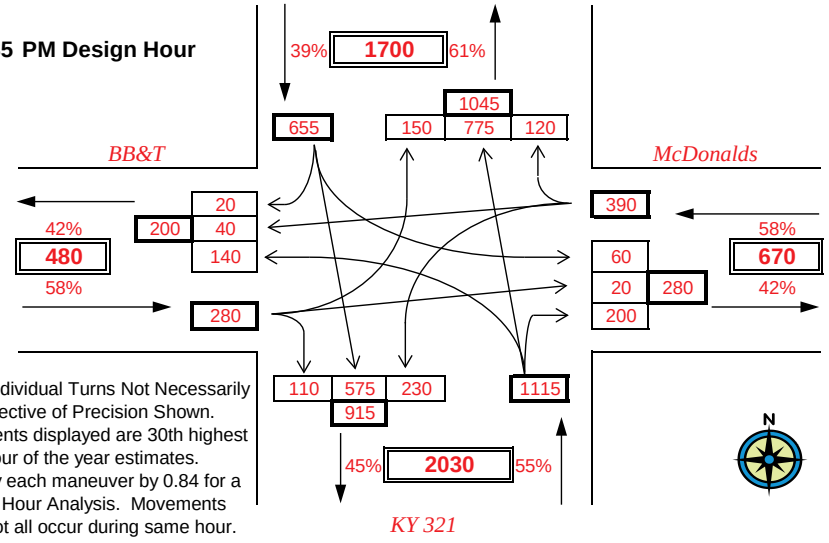
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



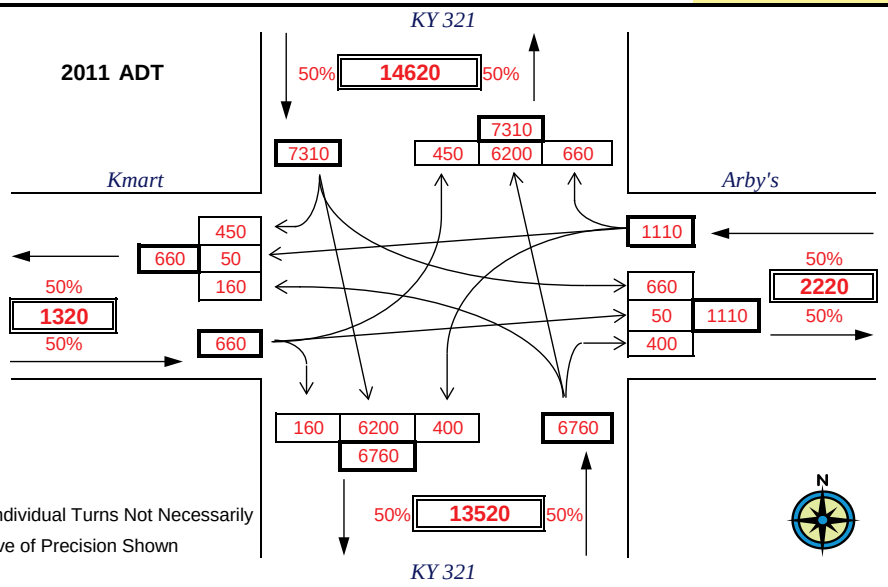
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

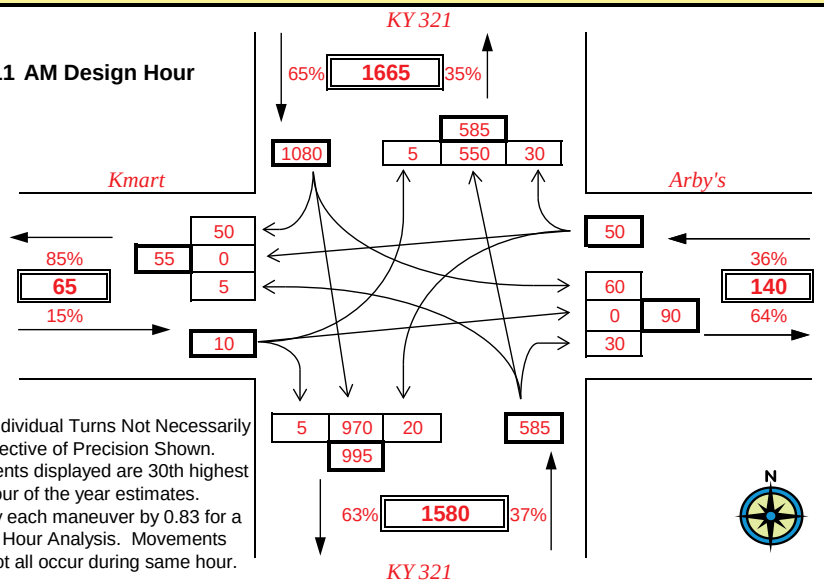
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



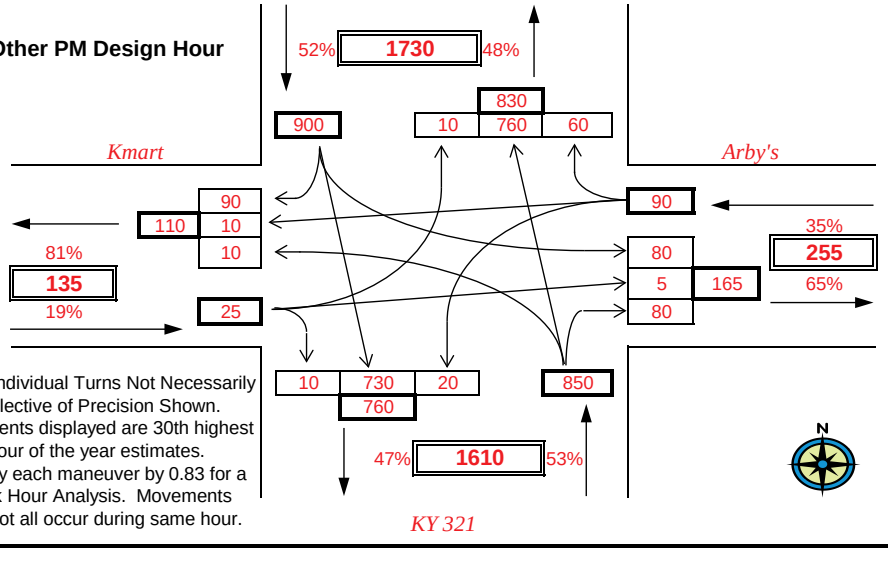
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



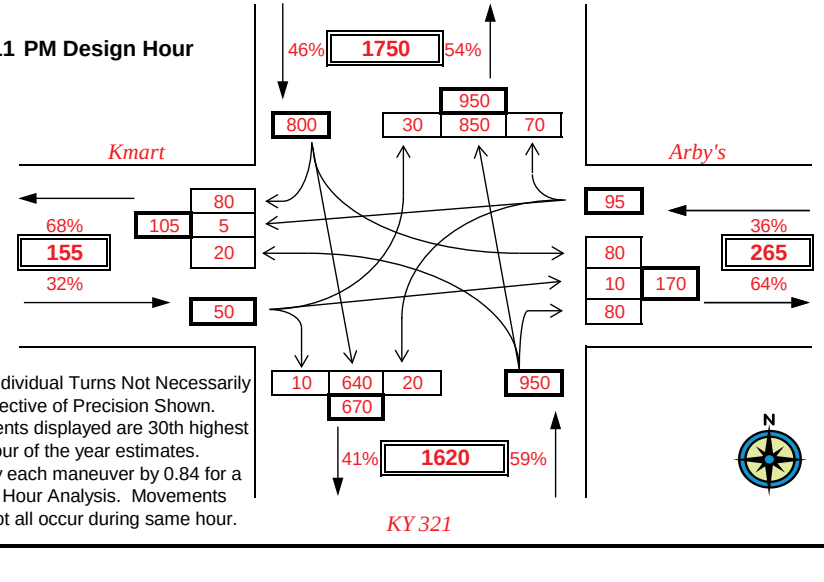
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



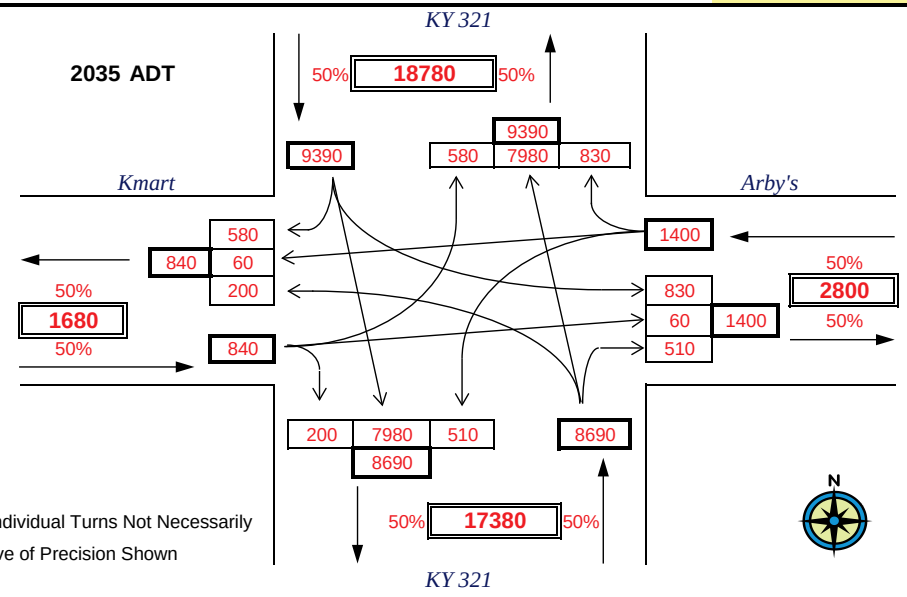
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

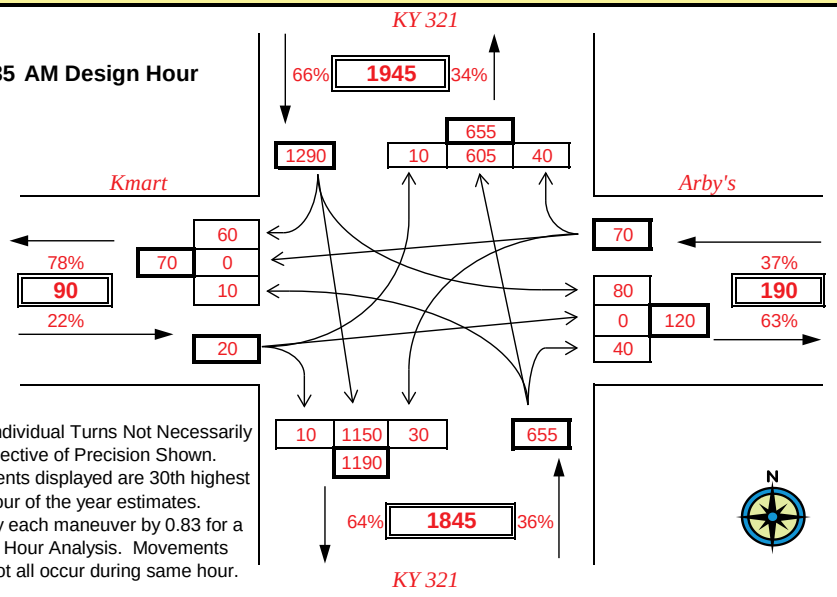
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



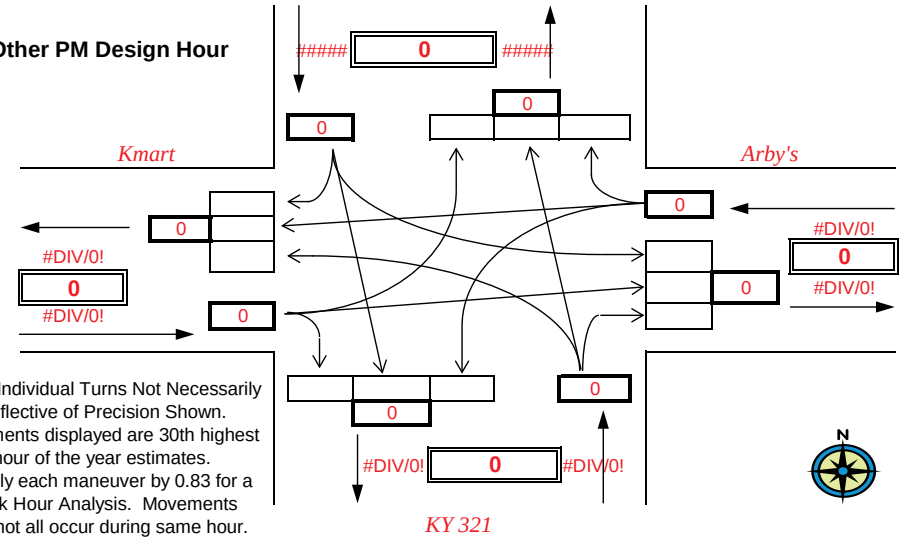
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



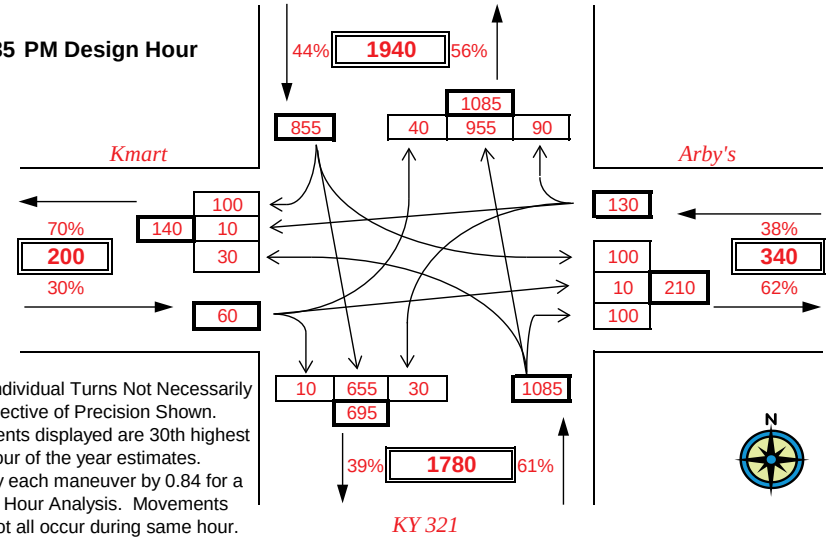
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

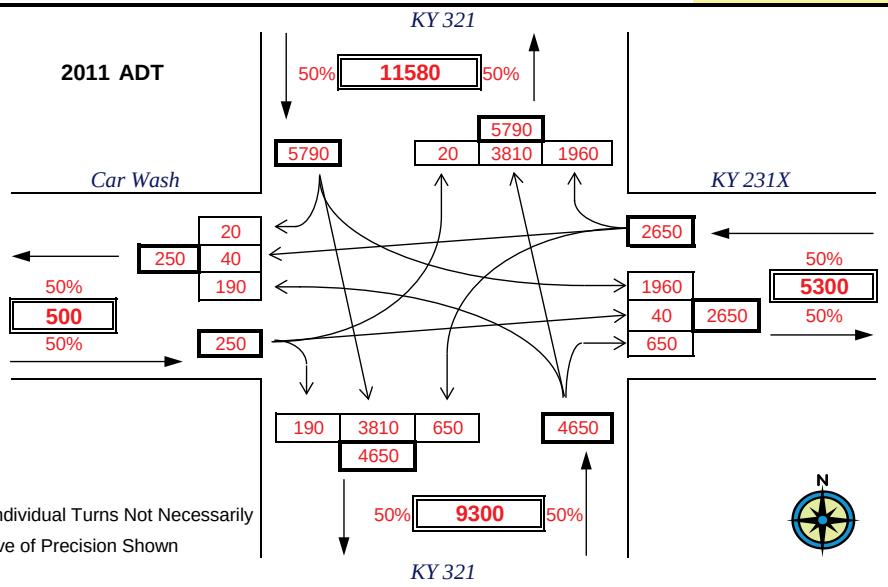
ALTERNATIVE 1C

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

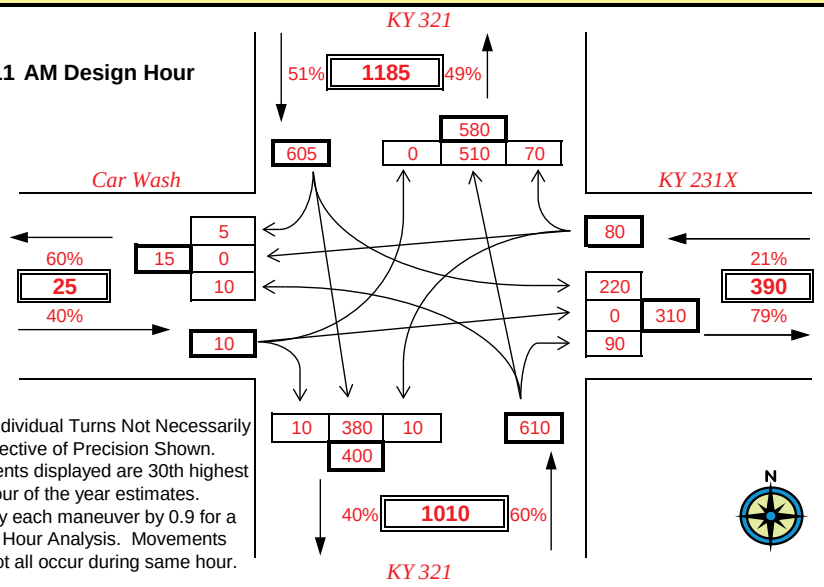
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



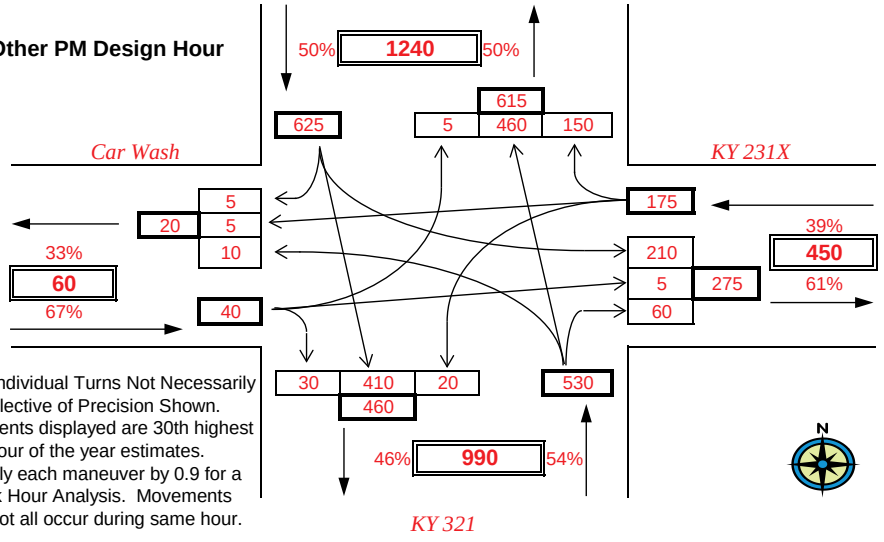
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



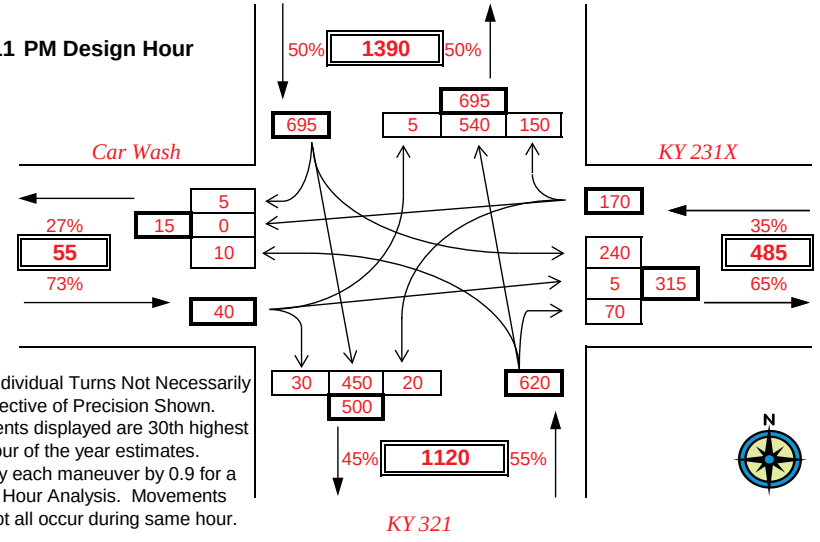
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



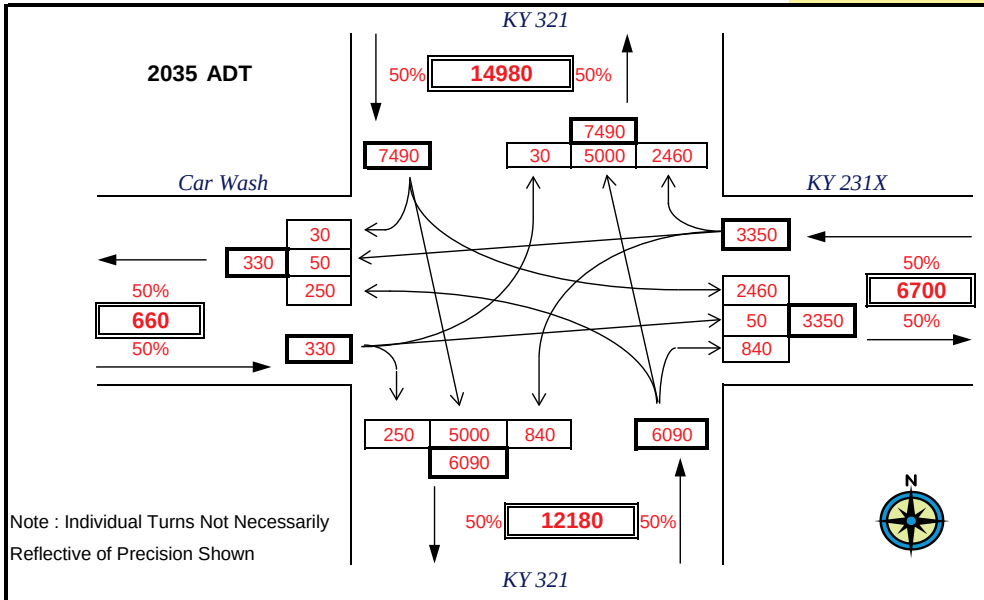
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

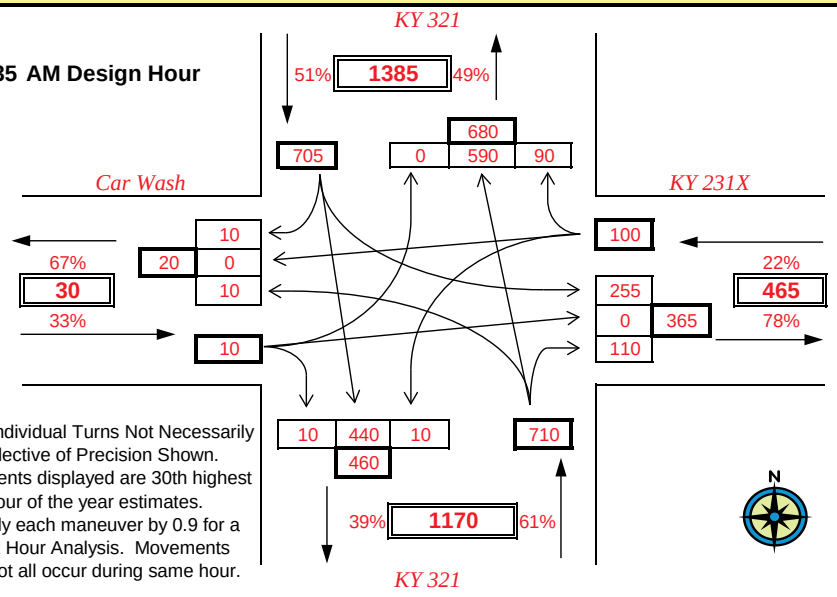
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



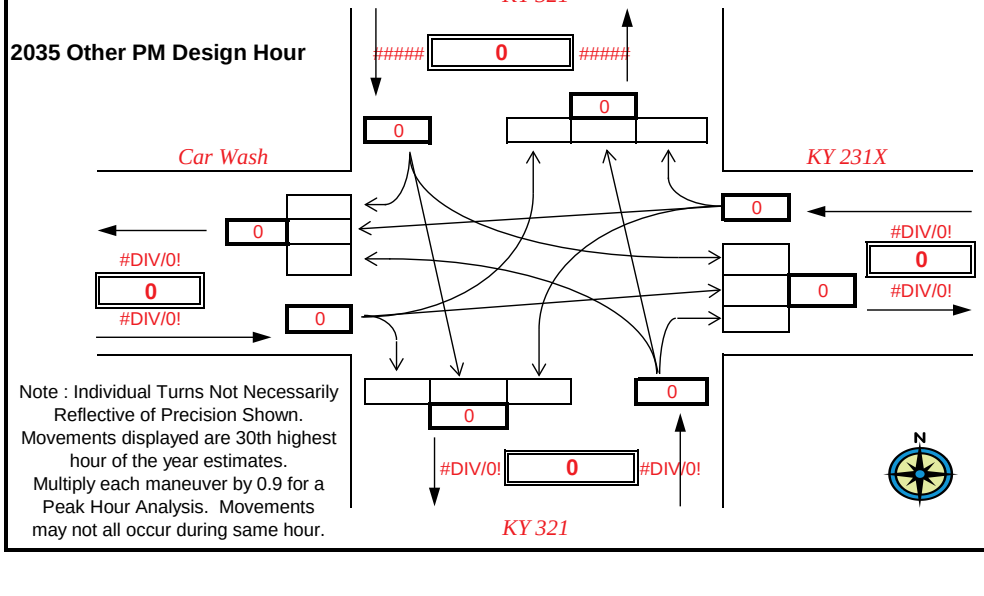
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



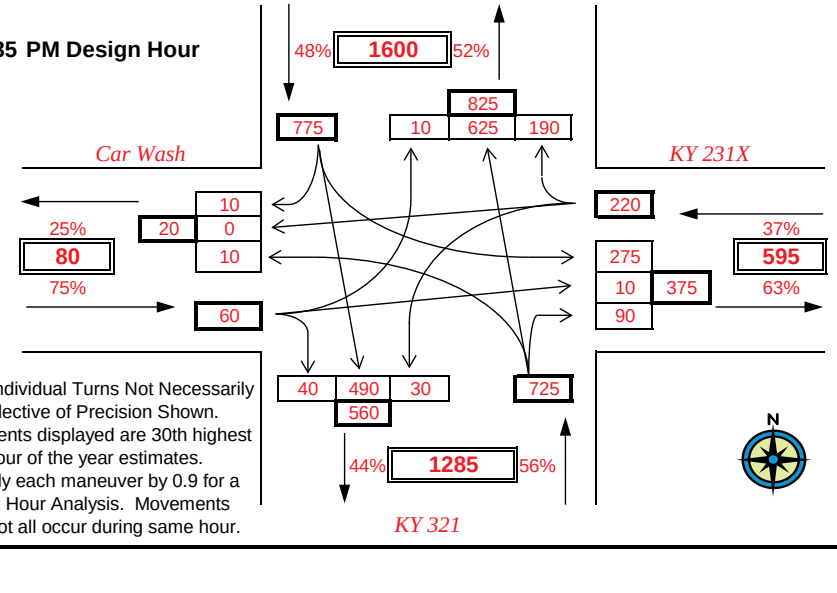
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

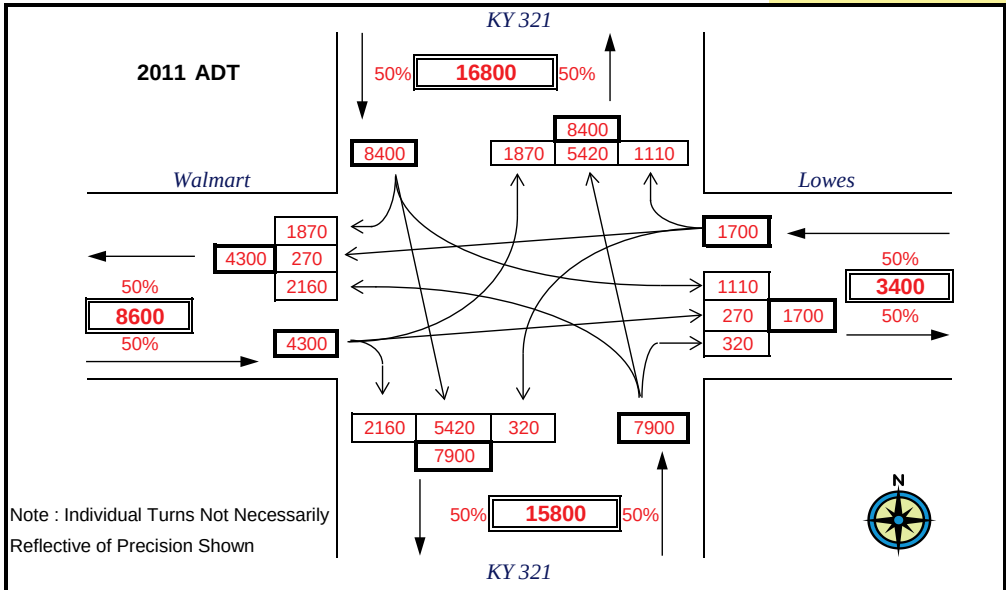


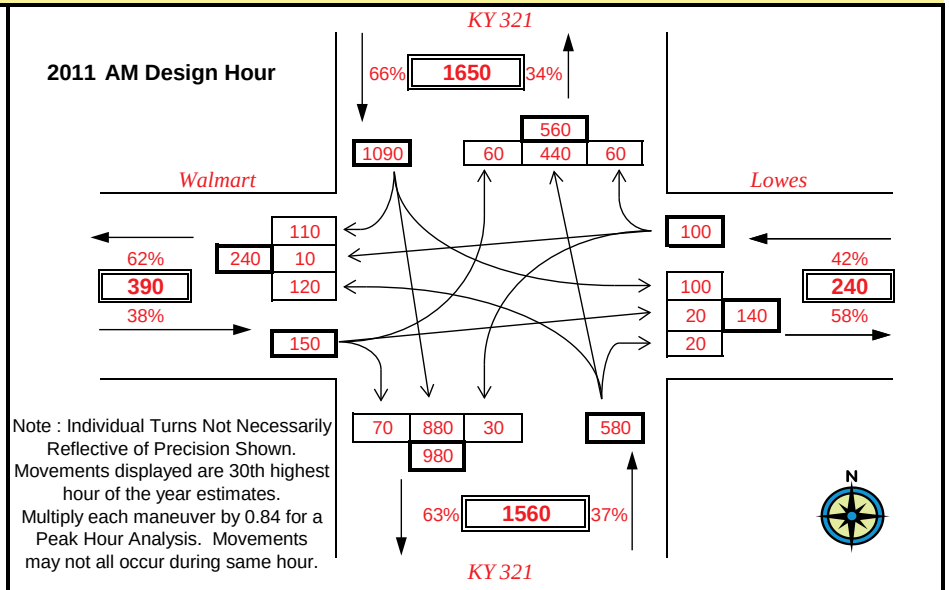
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

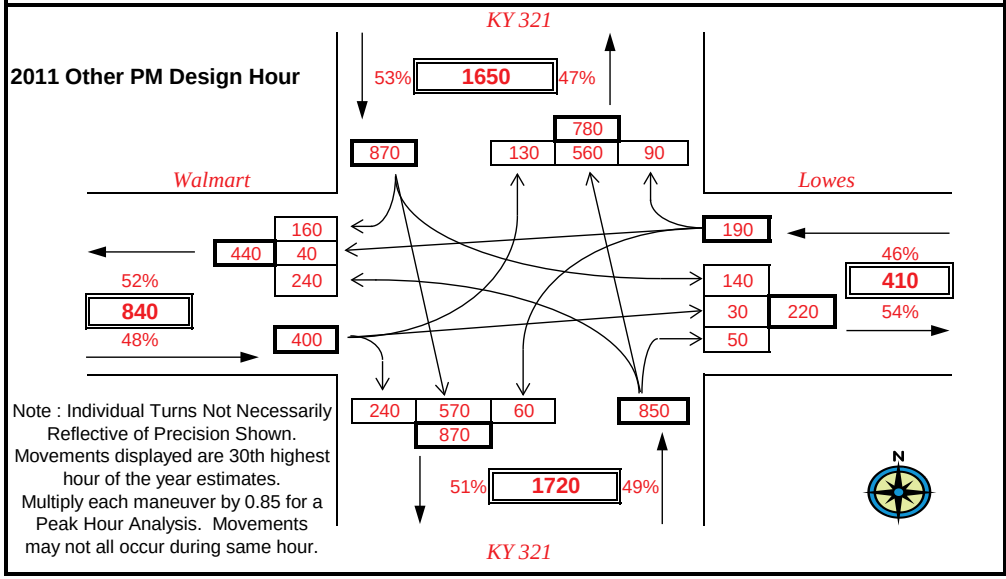
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

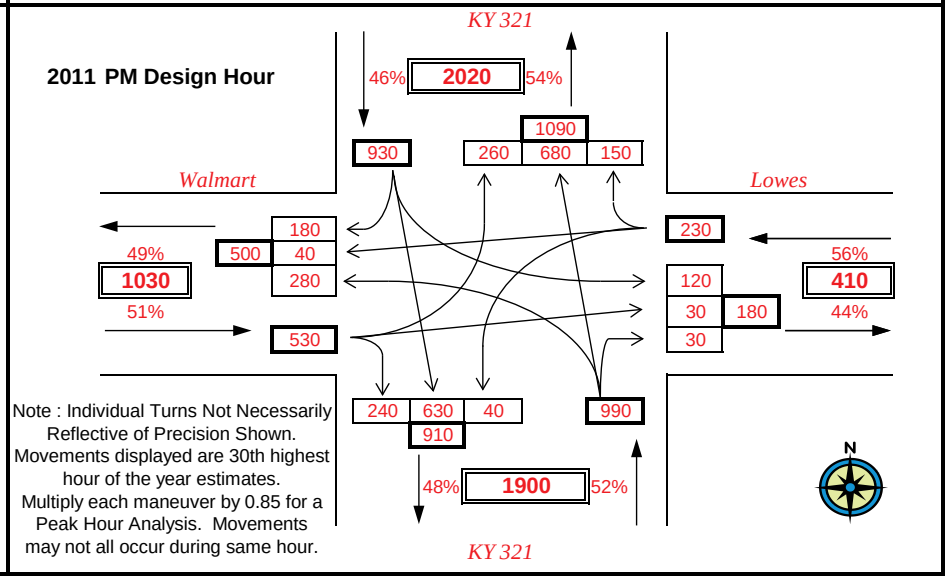
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







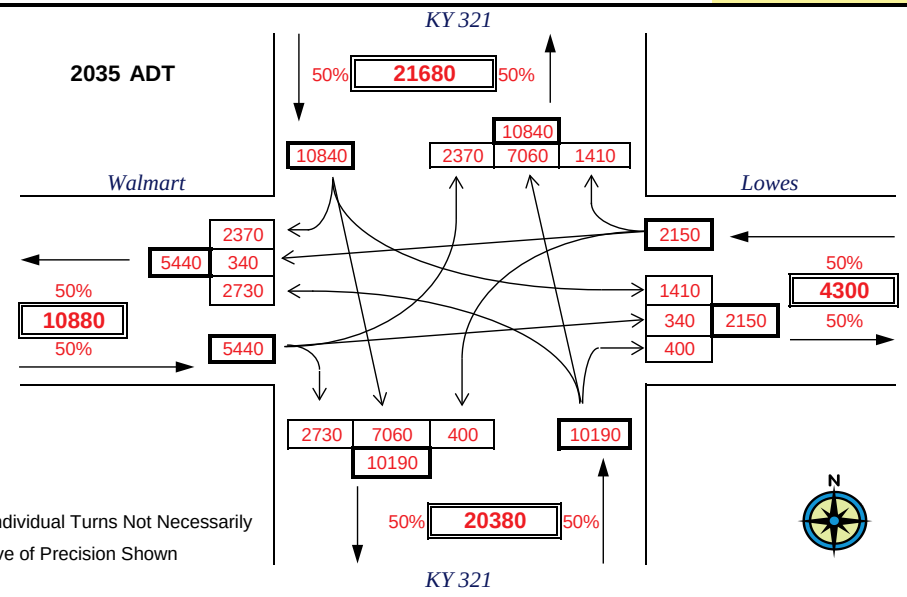


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

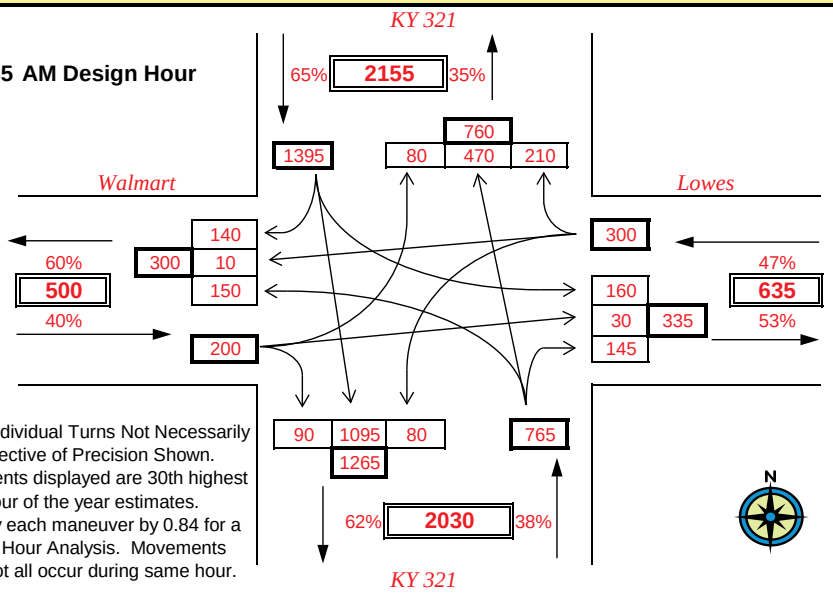
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



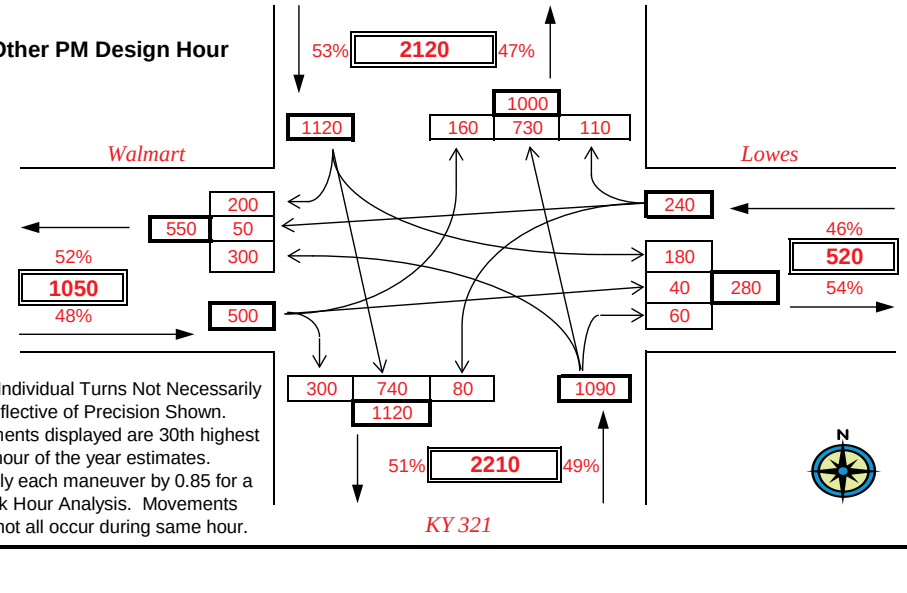
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



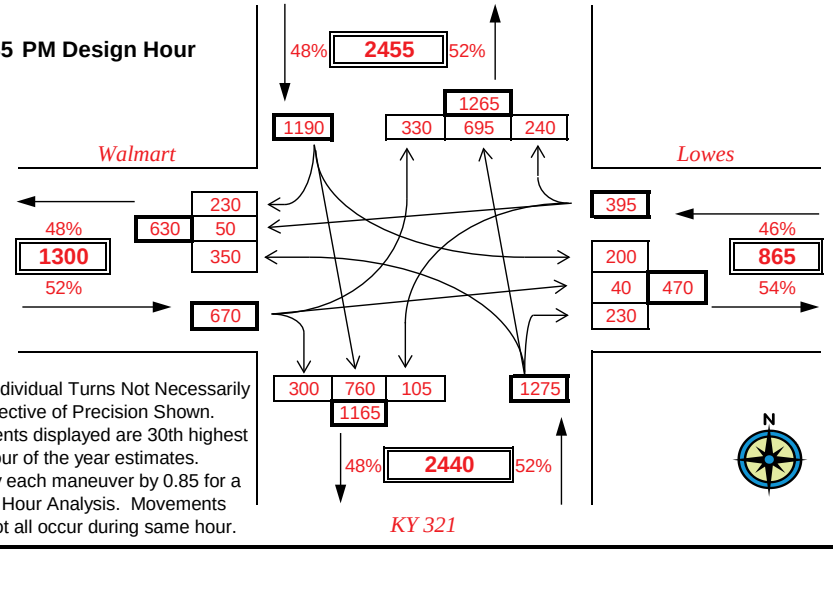
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



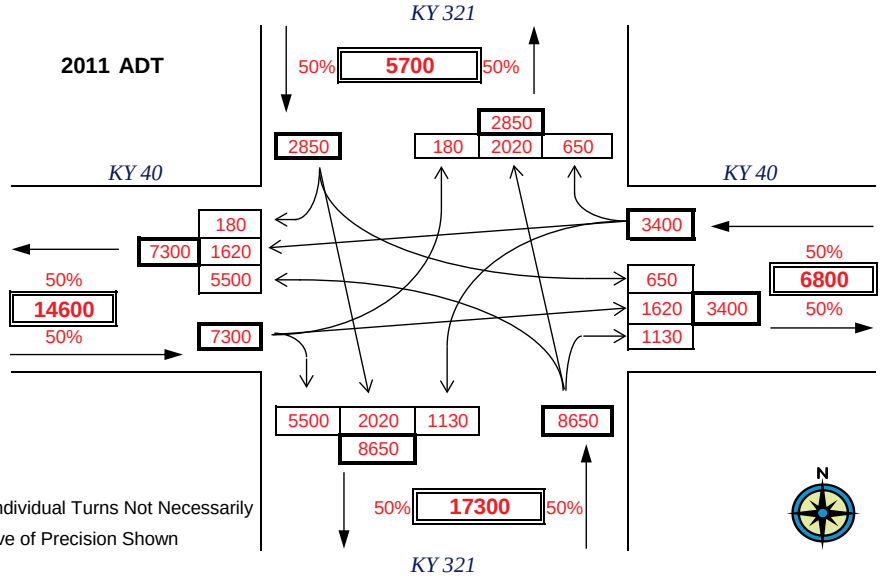
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

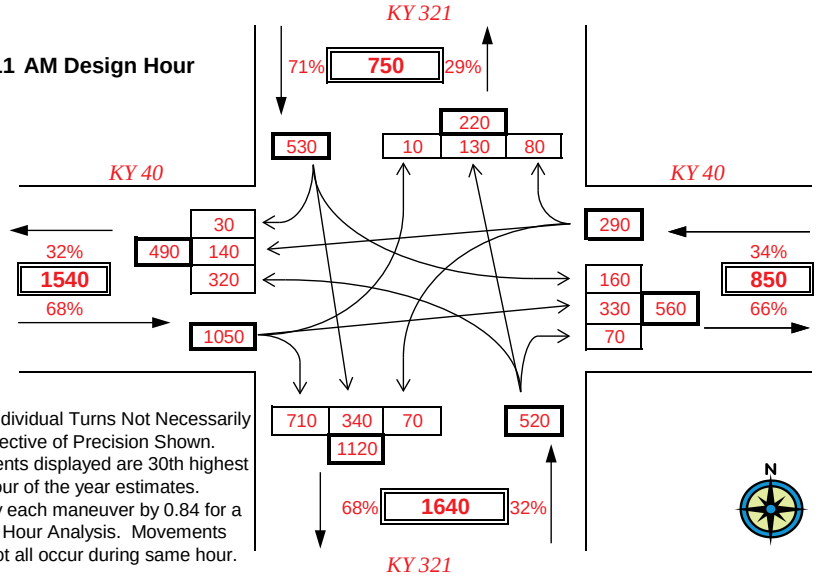
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



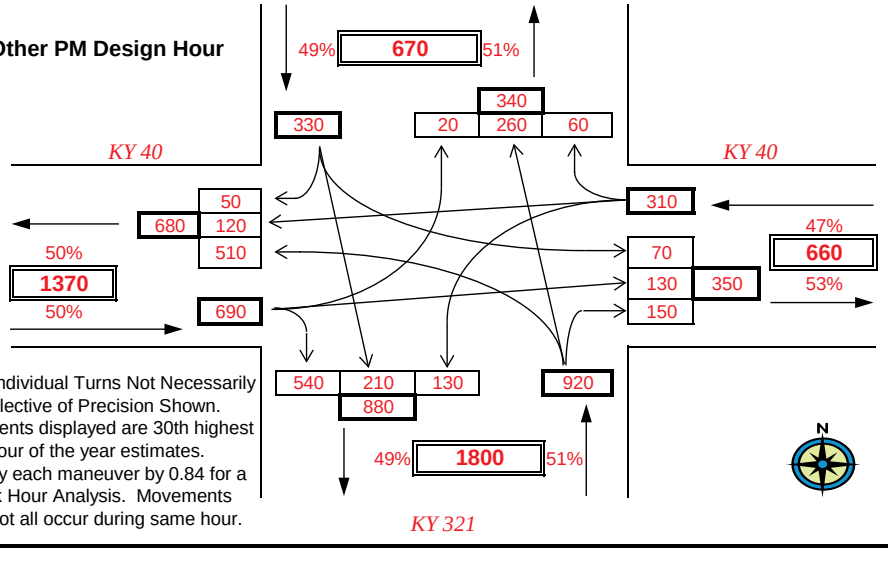
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



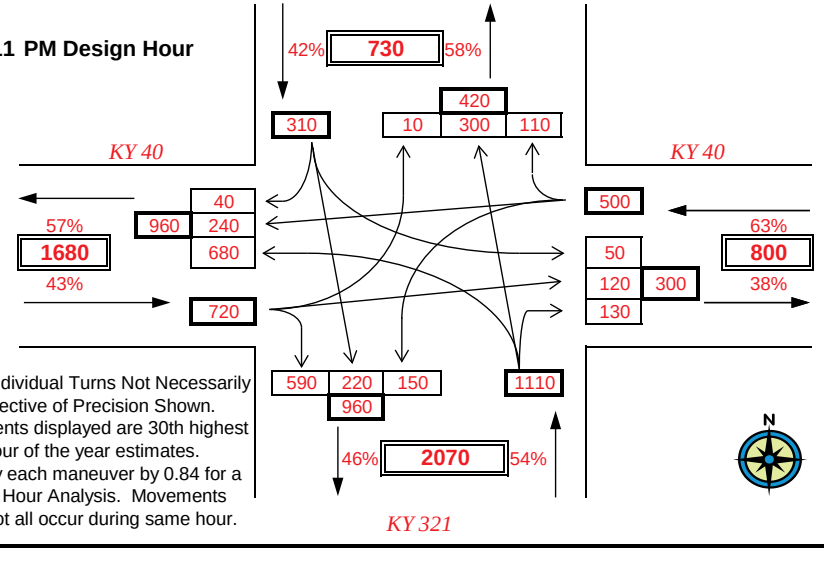
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



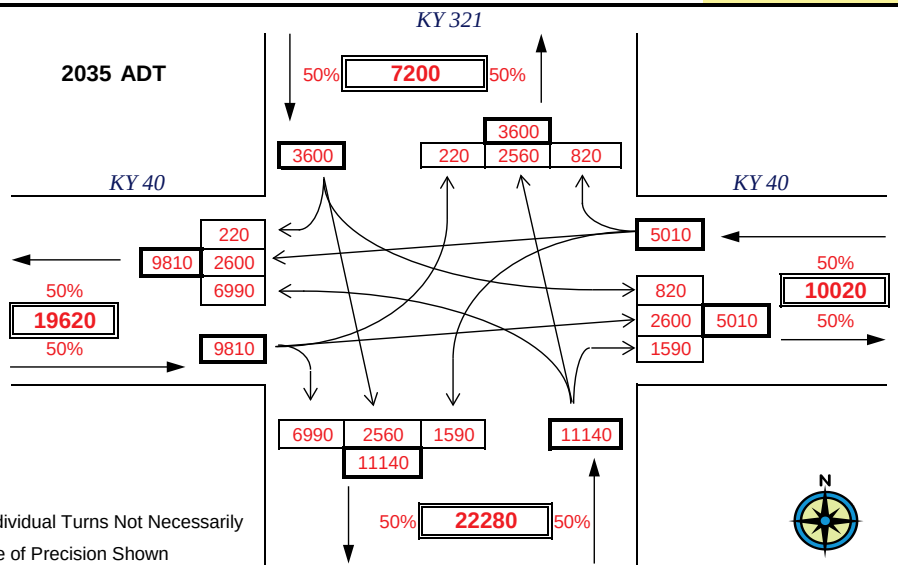
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

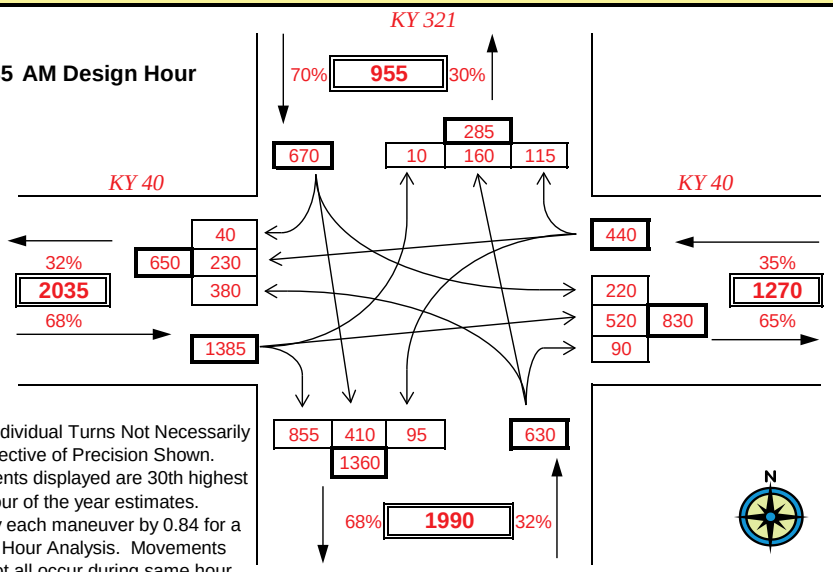
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



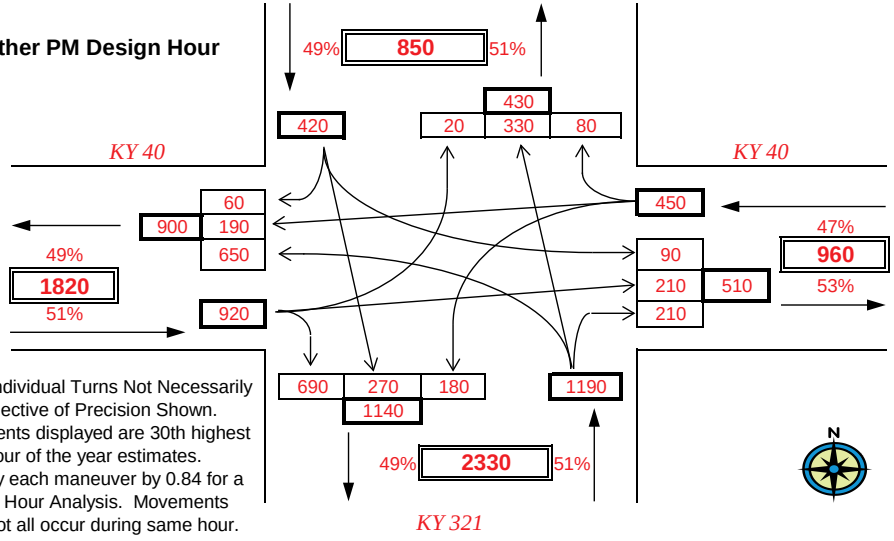
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



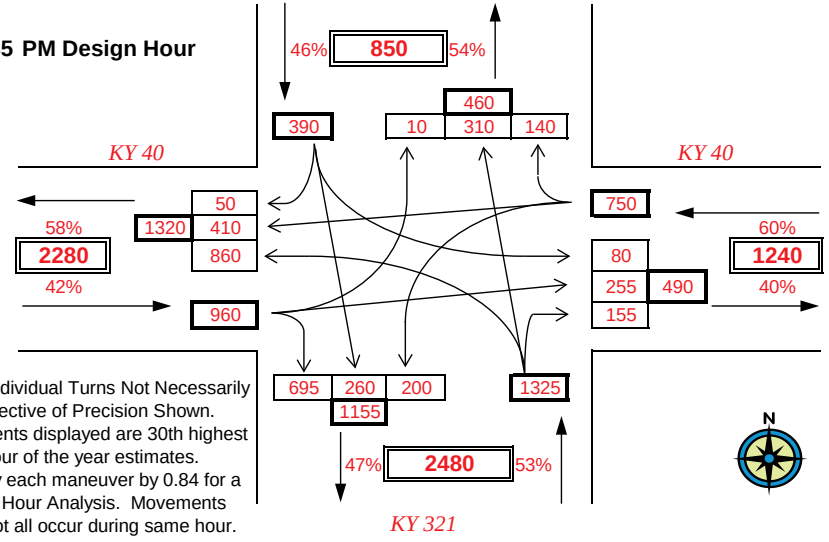
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



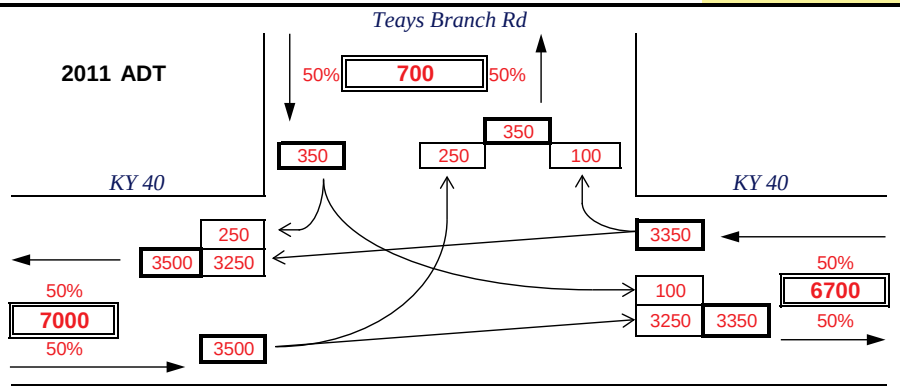
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

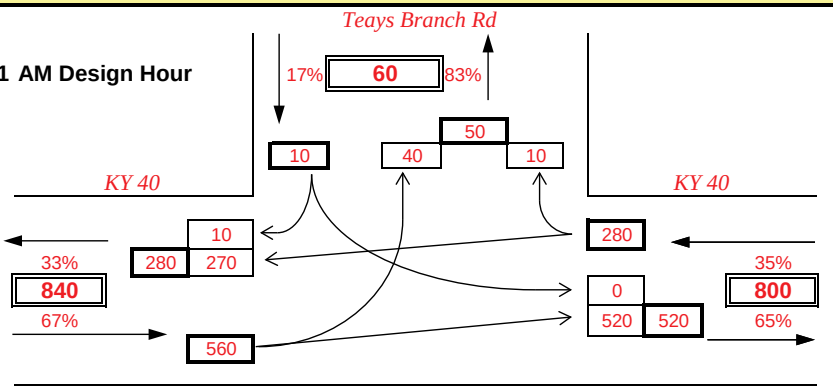
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



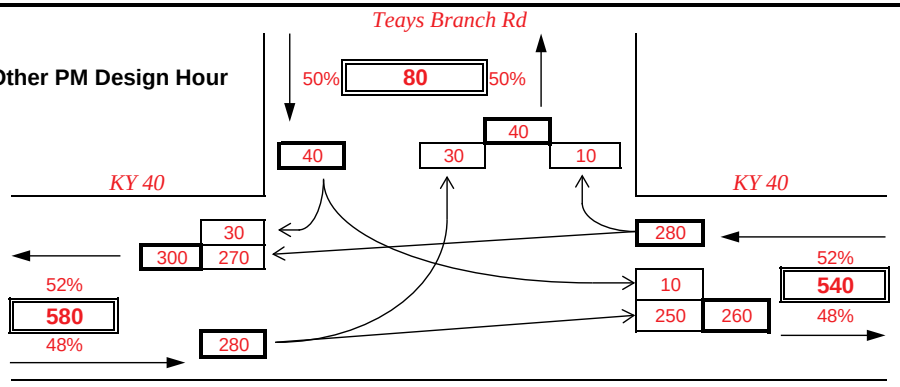
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



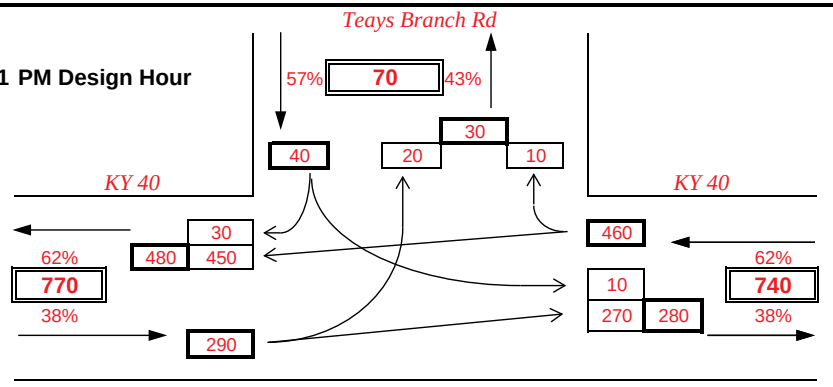
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



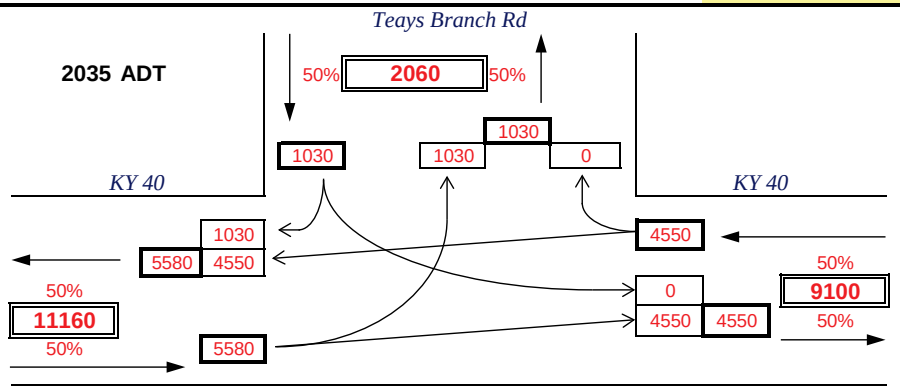
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

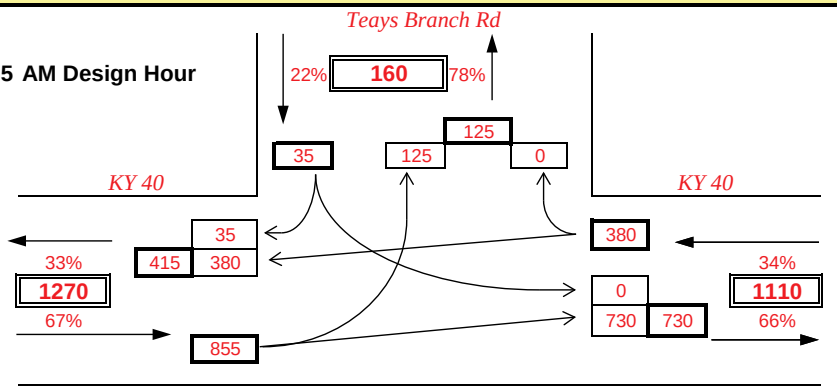
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



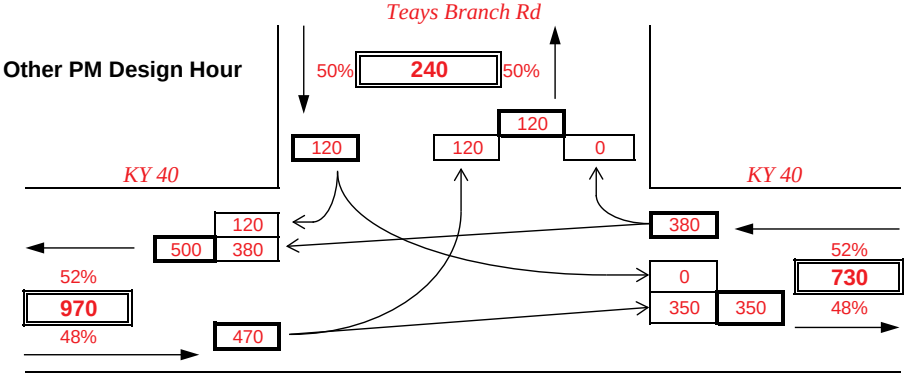
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



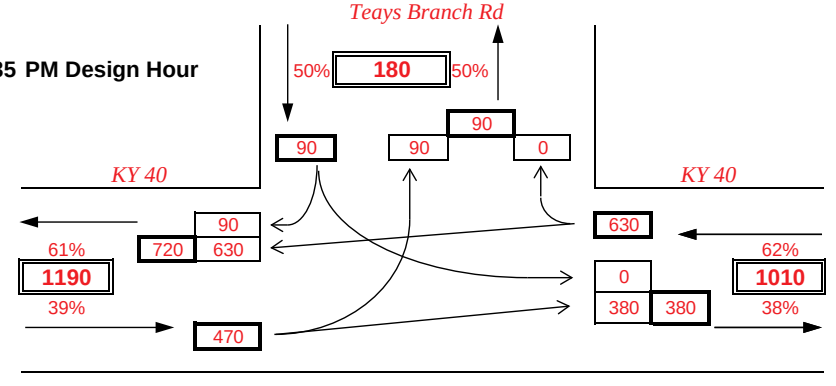
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



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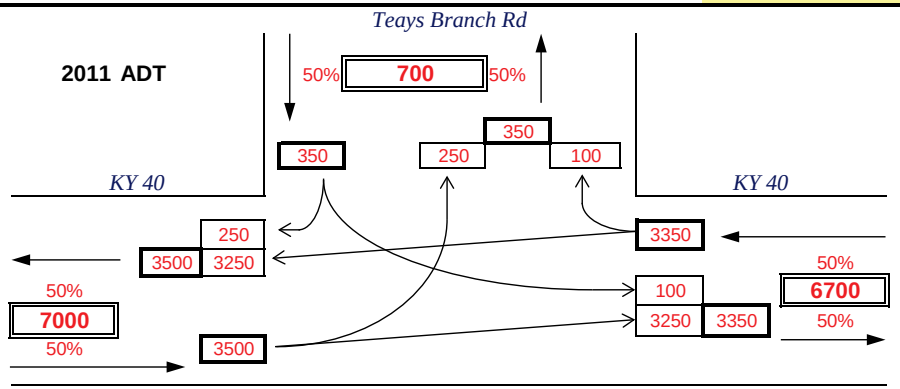
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

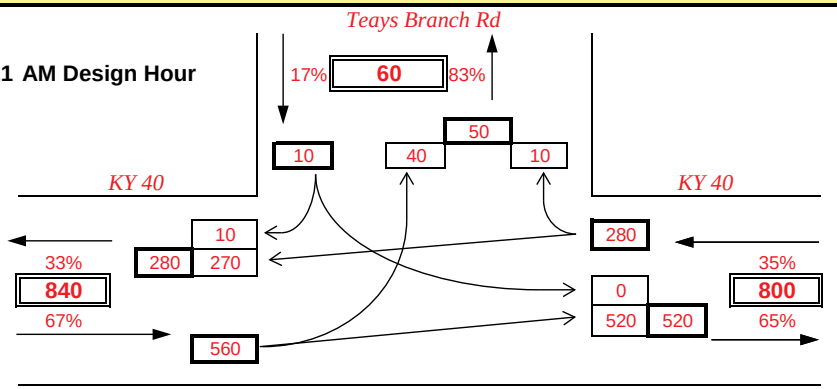
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



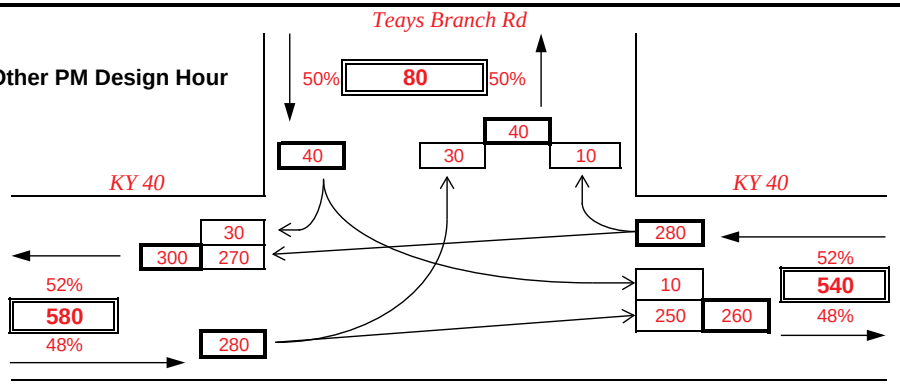
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



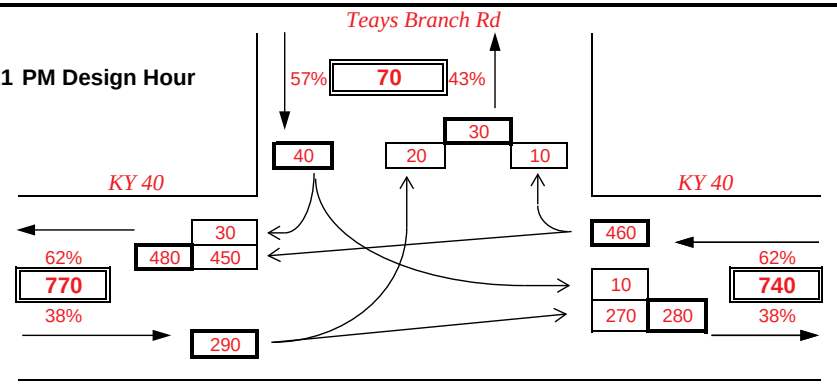
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour

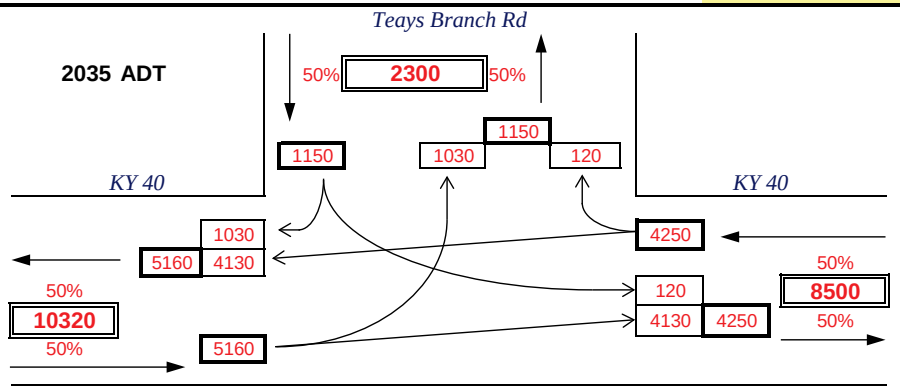


Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

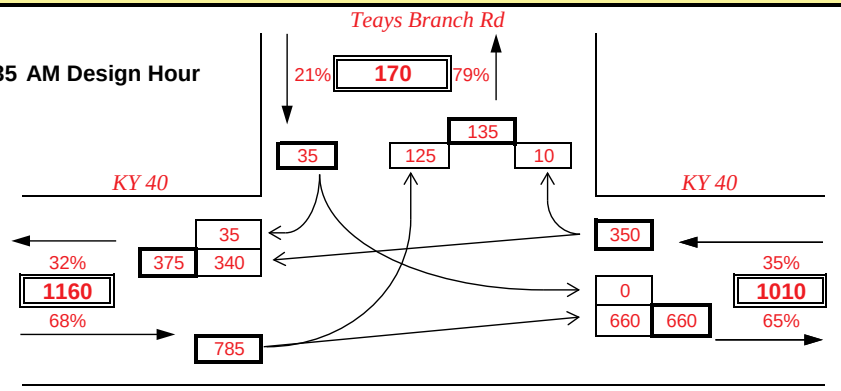
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

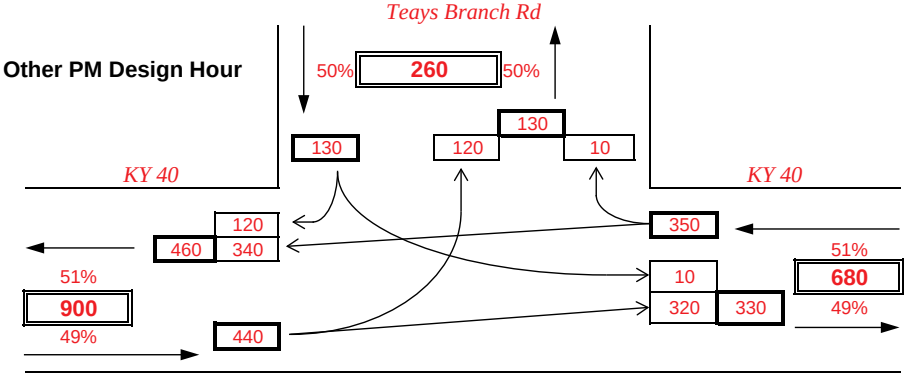
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



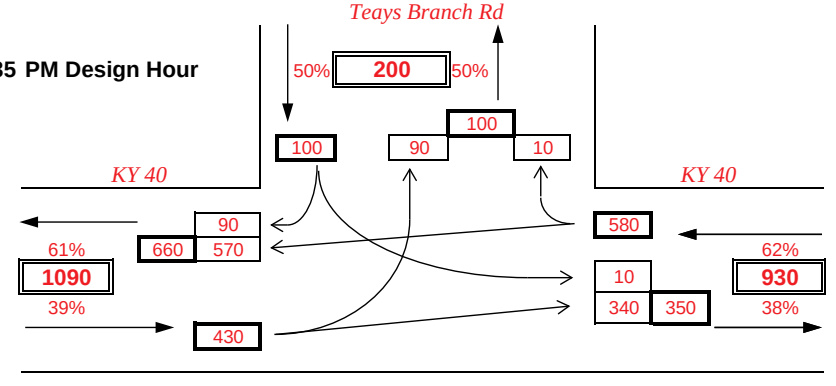
Note : Individual Turns Not Necessarily Reflective of Precision Shown



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



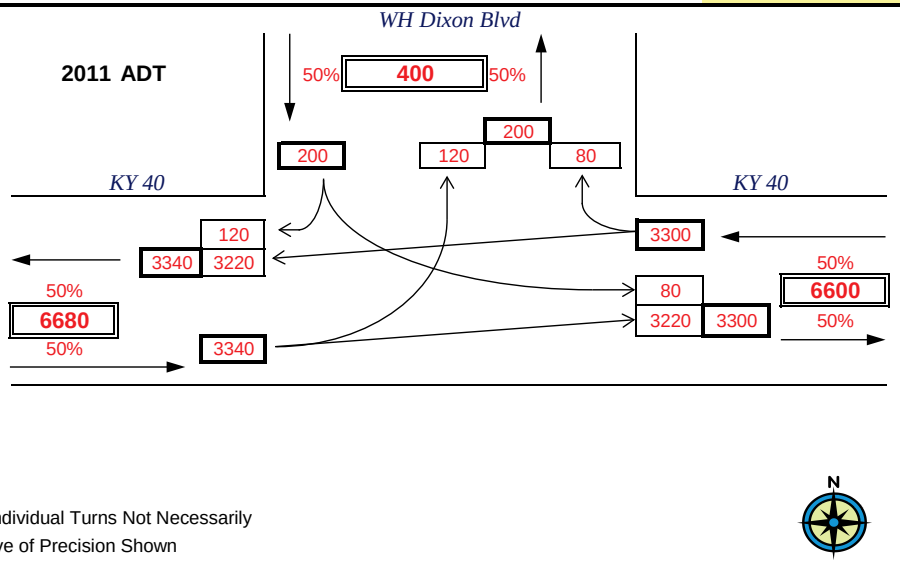
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

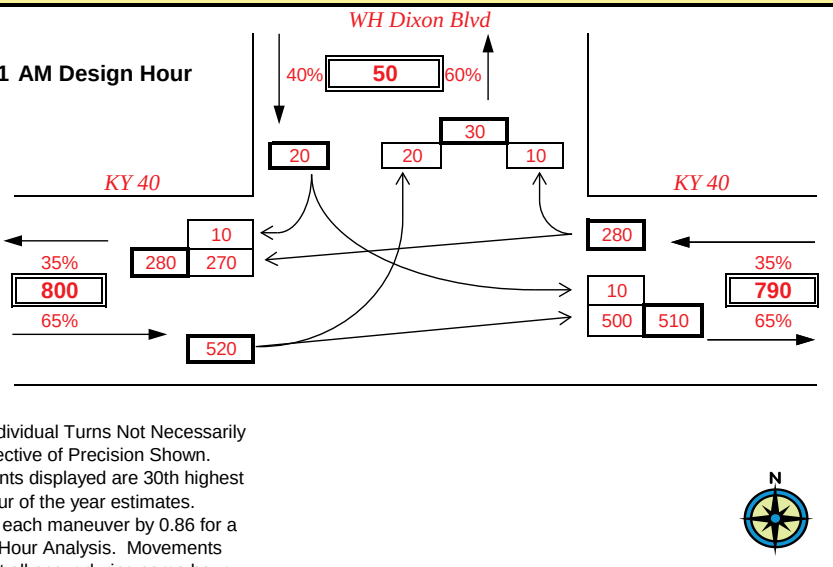
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



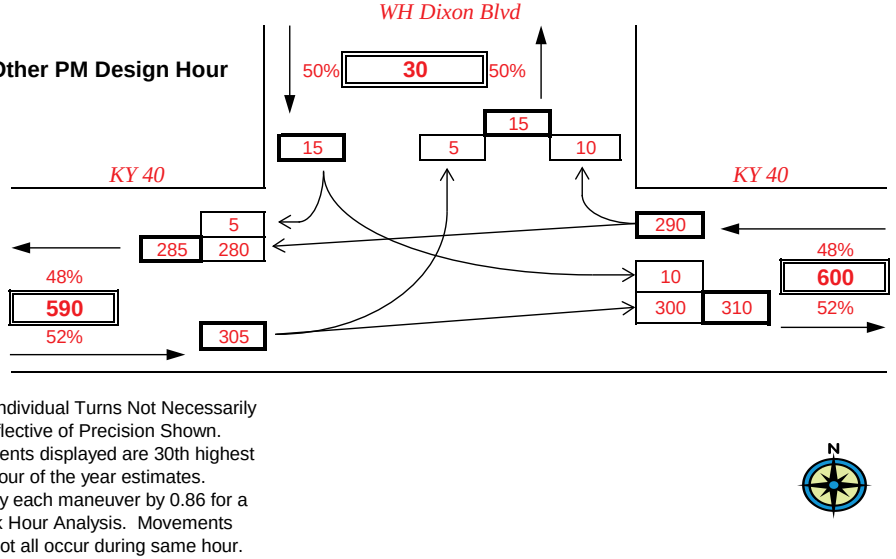
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



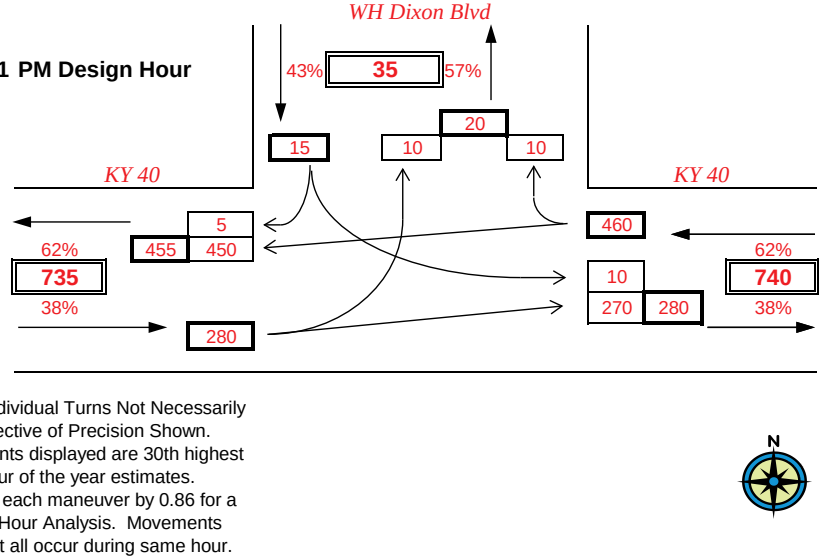
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



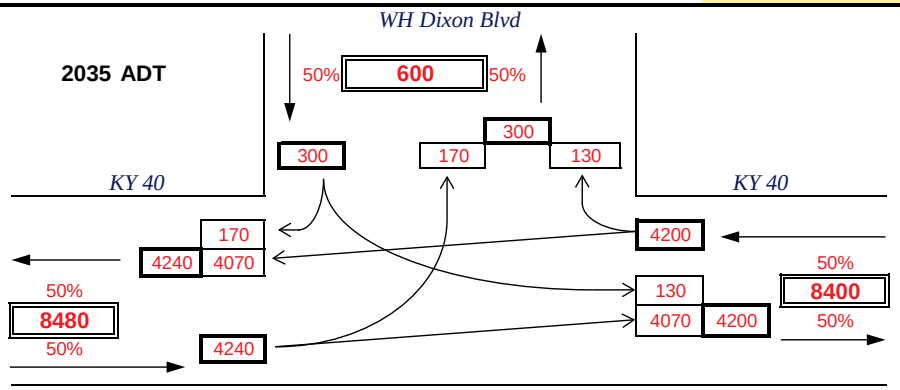
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

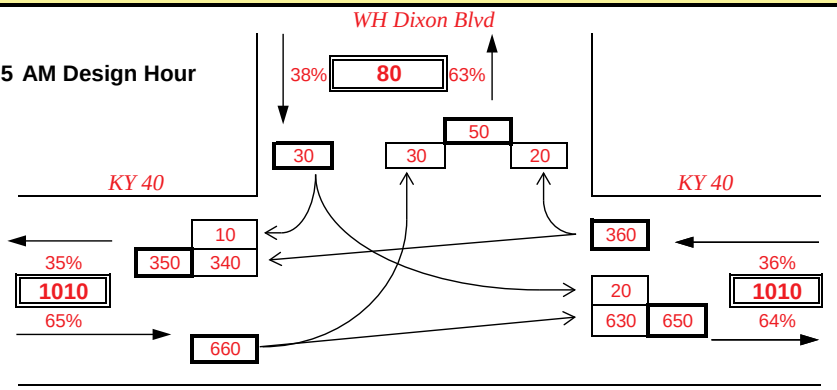
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



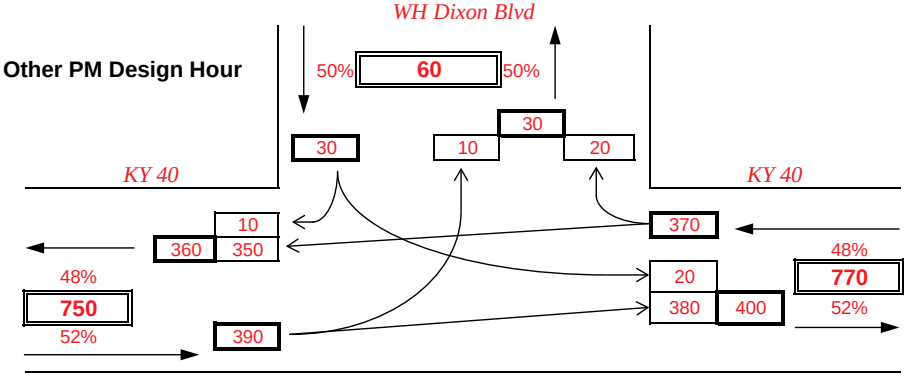
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



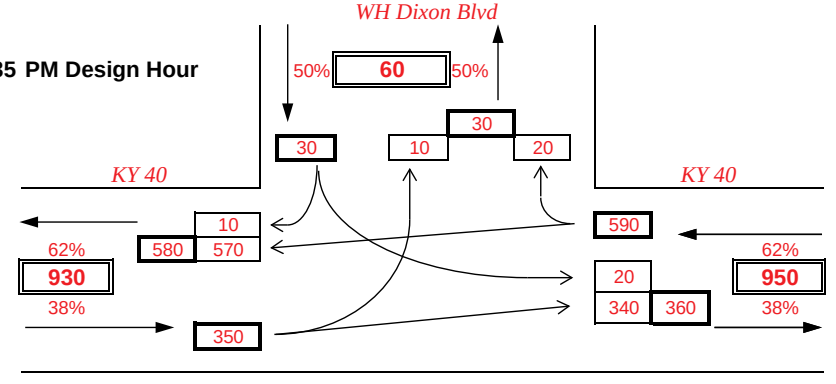
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



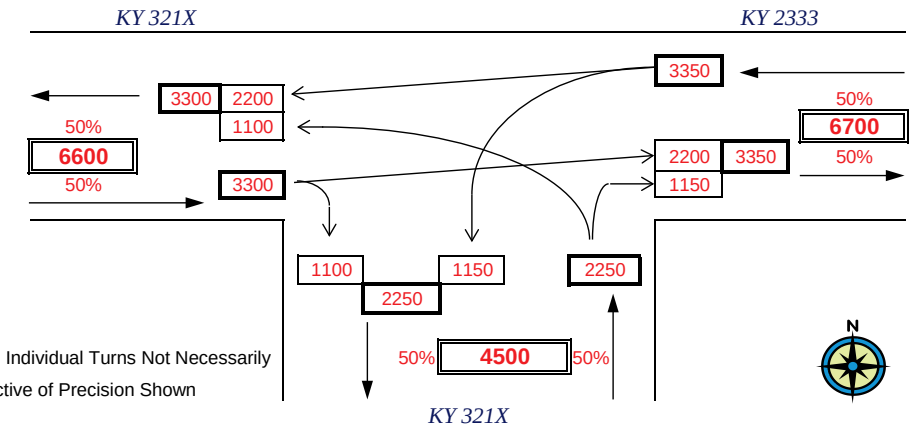
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

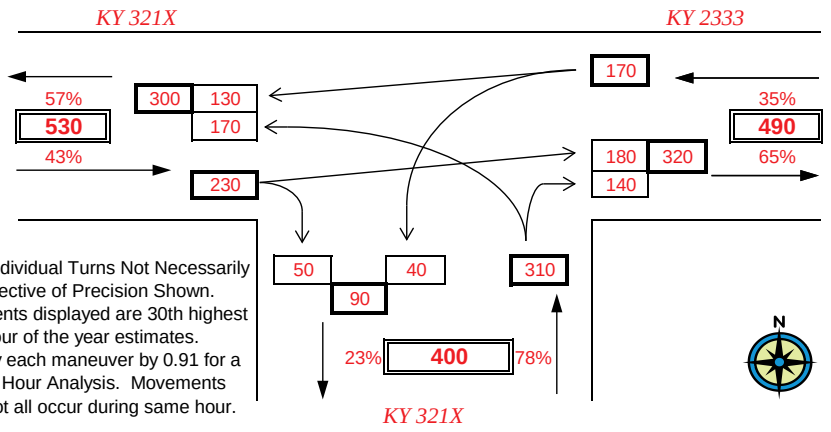
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



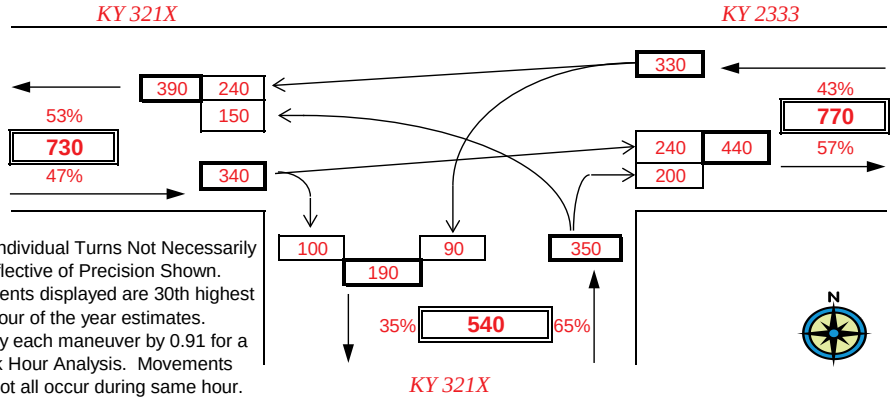
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



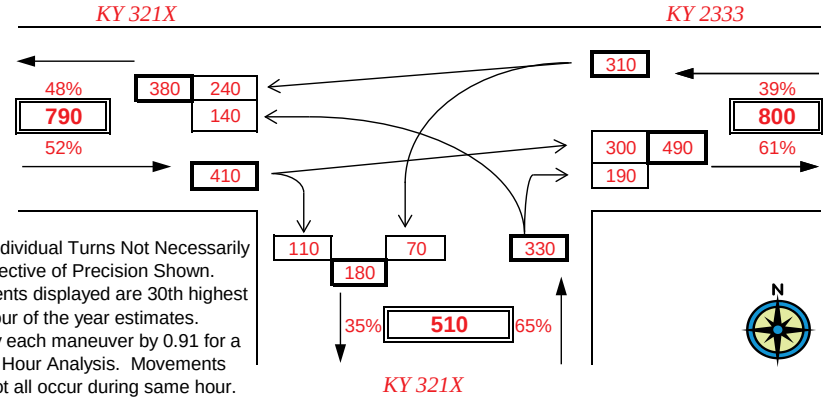
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



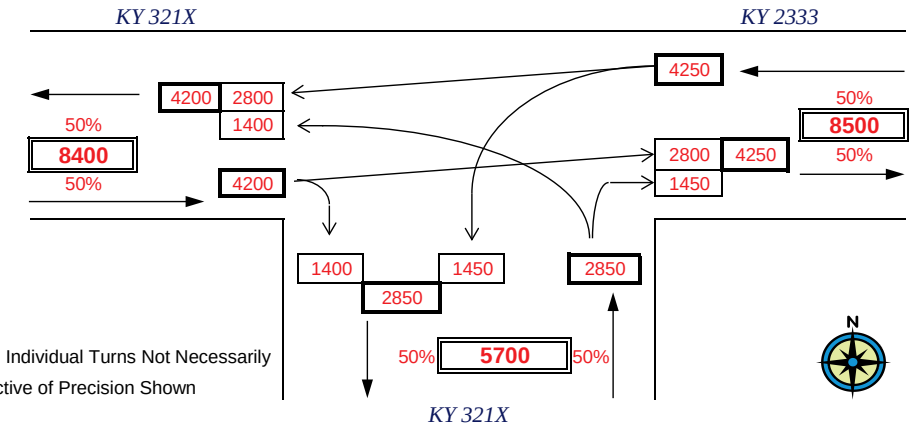
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

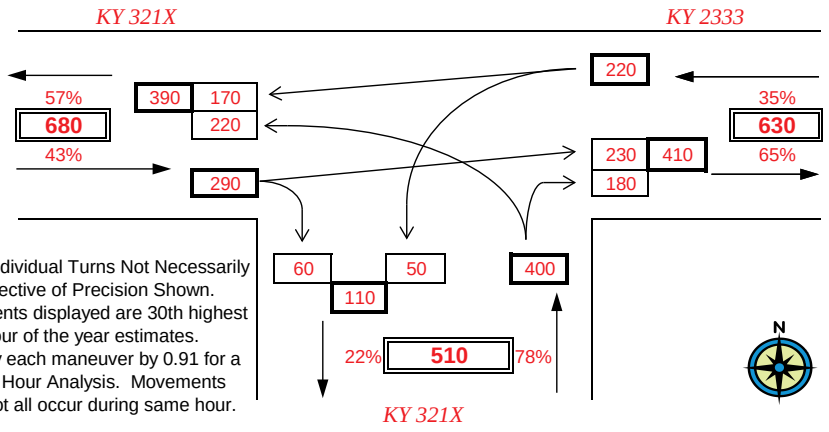
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



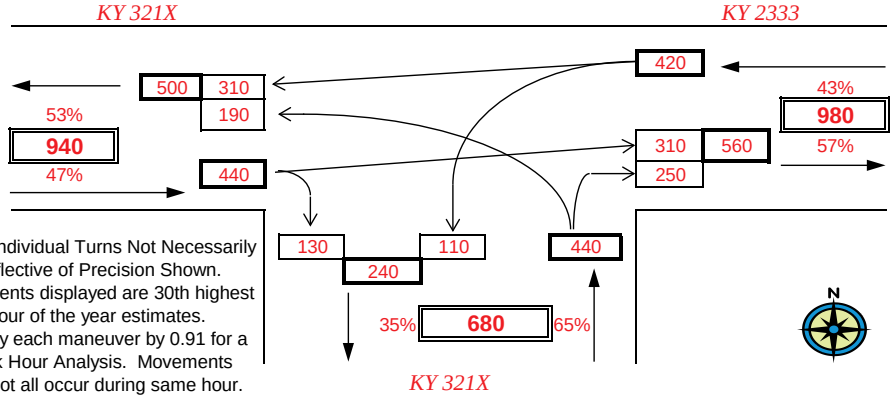
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



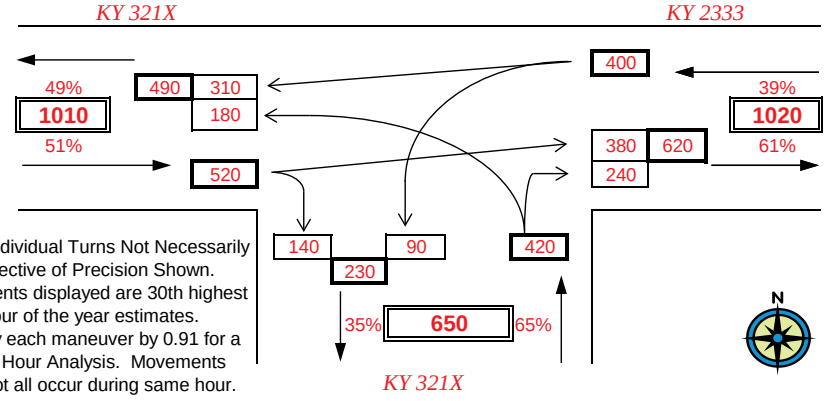
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



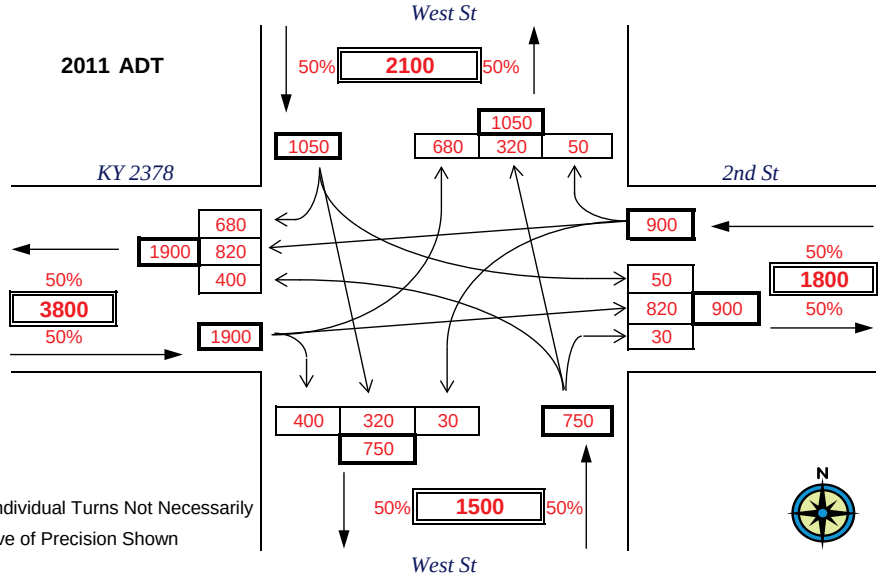
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

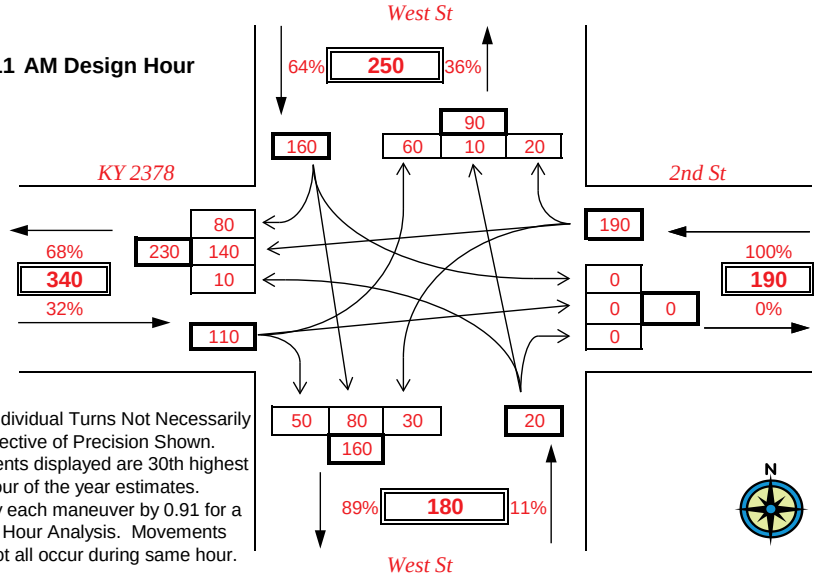
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



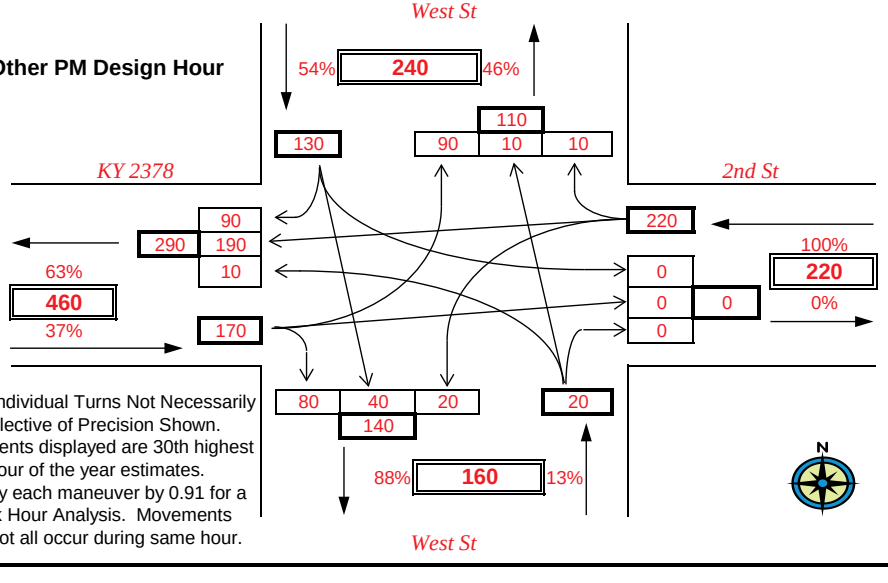
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



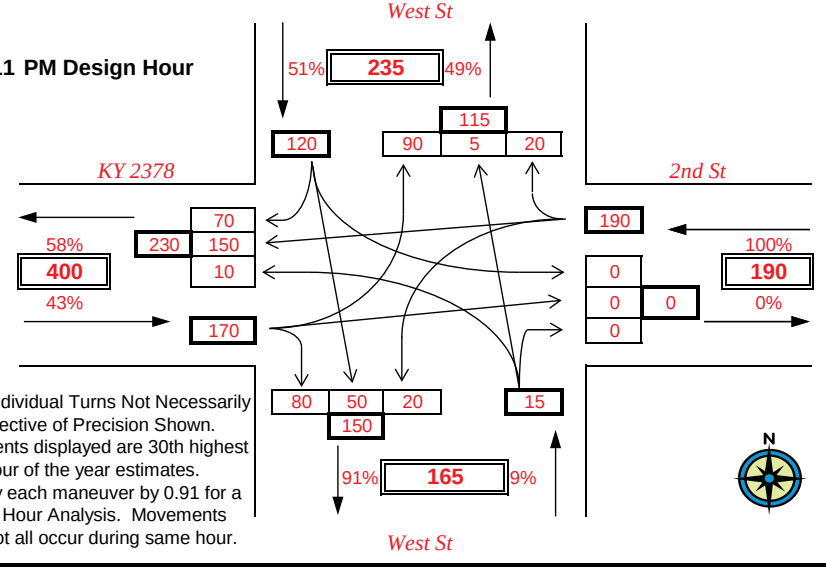
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



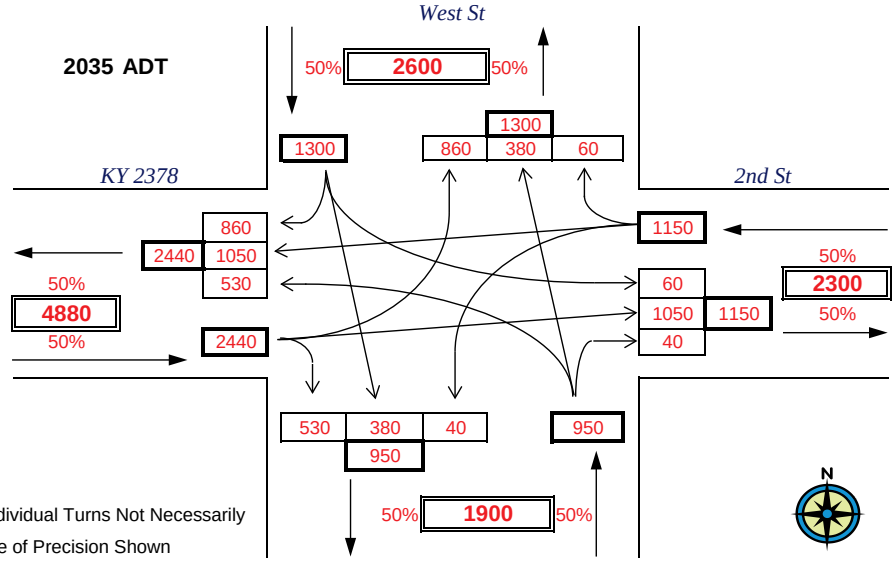
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

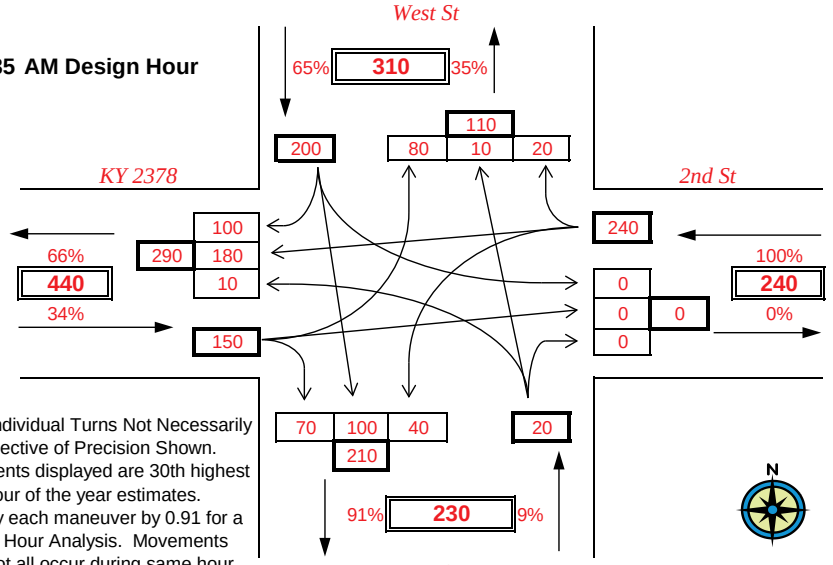
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



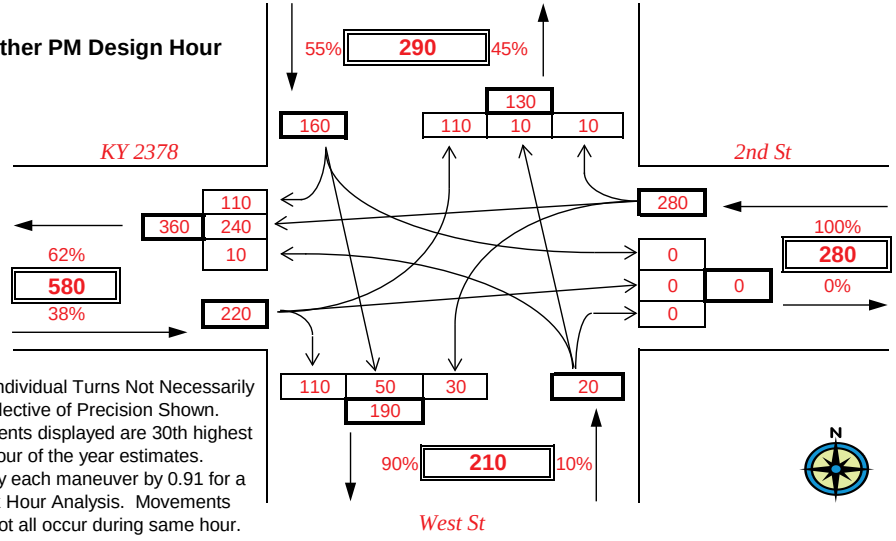
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



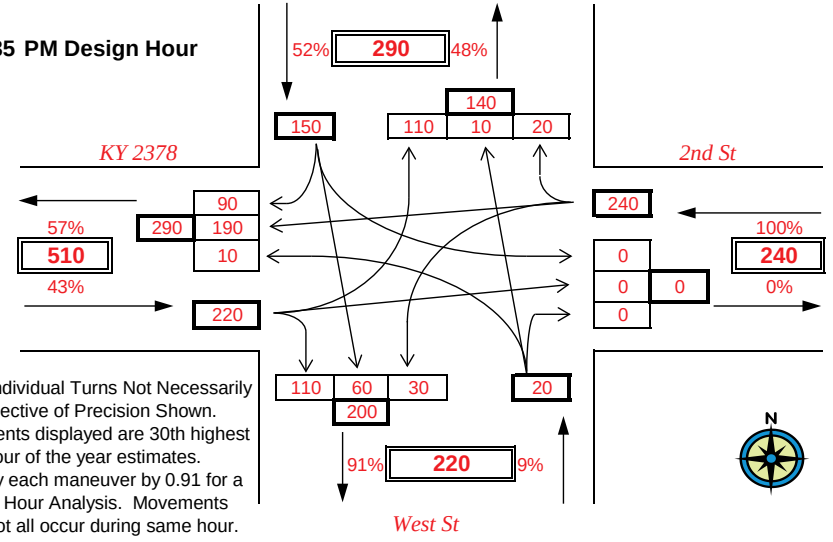
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



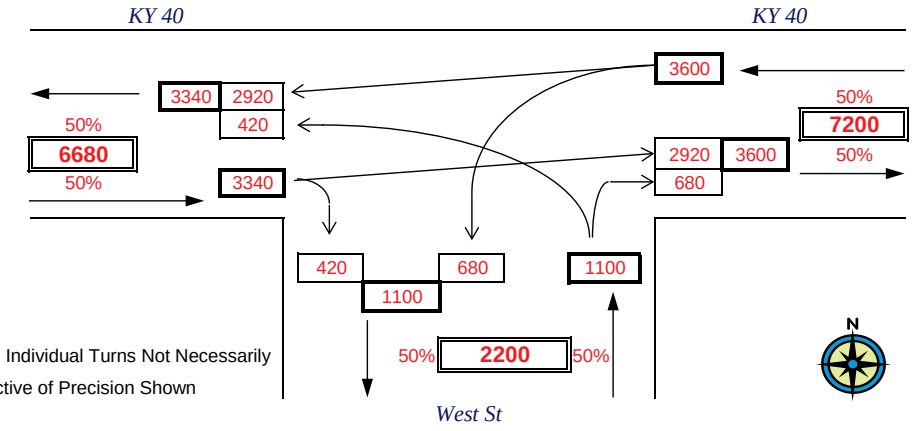
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

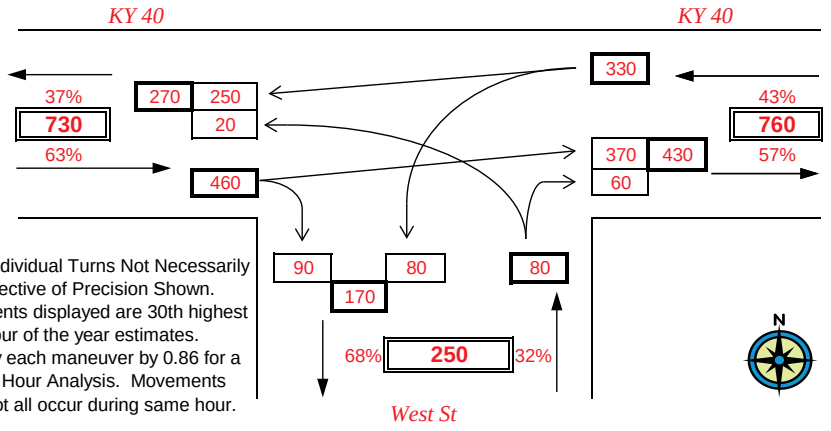
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



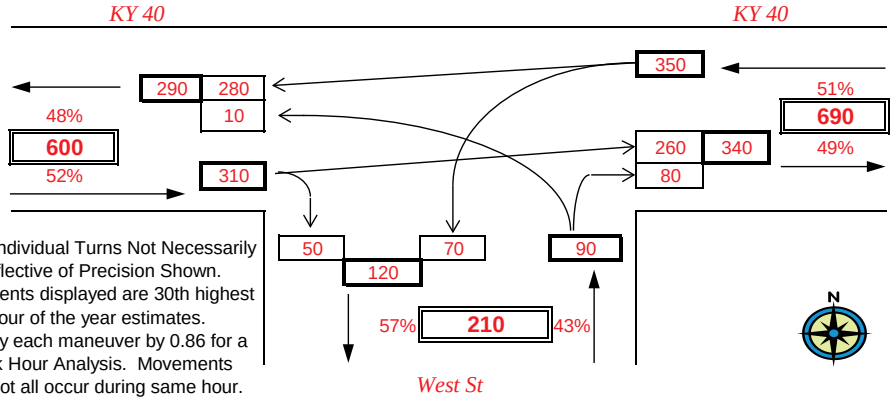
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



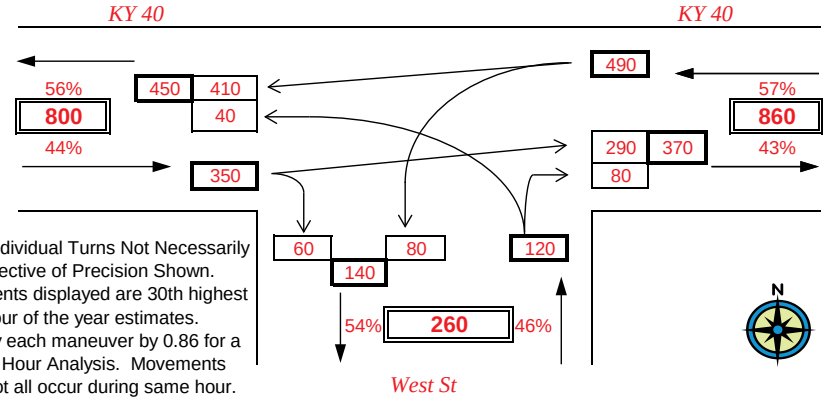
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



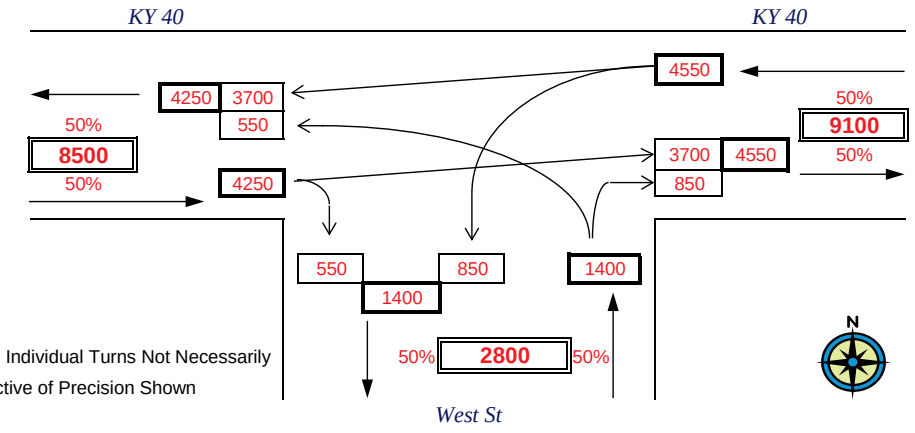
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

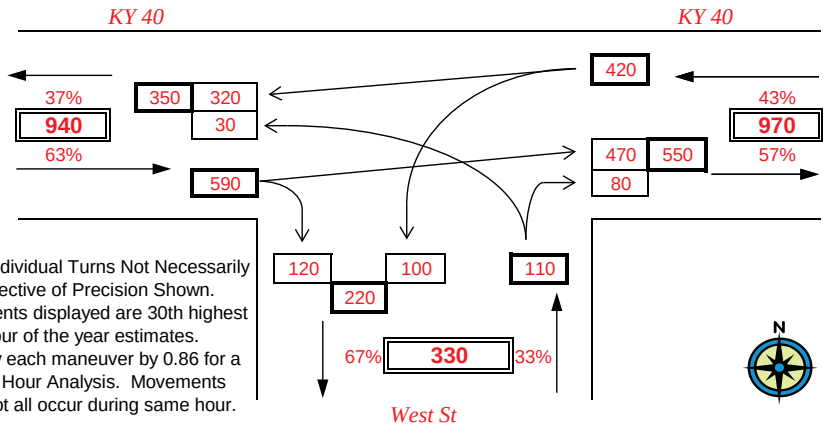
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



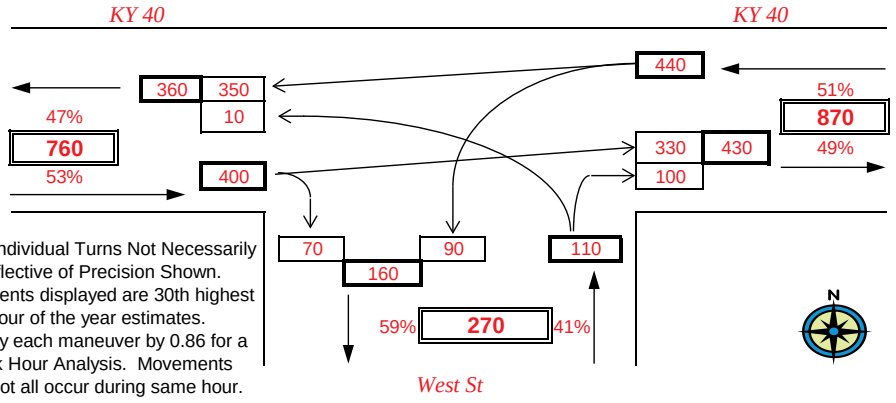
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



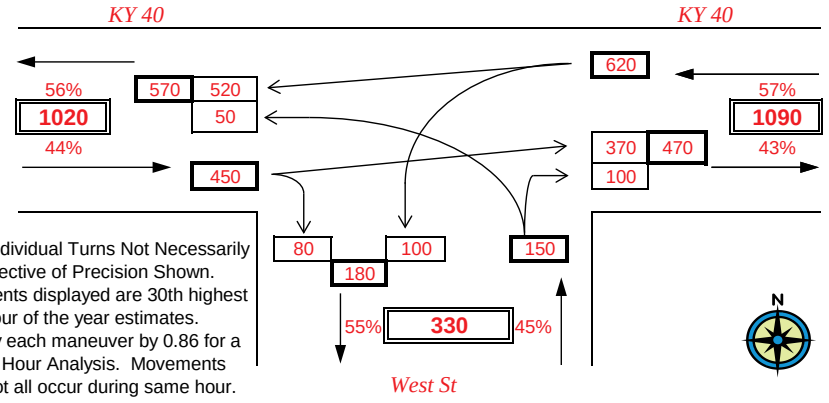
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



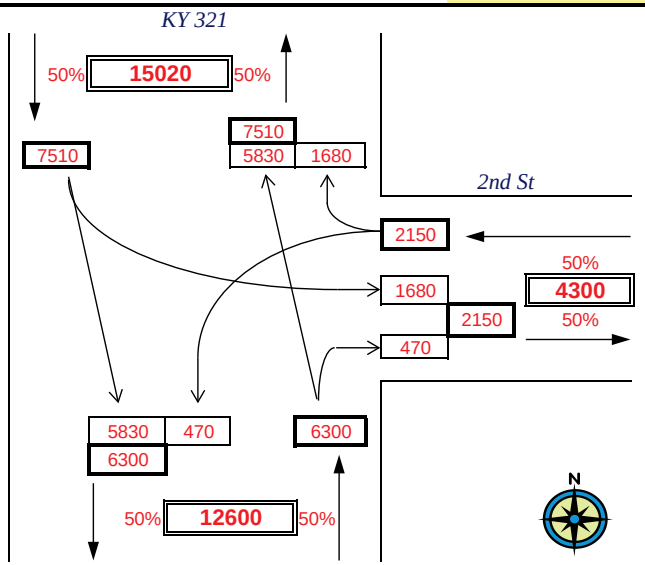
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

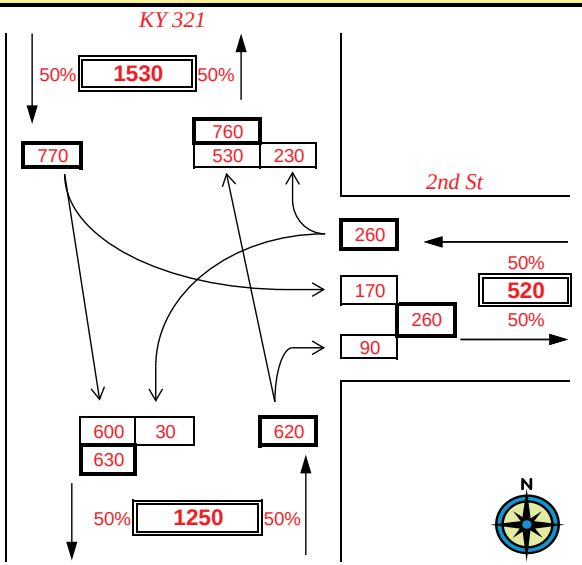
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



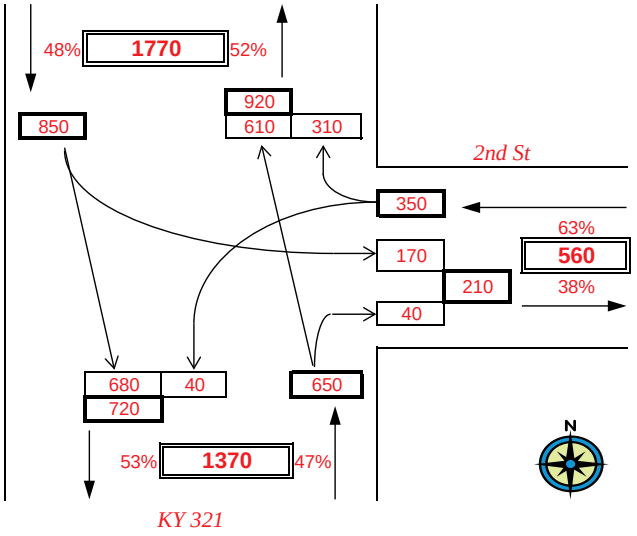
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



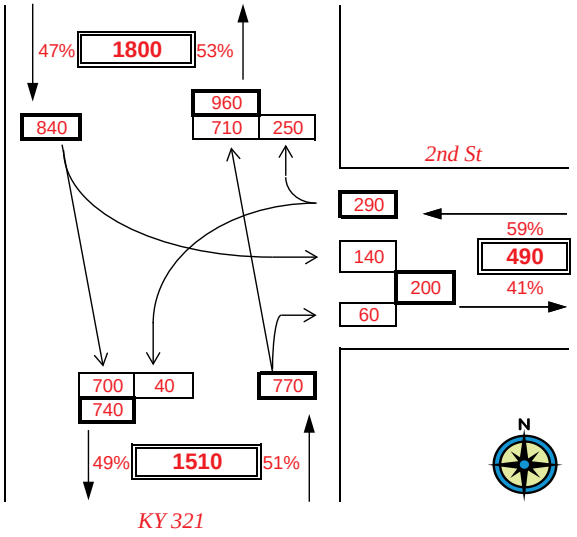
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



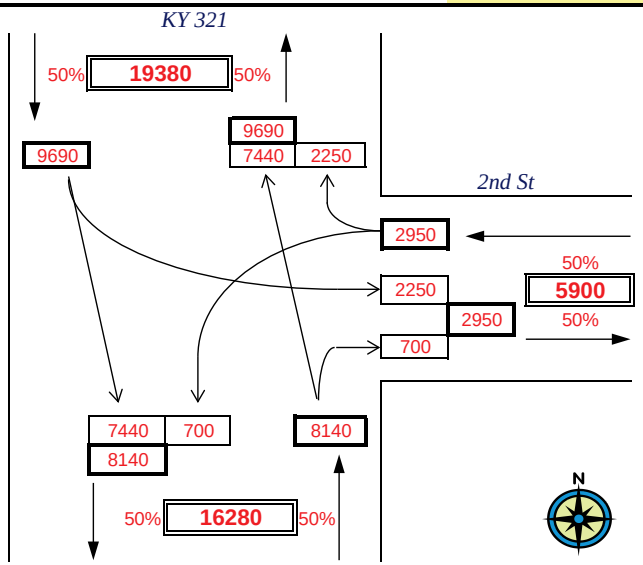
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

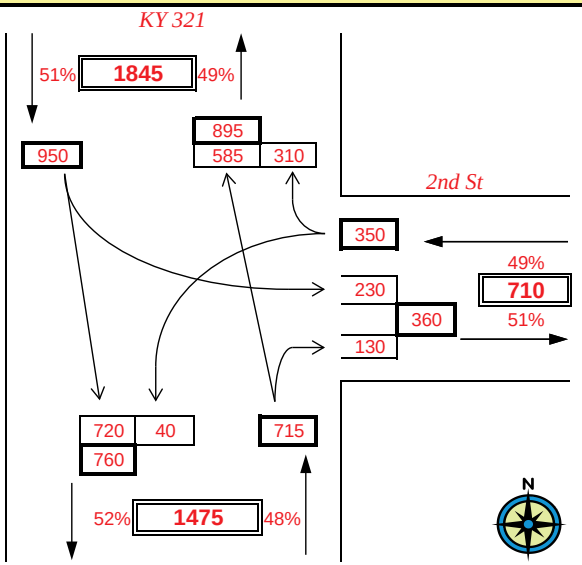
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



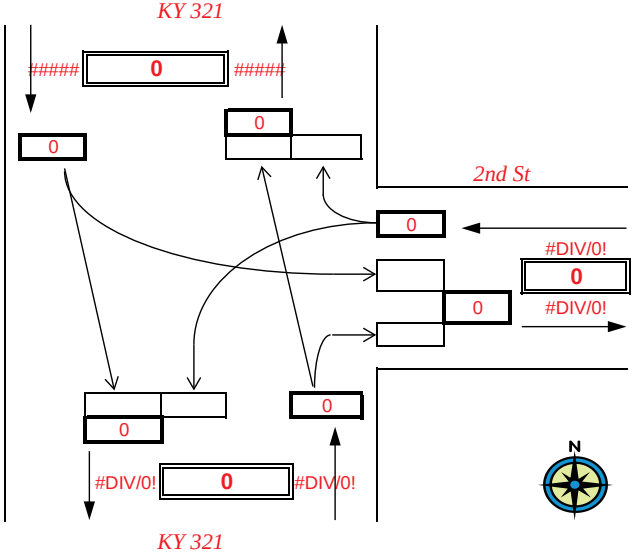
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



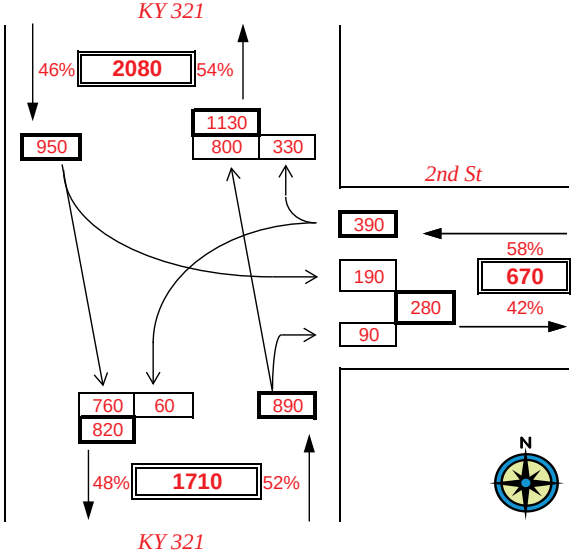
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



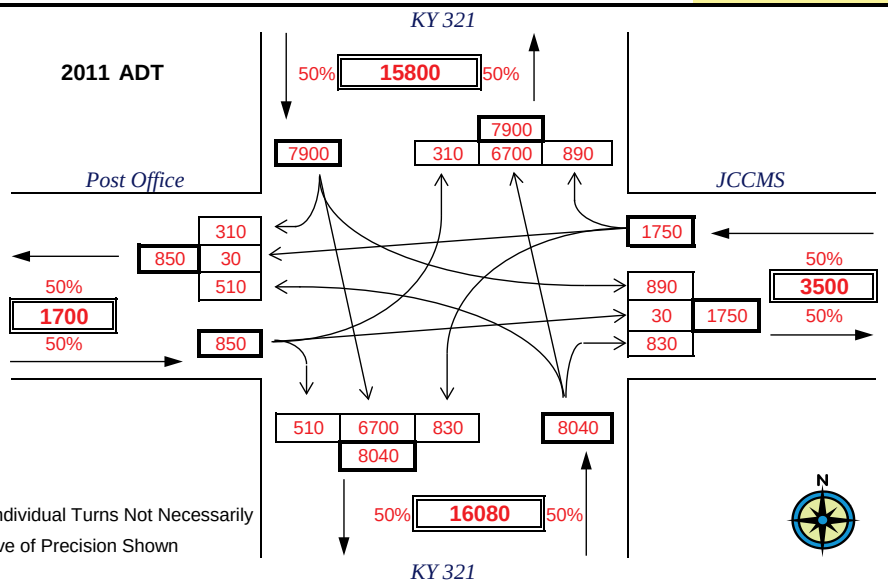
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

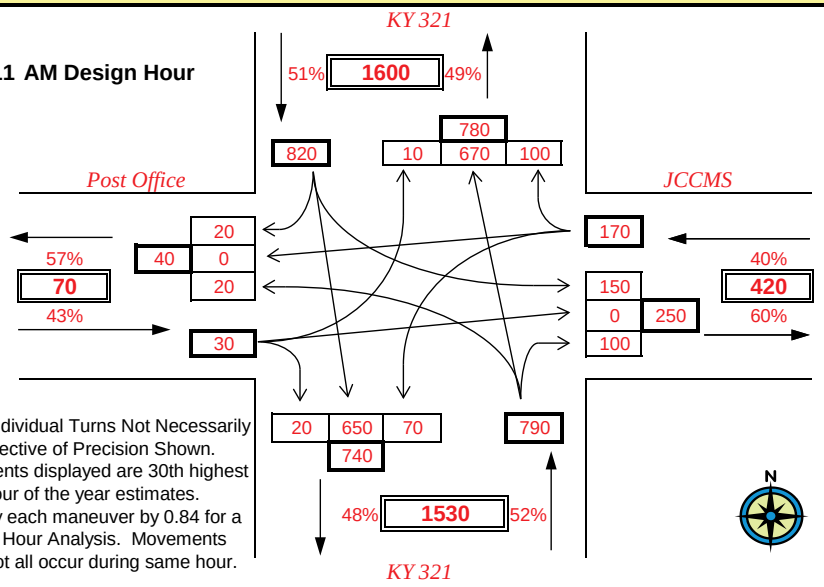
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



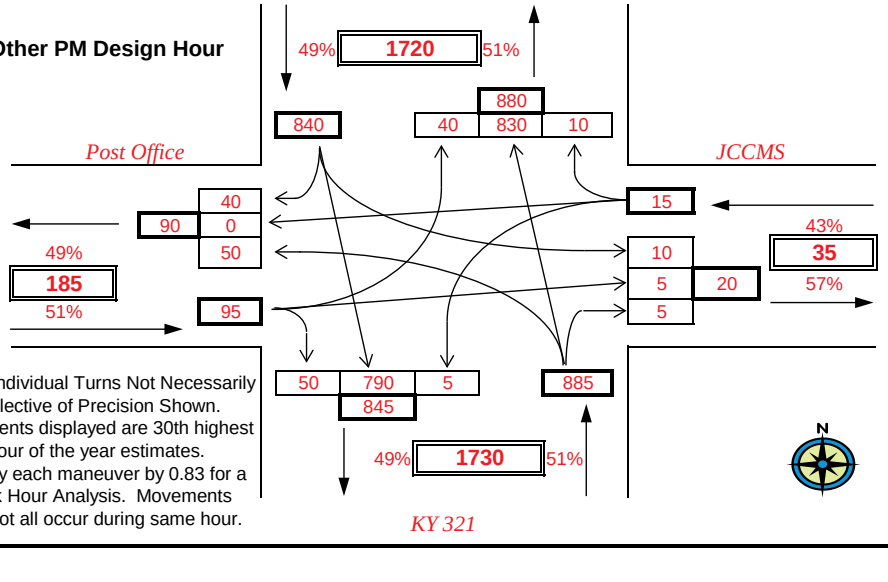
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



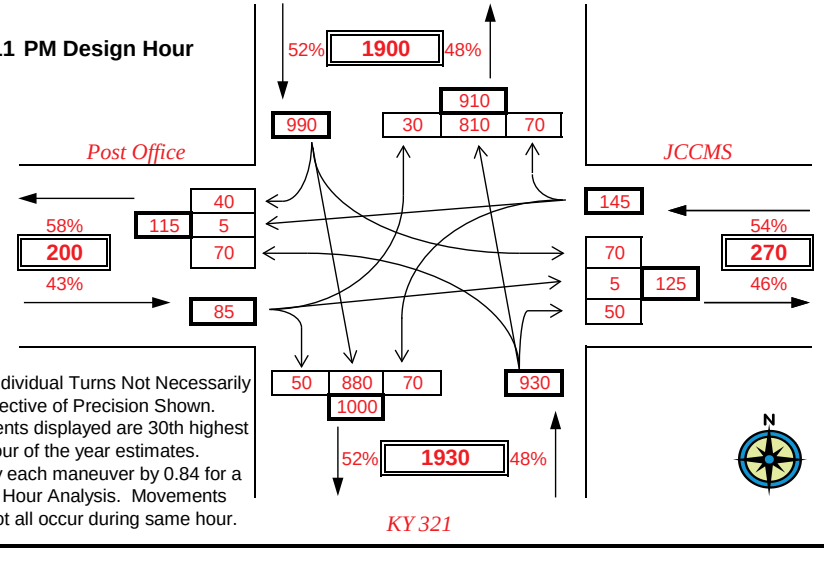
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



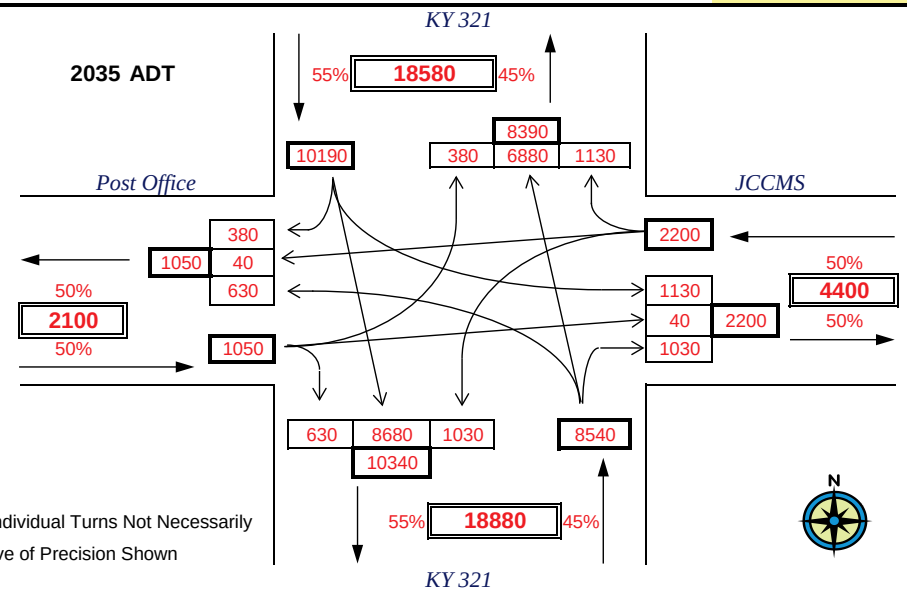
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

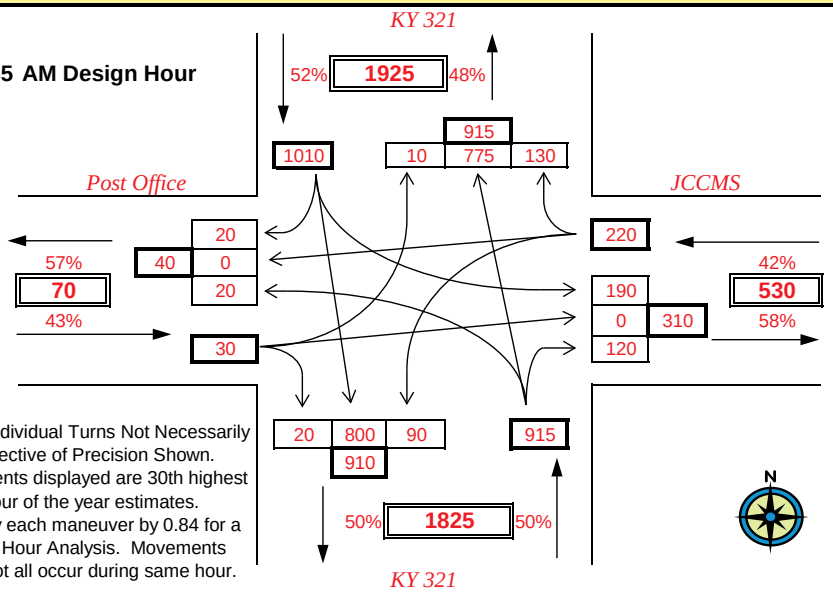
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



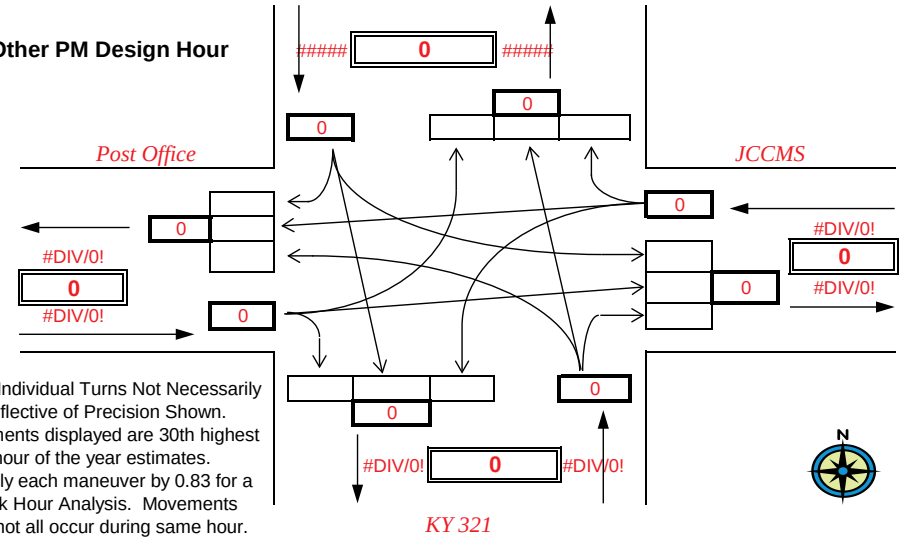
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



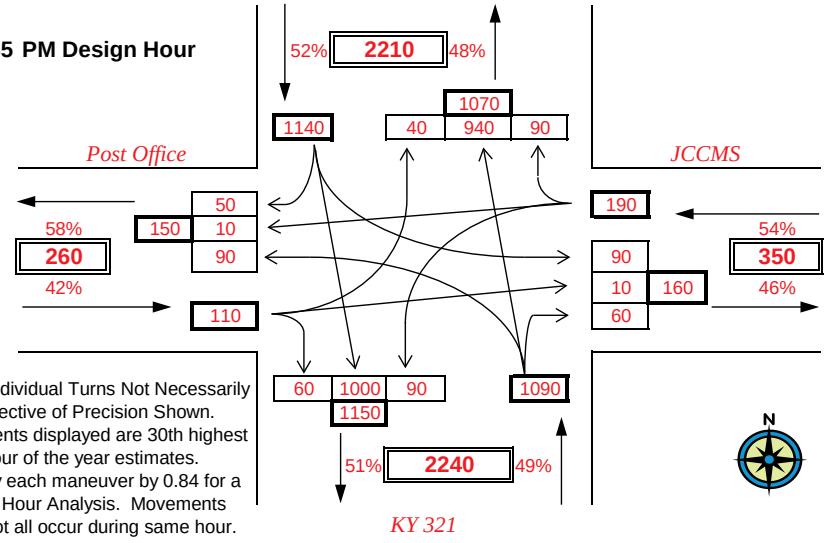
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



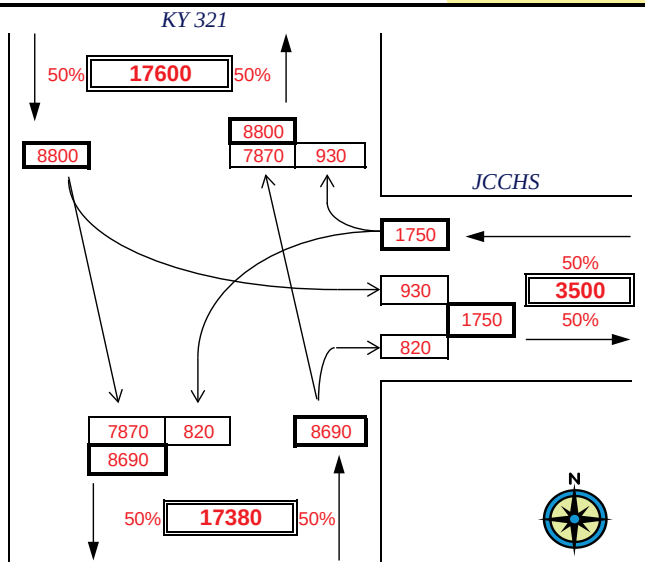
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

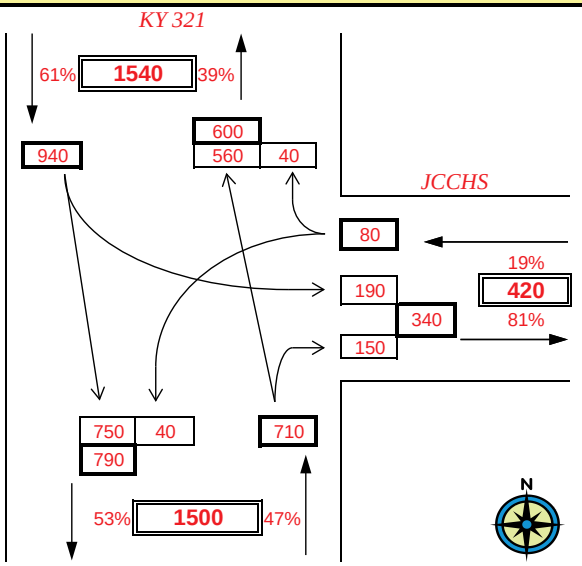
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



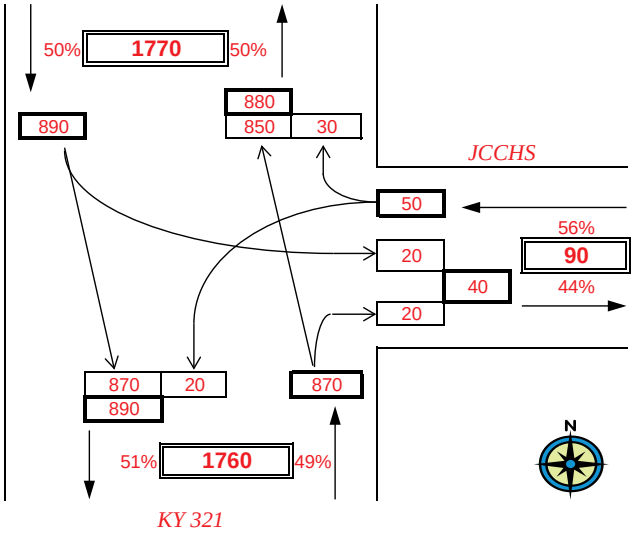
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



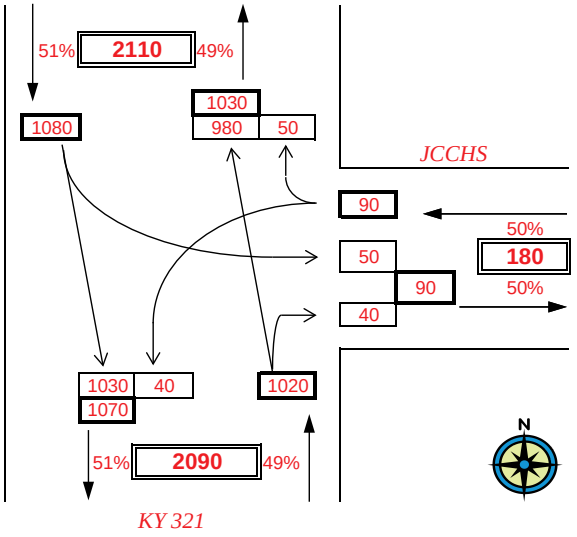
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



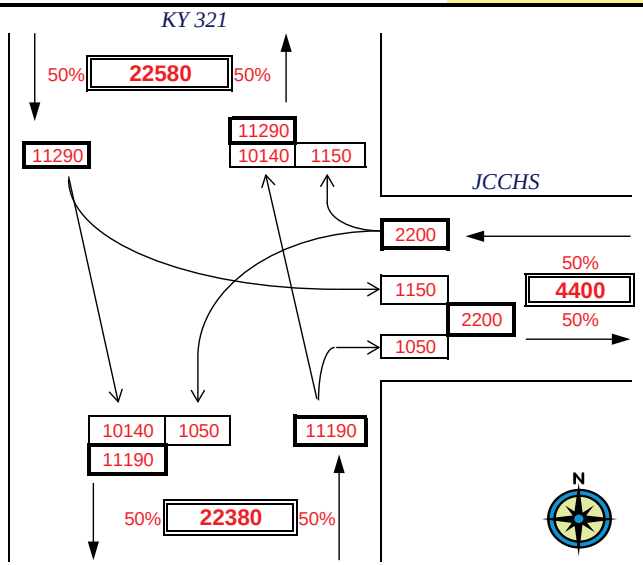
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

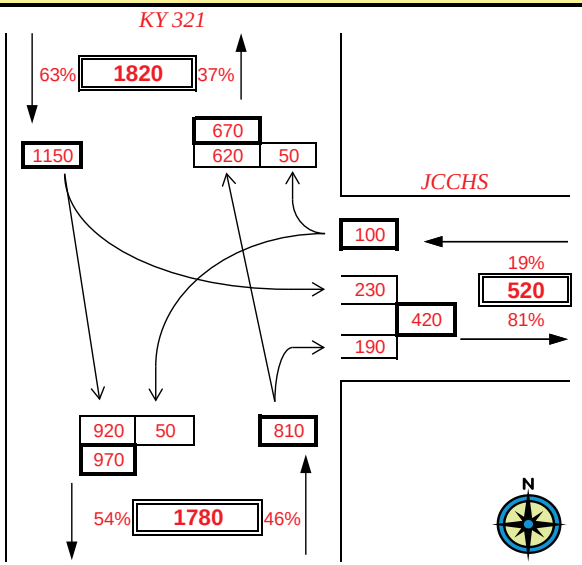
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



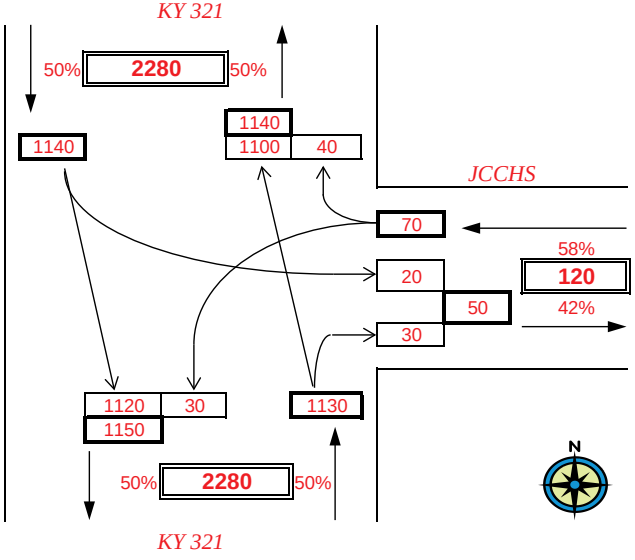
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



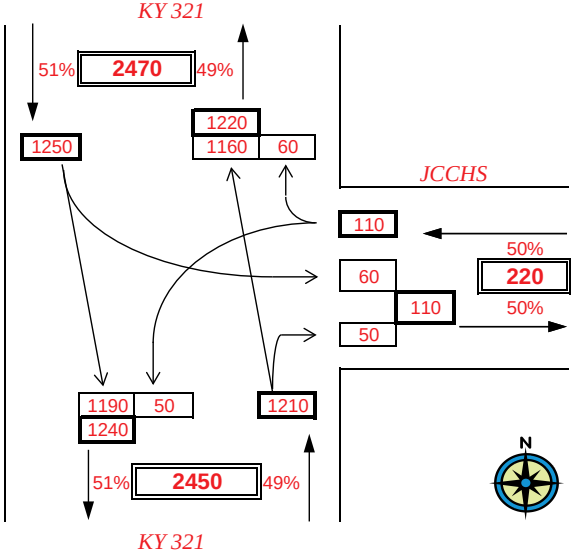
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



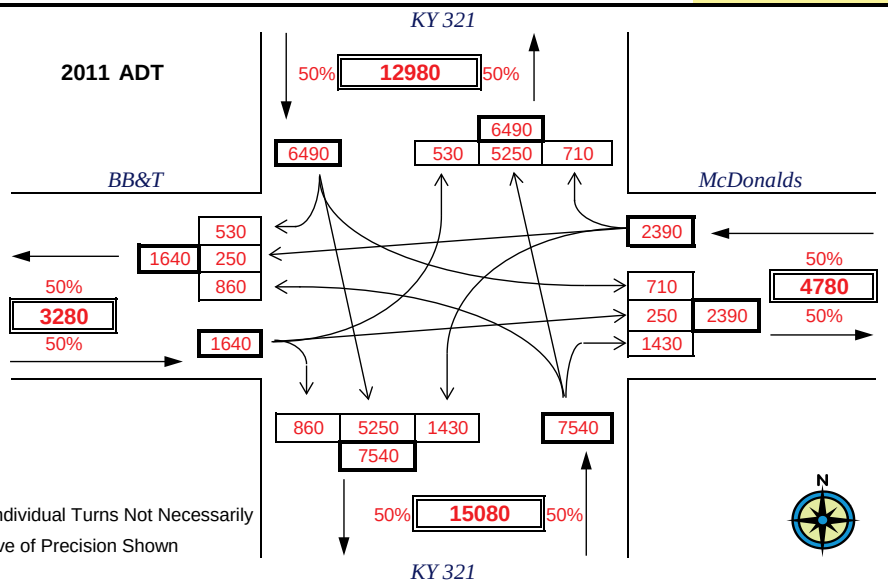
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

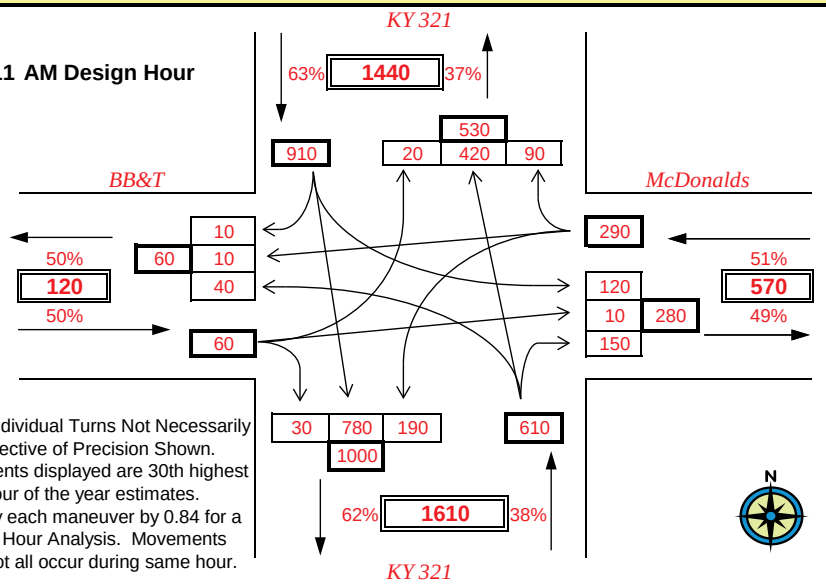
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



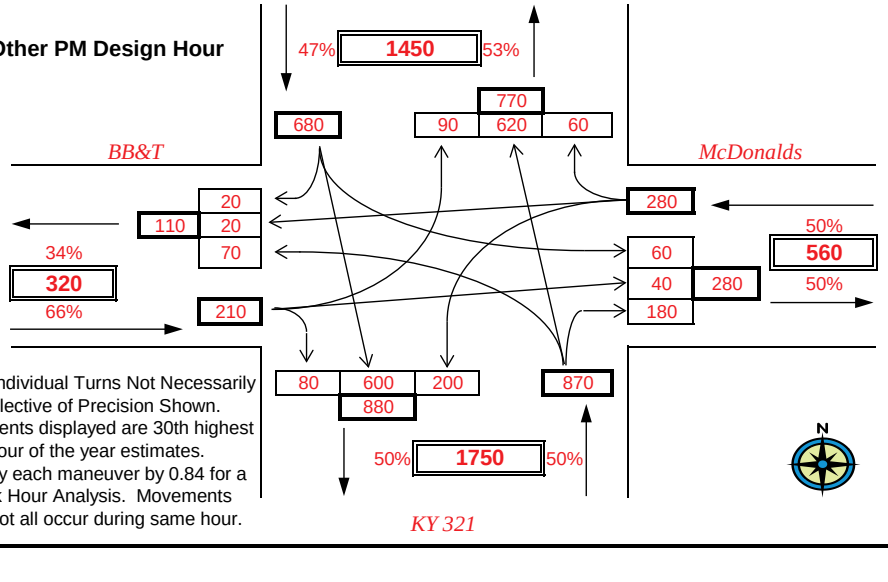
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



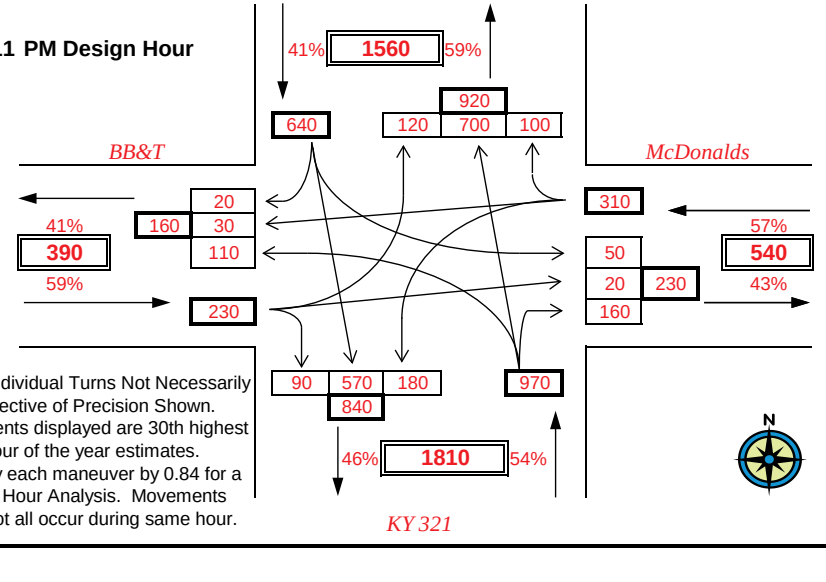
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



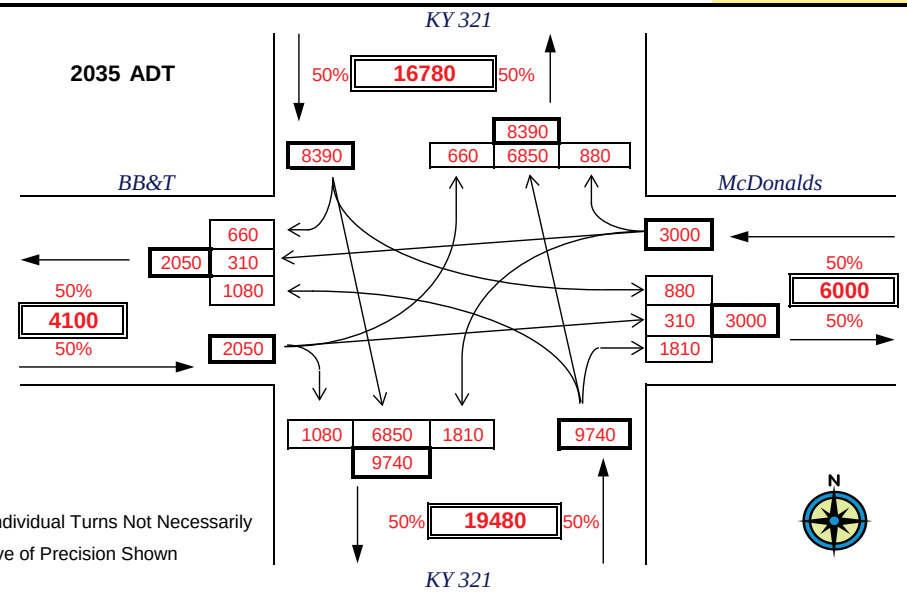
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

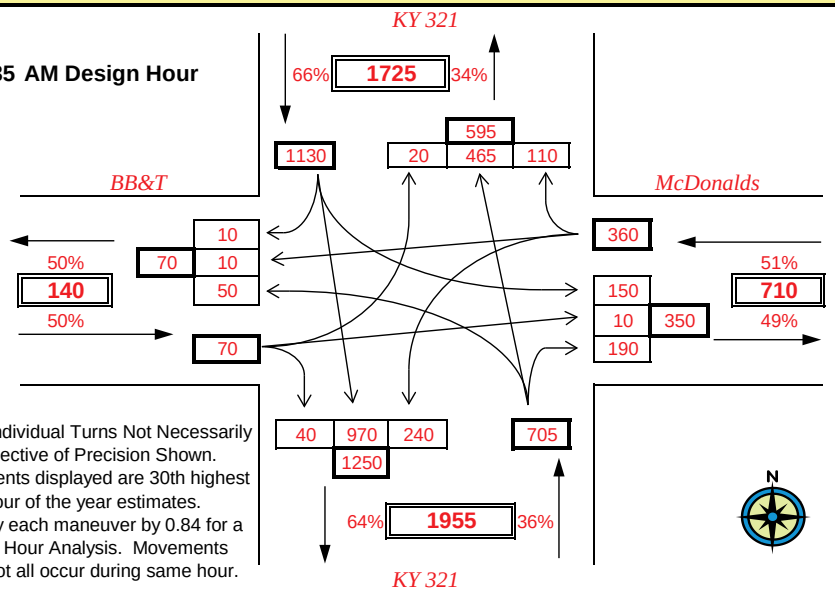
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



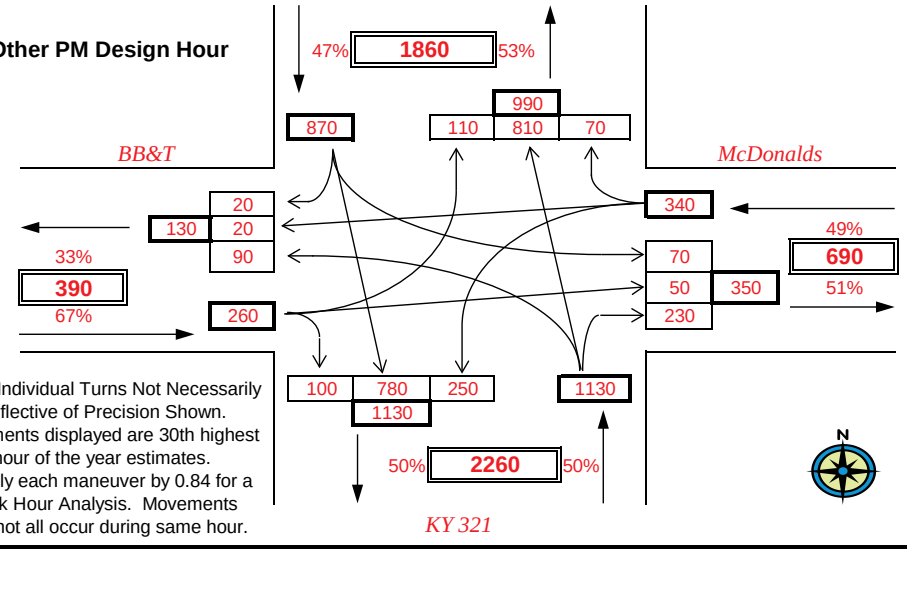
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



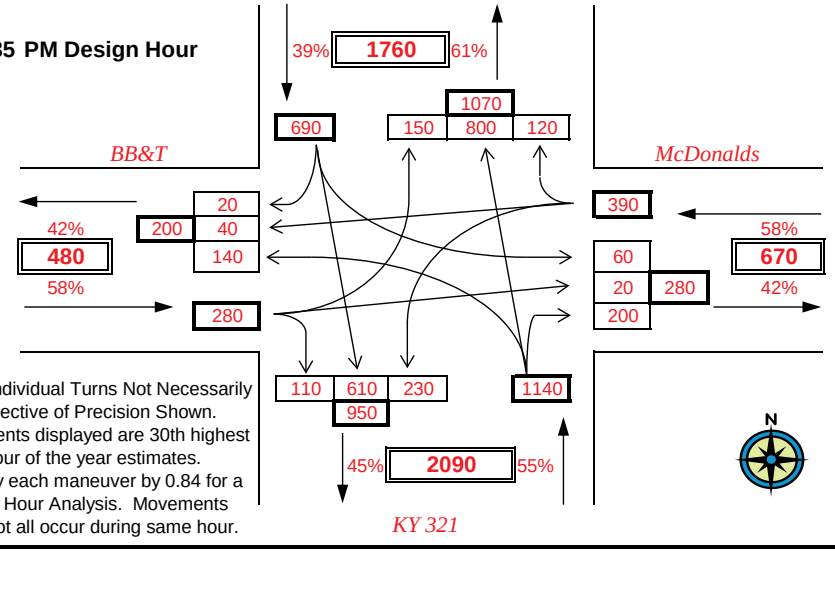
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



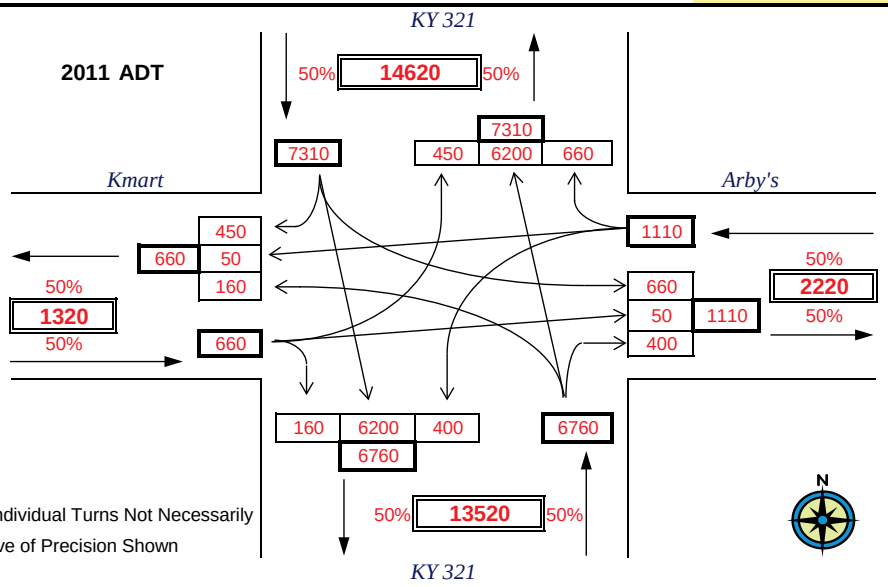
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

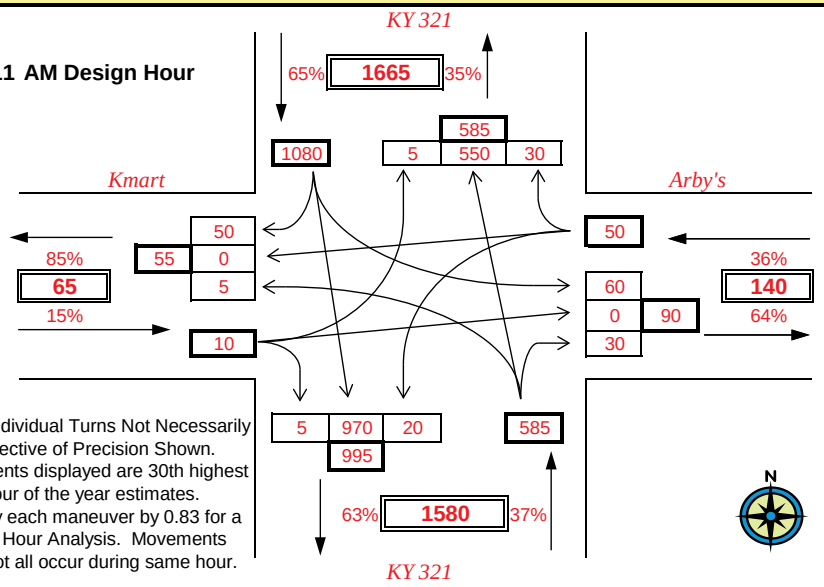
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



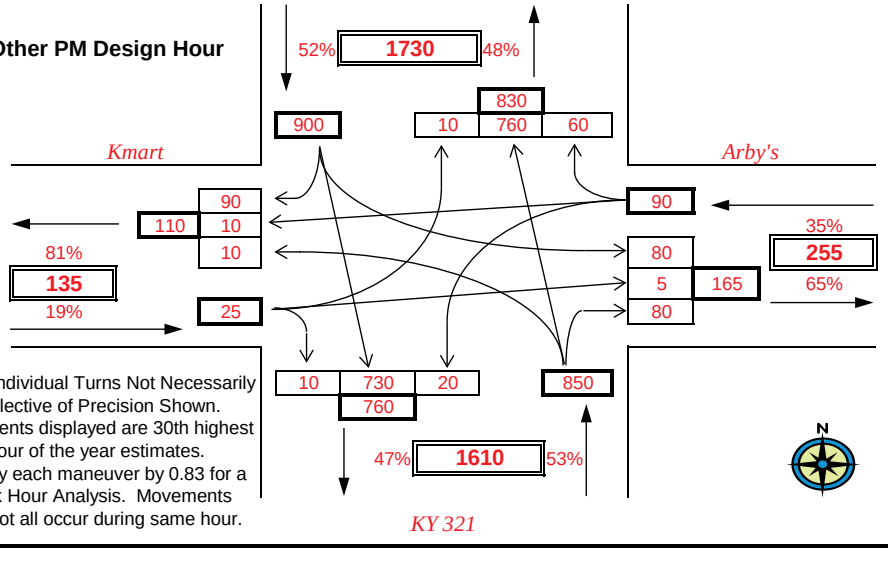
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



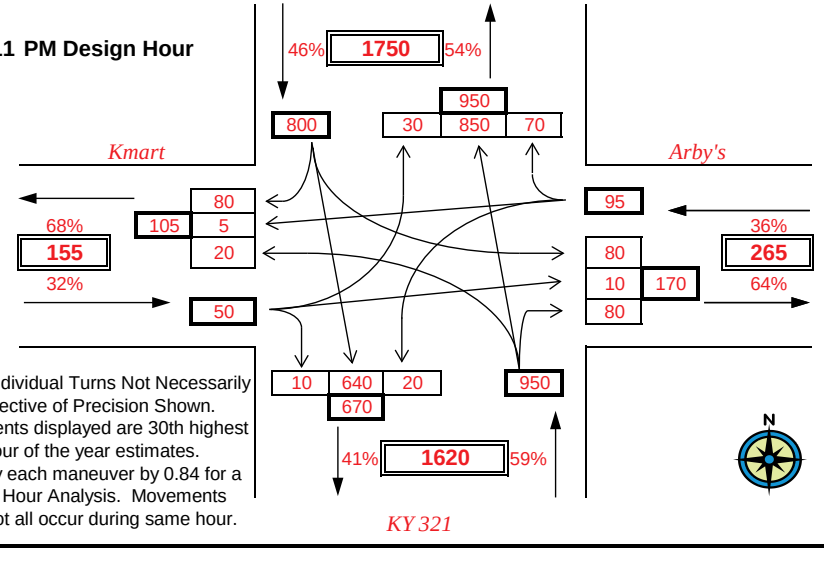
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



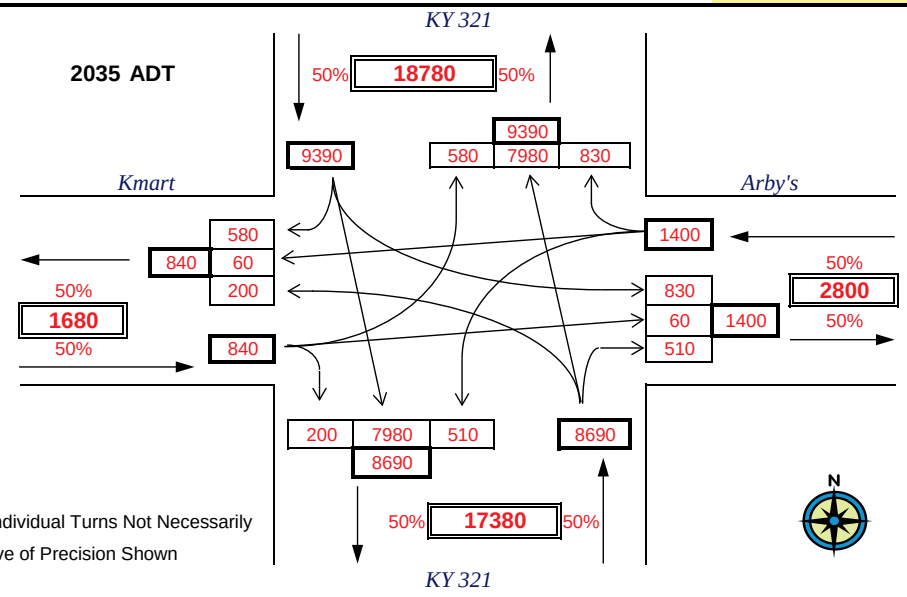
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

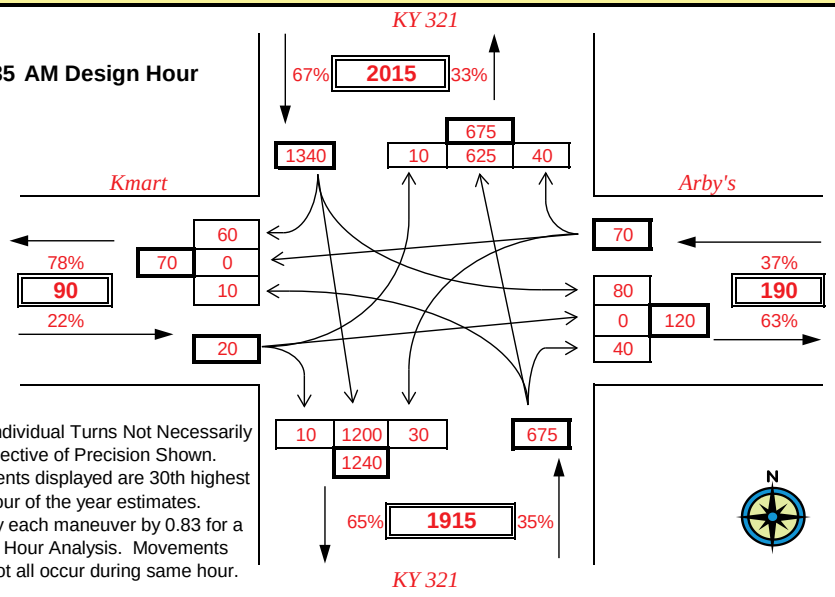
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



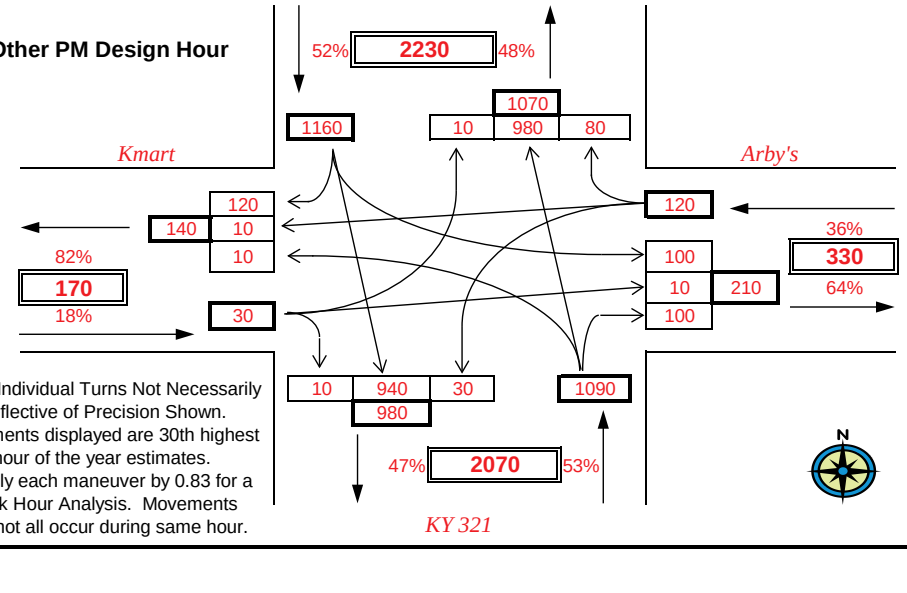
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



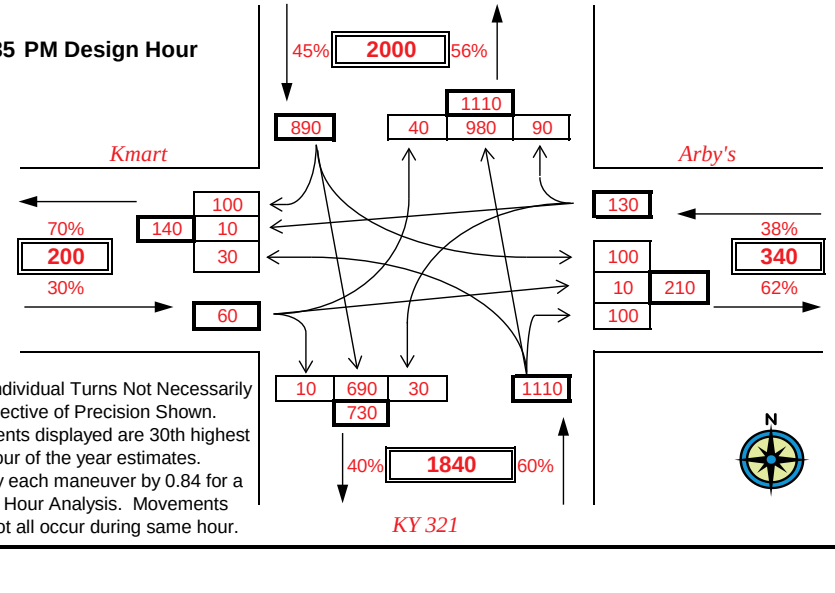
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

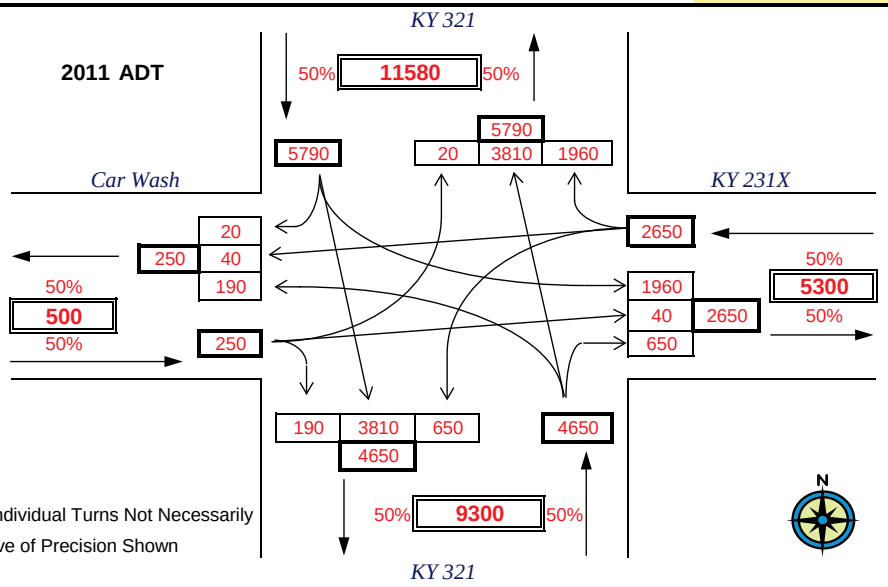
ALTERNATIVE 2+3

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

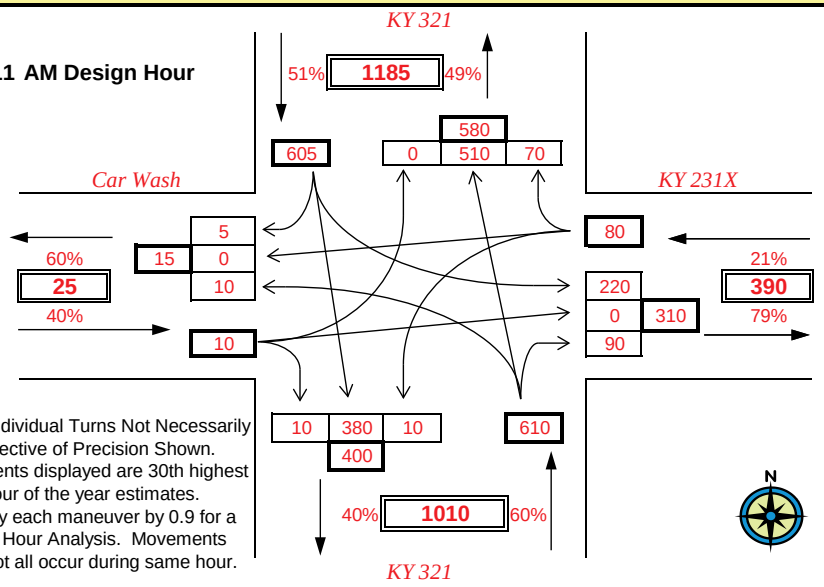
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



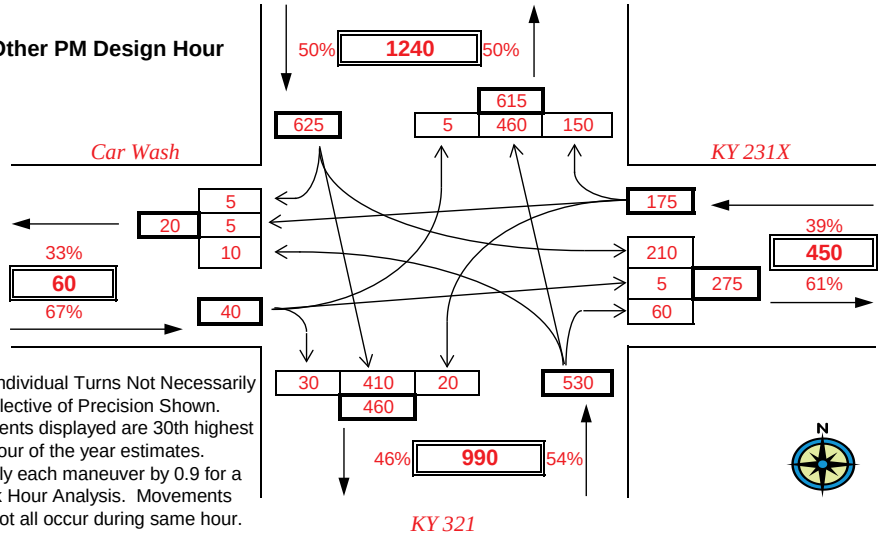
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



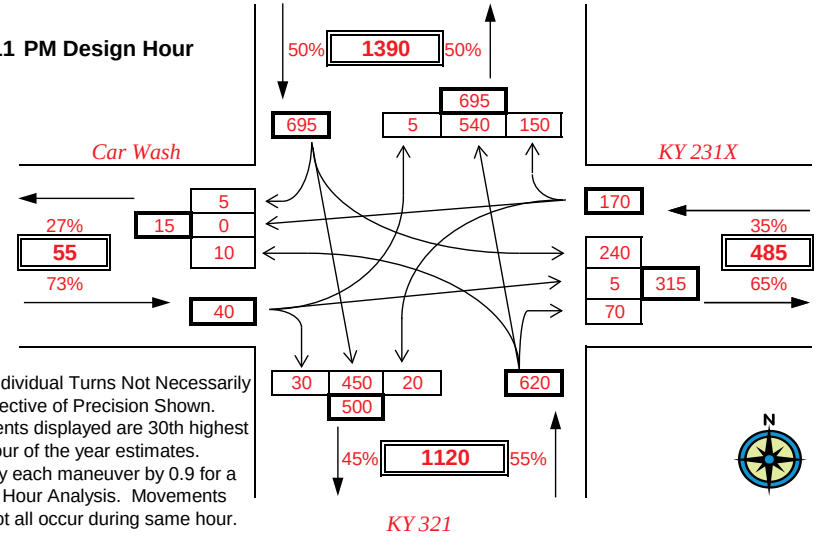
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



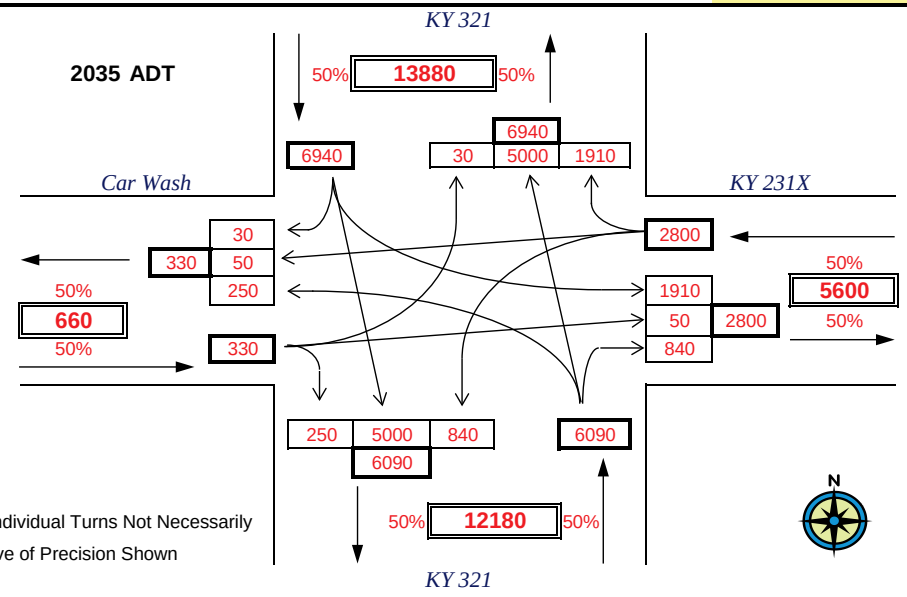
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

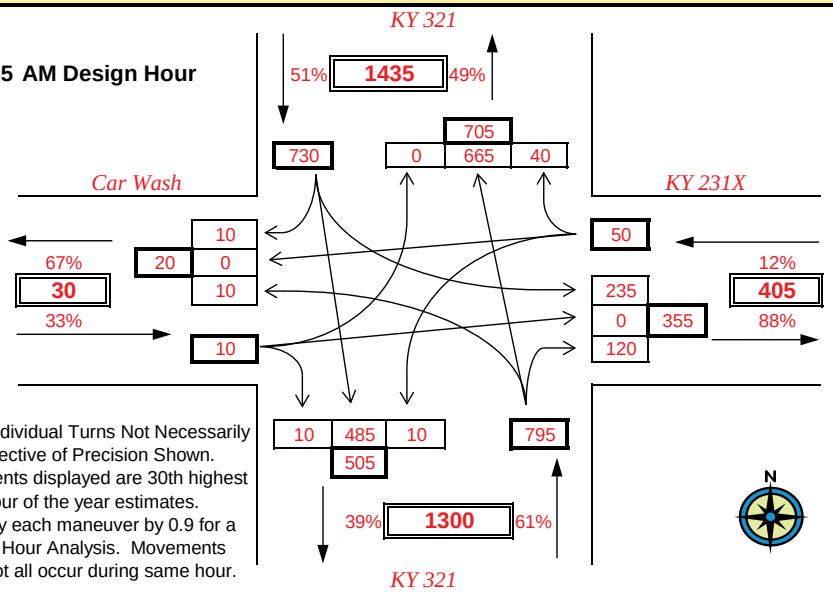
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



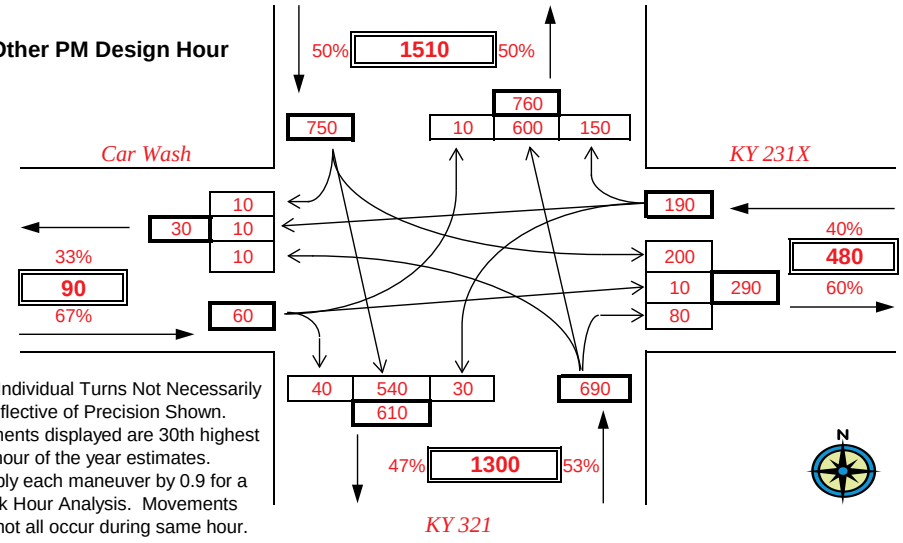
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



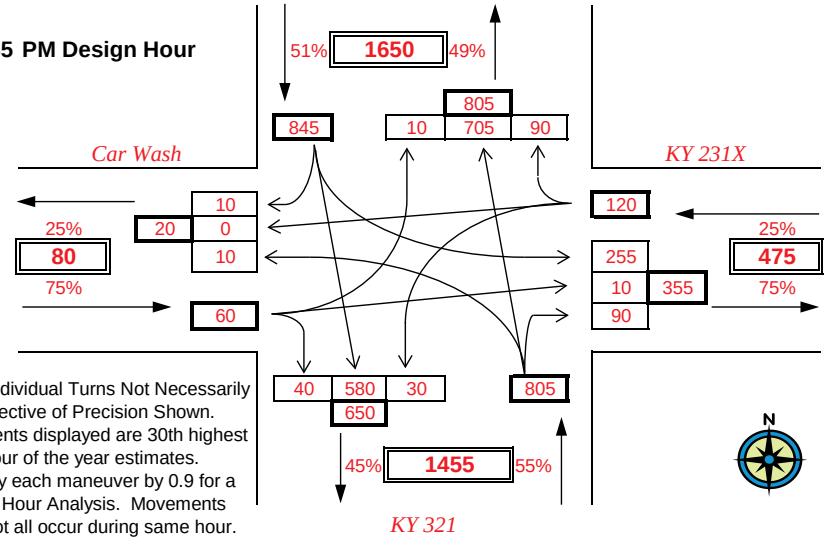
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

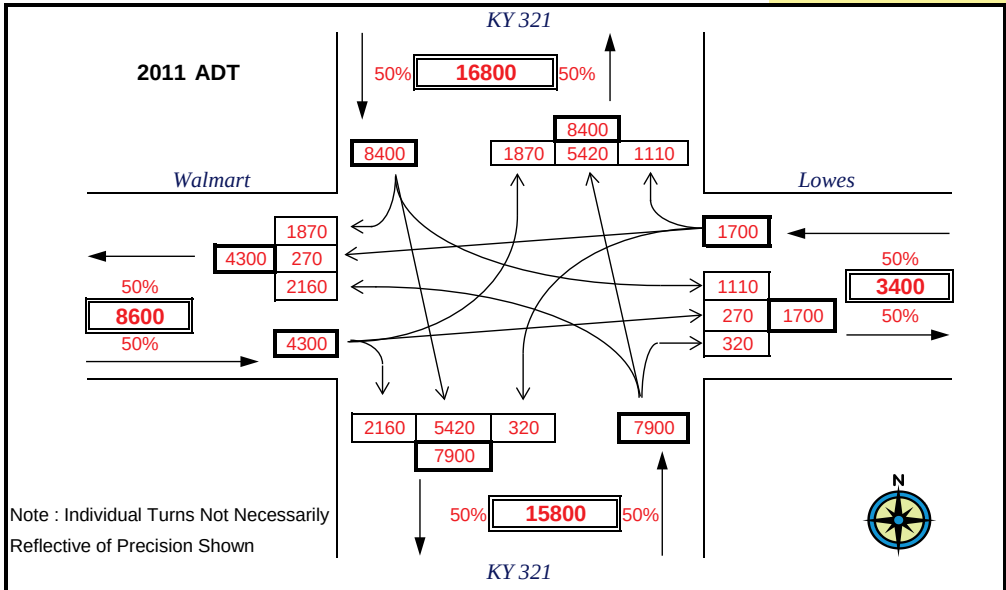


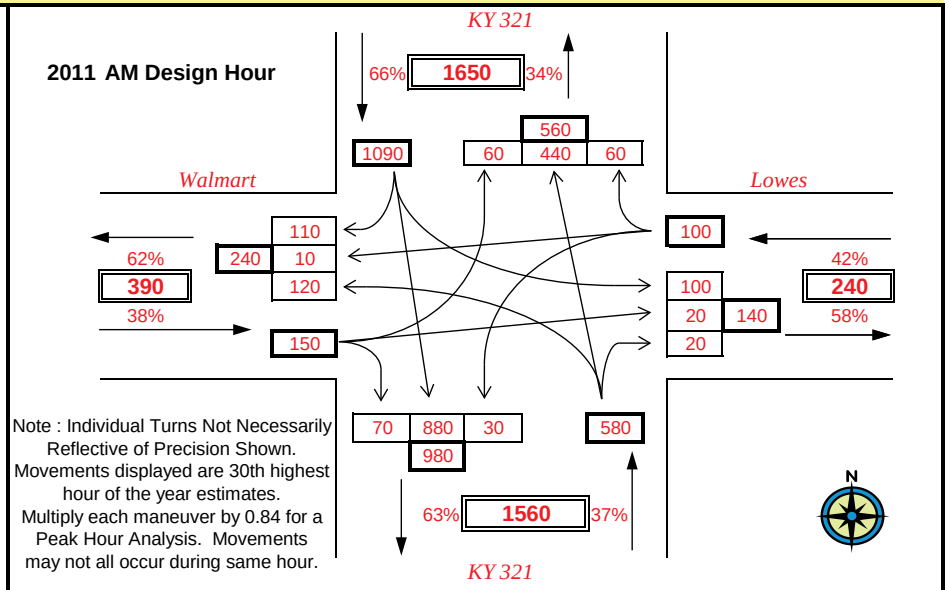
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

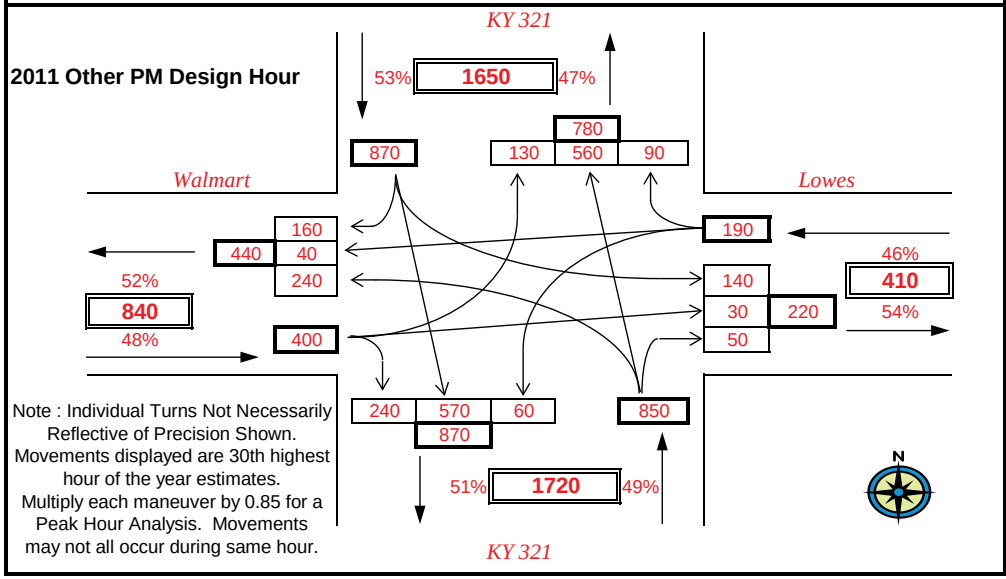
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

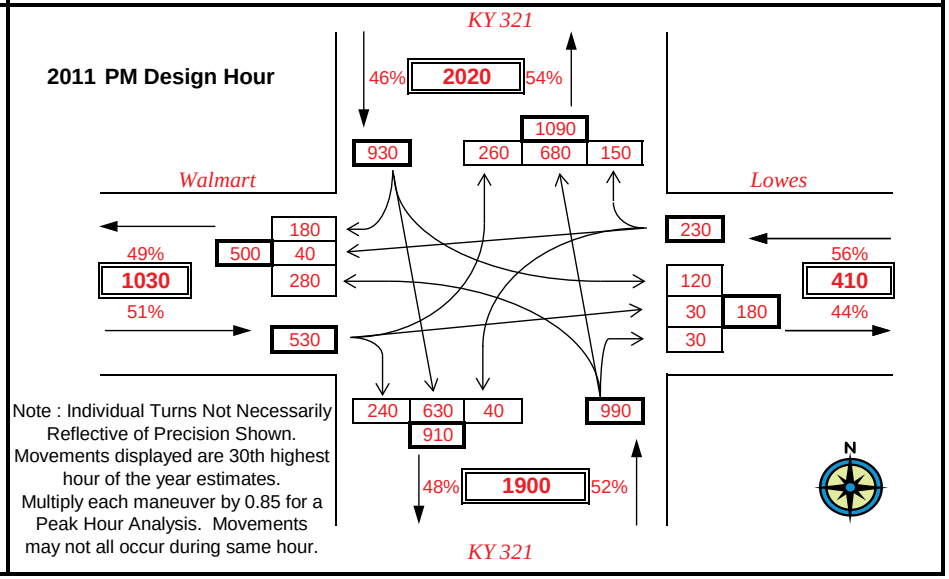
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







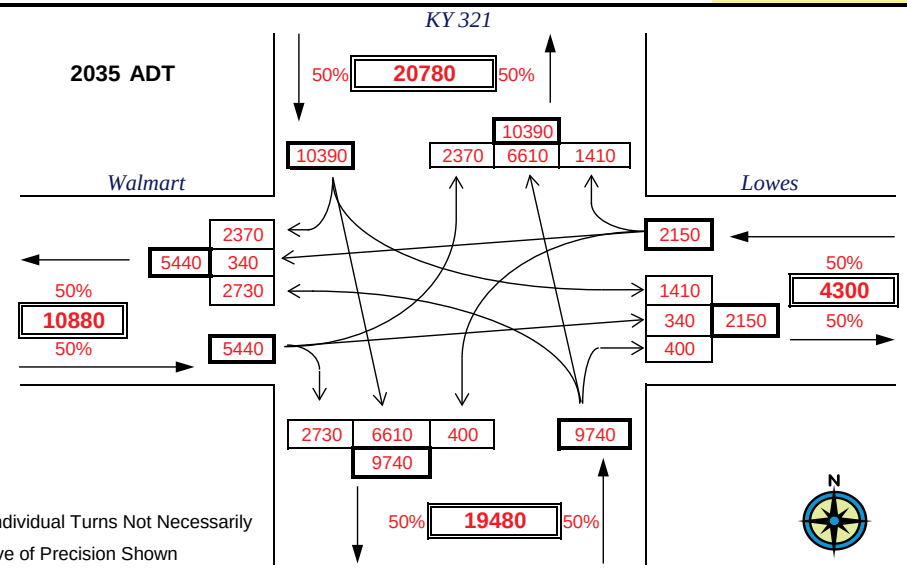


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

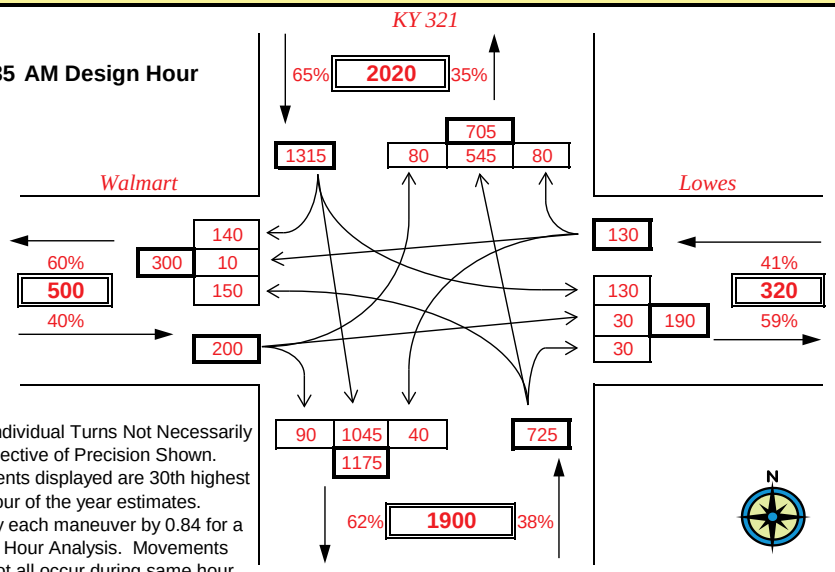
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



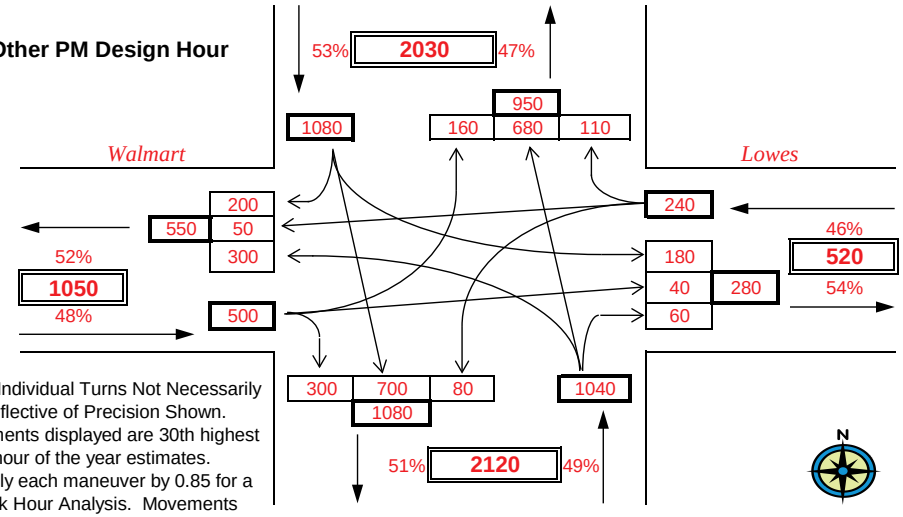
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



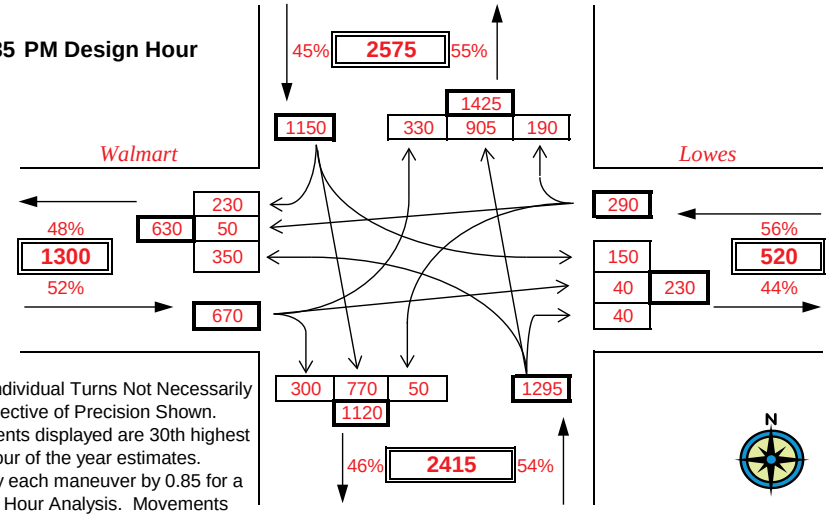
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



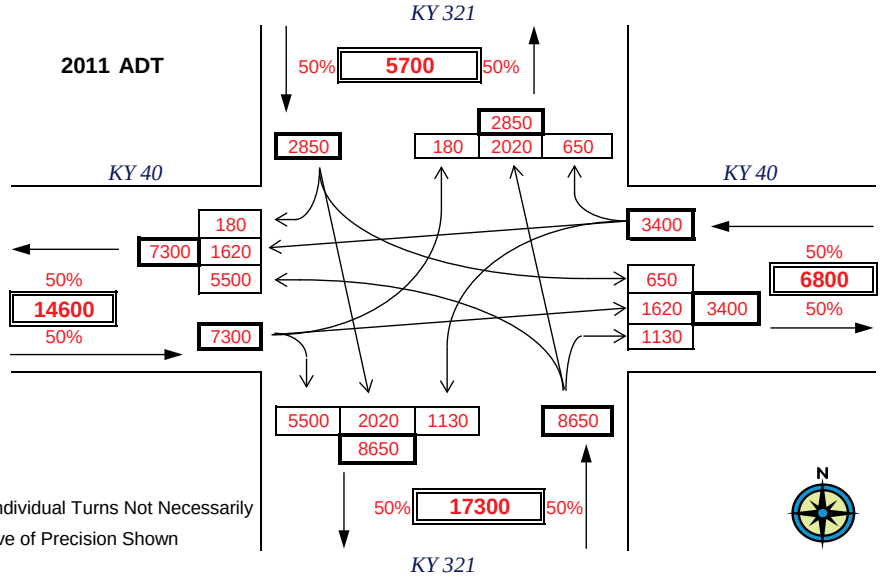
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

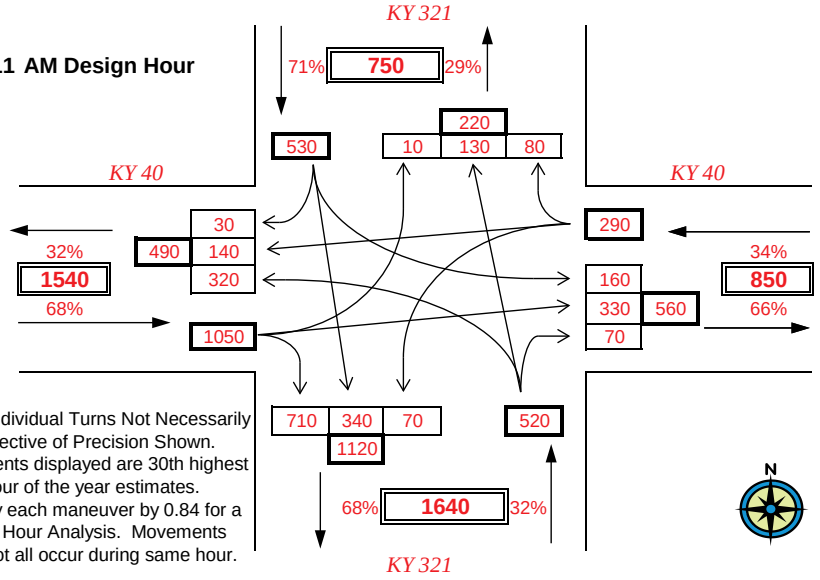
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



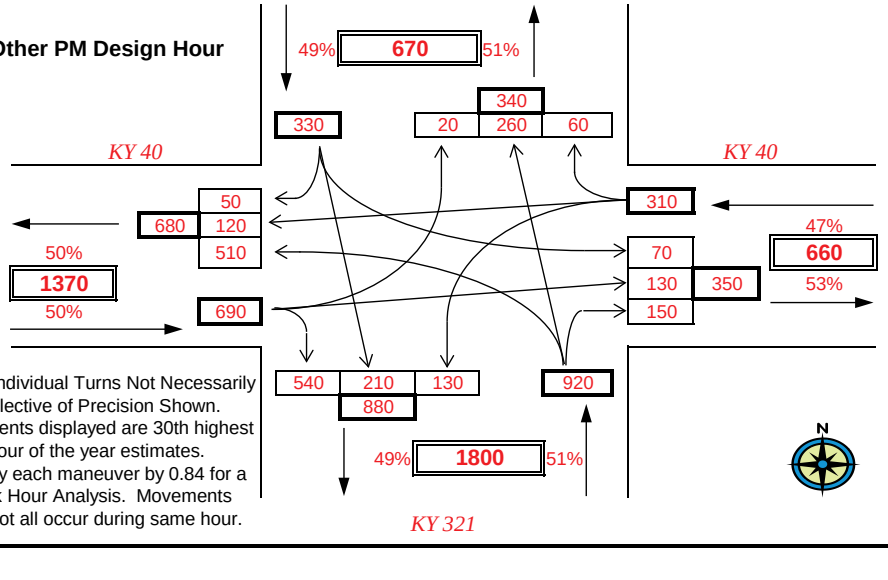
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



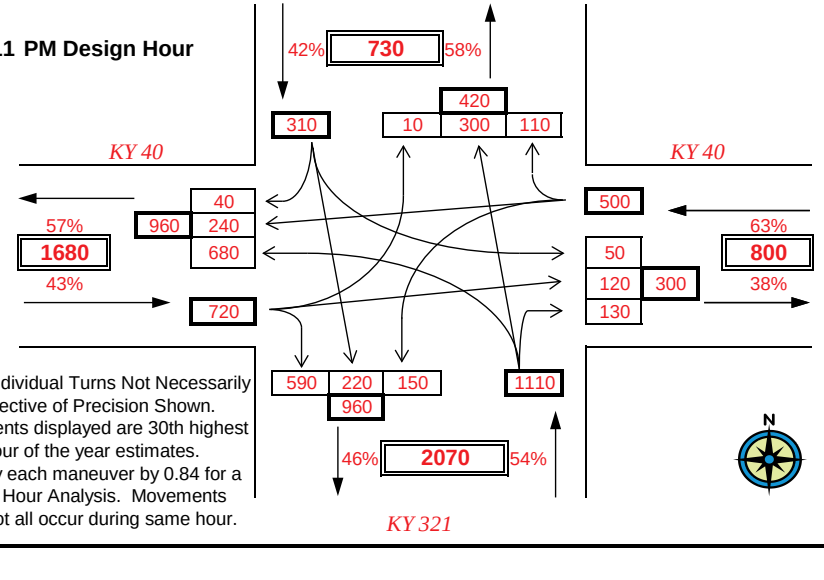
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



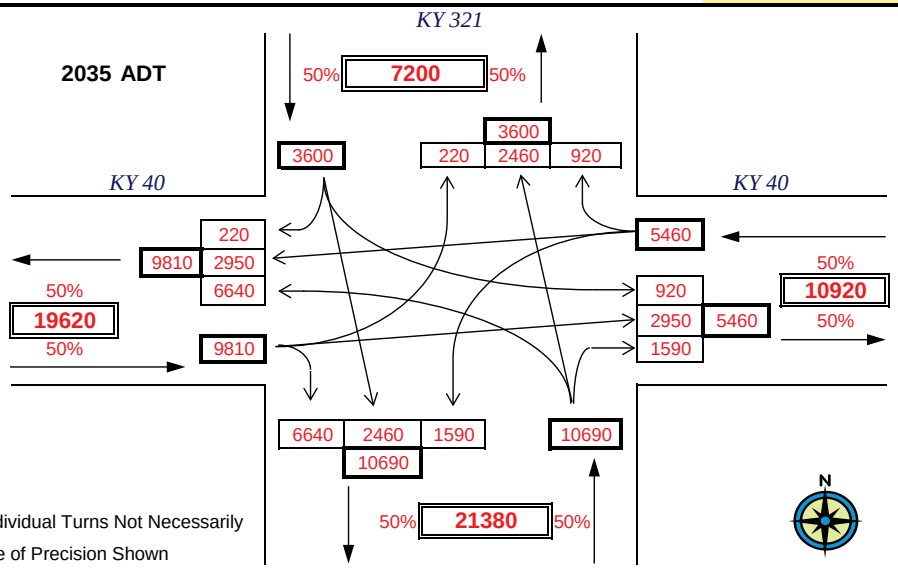
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

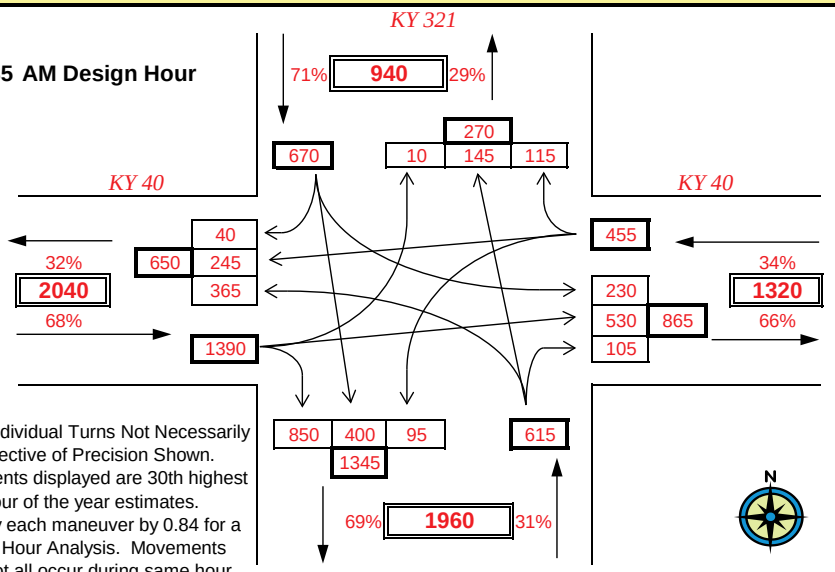
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



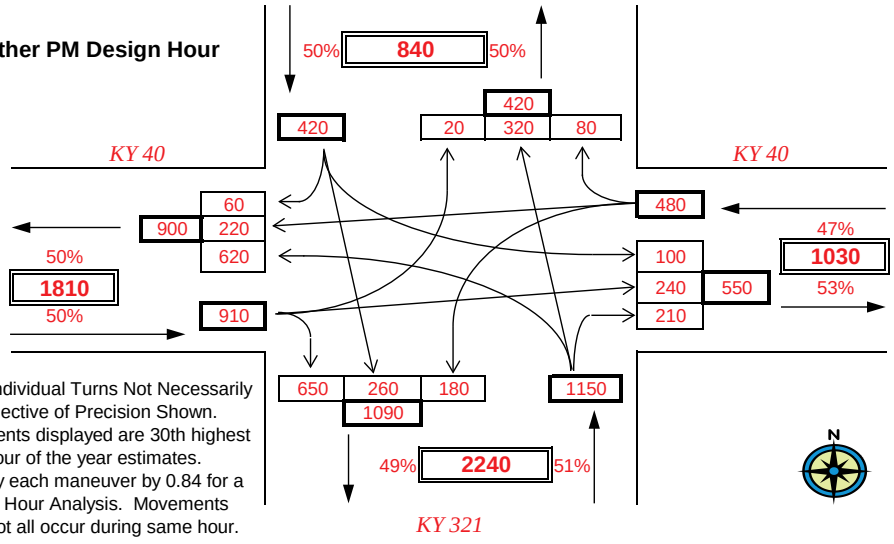
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



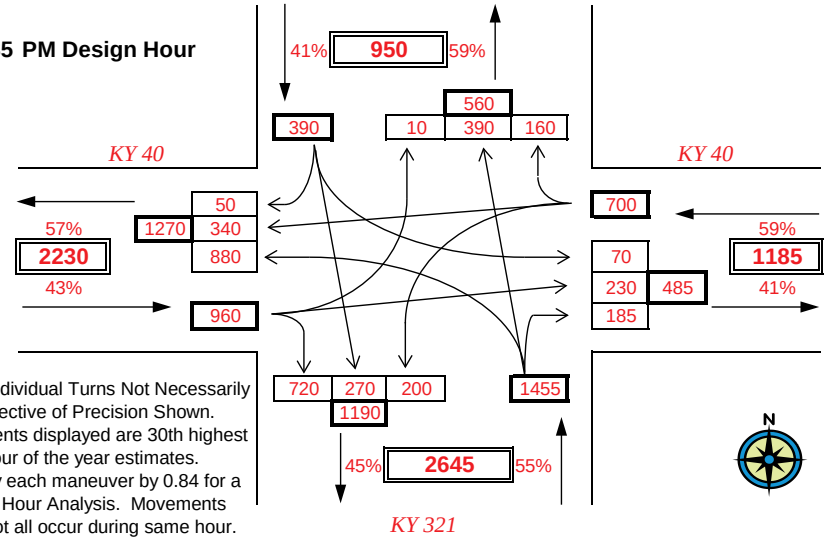
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



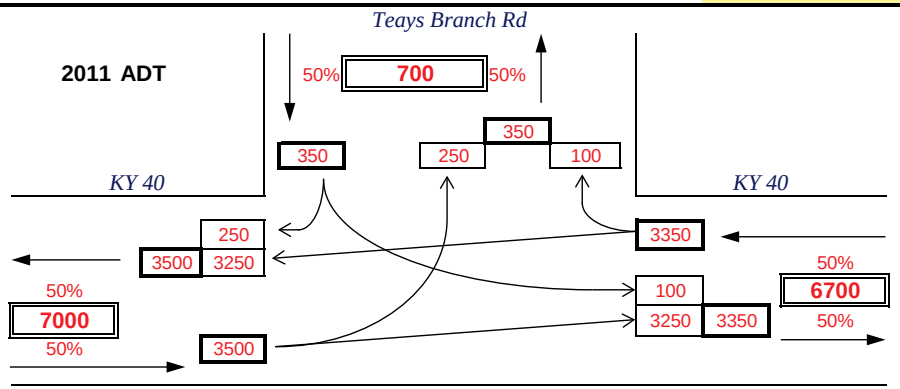
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

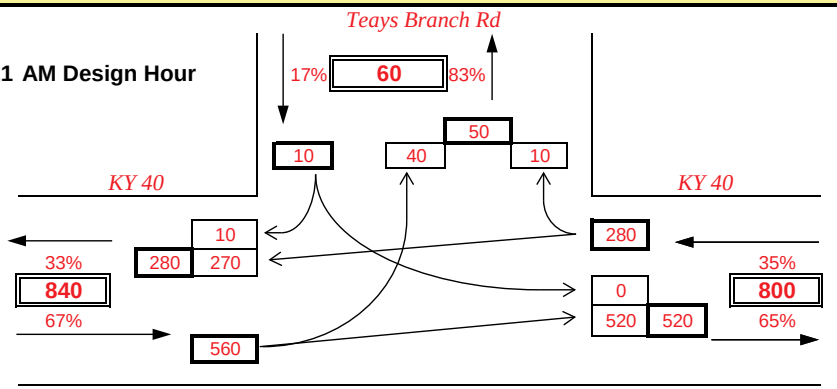
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



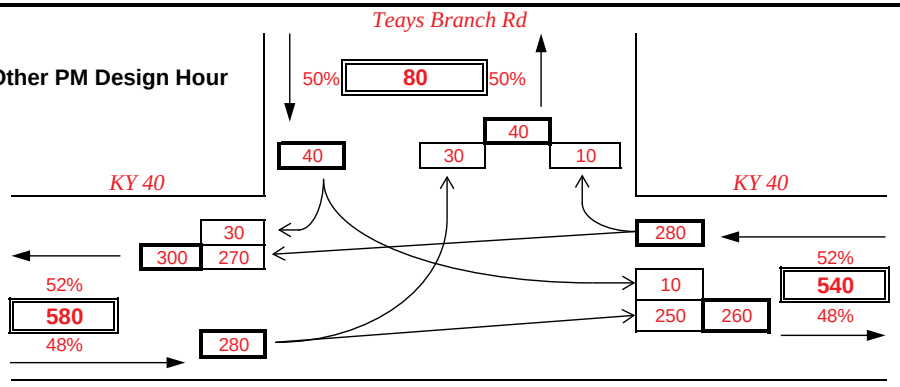
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



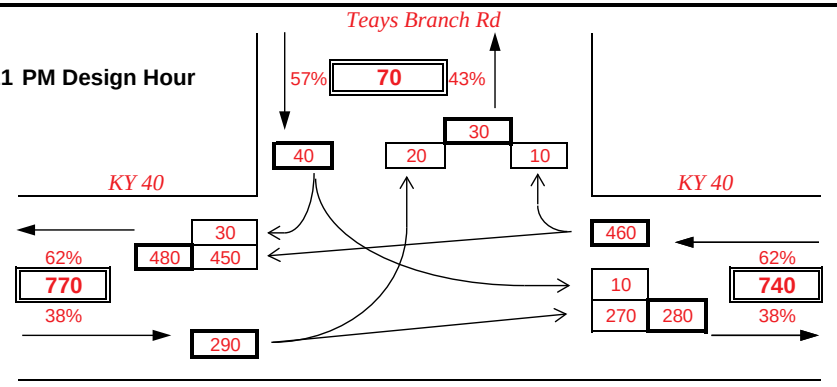
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



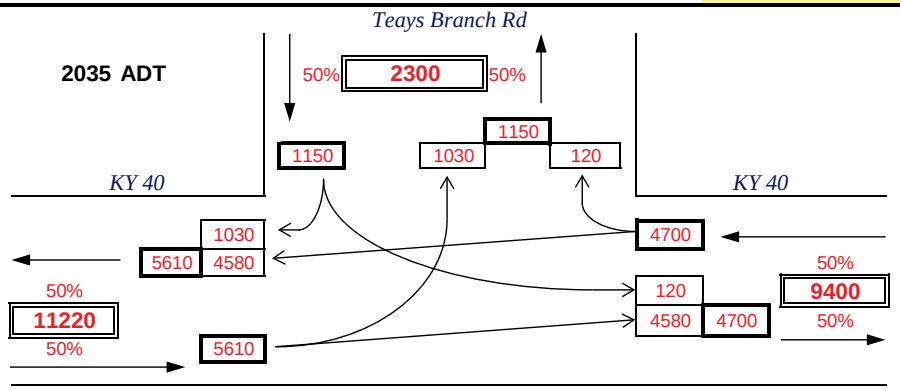
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

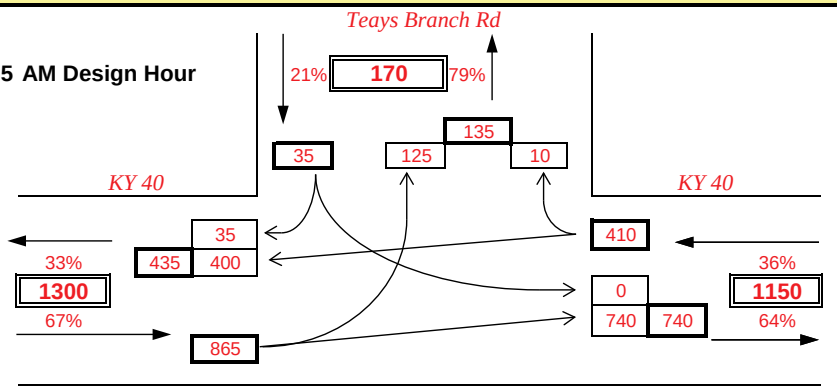
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



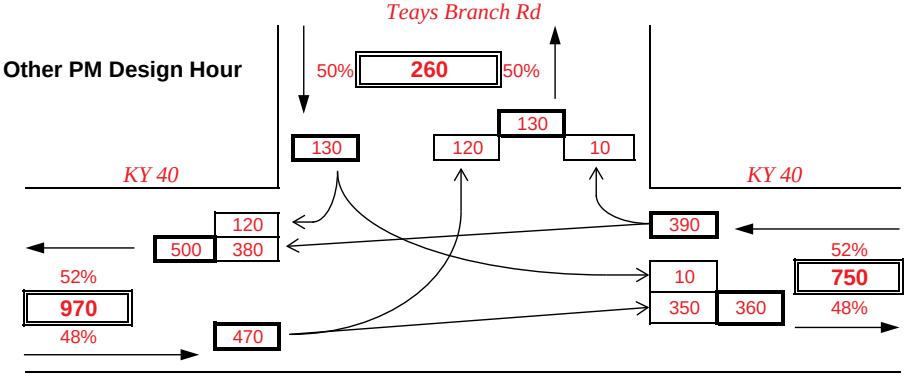
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



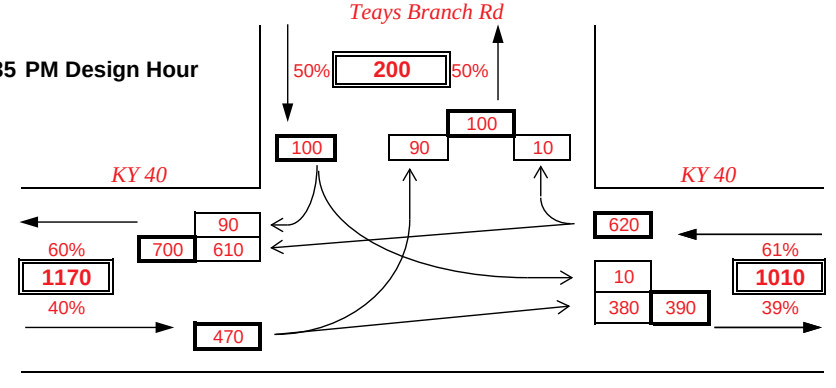
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



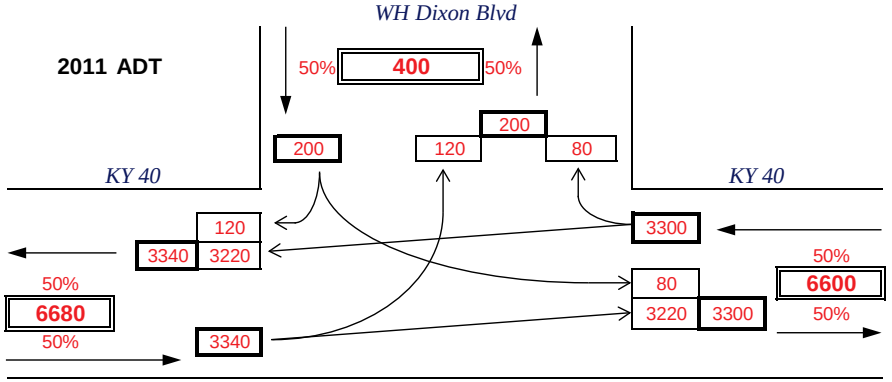
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

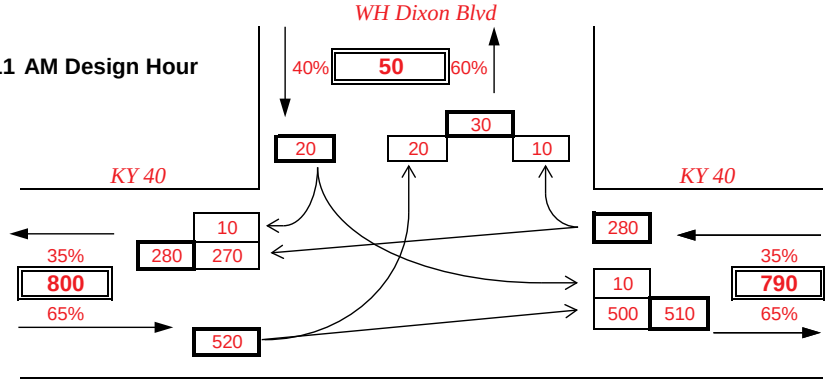
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



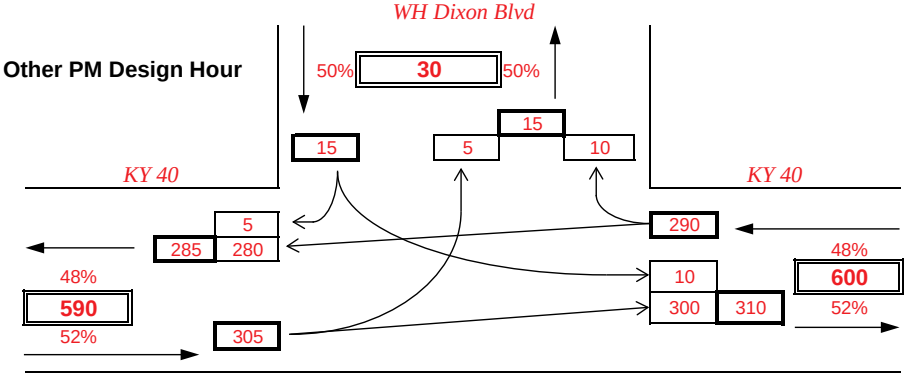
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



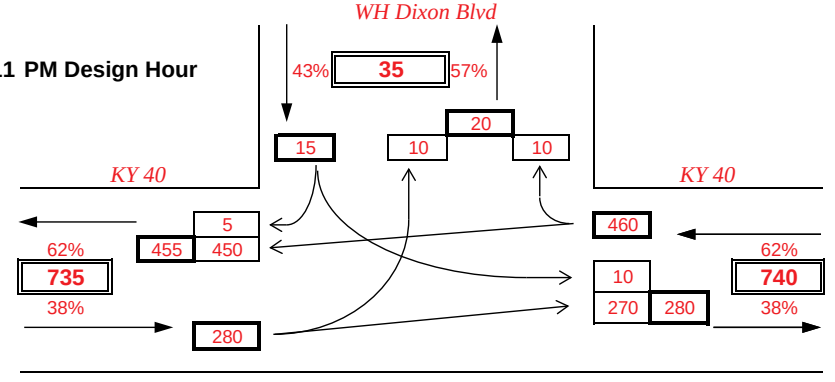
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



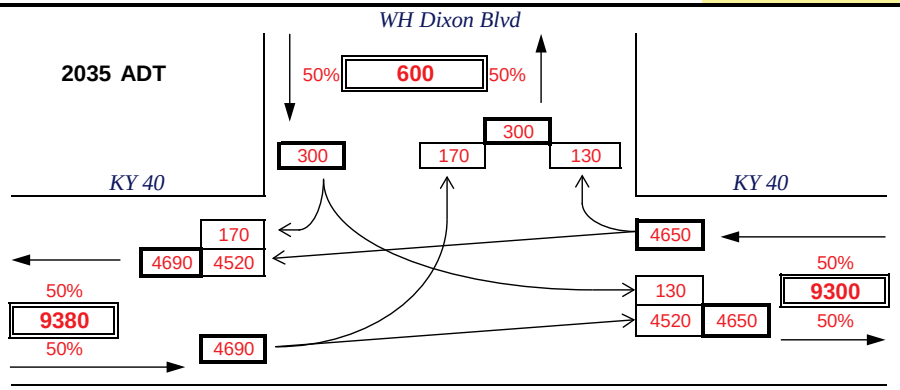
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

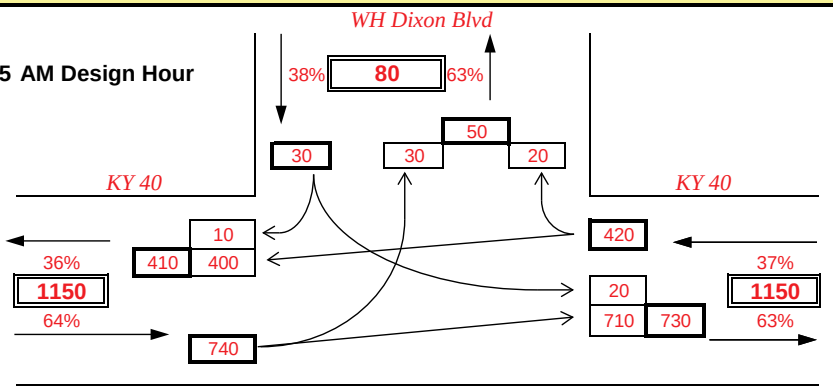
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



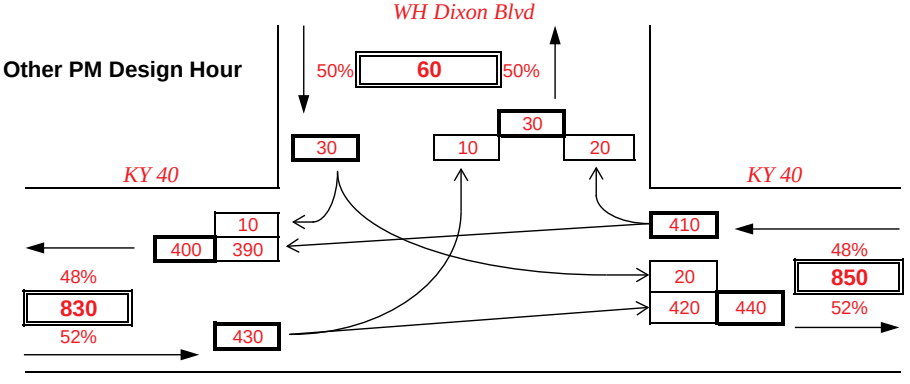
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



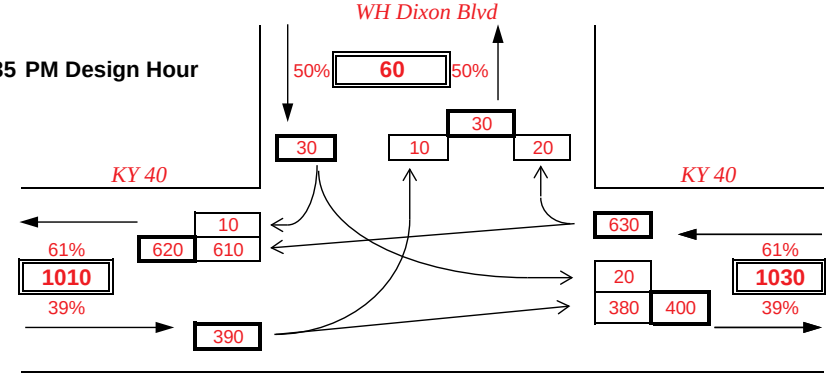
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



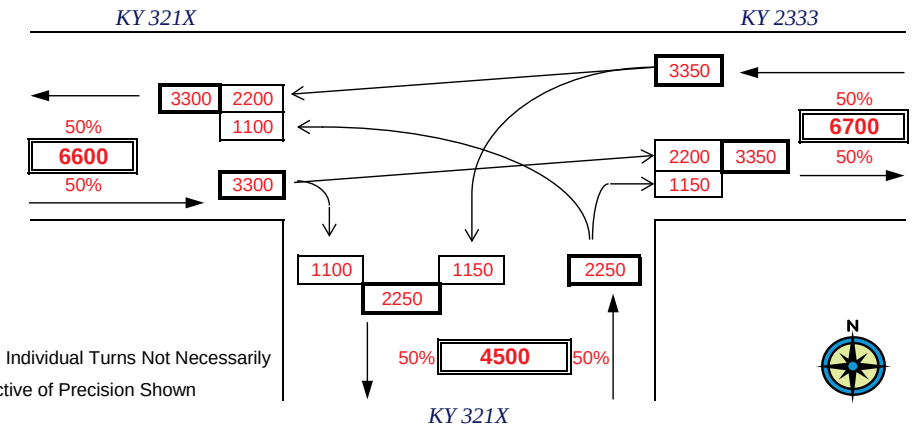
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

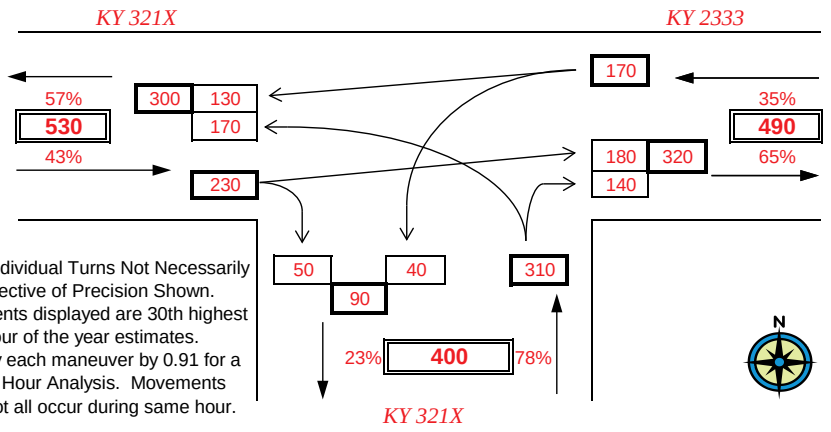
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



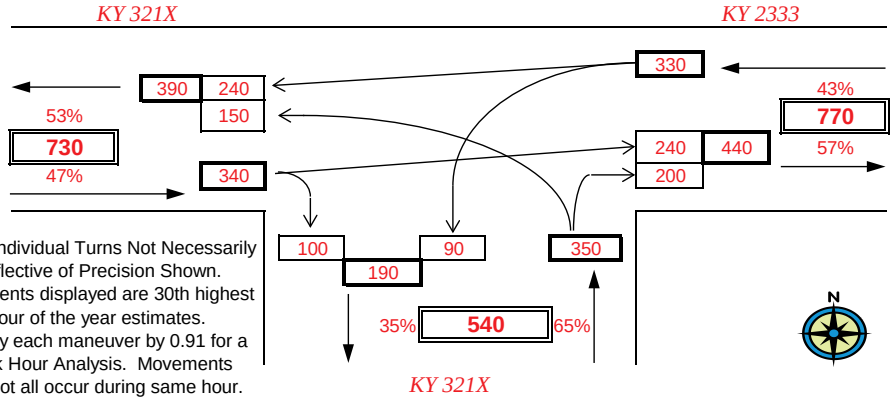
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



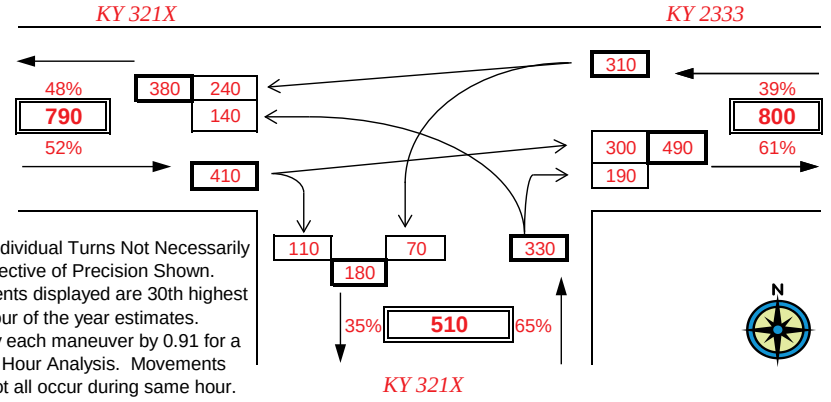
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



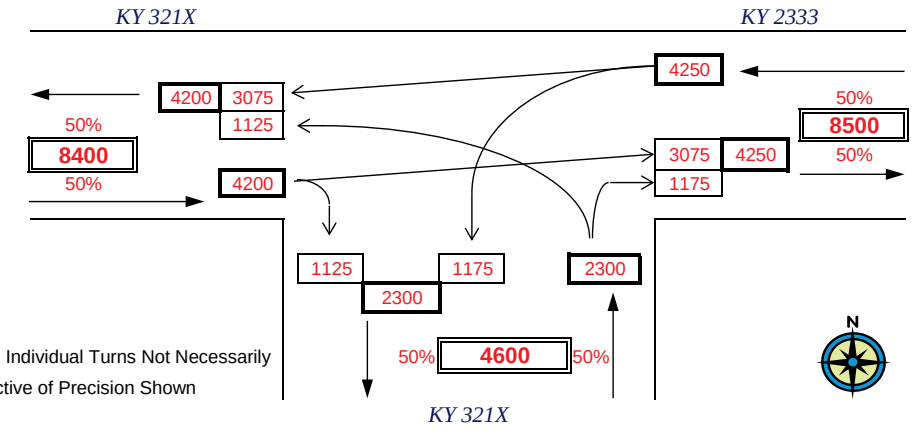
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

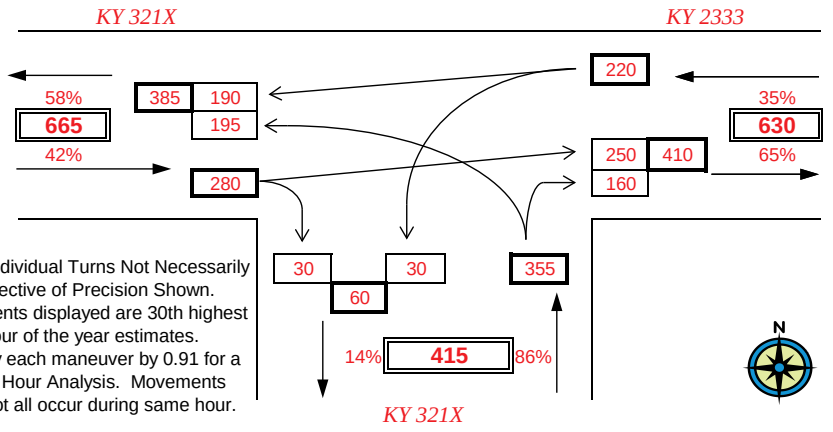
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



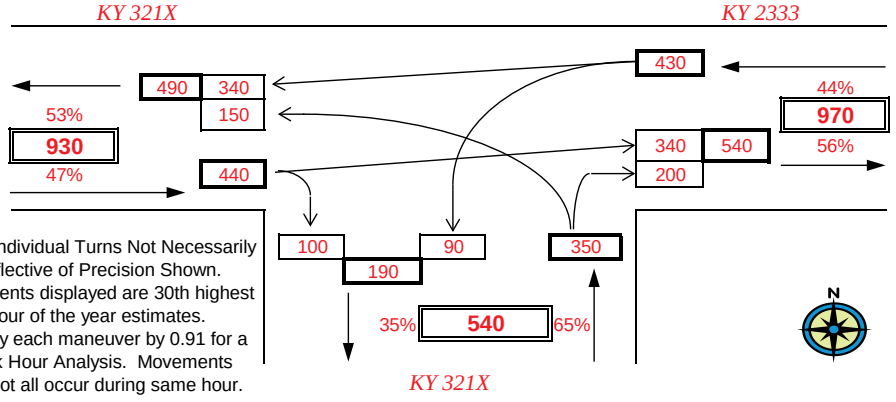
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



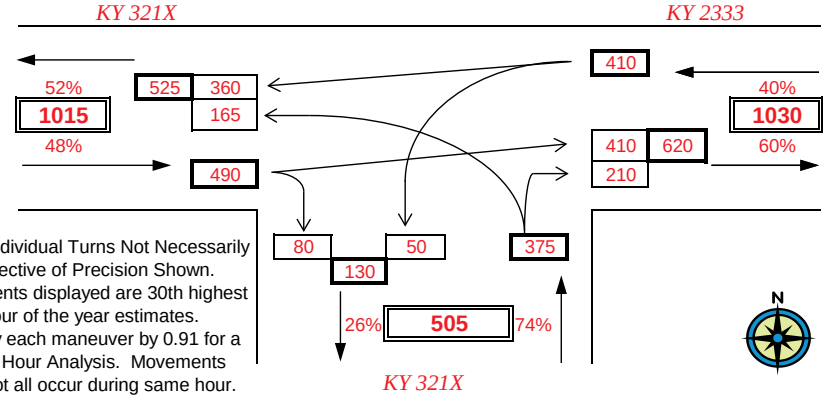
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



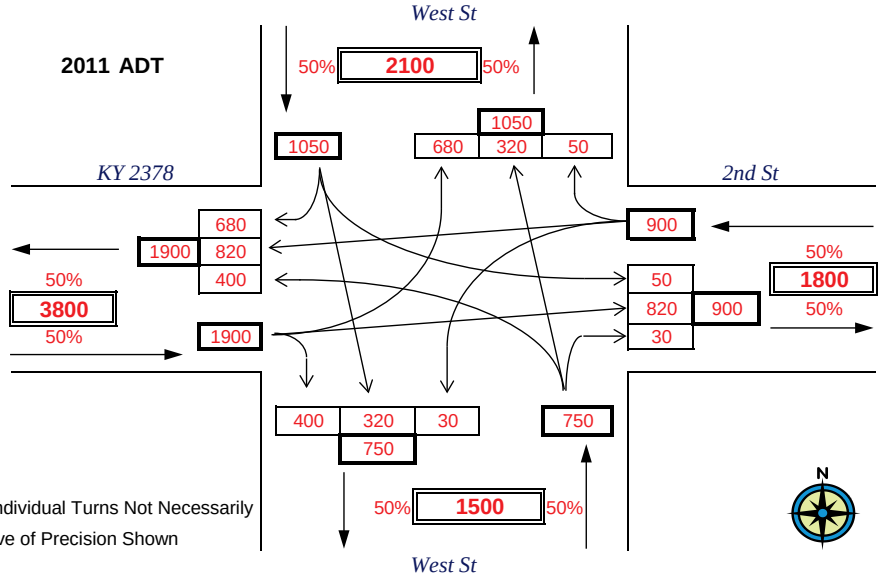
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

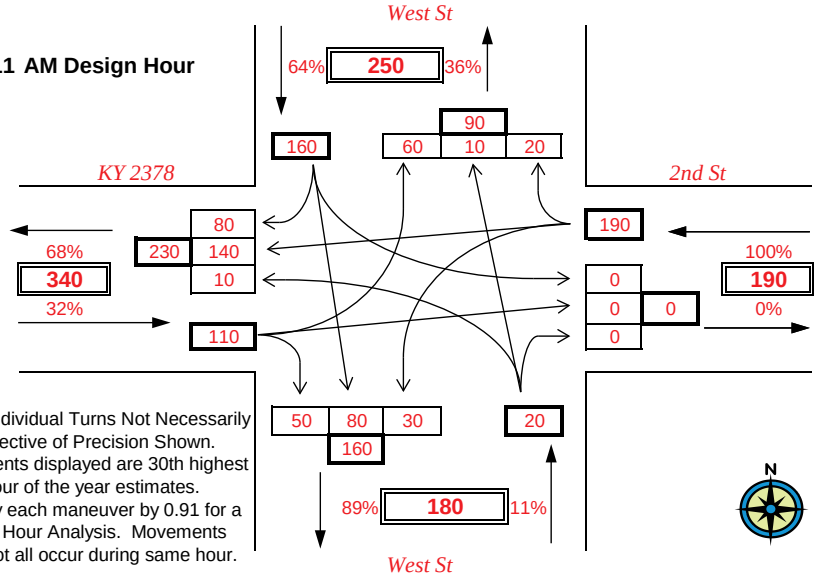
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



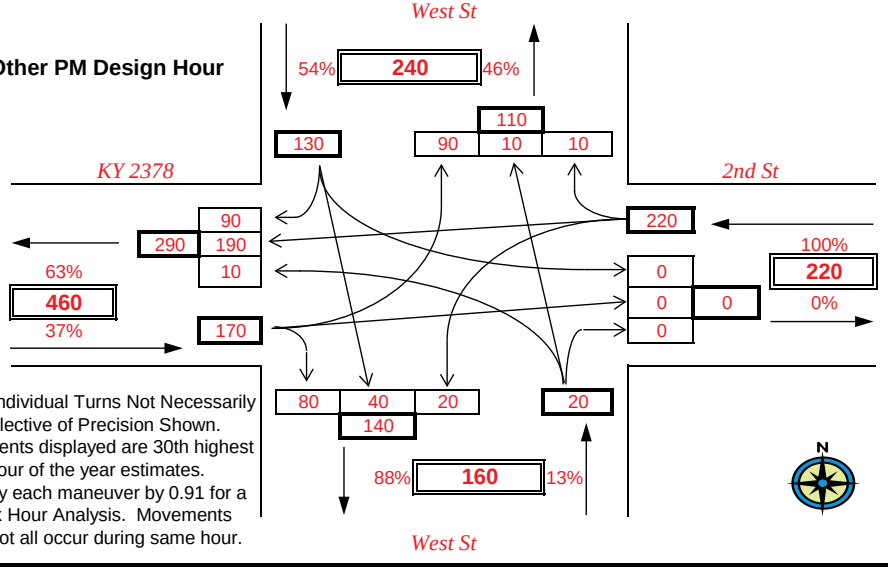
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



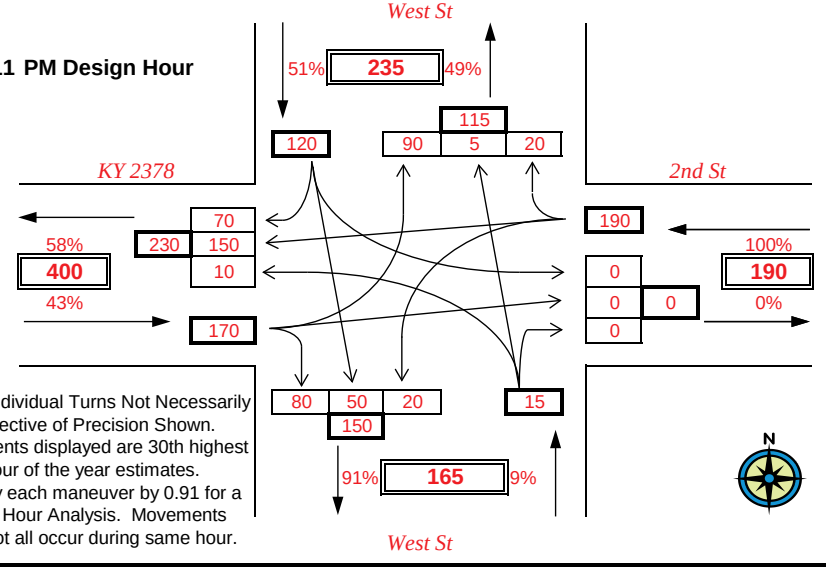
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



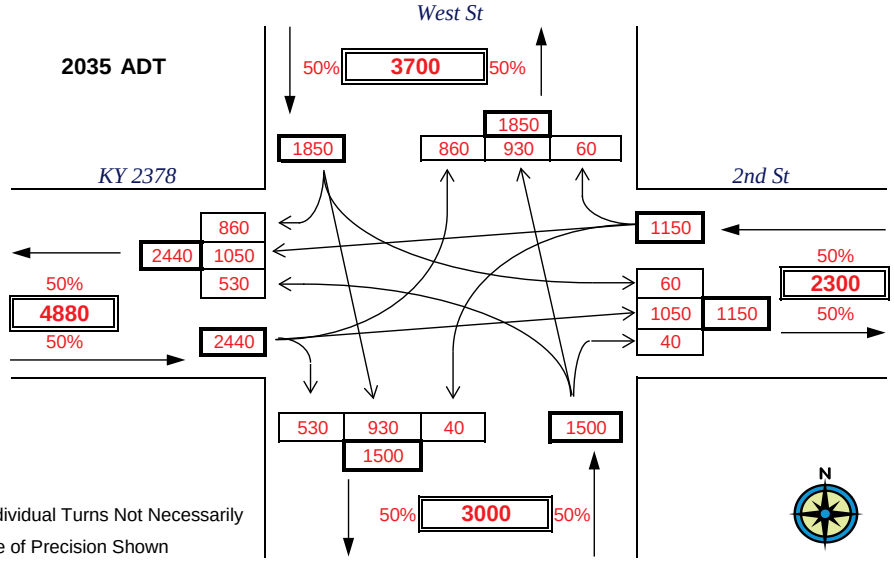
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

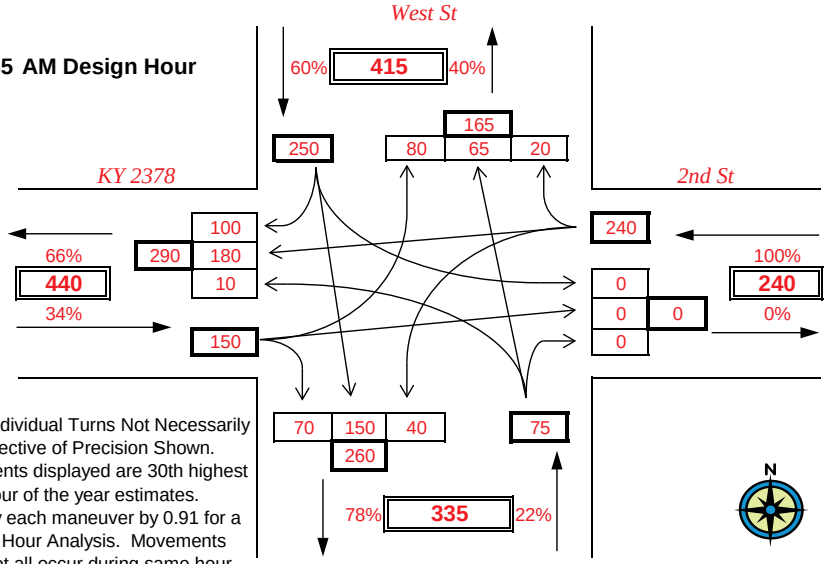
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



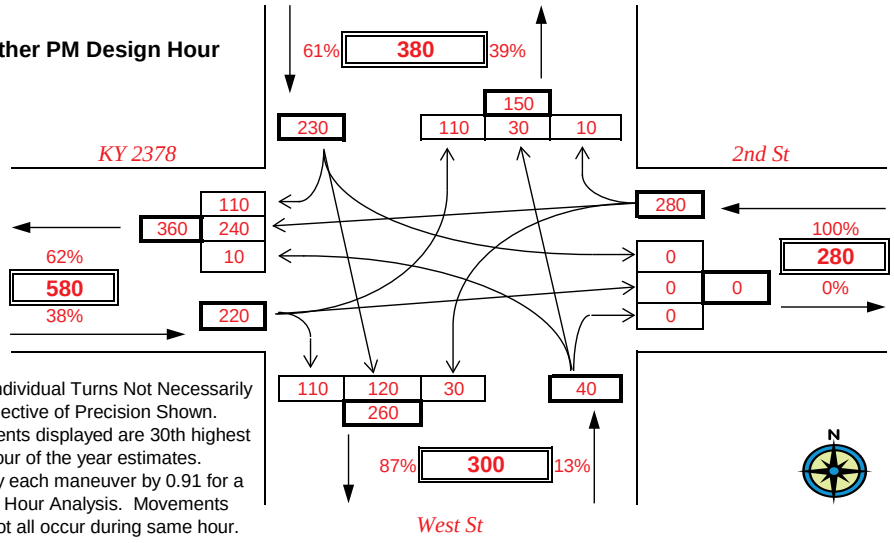
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



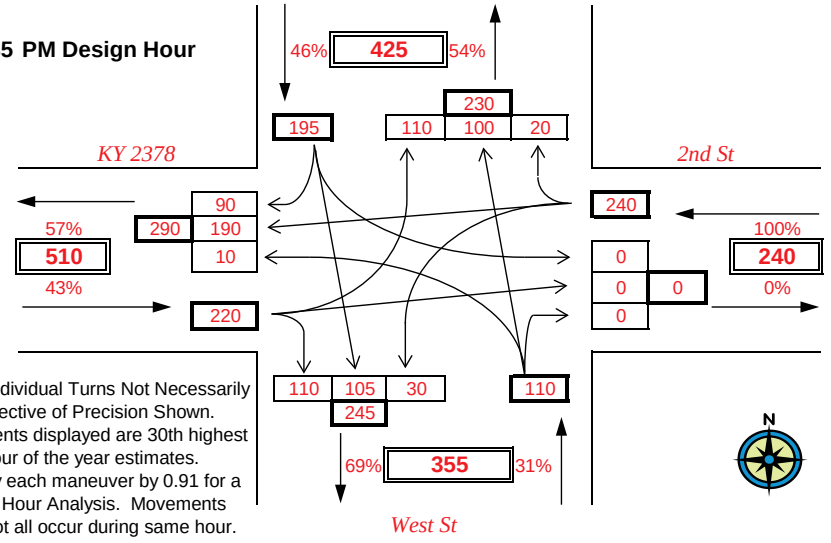
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



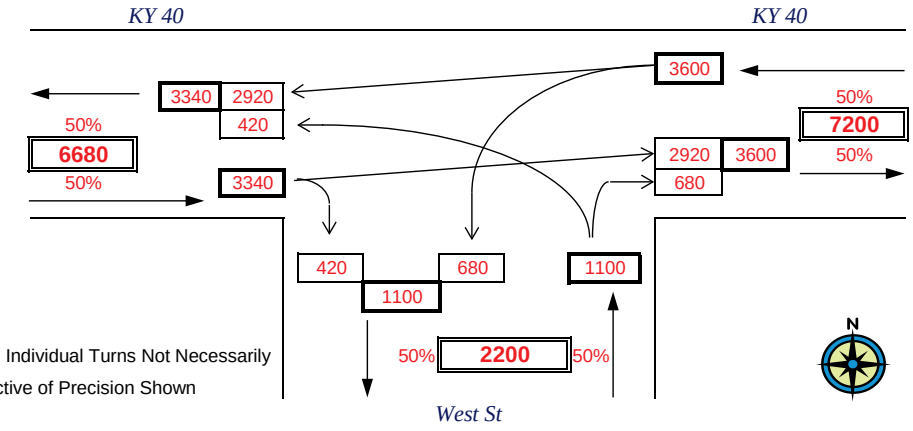
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

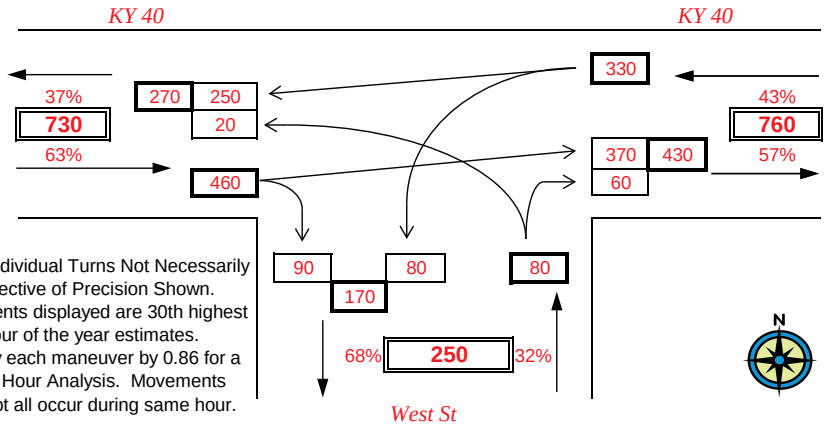
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



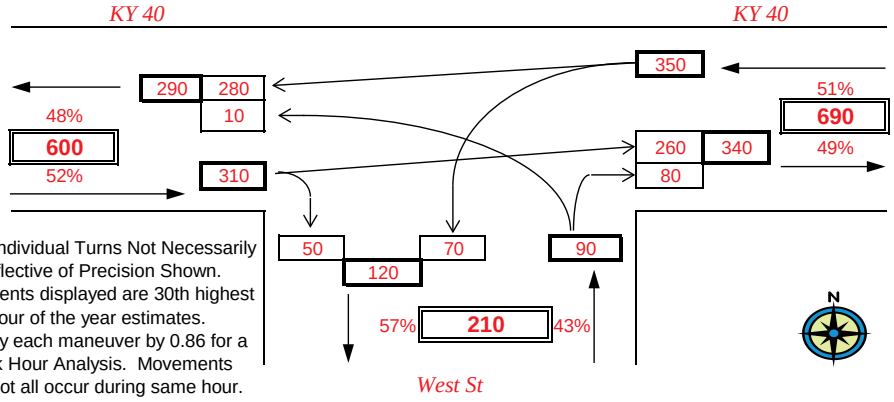
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



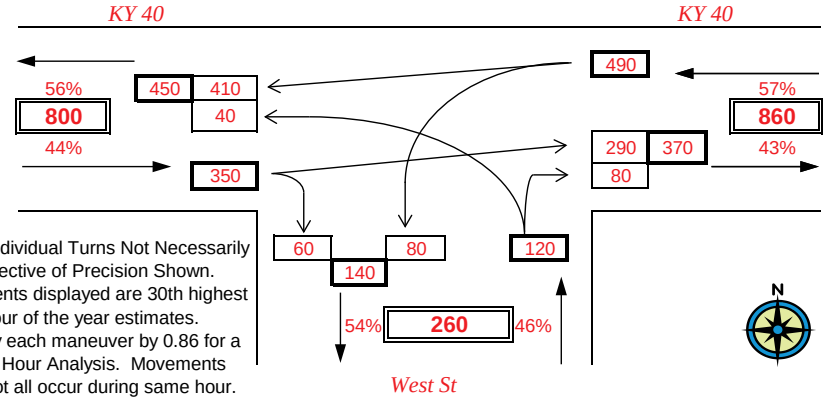
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



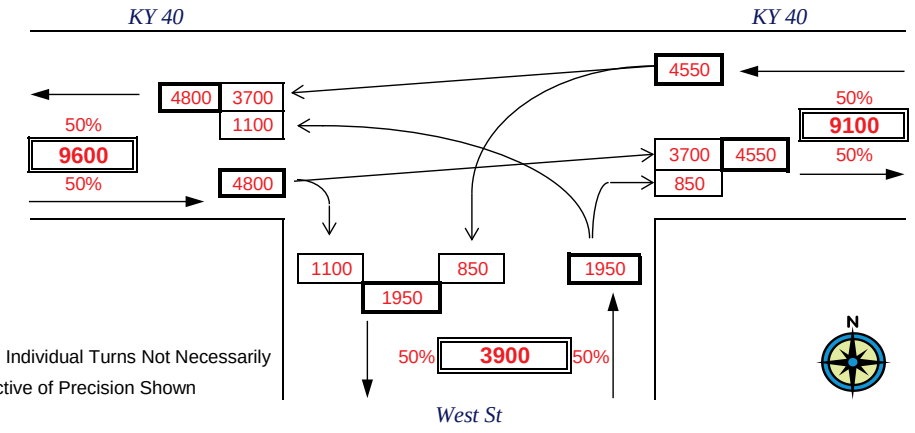
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

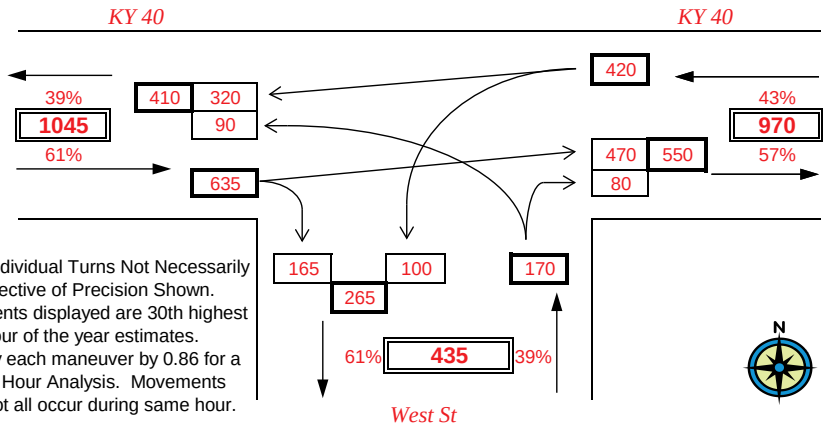
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



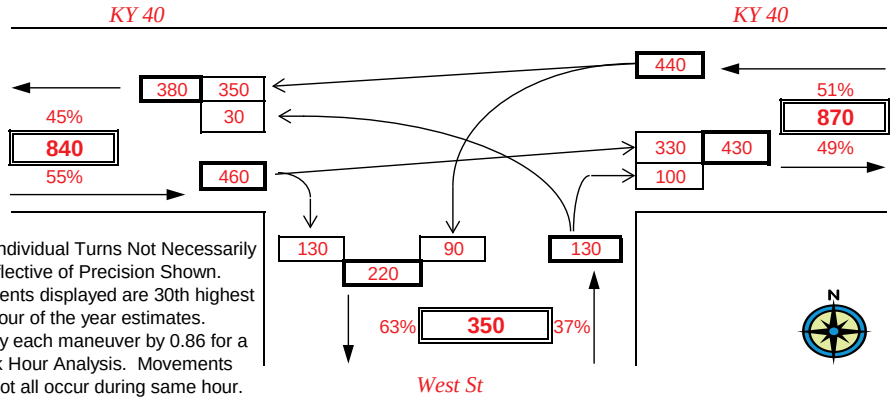
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



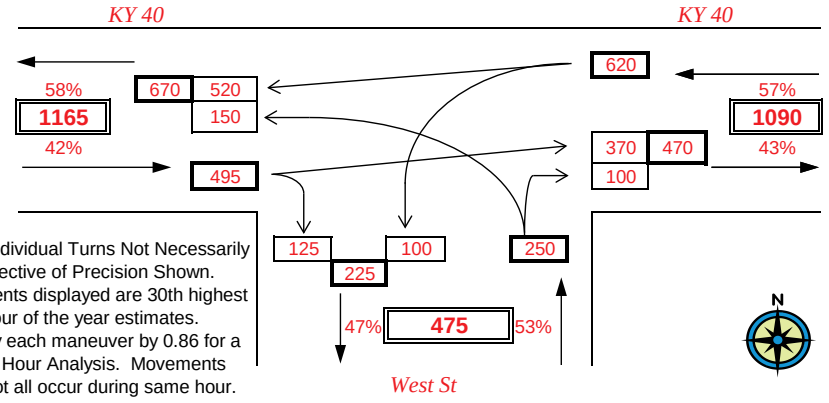
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



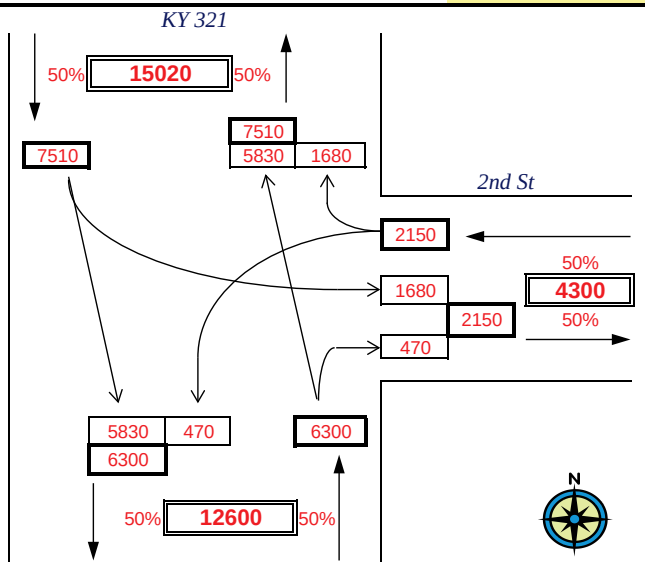
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

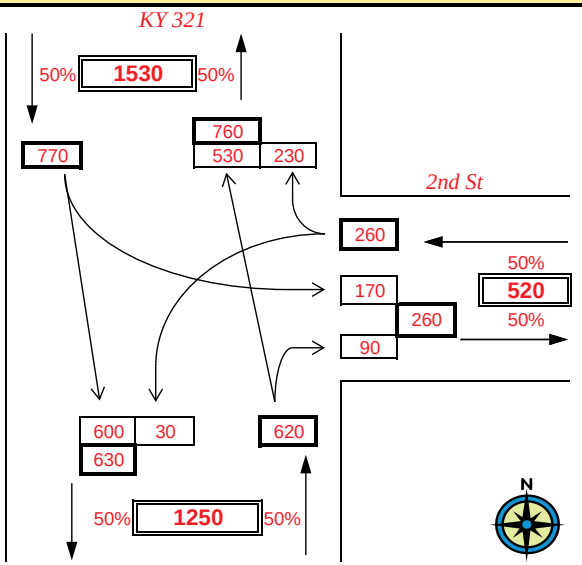
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



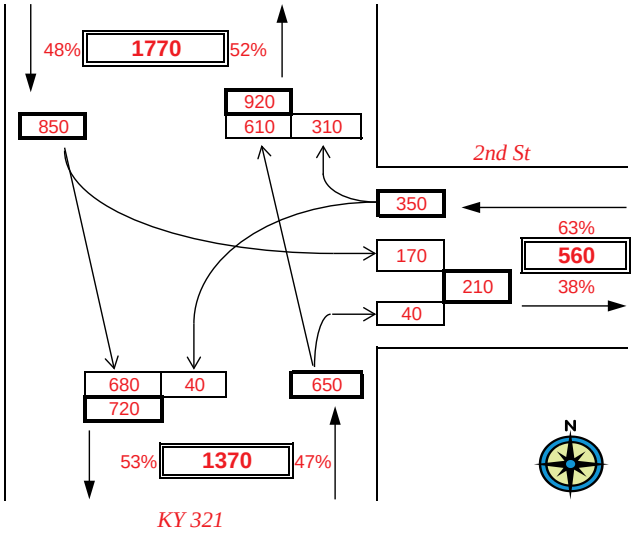
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



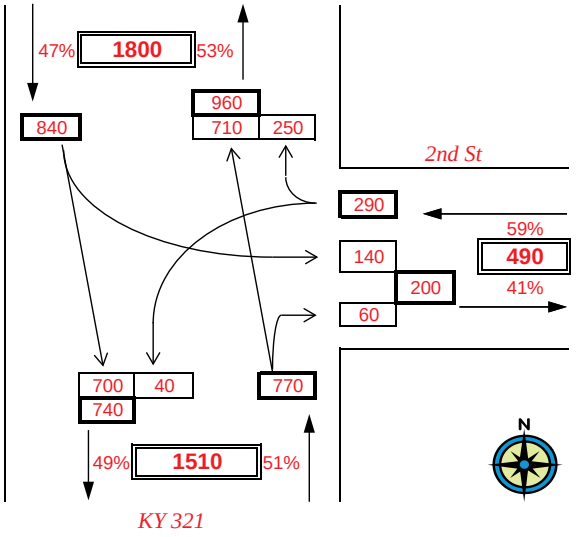
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



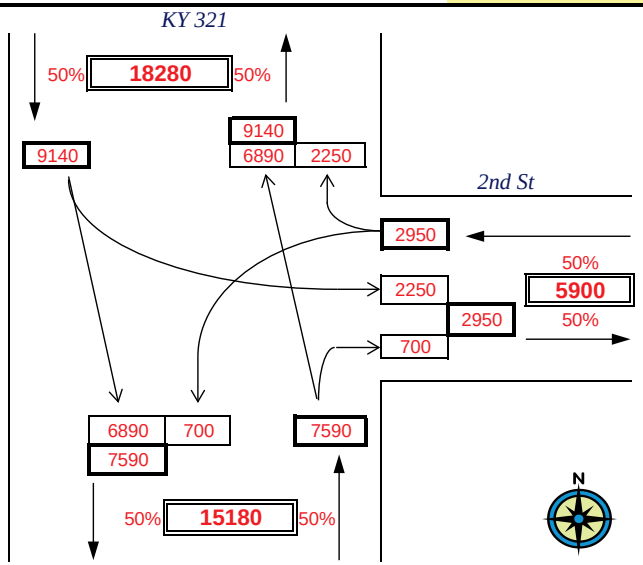
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

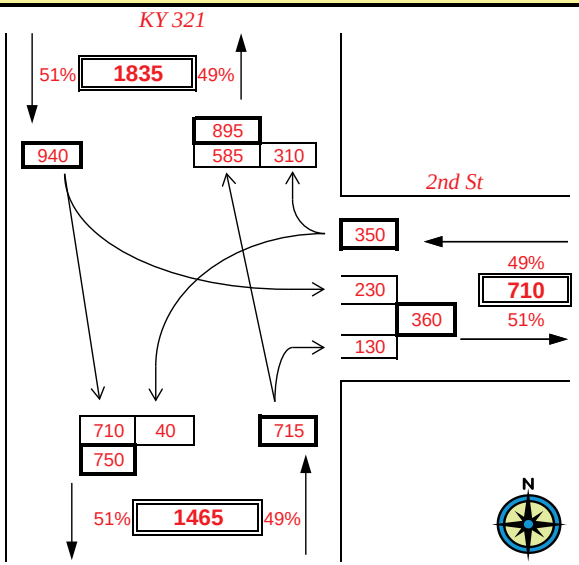
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



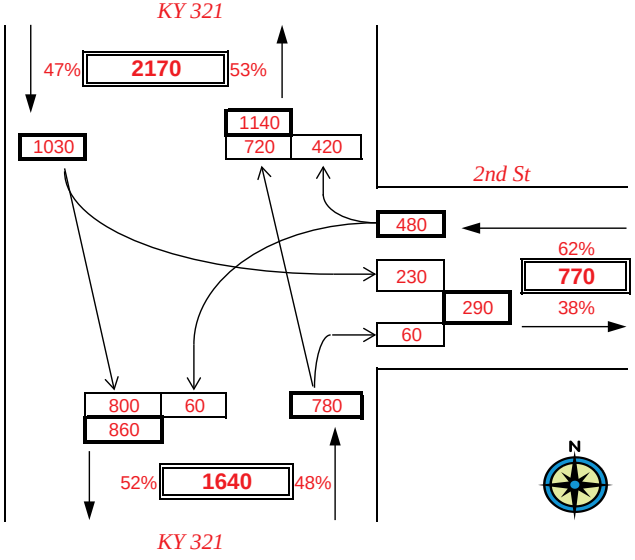
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



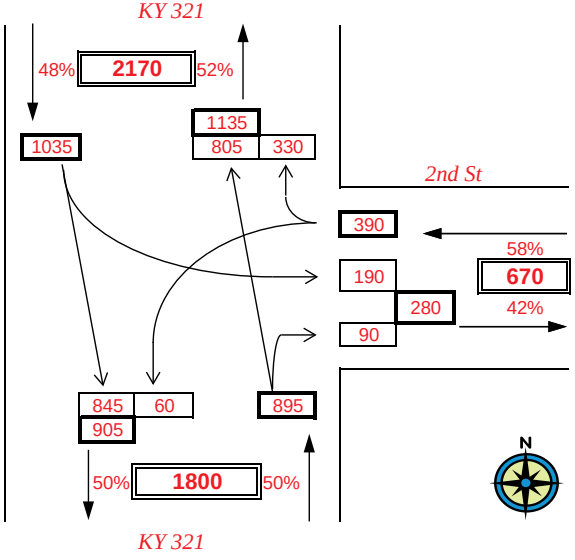
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



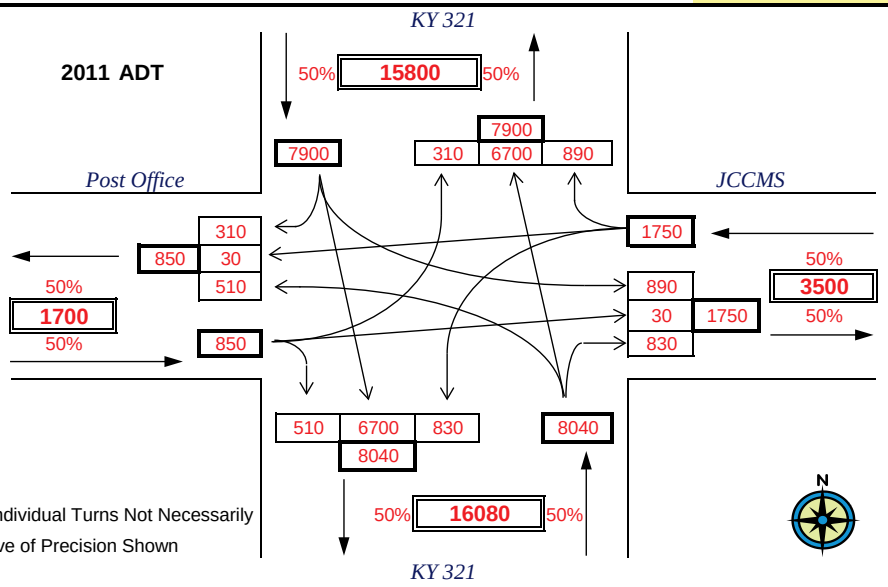
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

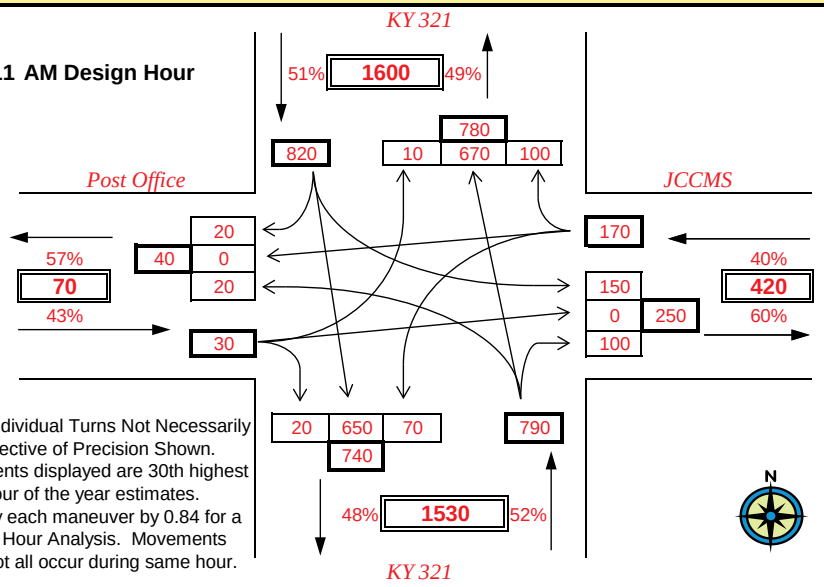
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



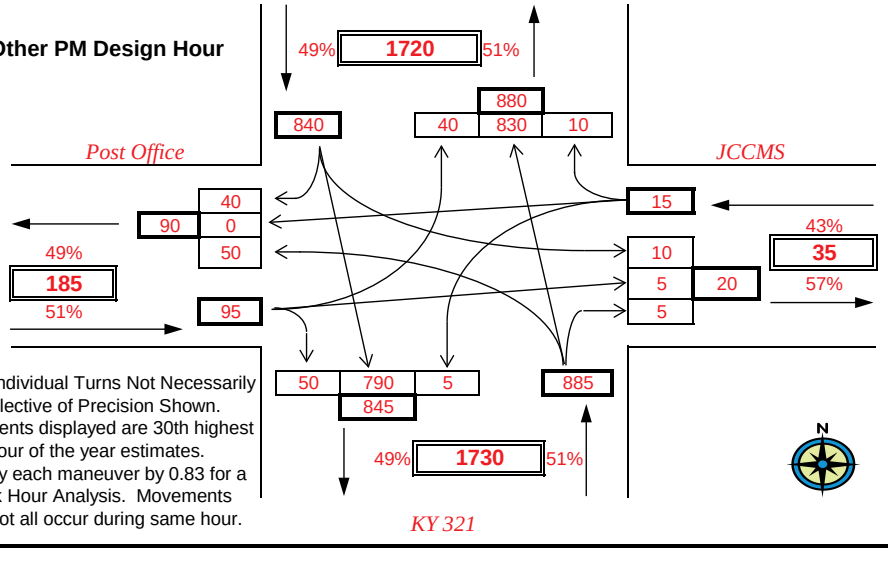
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



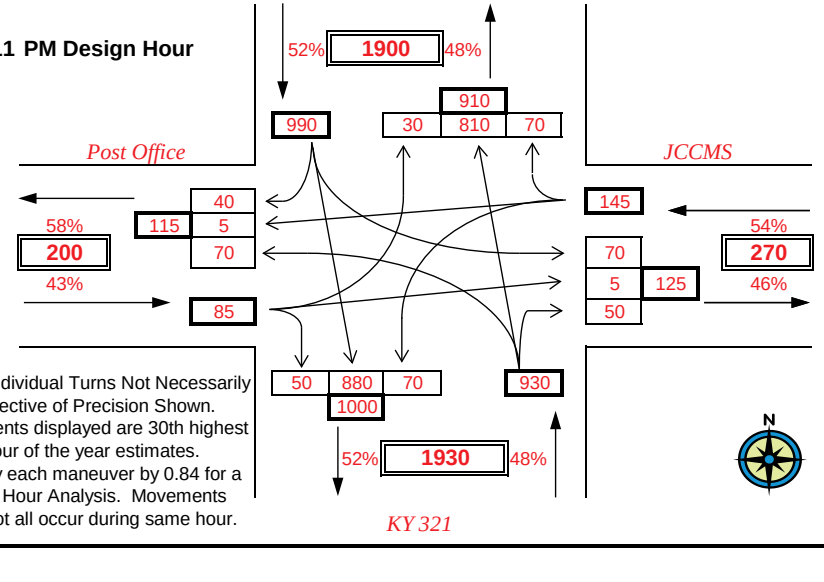
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



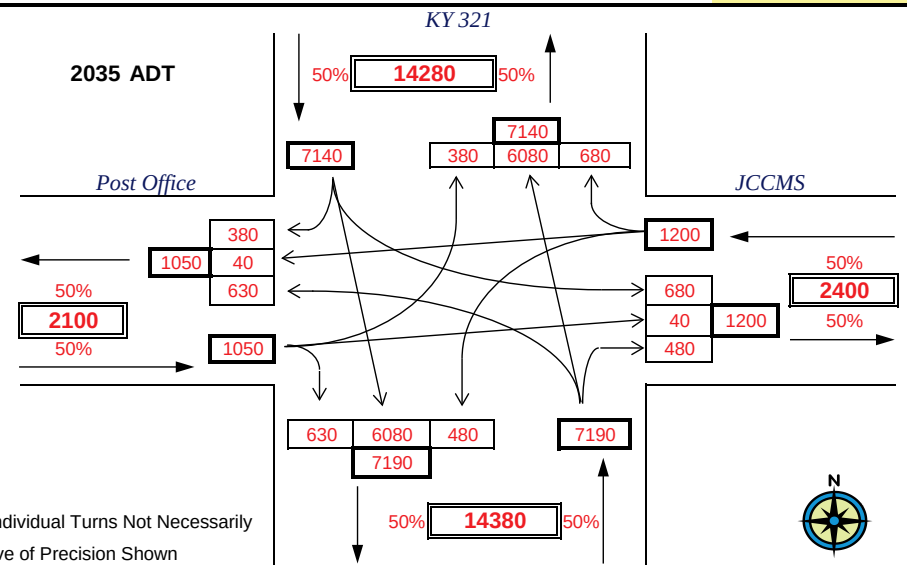
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

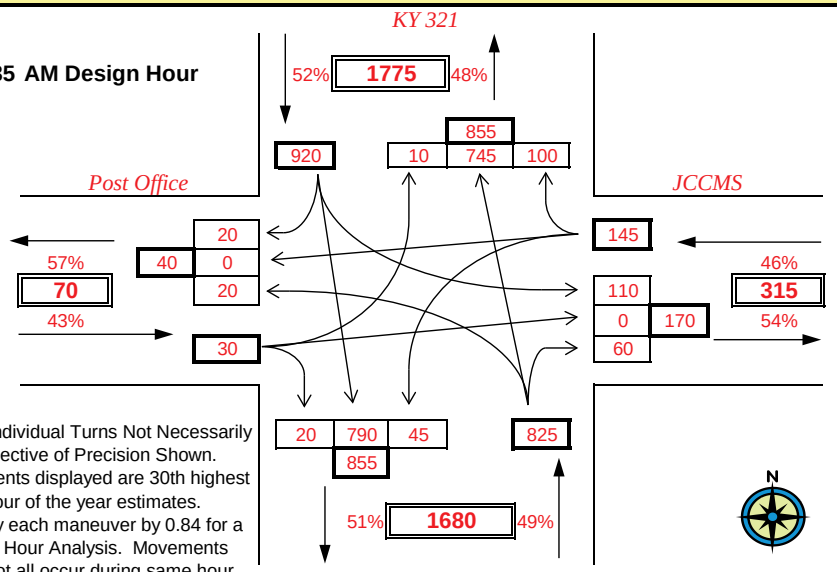
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



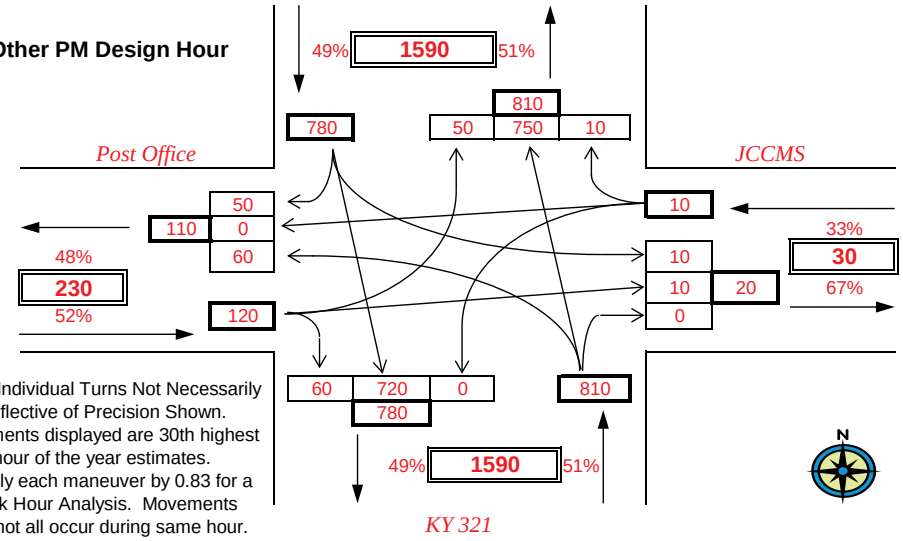
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



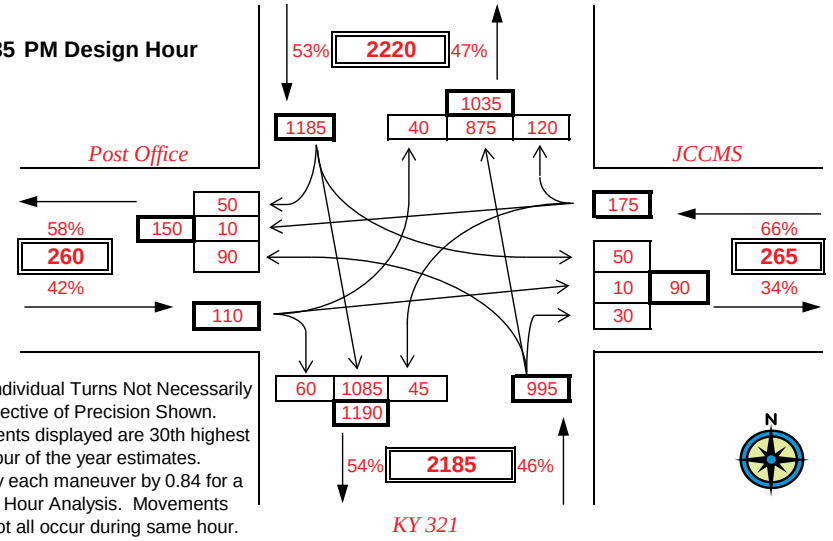
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



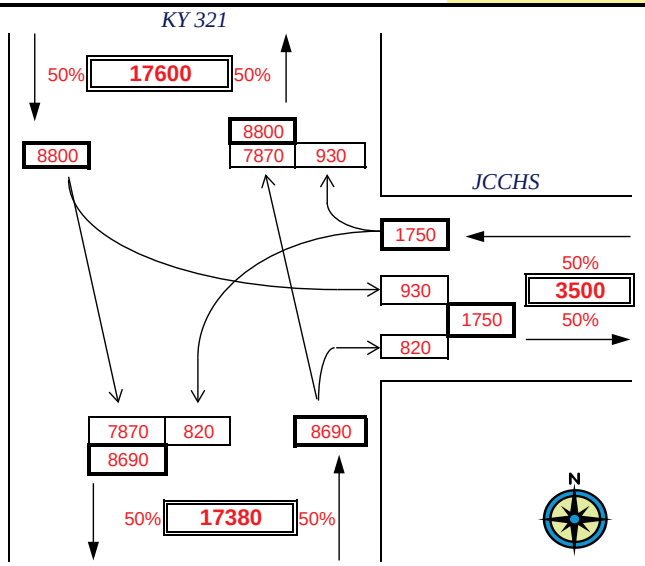
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

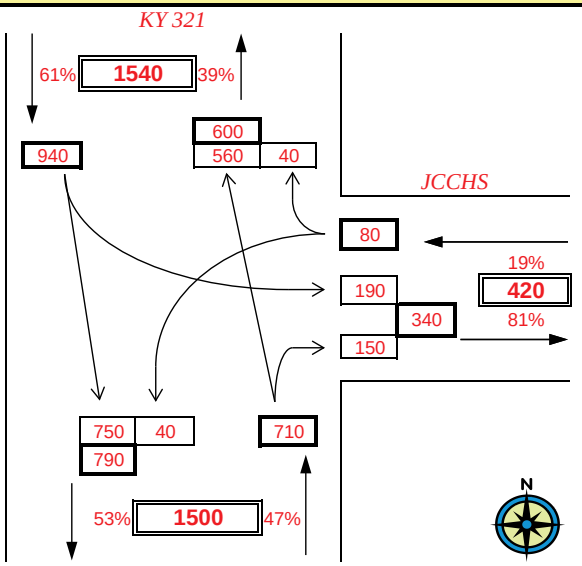
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



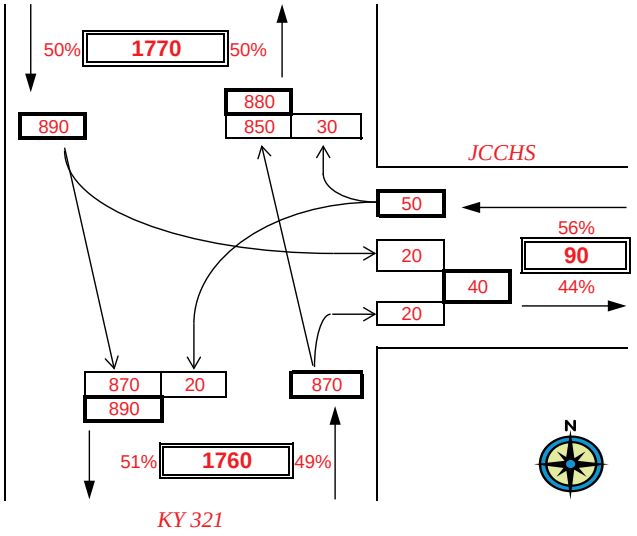
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



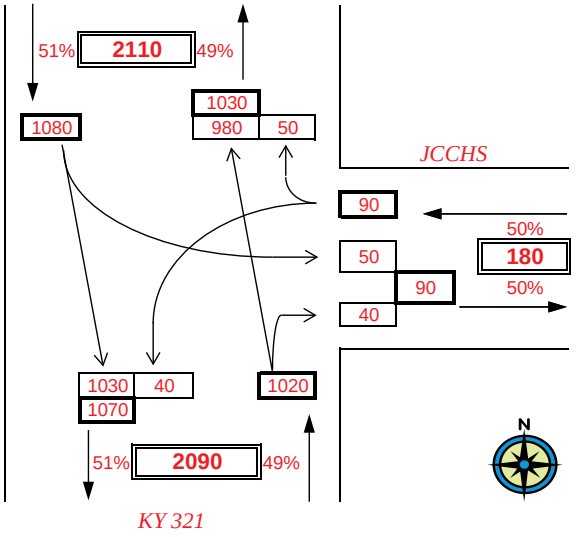
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



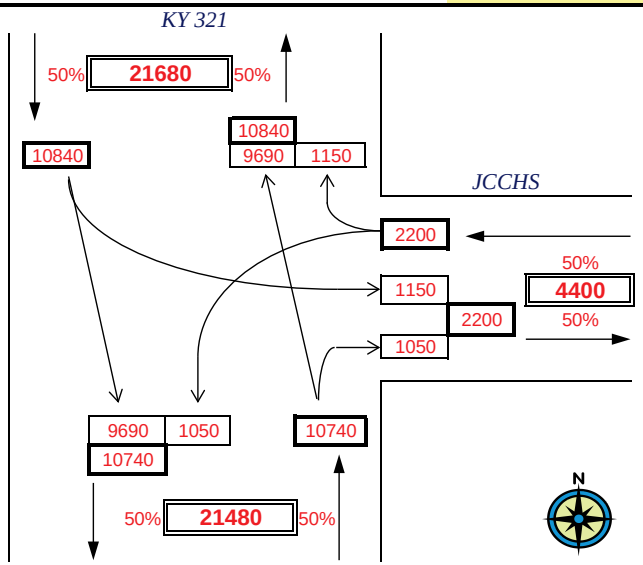
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

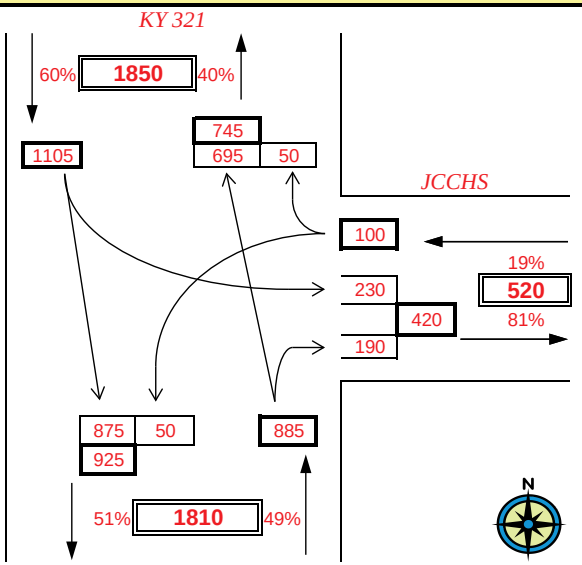
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



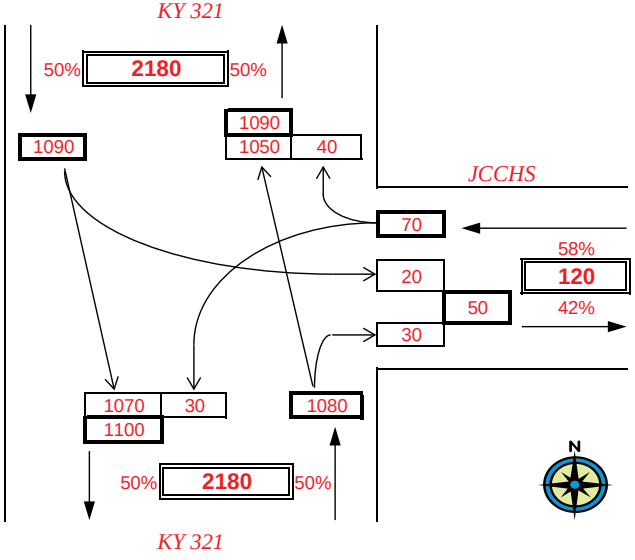
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



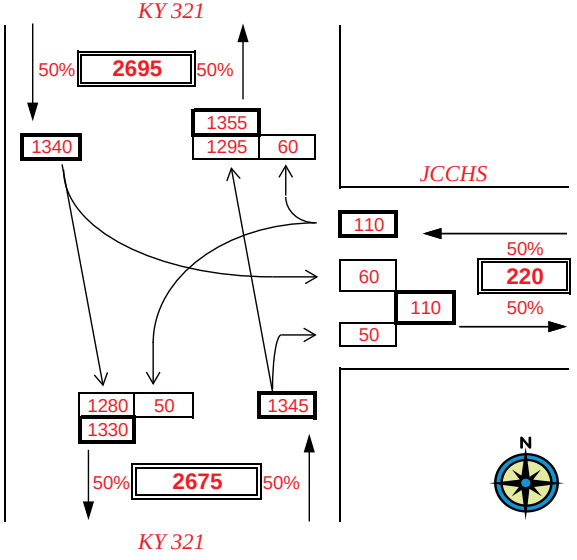
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



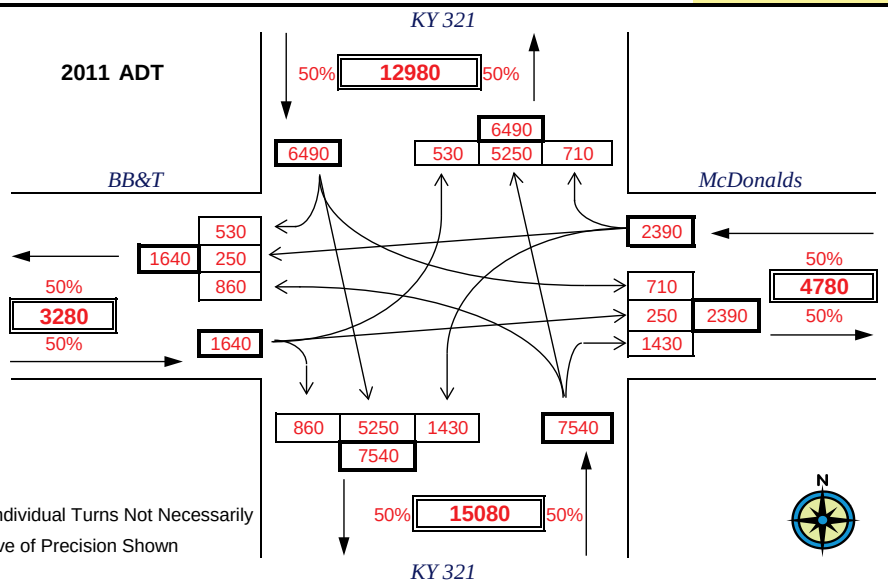
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

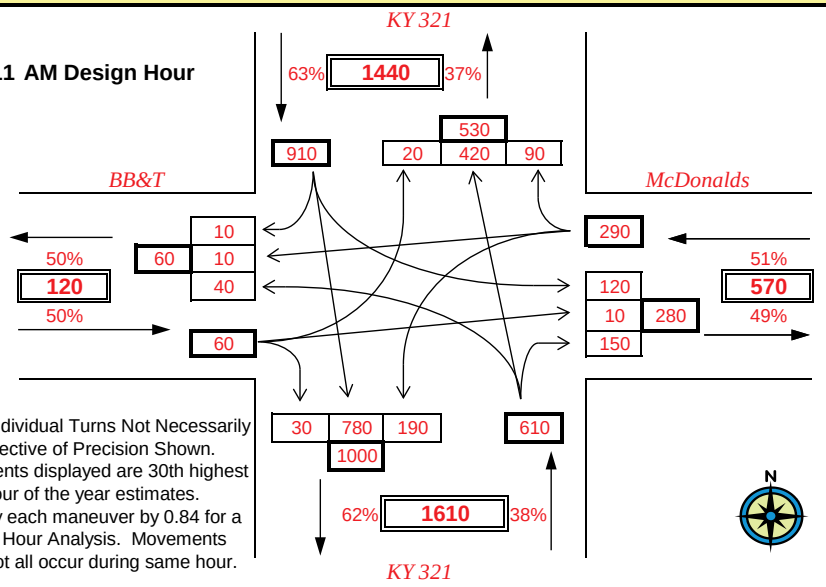
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



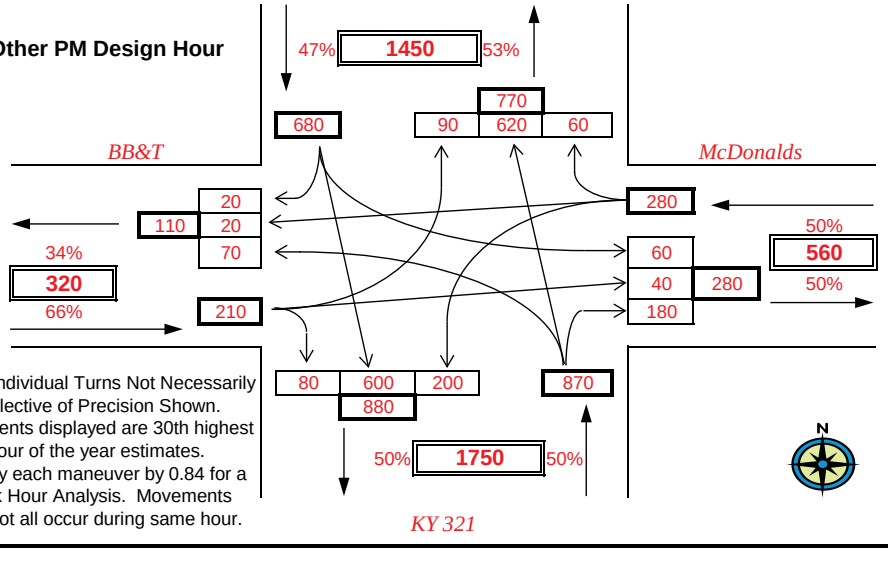
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



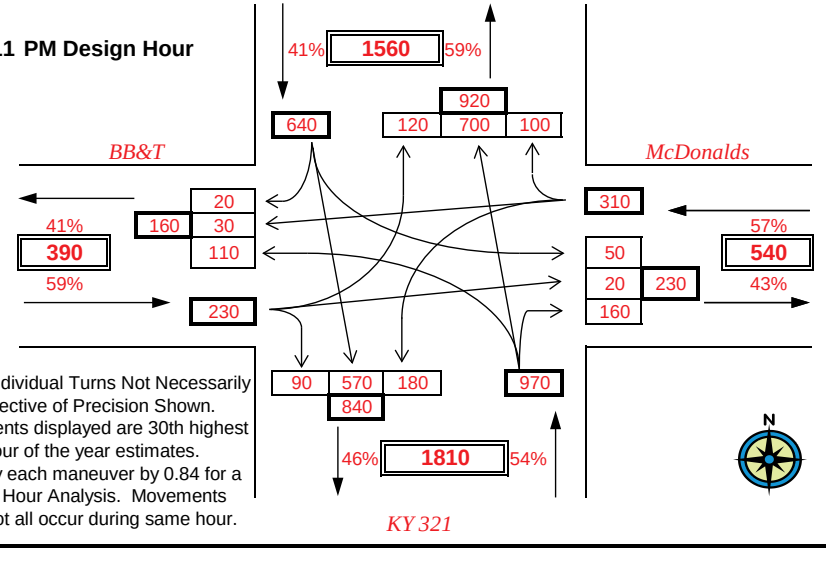
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



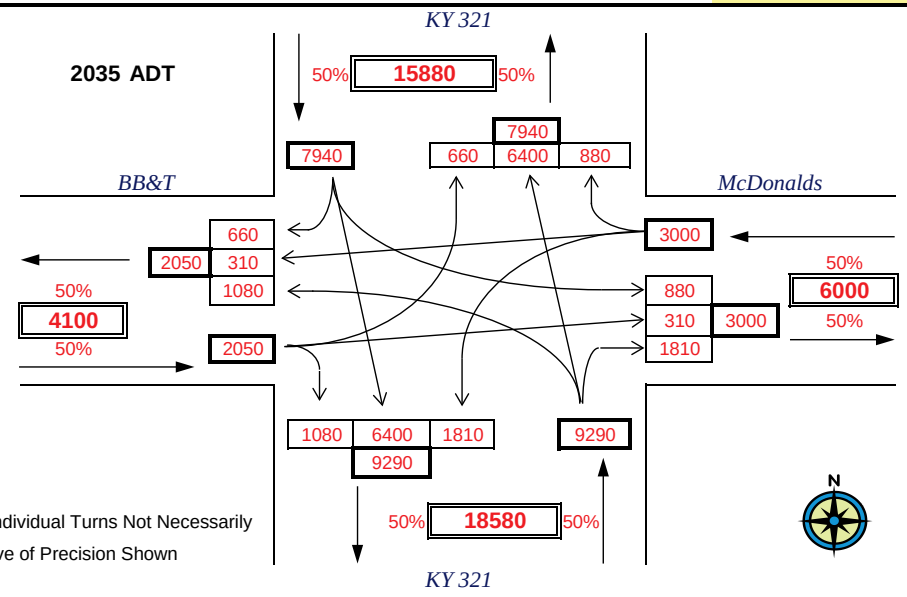
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

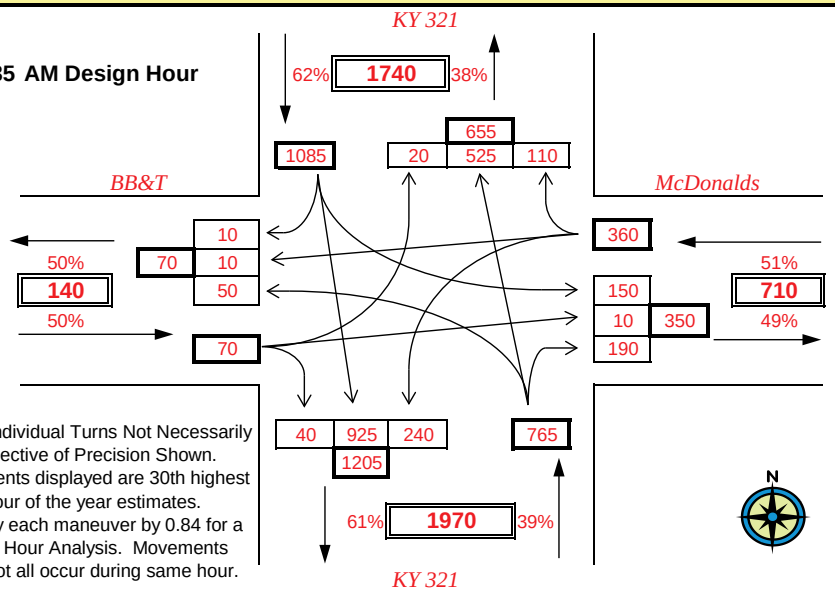
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



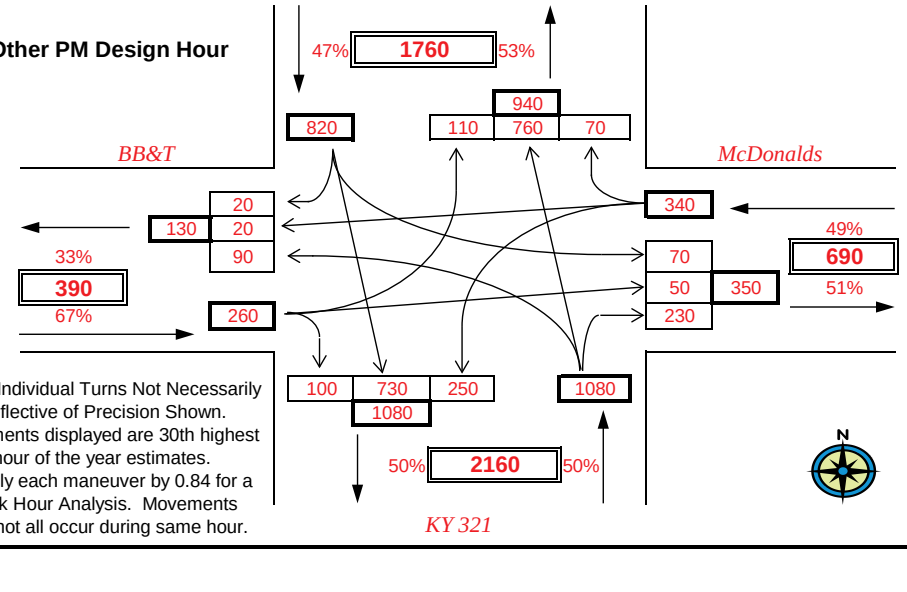
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



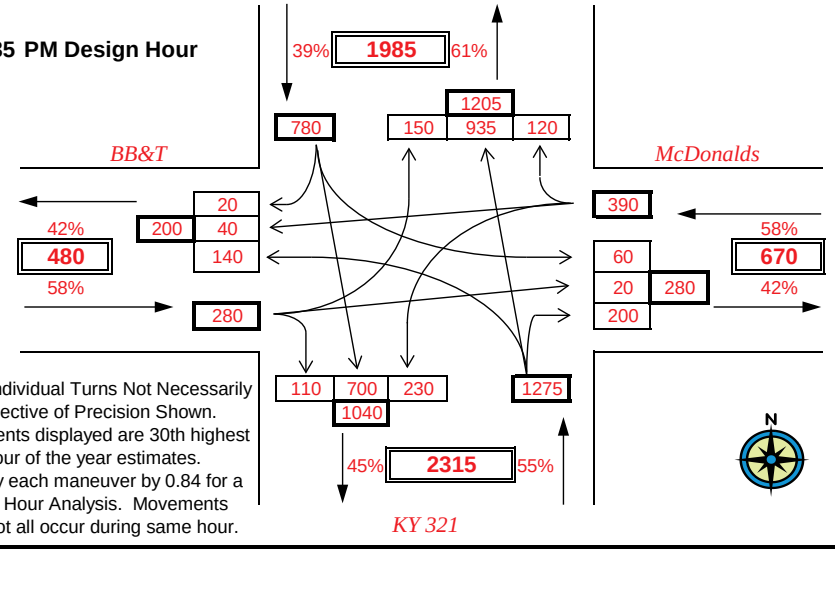
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



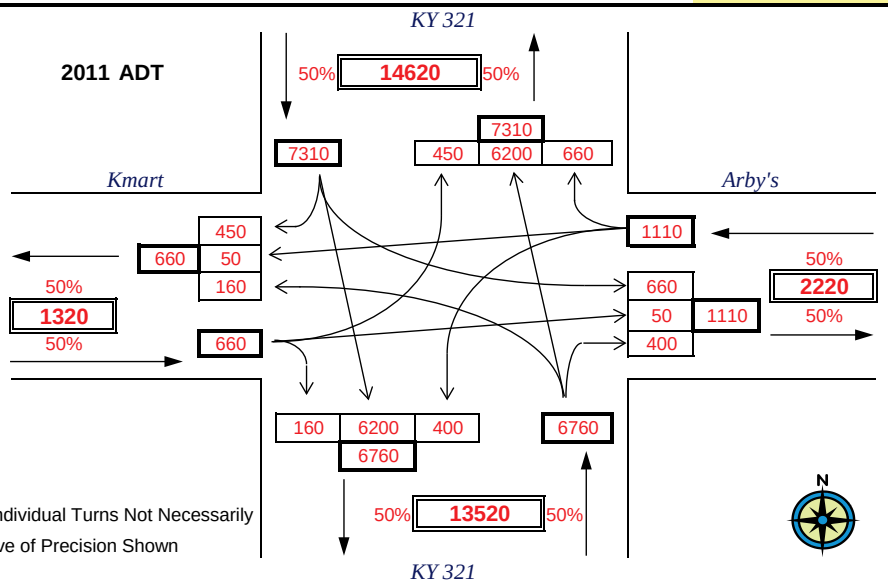
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

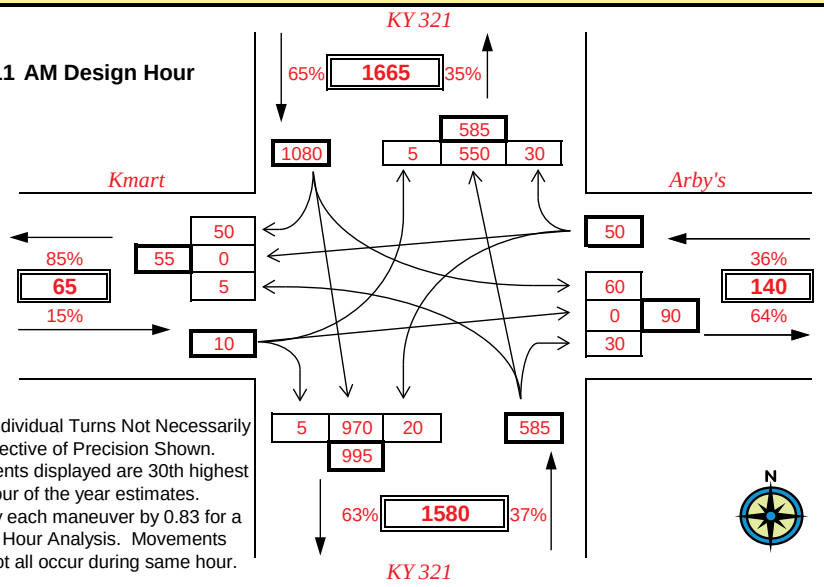
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



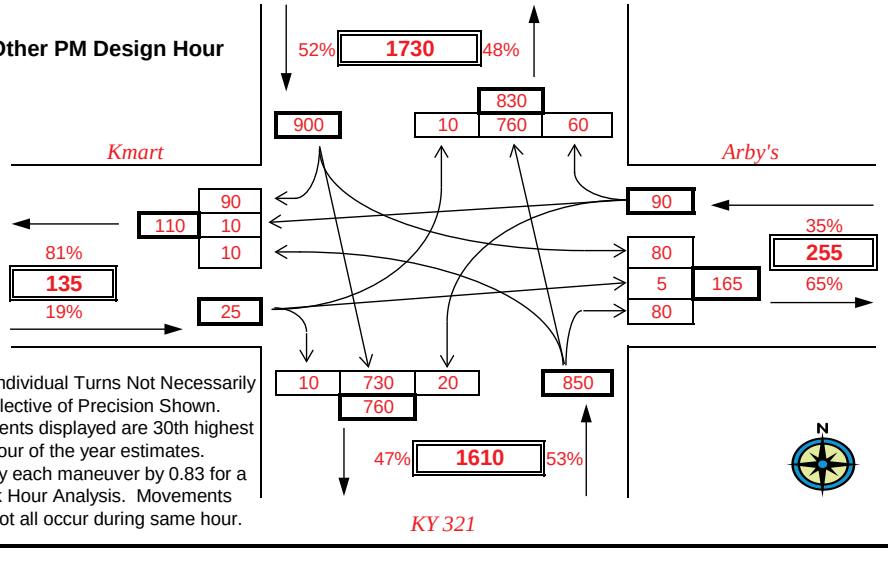
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



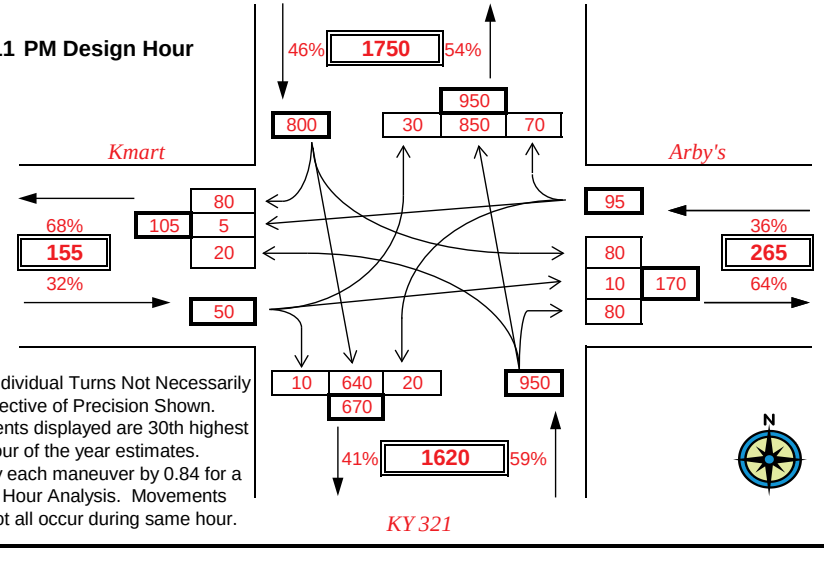
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



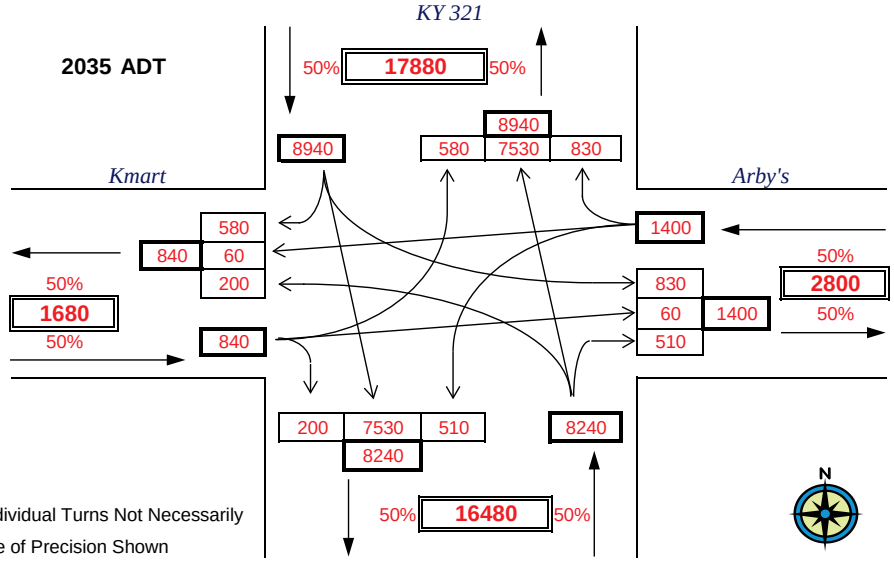
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

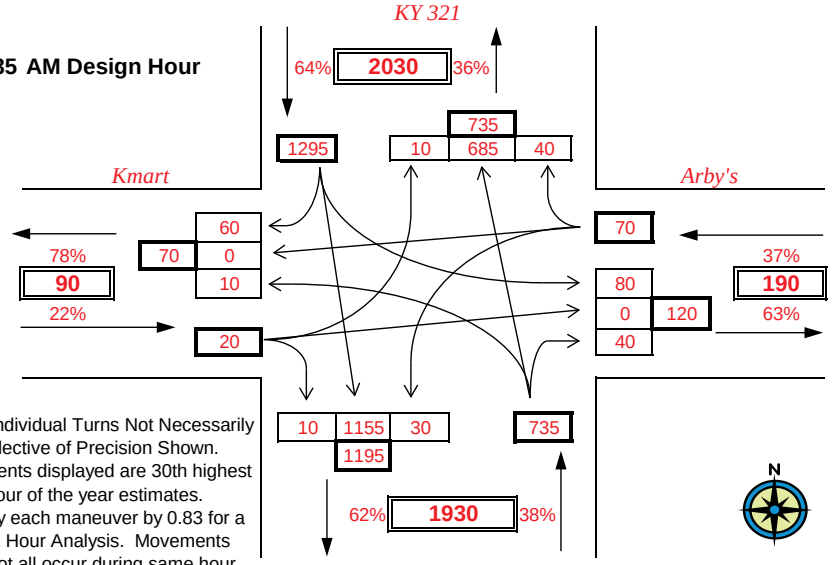
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



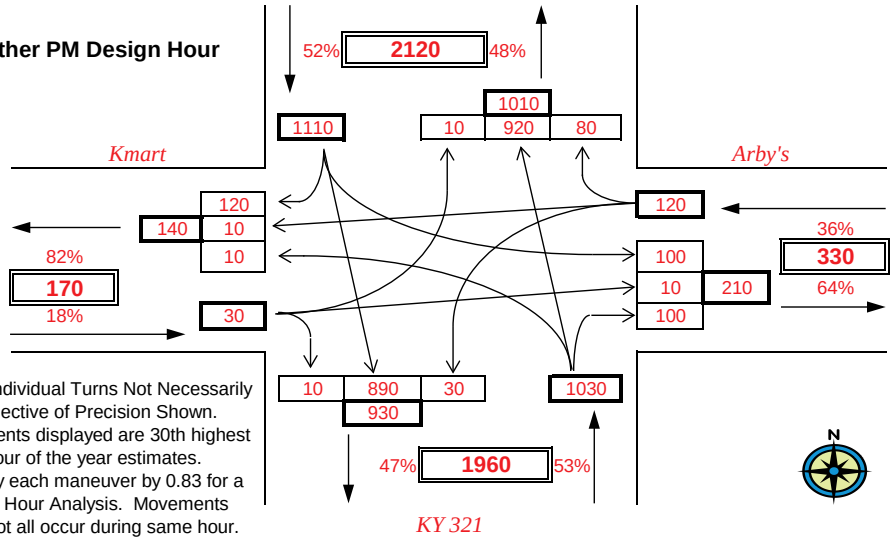
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



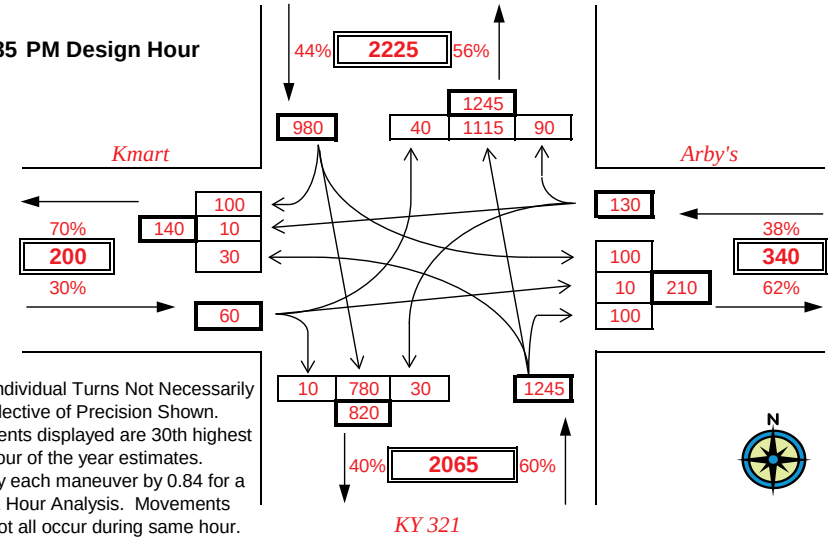
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

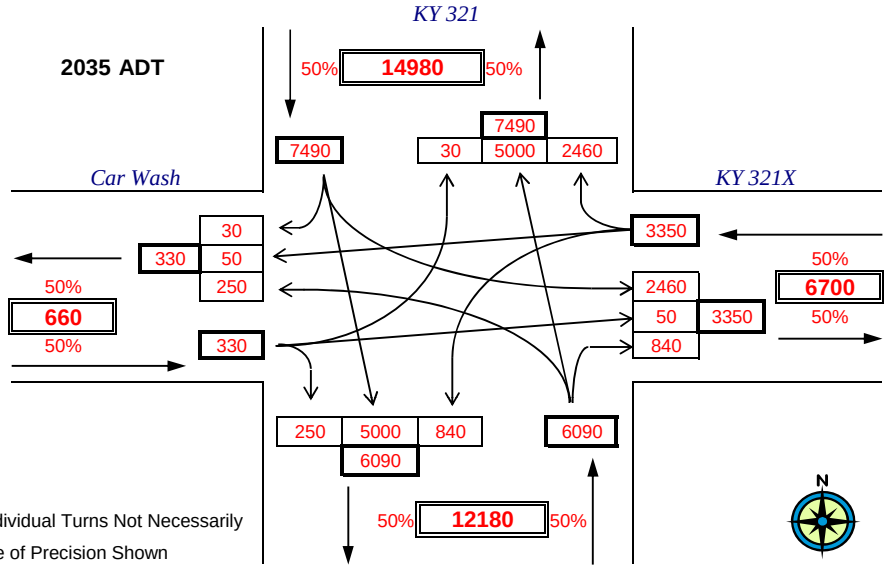
ALTERNATIVE 2A-1

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

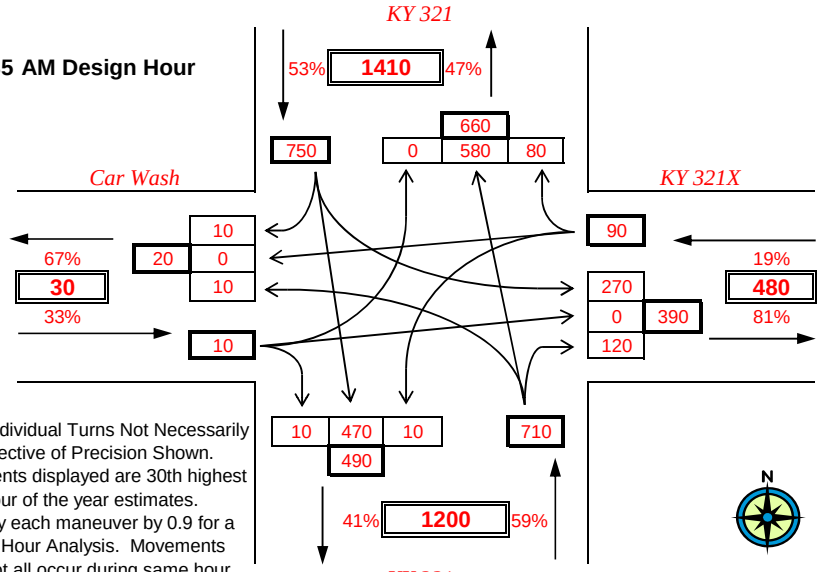
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



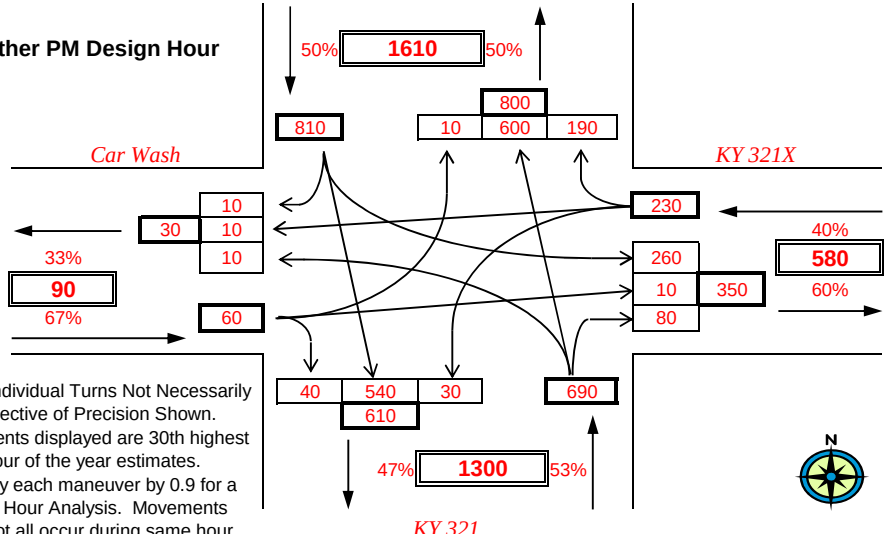
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



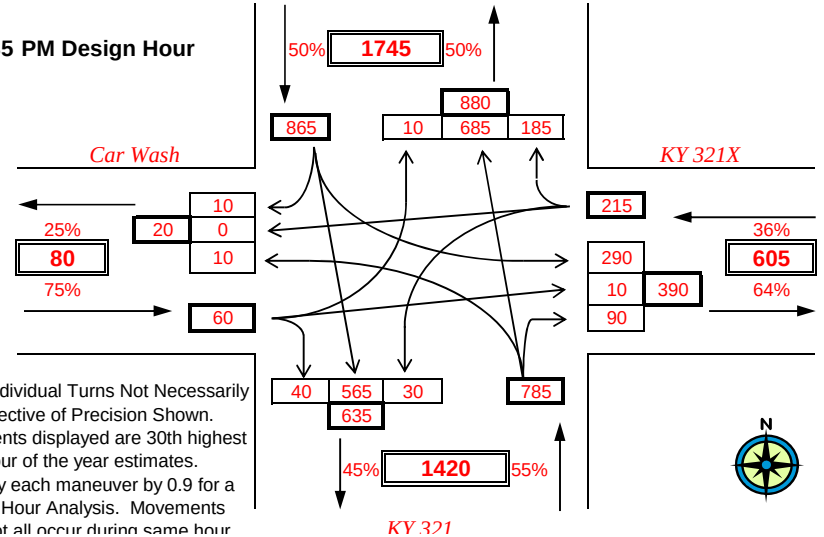
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

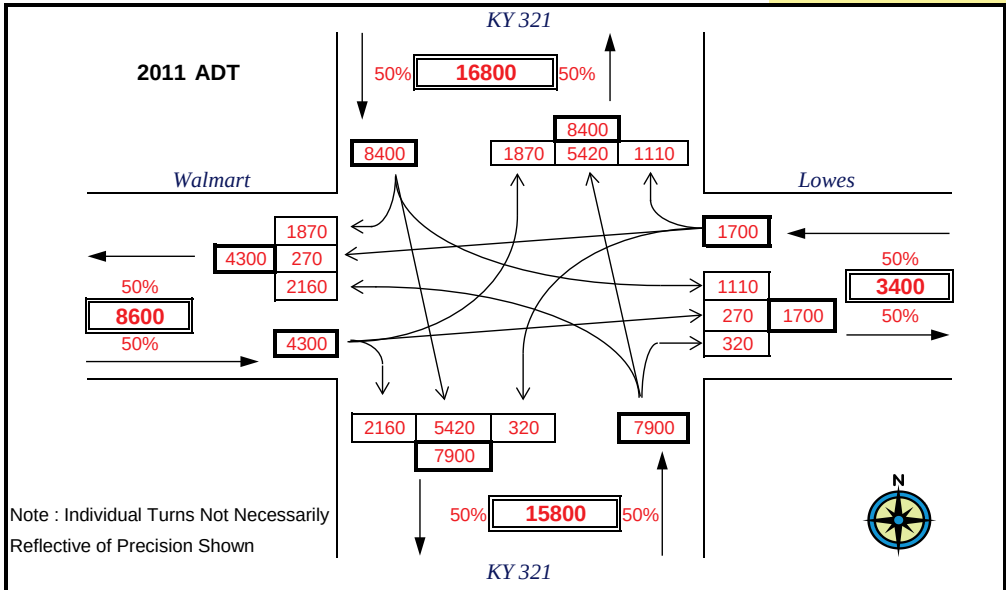


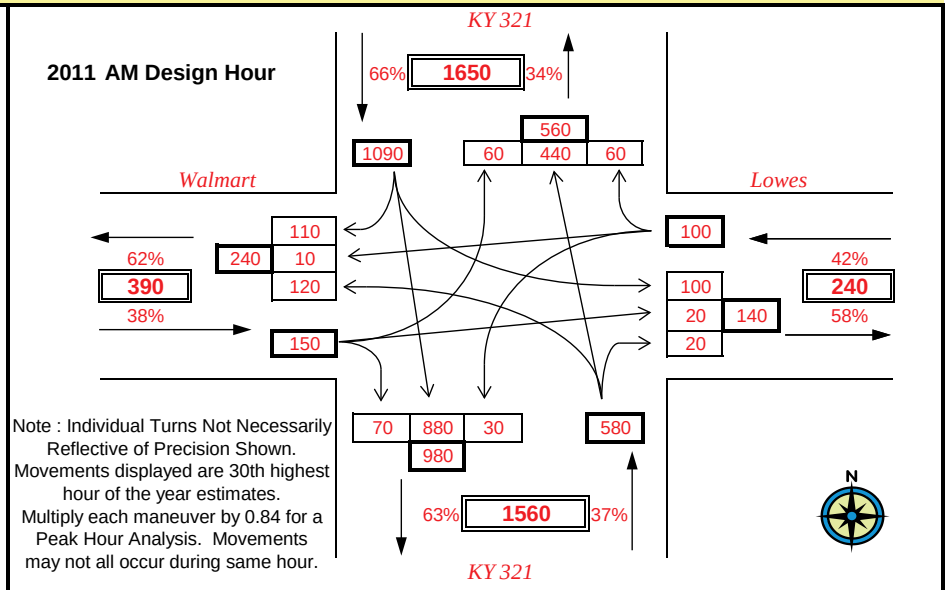
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

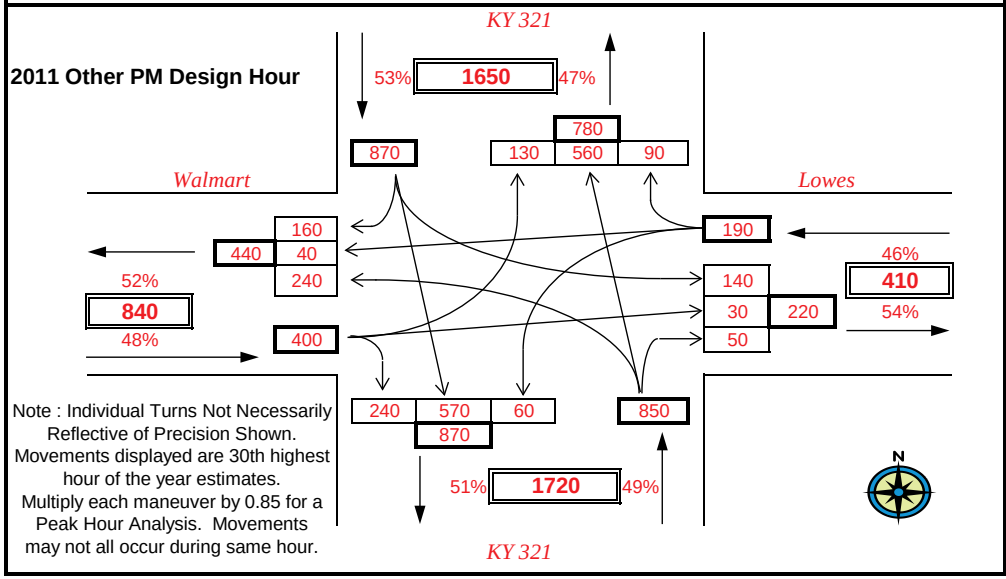
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

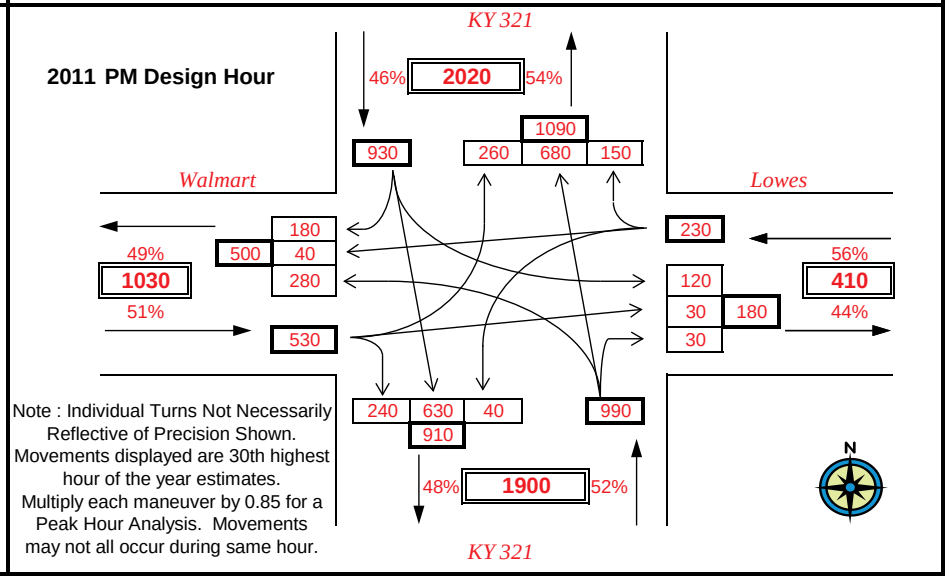
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







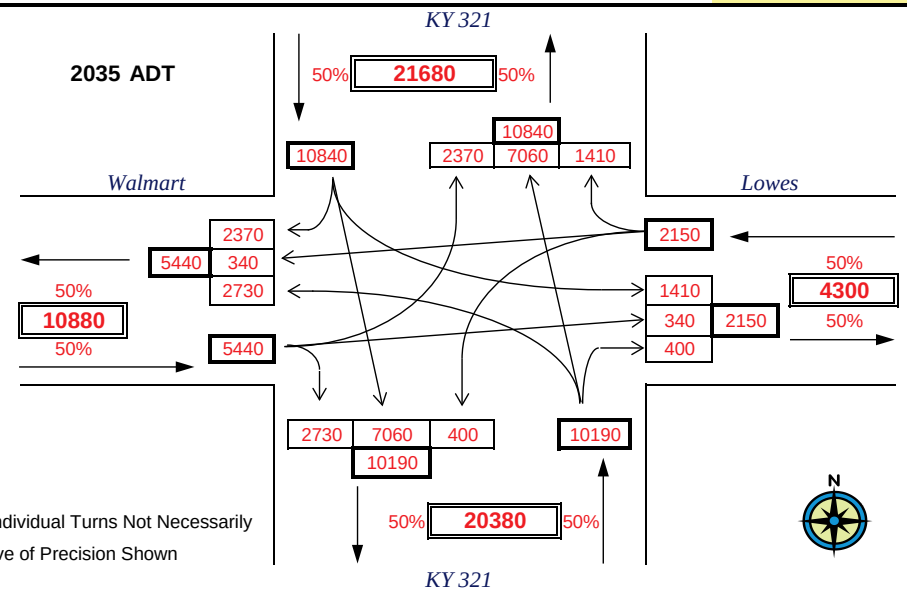


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

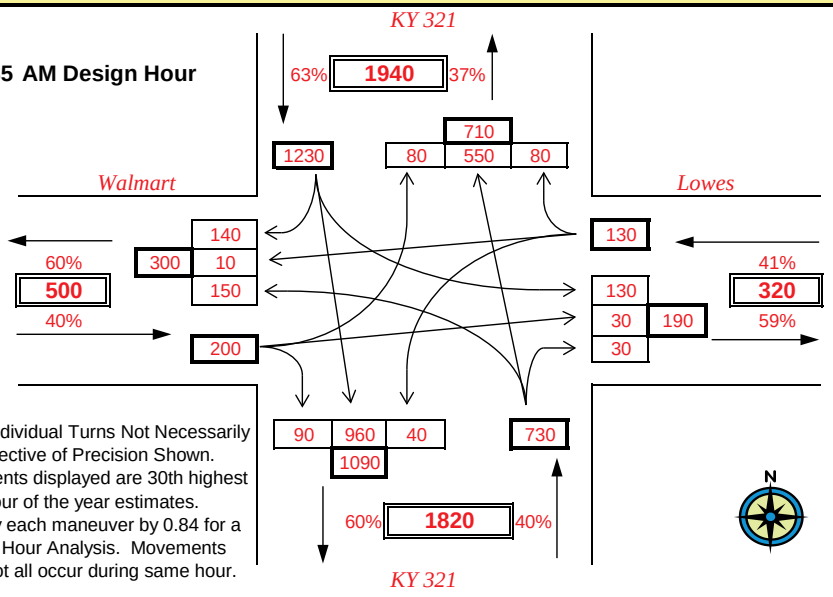
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



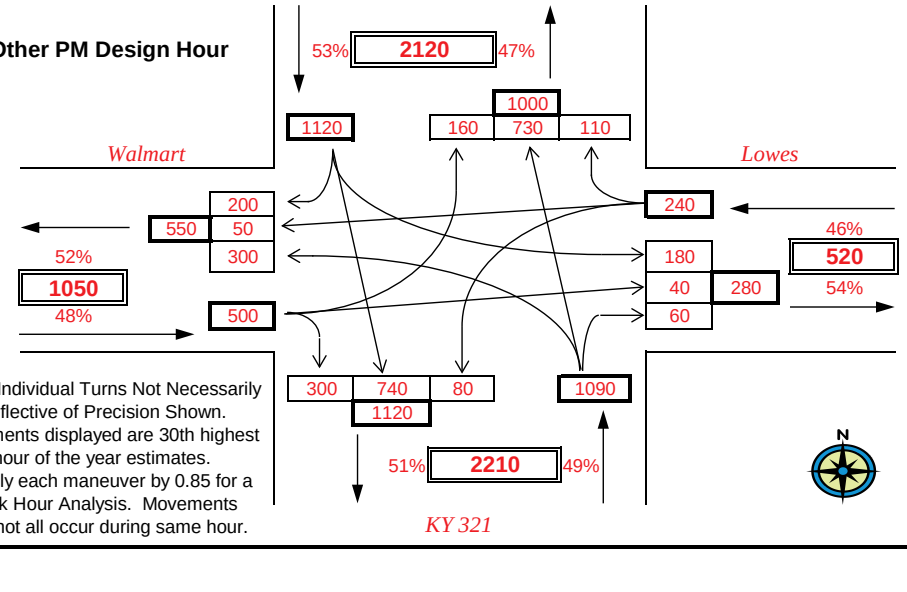
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



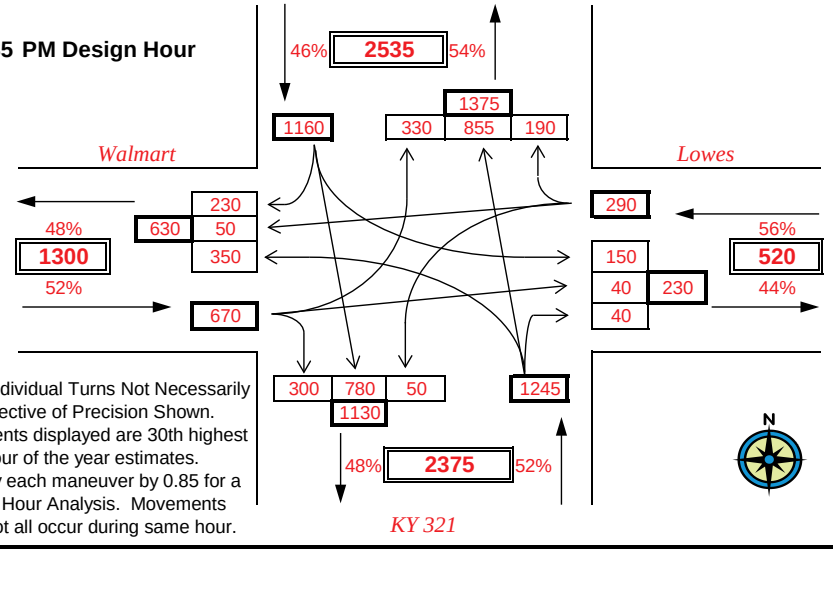
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



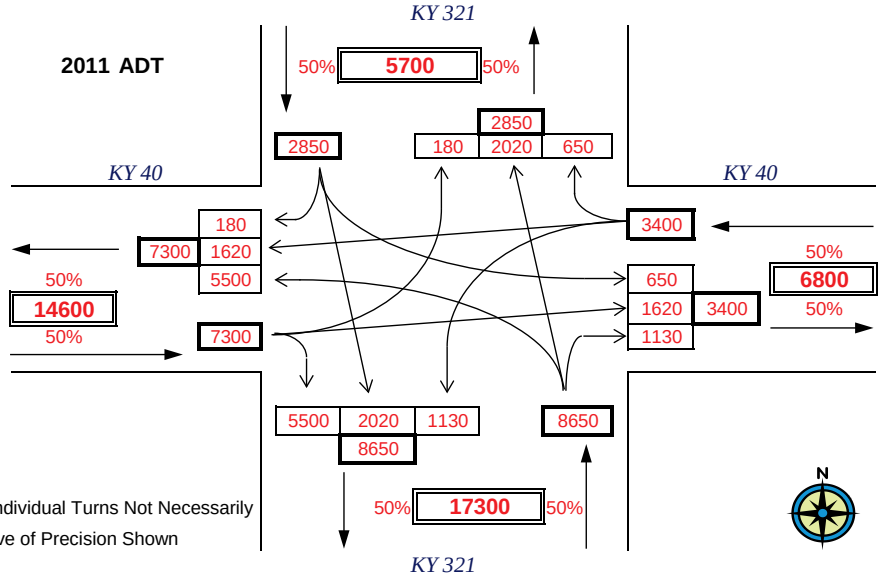
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

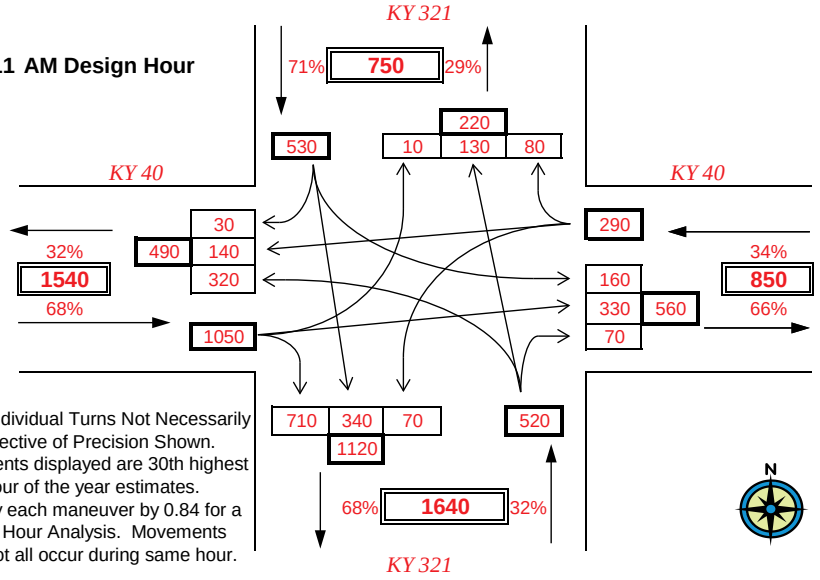
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



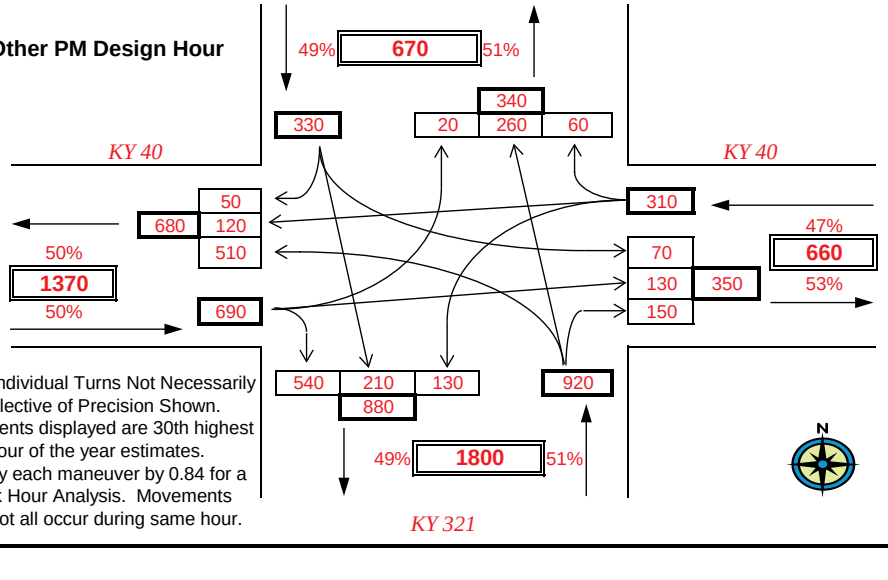
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



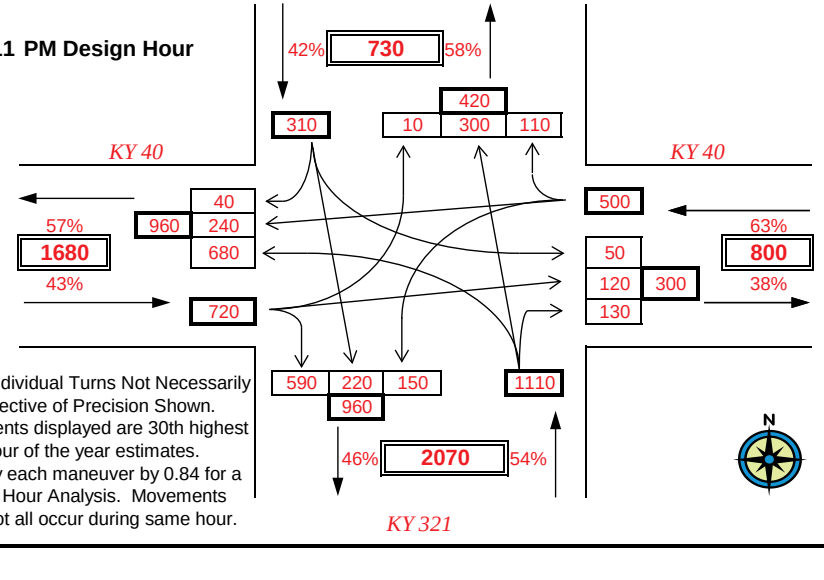
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



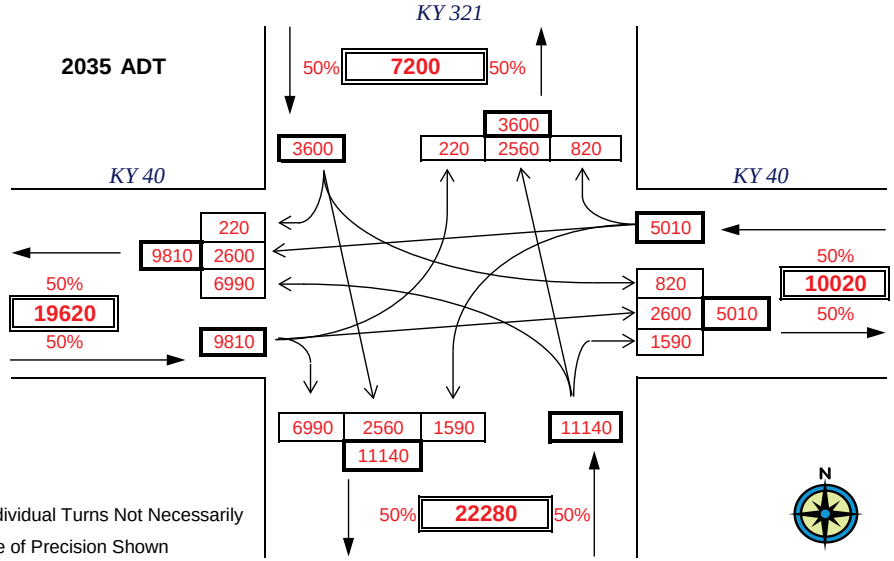
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

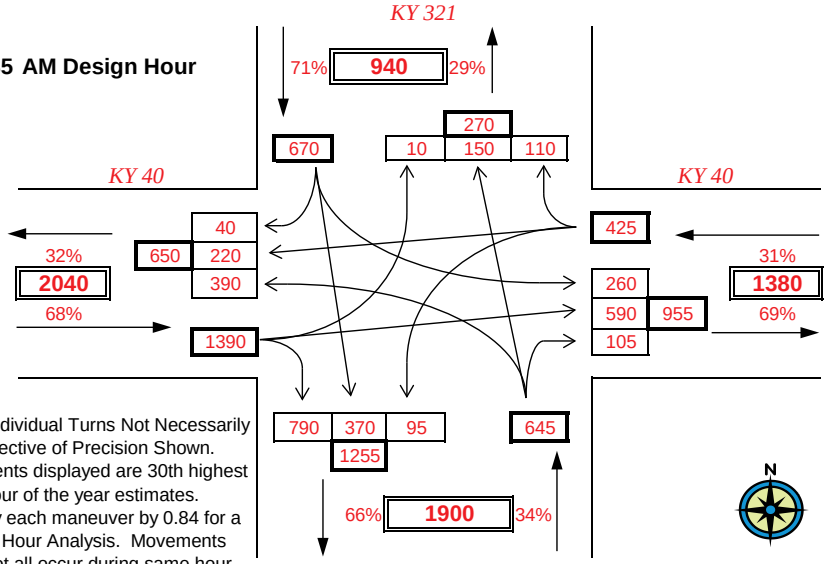
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



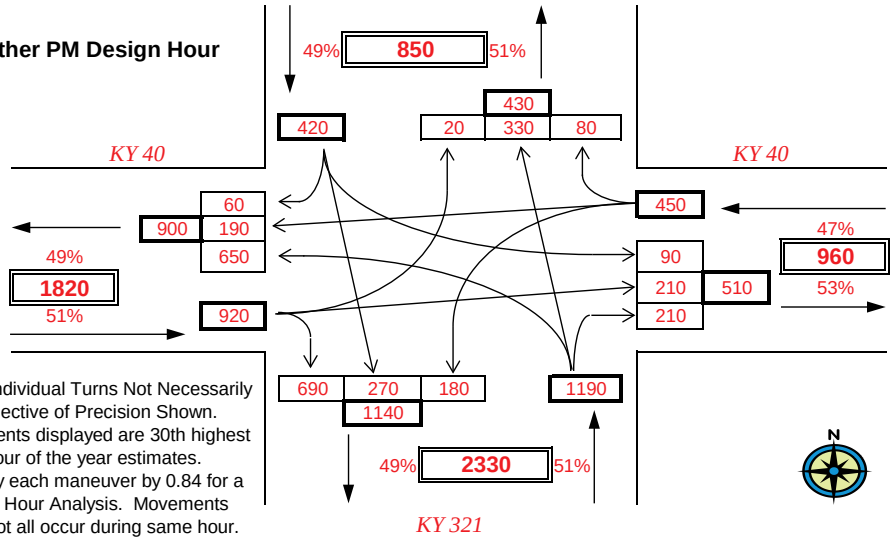
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



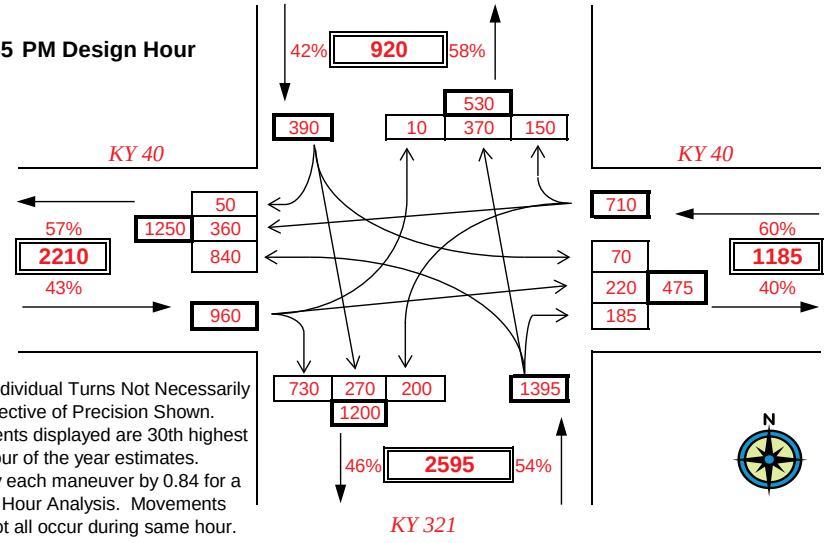
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



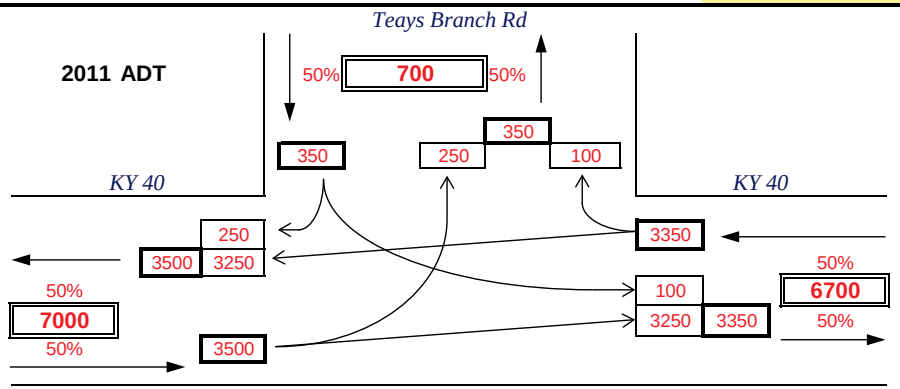
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

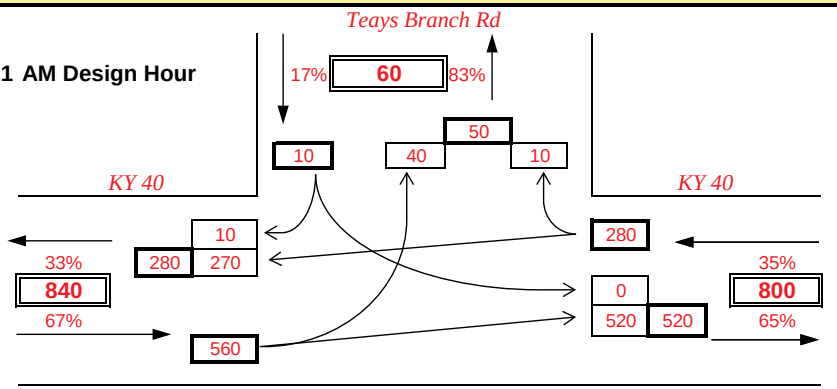
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



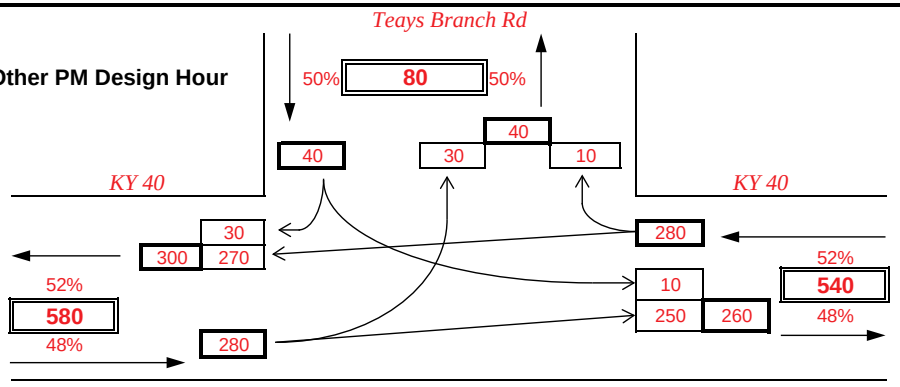
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



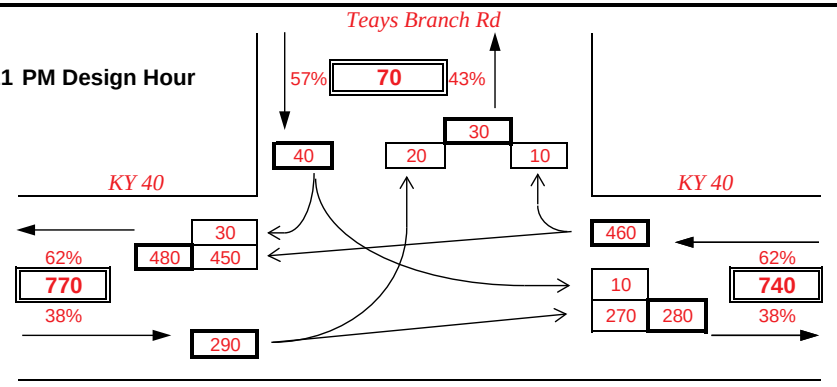
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



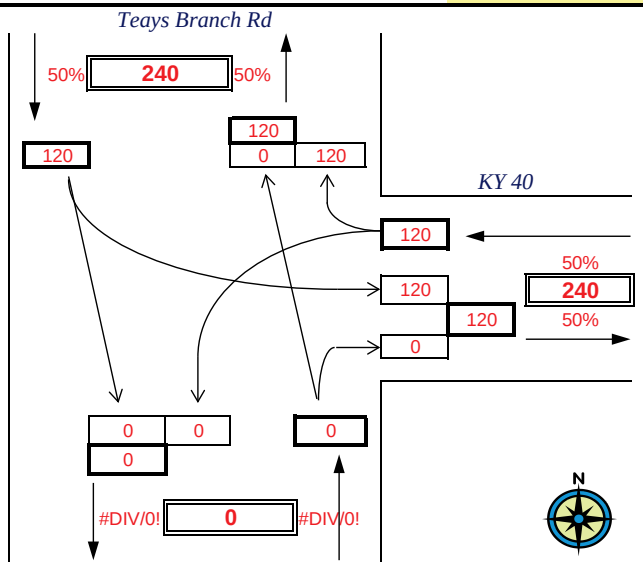
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: US 68 Widen Turn Lanes
ITEM NUMBER: 1-117.00
MARS NUMBER: 8072601D
REQUEST DATE: 9/4/2007
ANALYST: D. Hamilton
SCENARIO: **2030 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

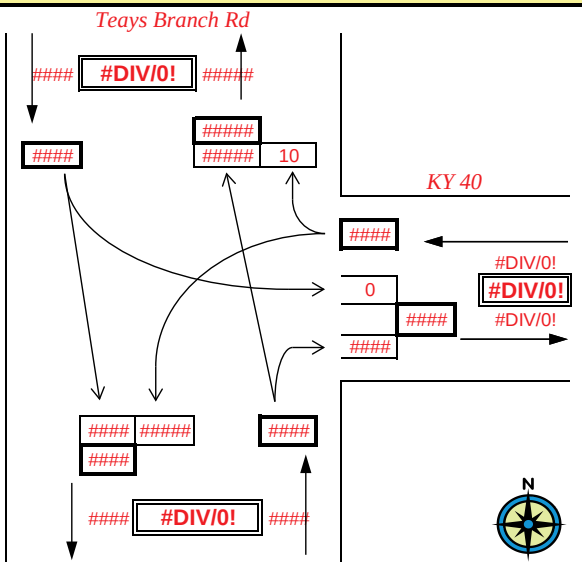
2030 ADT



Note : Individual Turns Not Necessarily Reflective of Precision Shown

0

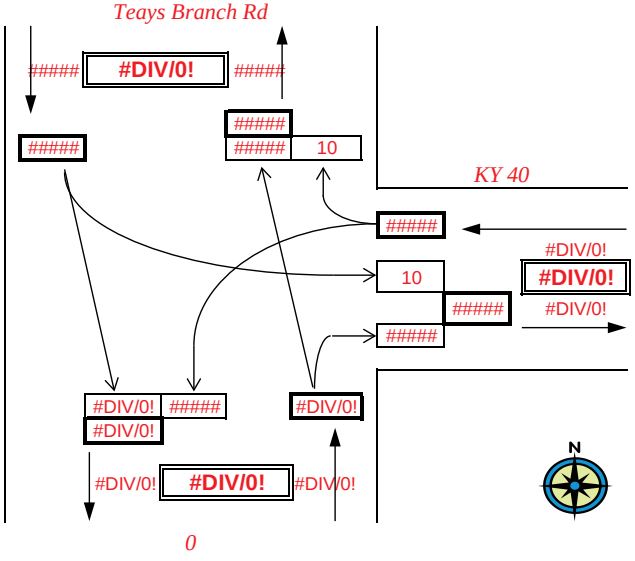
2030 AM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

0

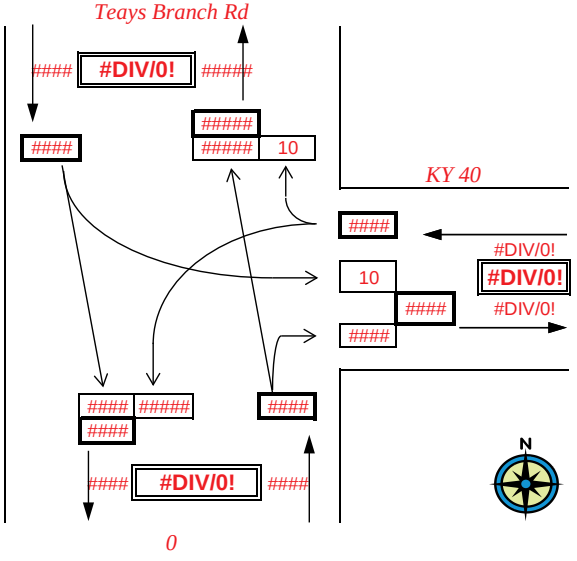
2030 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

0

2030 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

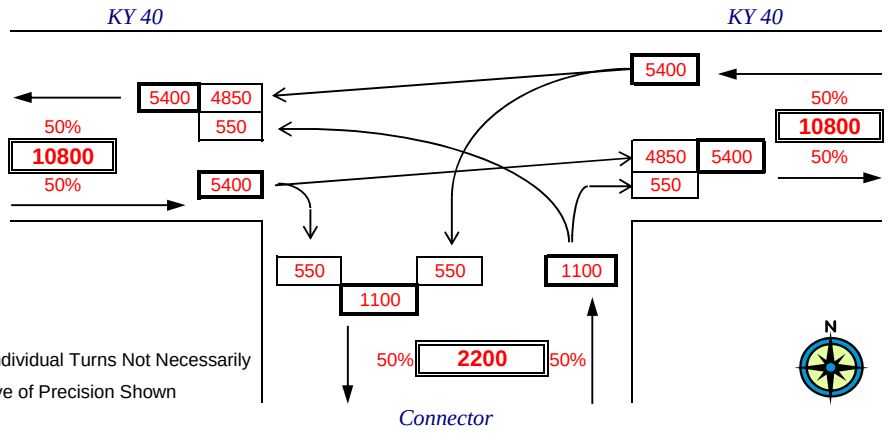
0

PROJECT: KY 321
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & Connector Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

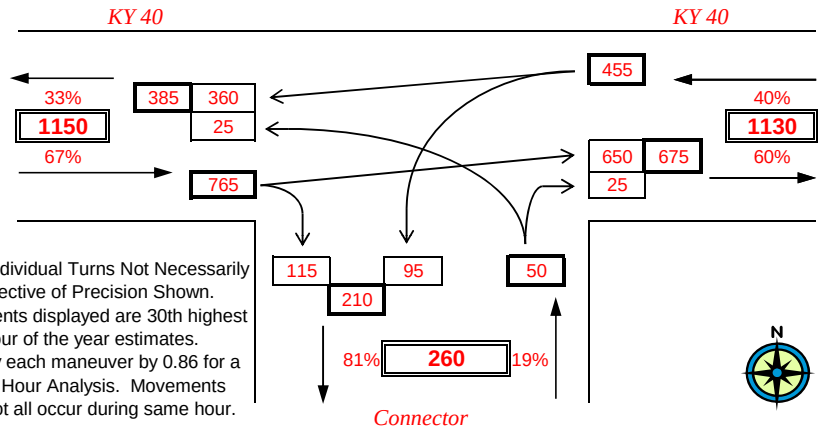
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



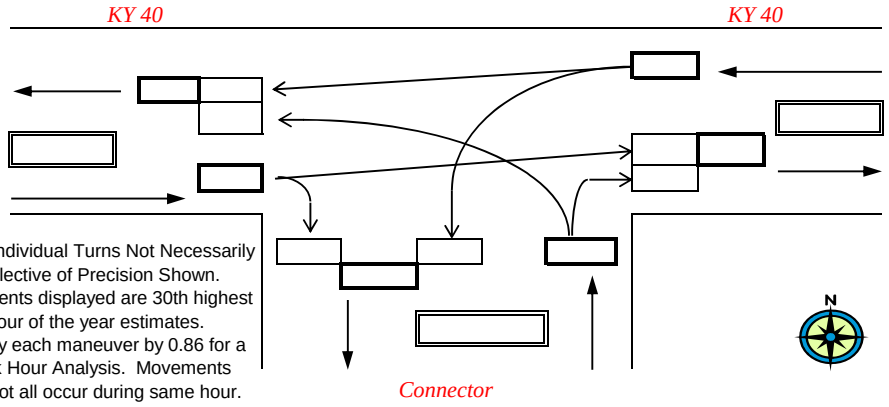
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



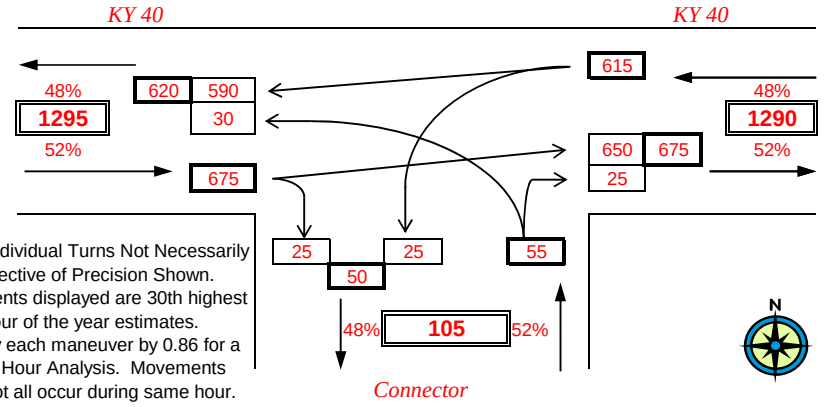
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



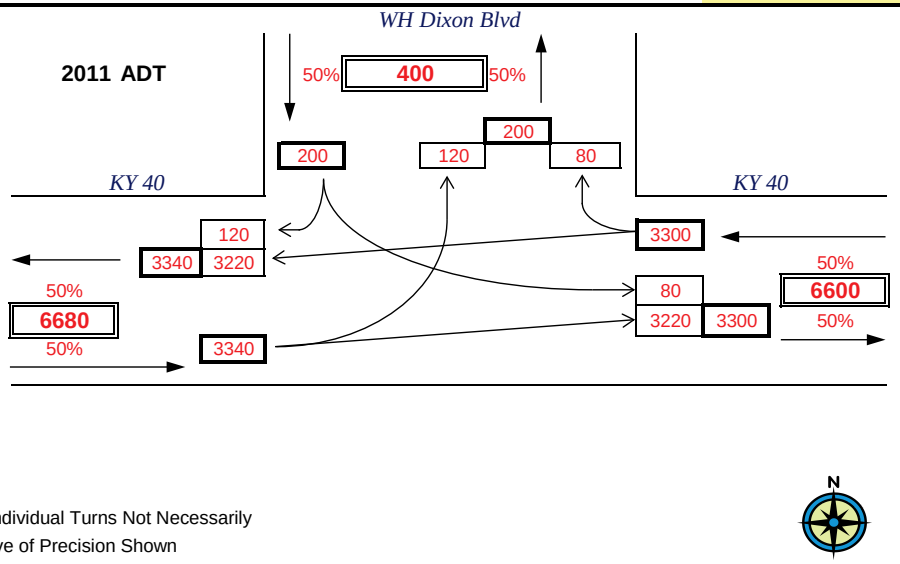
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

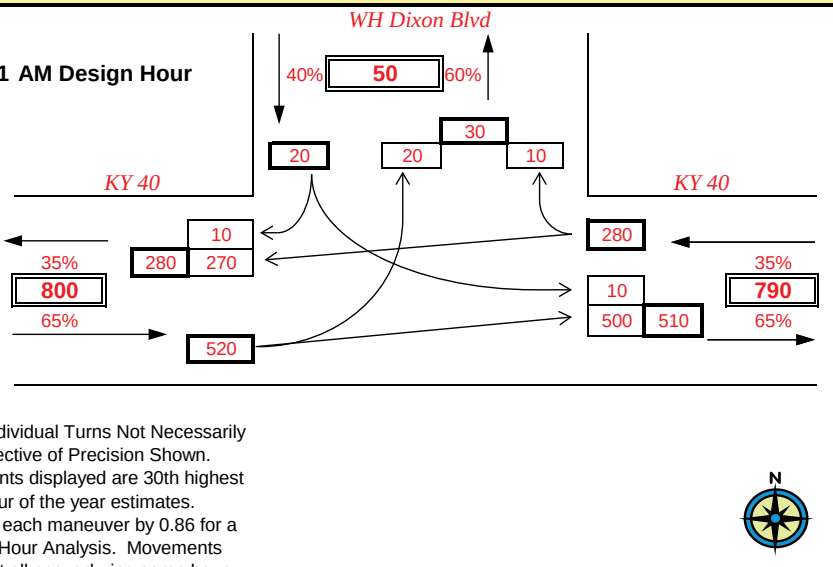
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



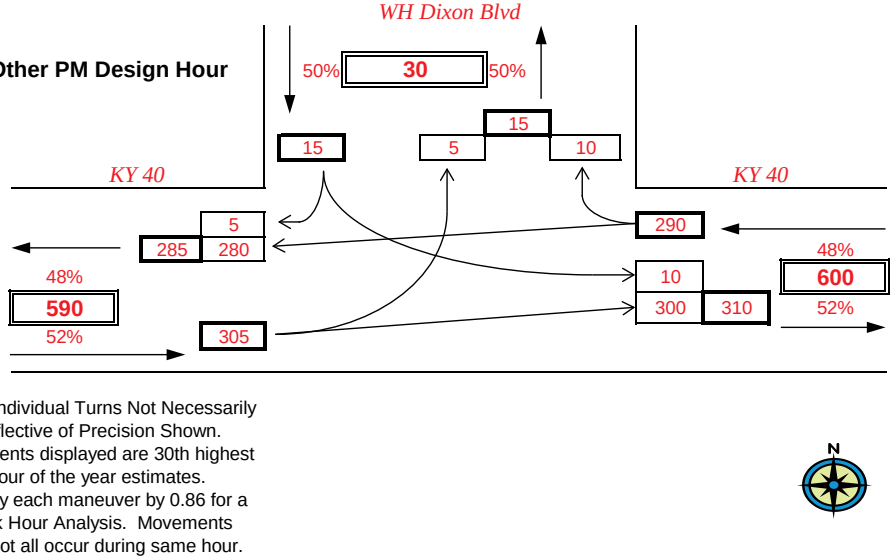
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



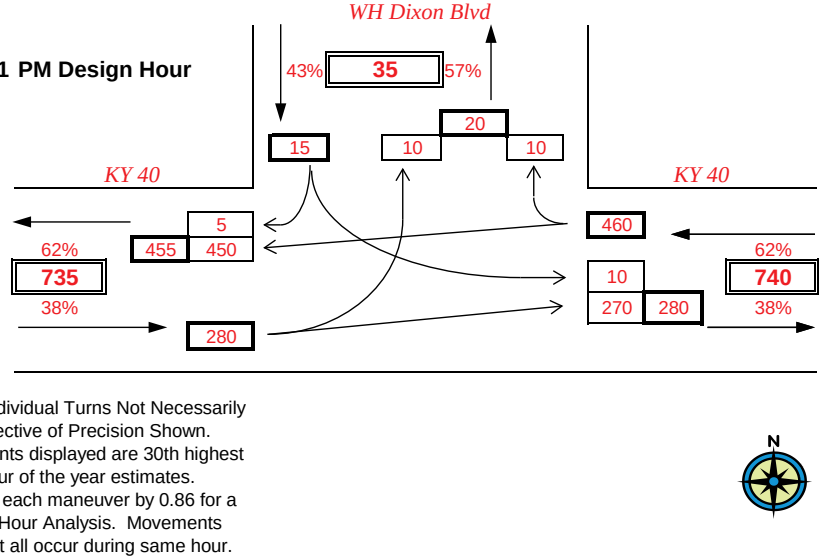
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



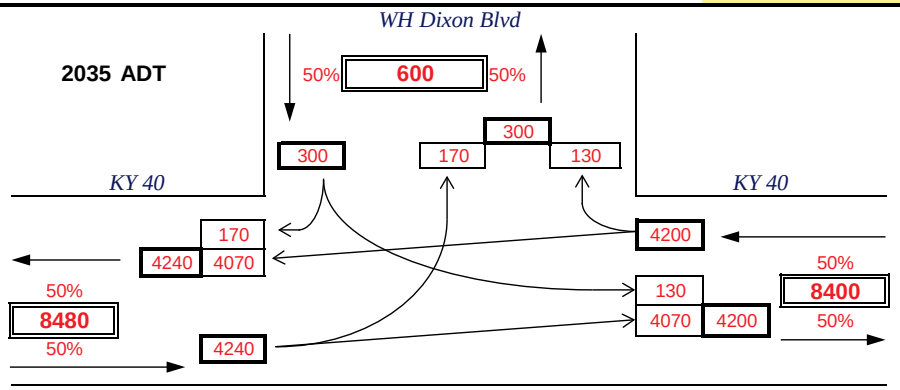
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

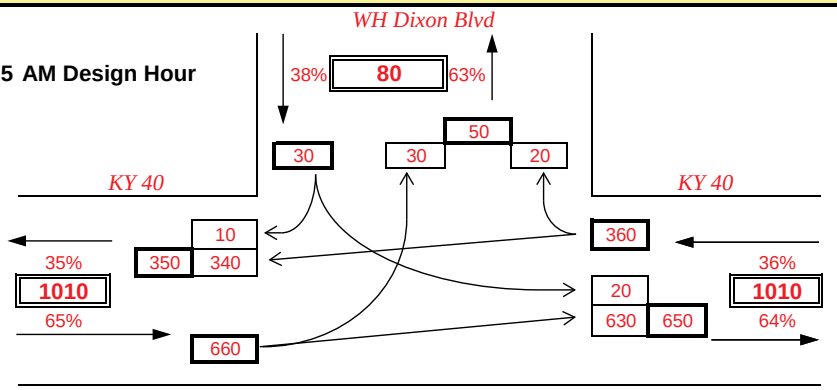
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



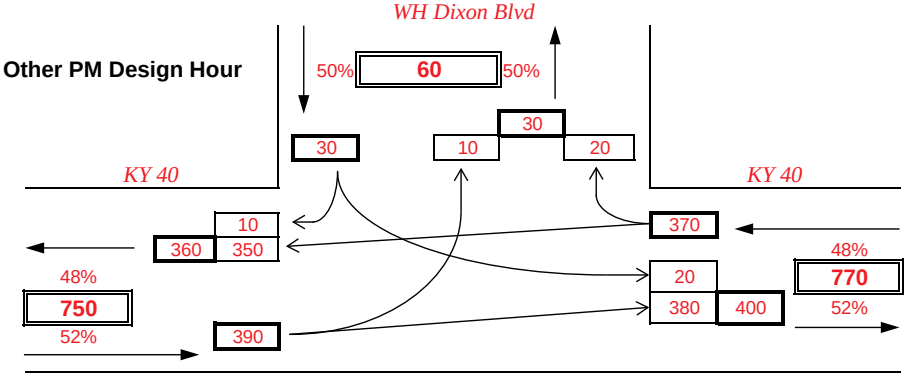
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



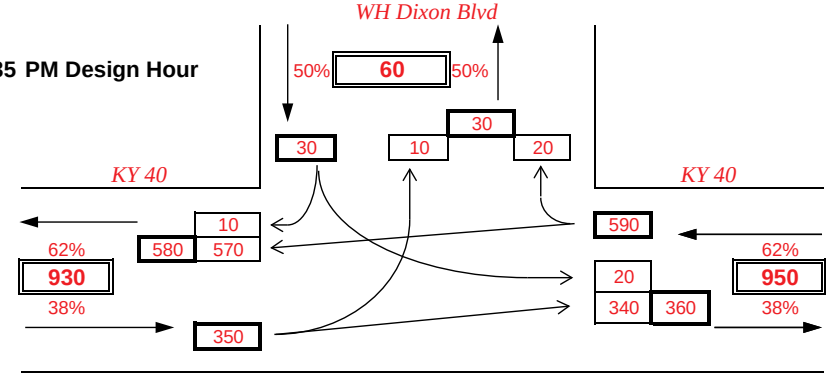
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



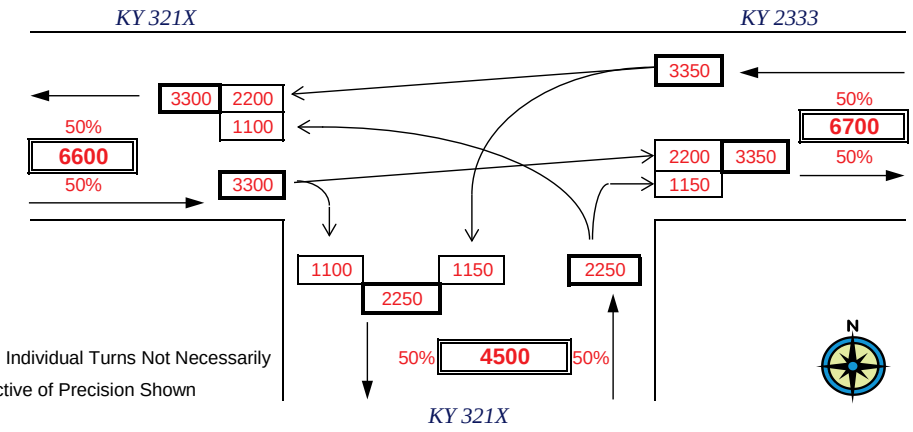
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

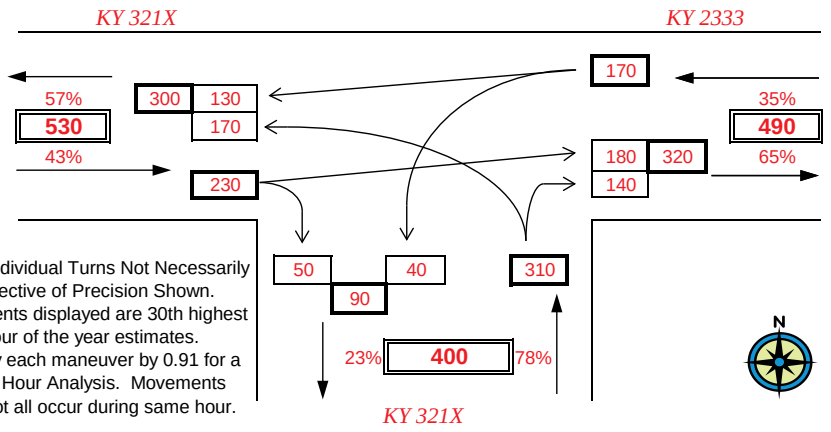
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



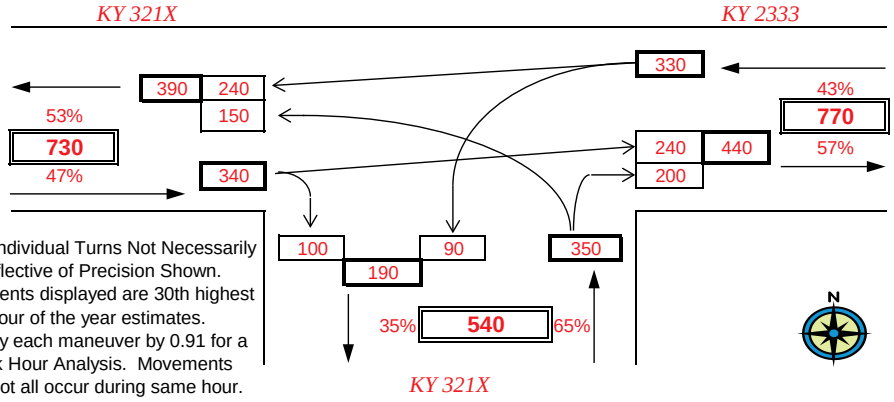
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



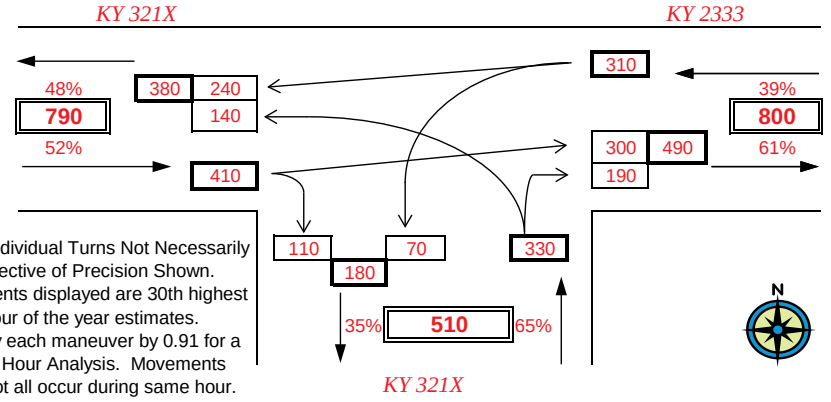
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



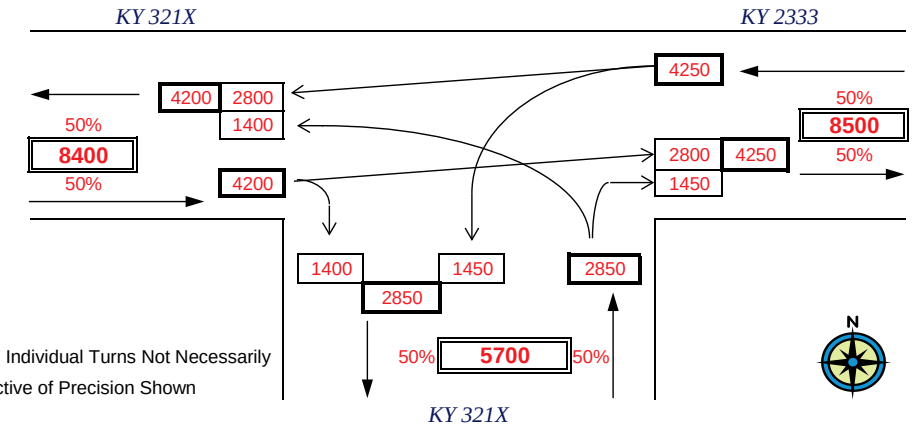
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

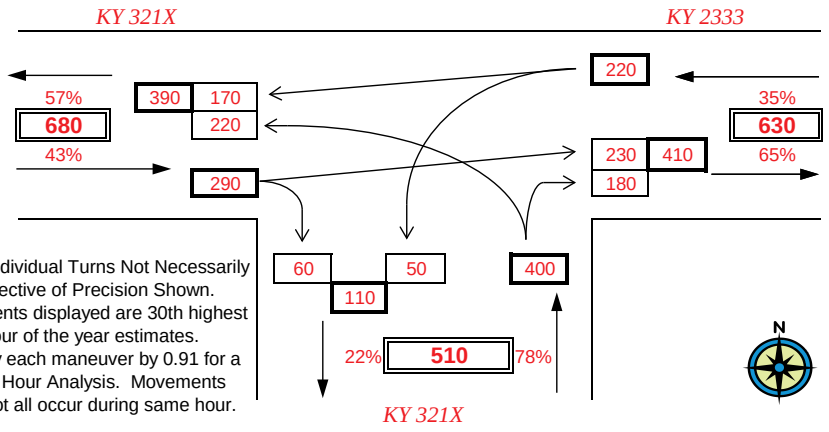
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



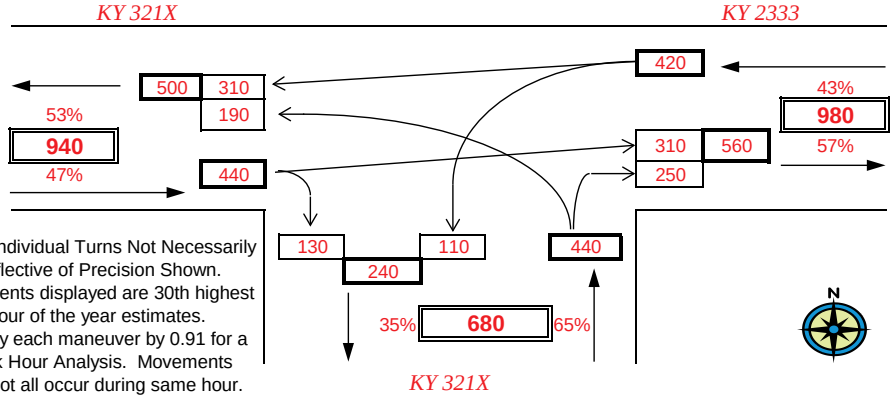
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



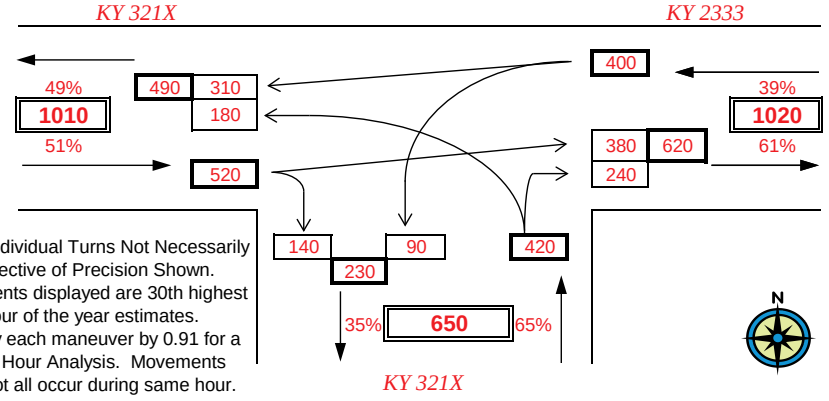
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



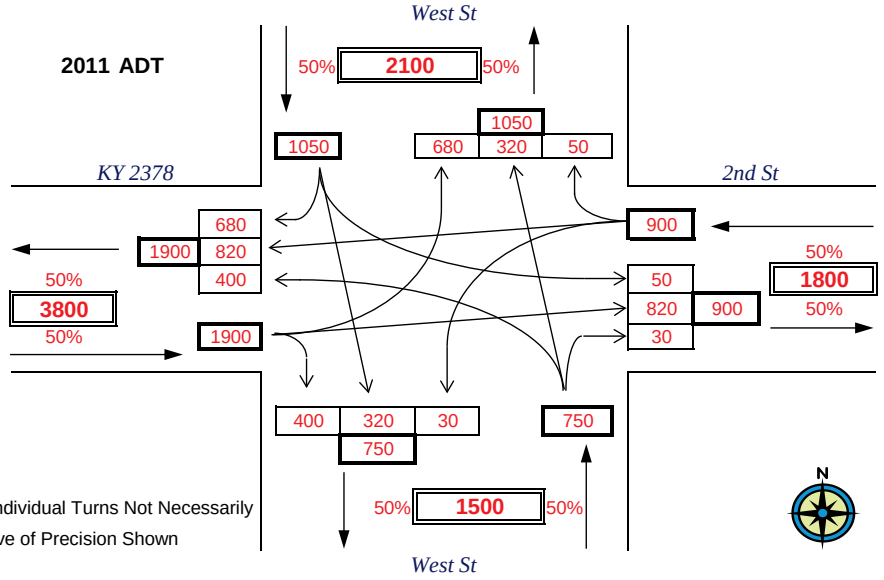
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

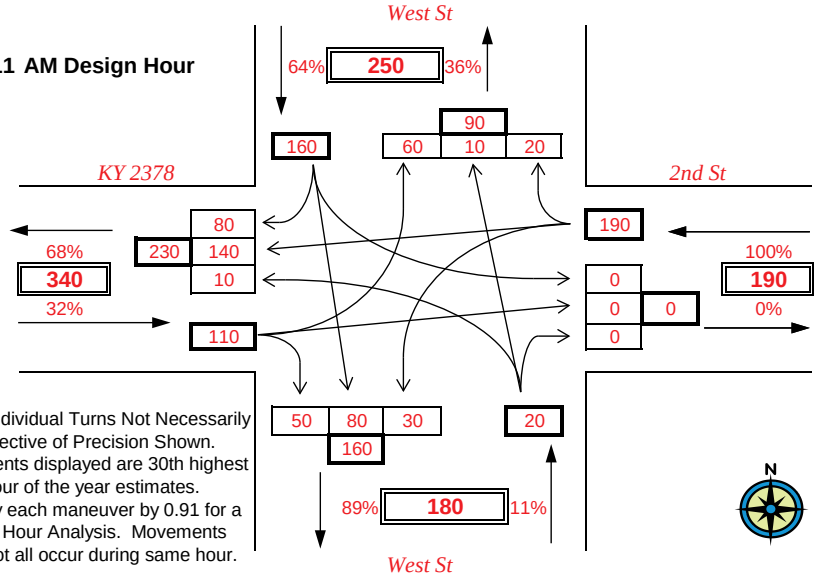
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



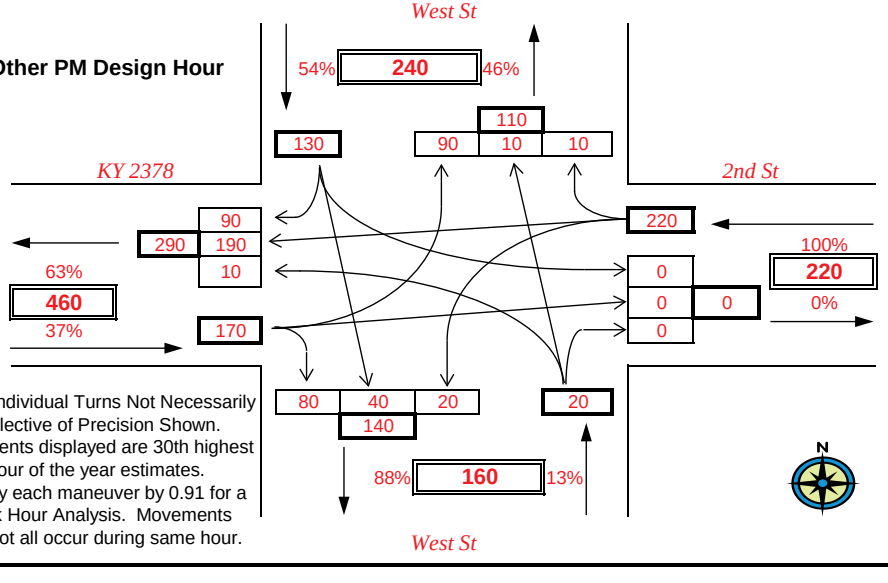
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



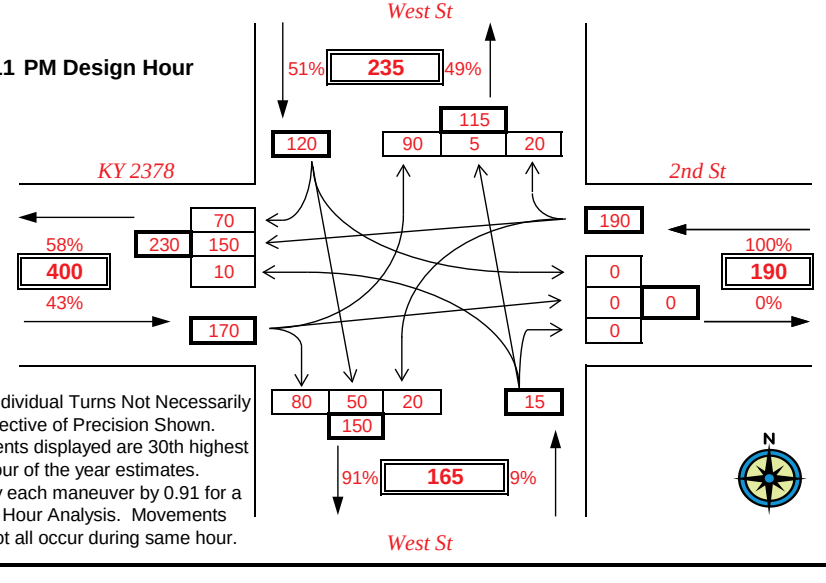
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



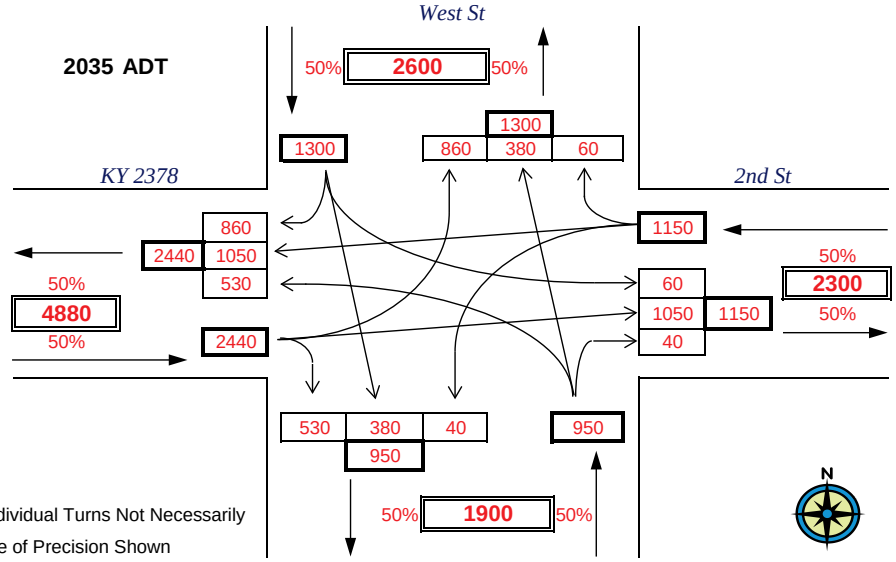
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

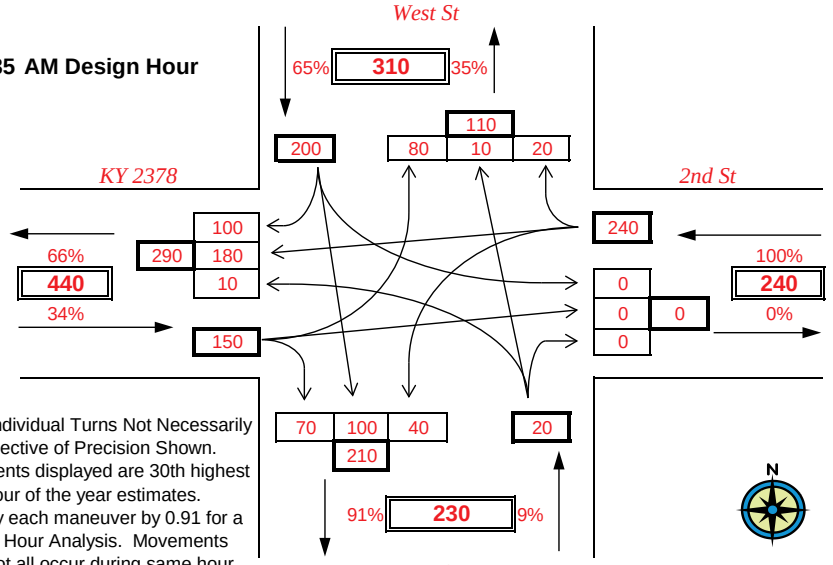
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



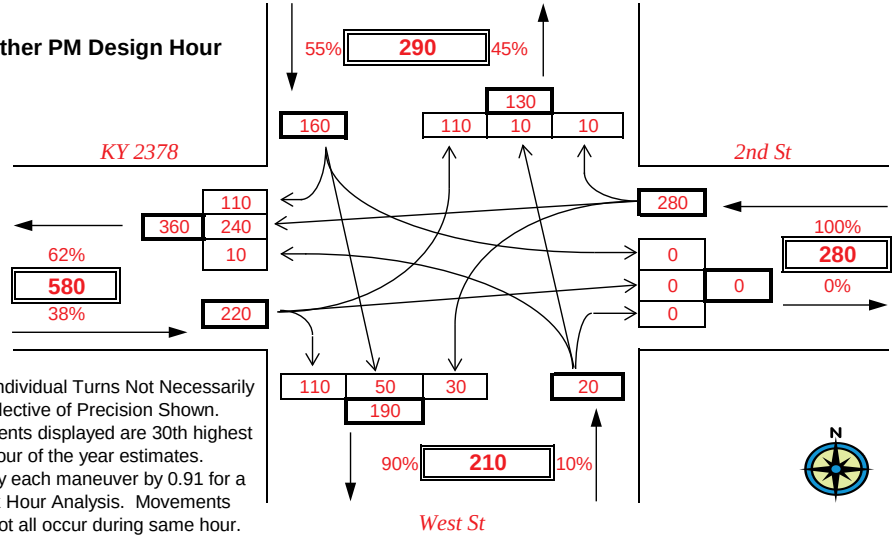
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



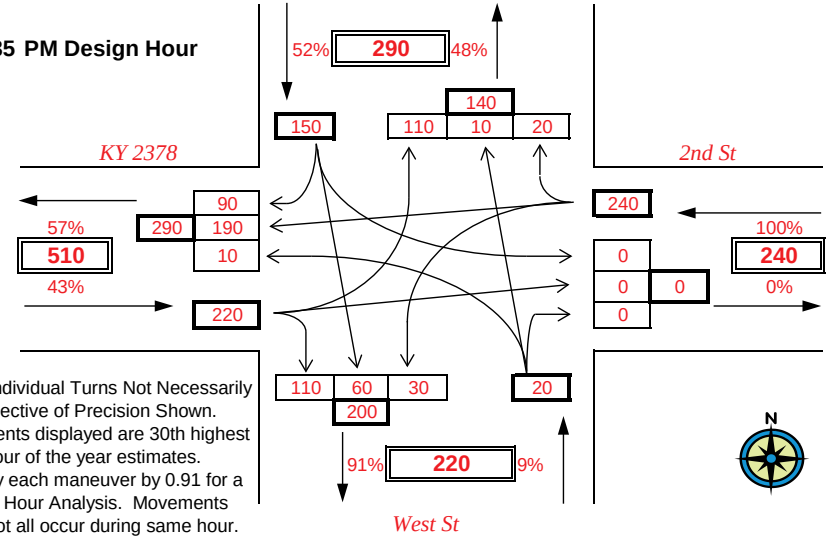
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



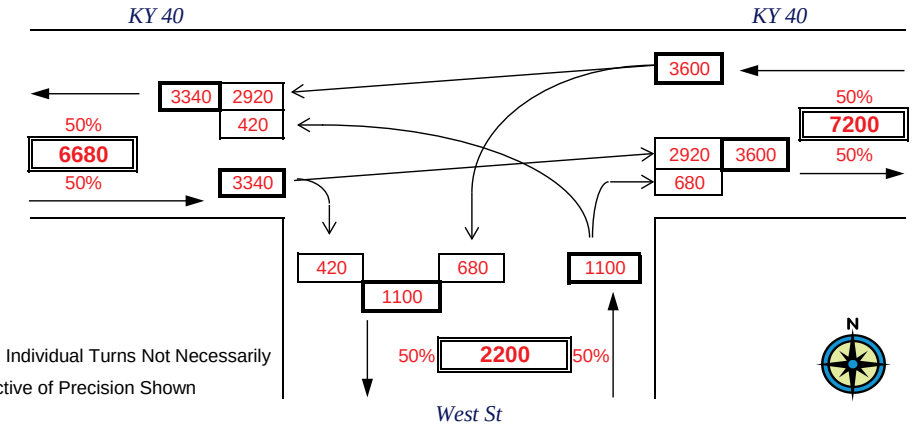
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

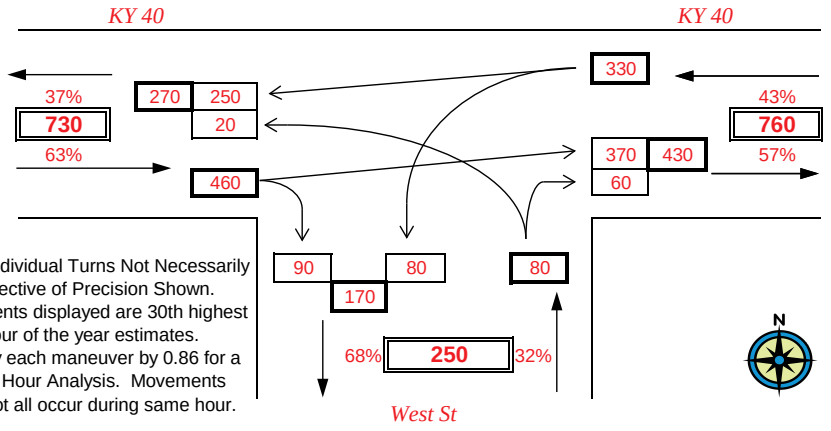
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



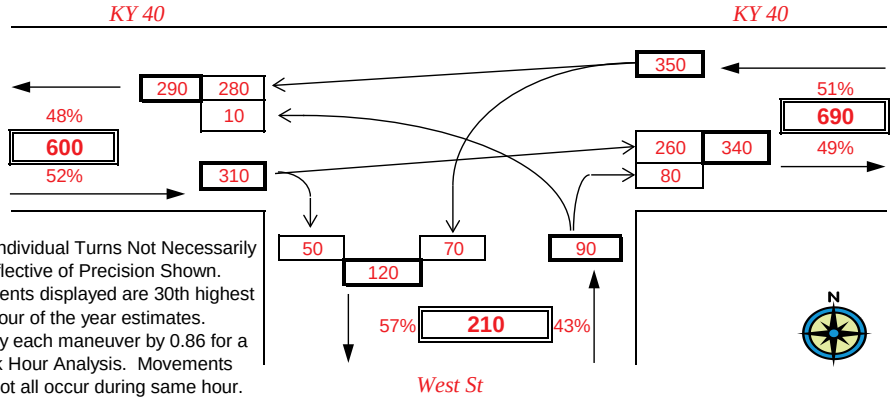
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



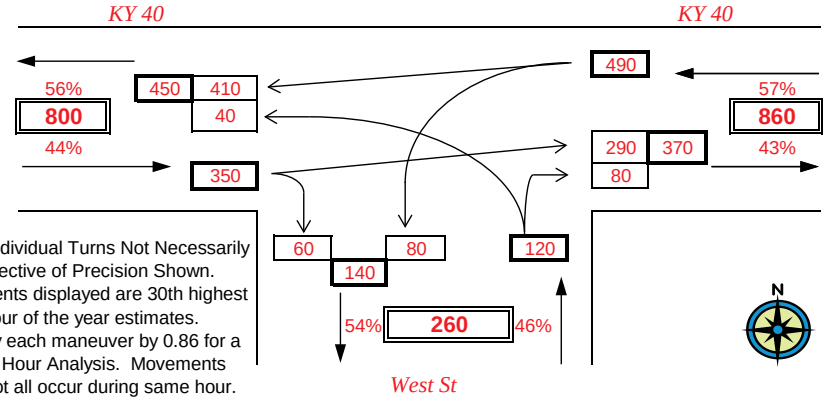
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



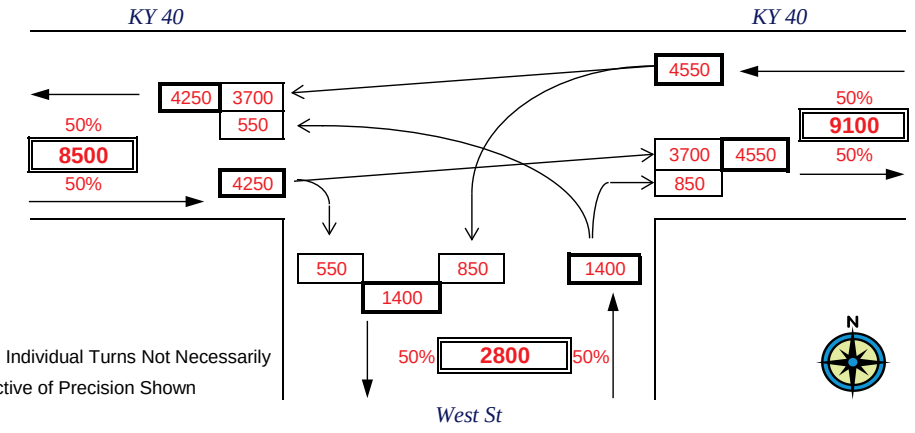
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

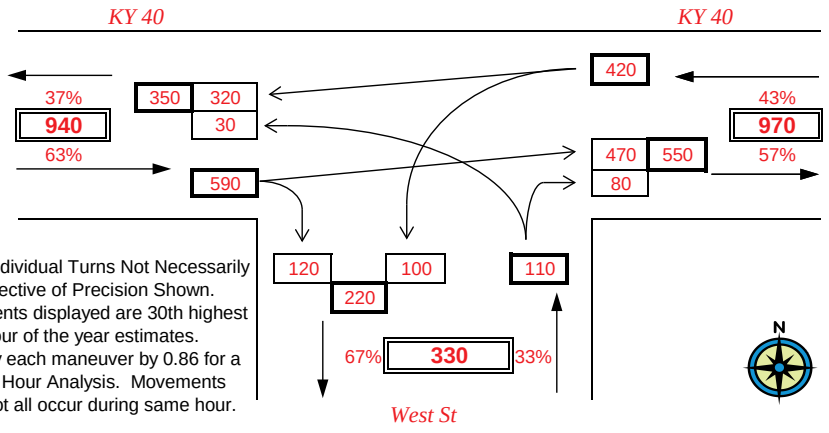
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



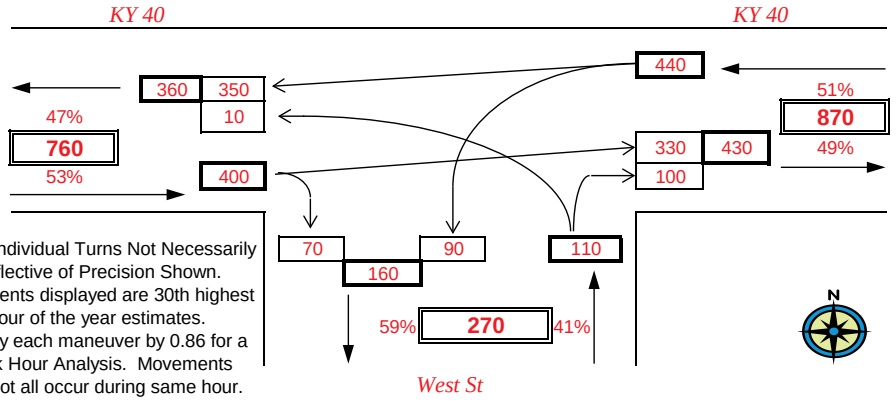
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



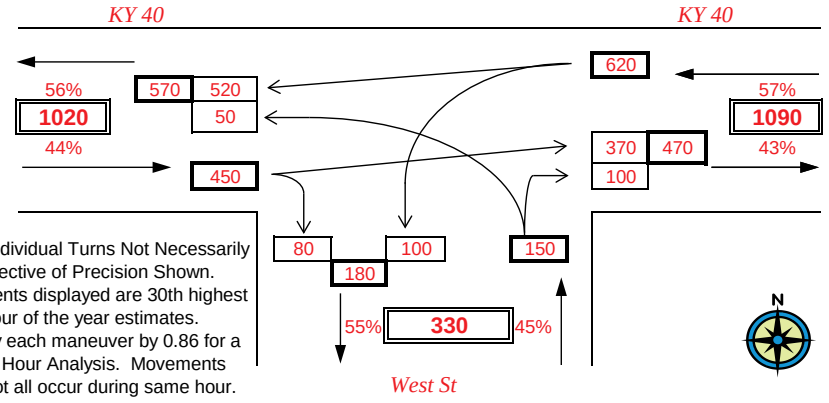
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



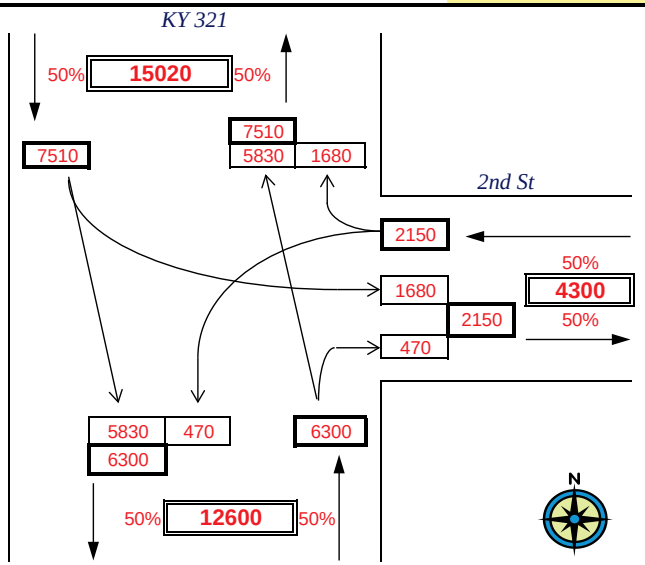
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

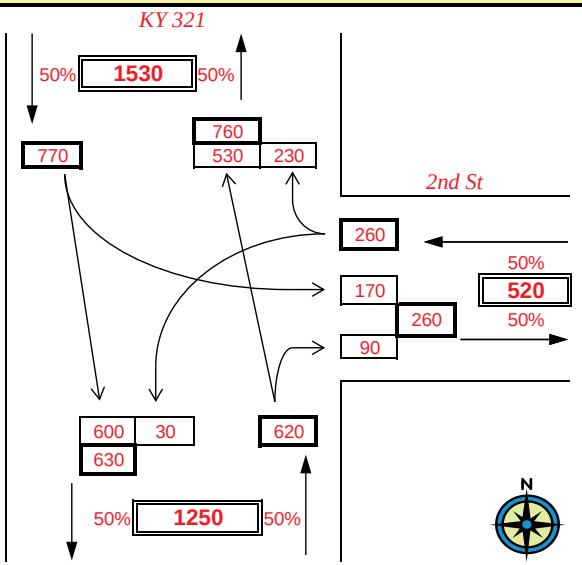
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



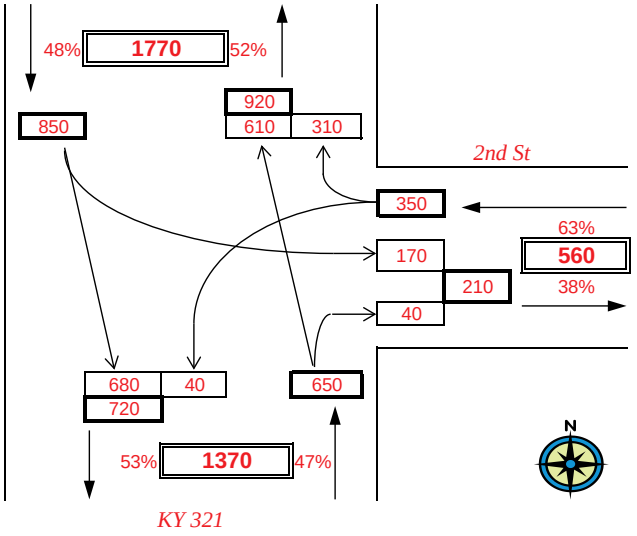
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



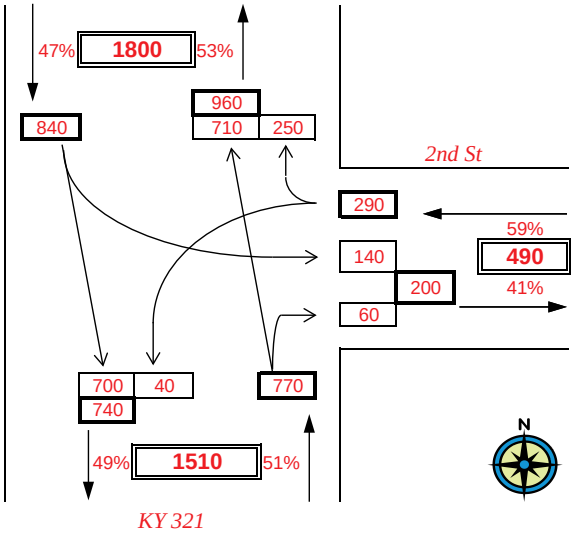
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



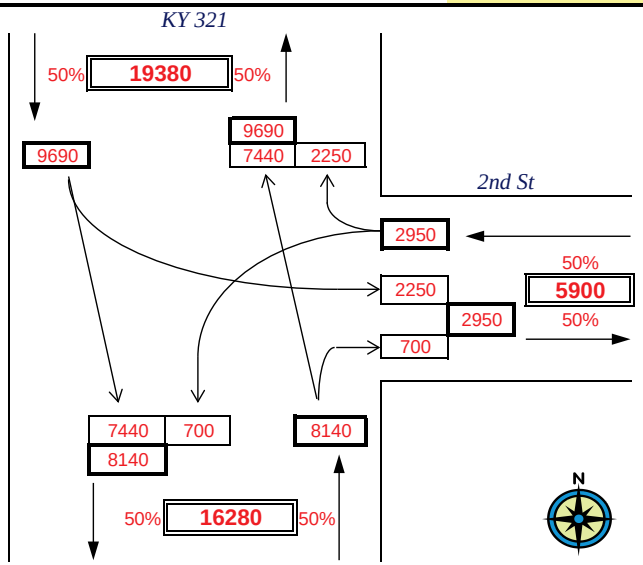
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

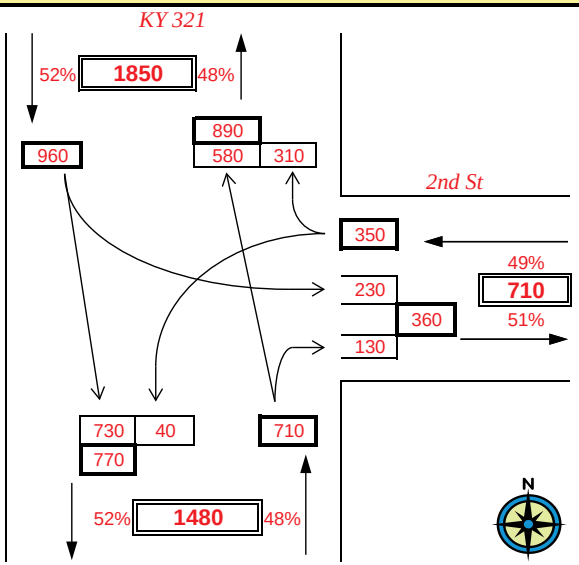
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



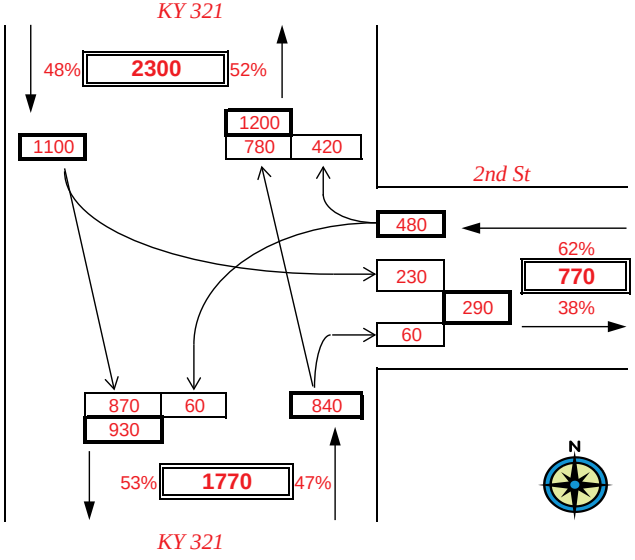
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



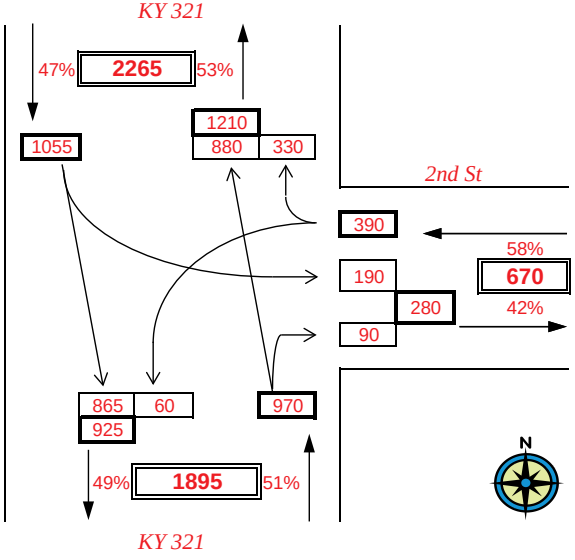
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



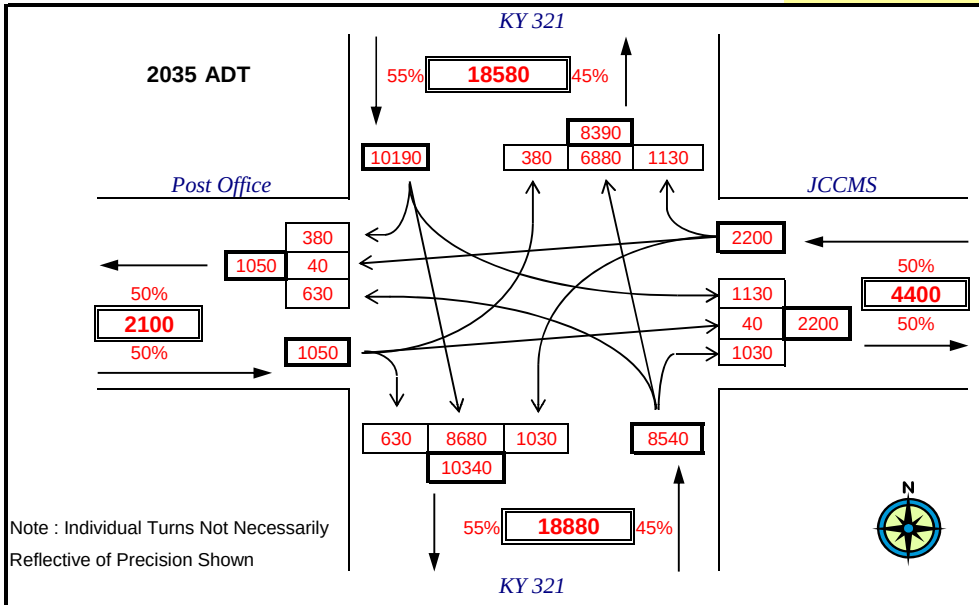
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

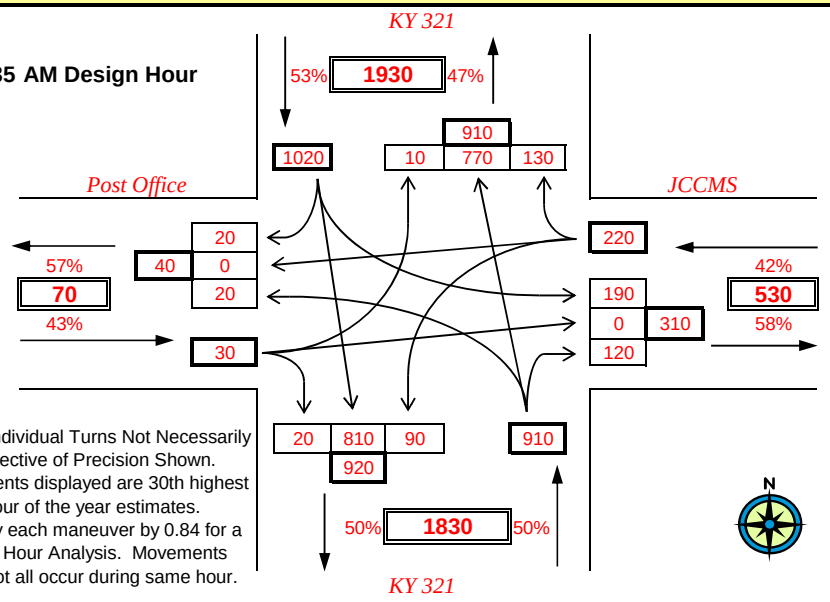
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



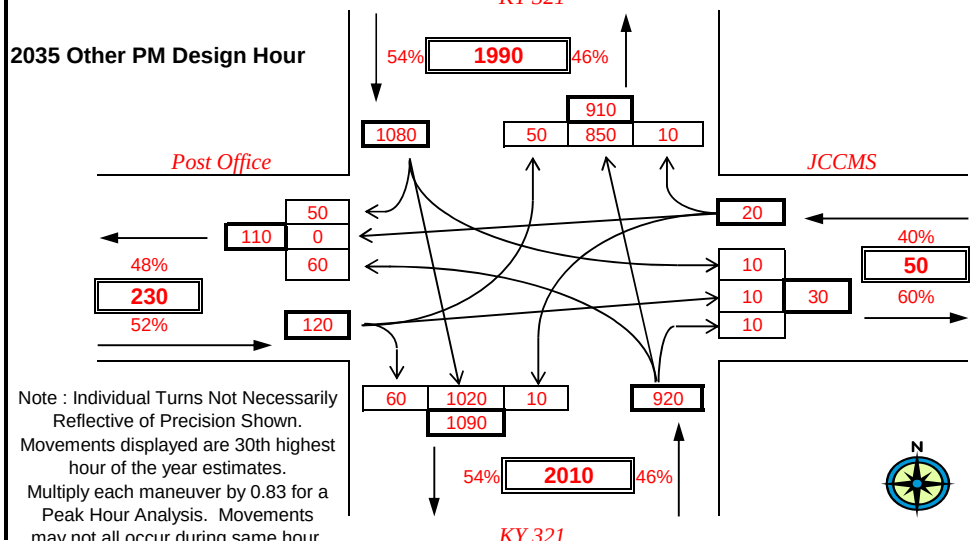
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



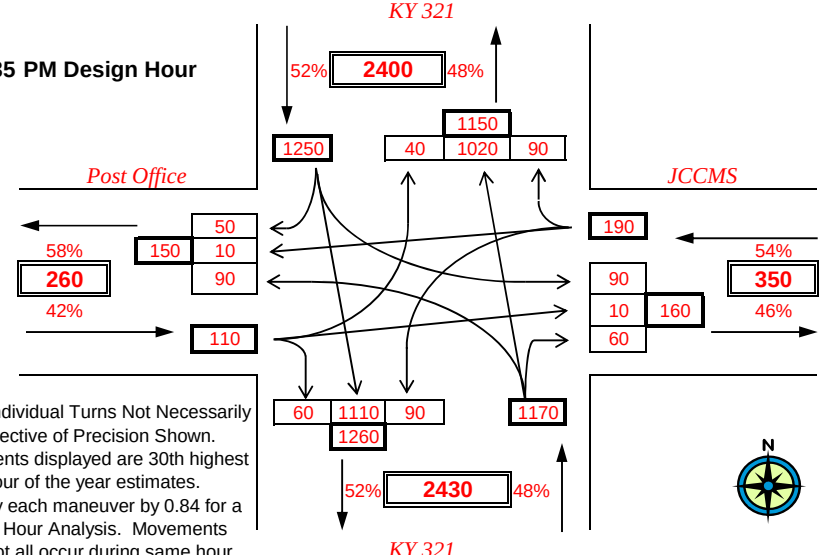
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



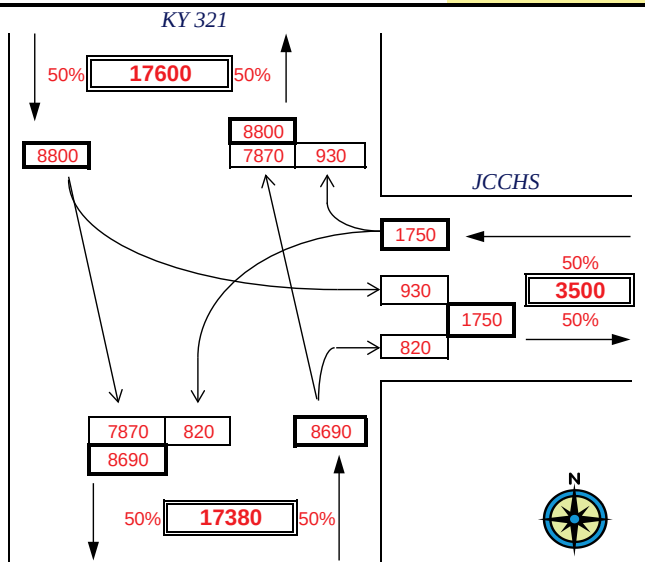
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

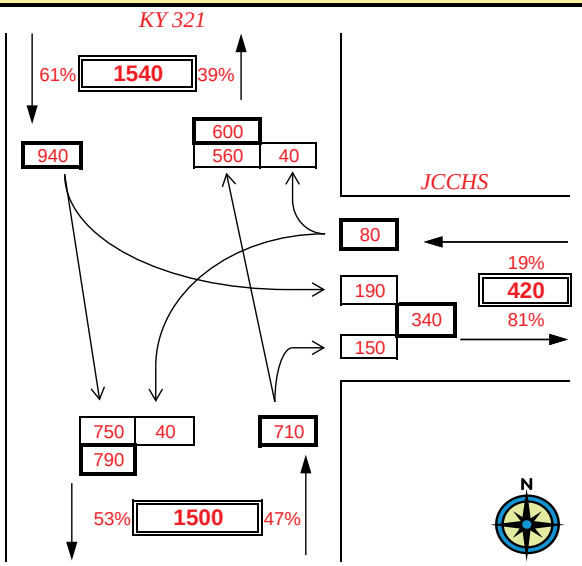
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



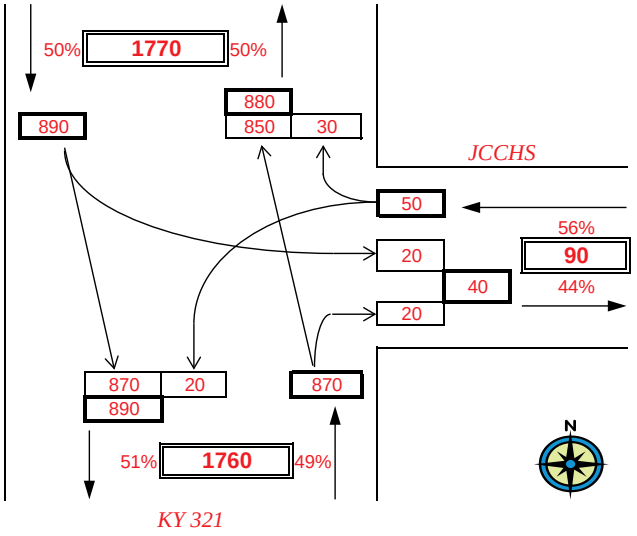
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



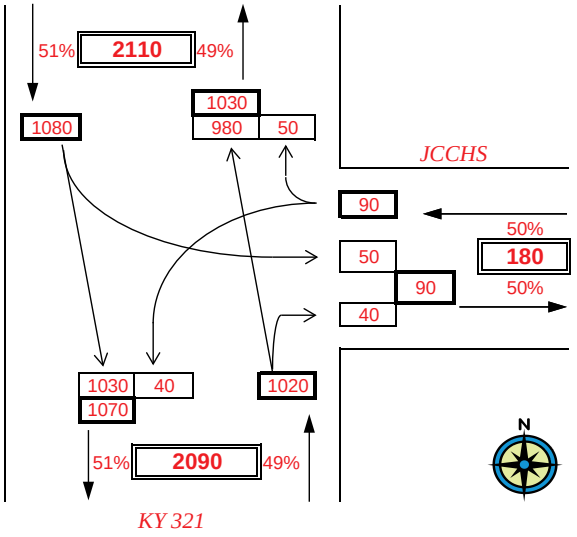
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



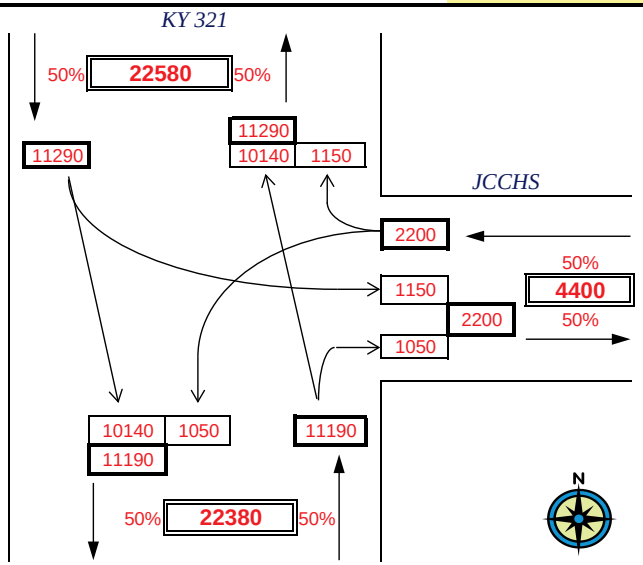
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

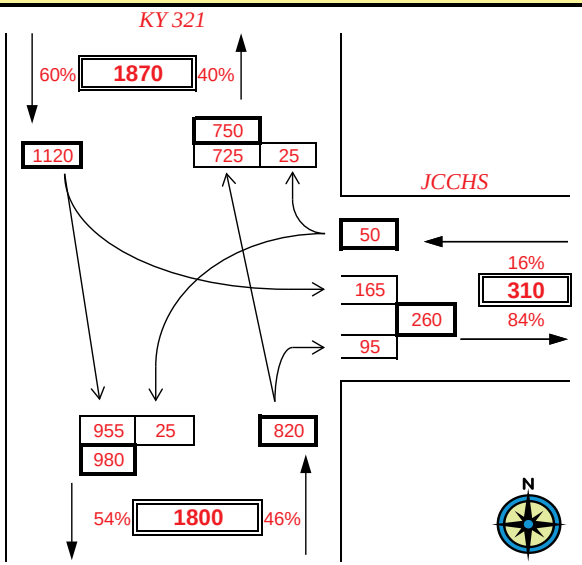
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



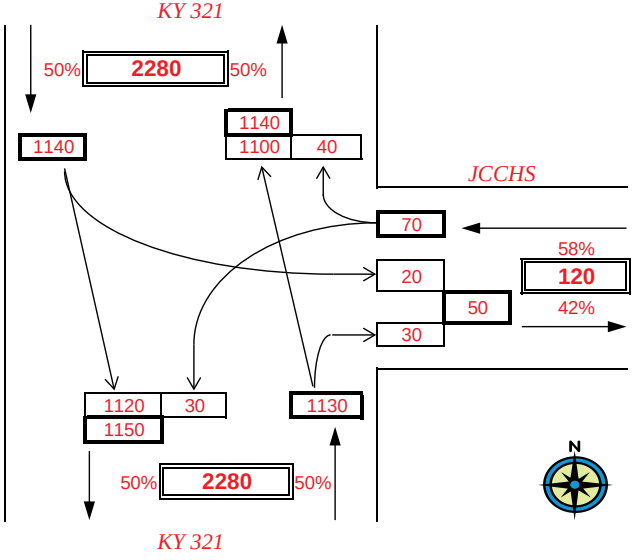
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



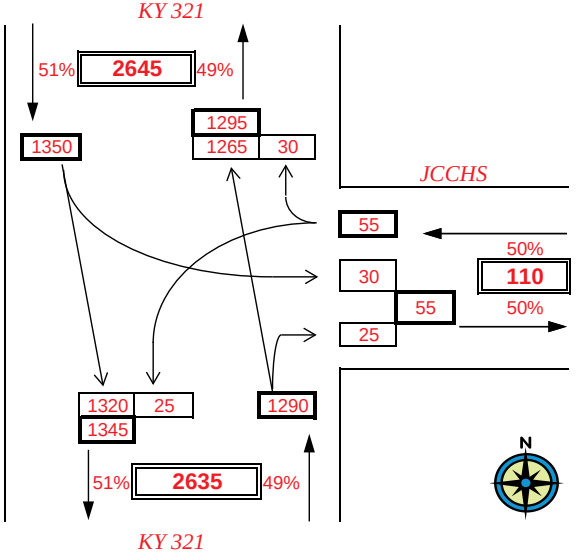
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



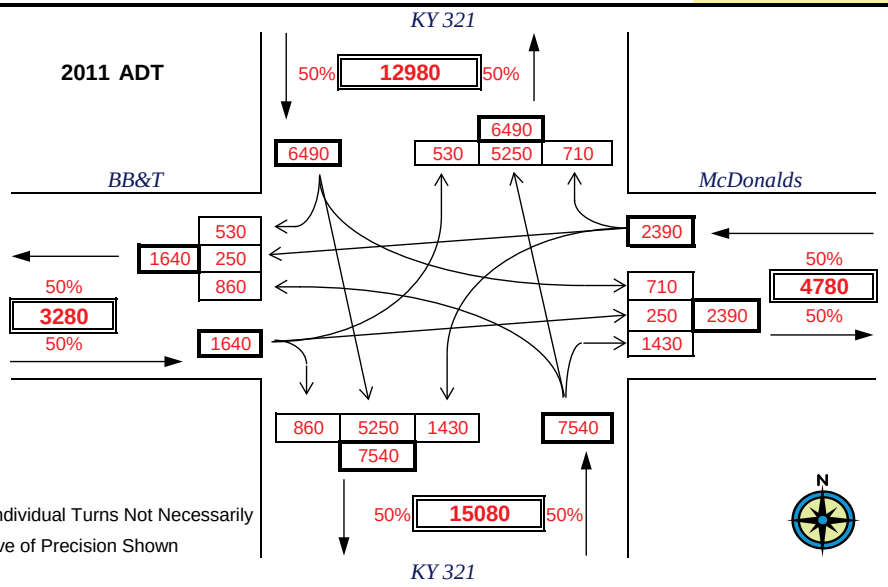
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

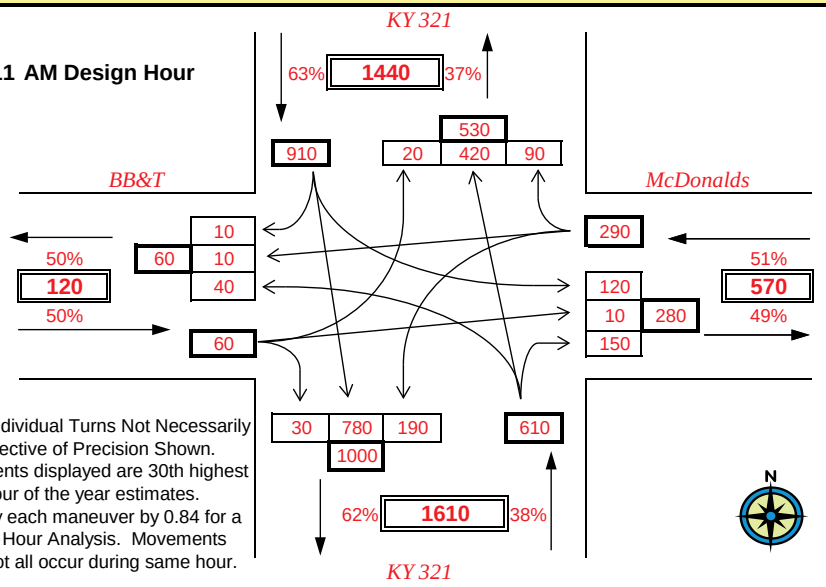
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



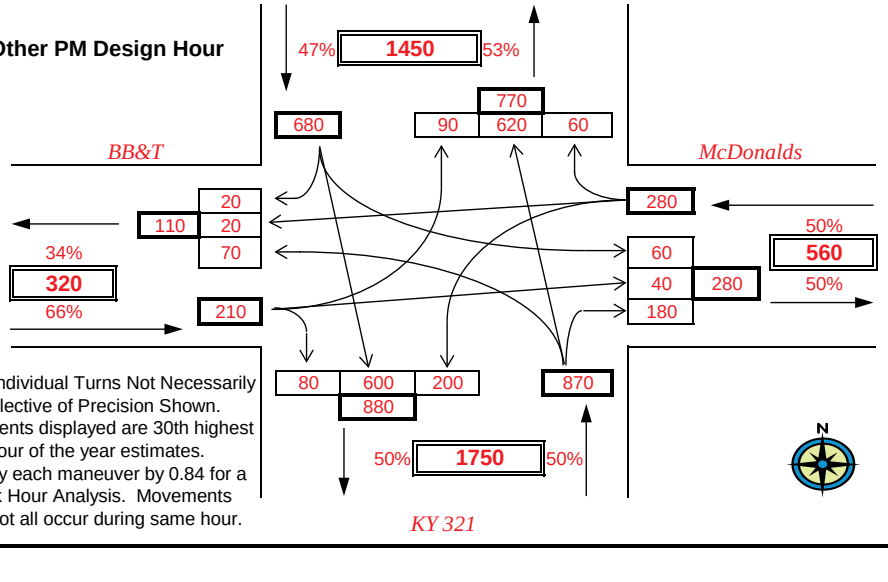
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



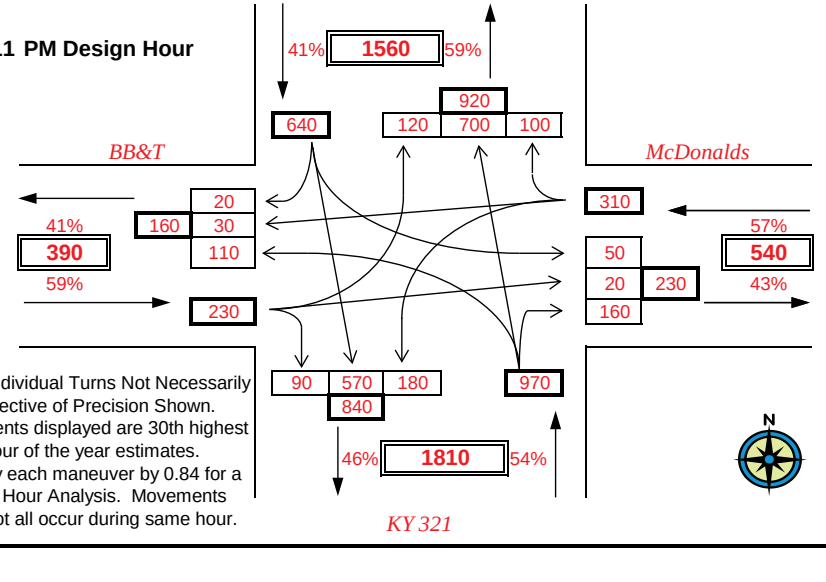
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



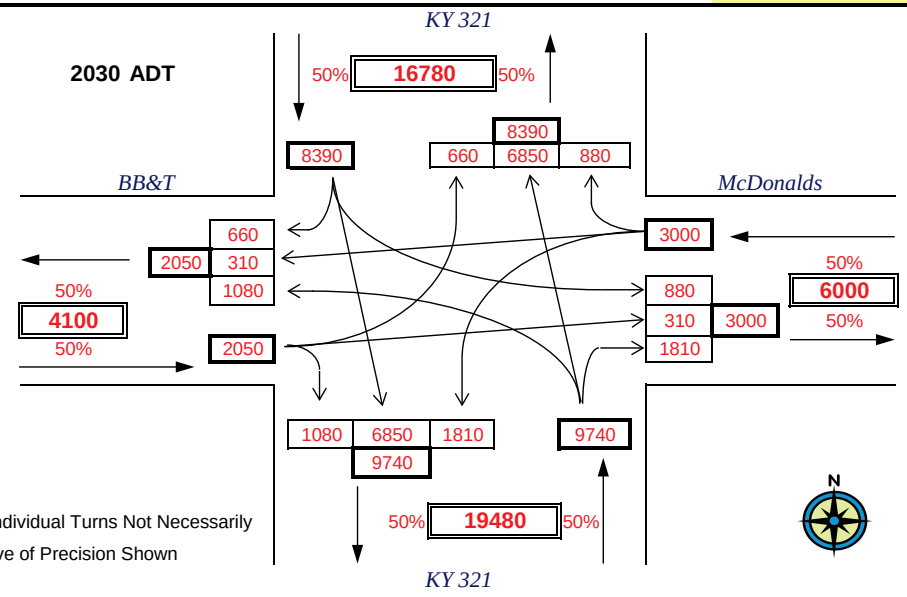
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2030 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

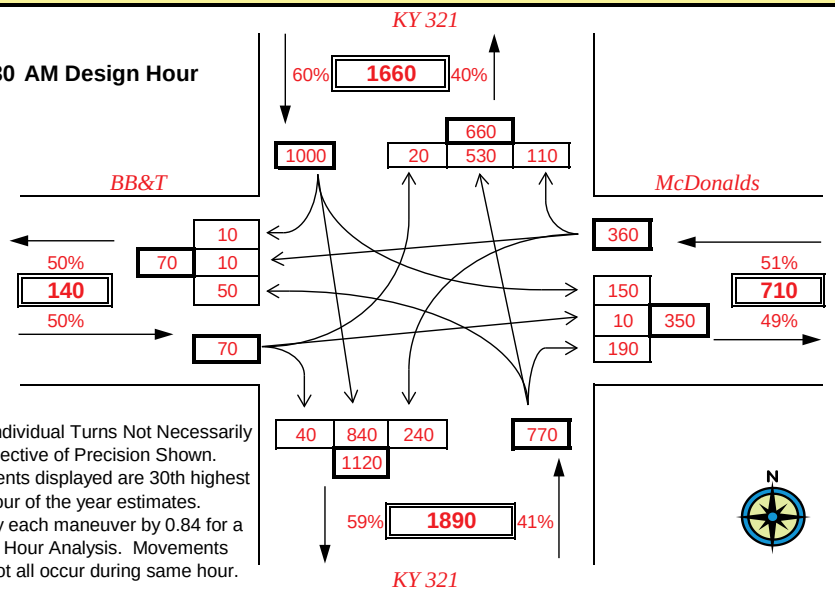
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2030 ADT



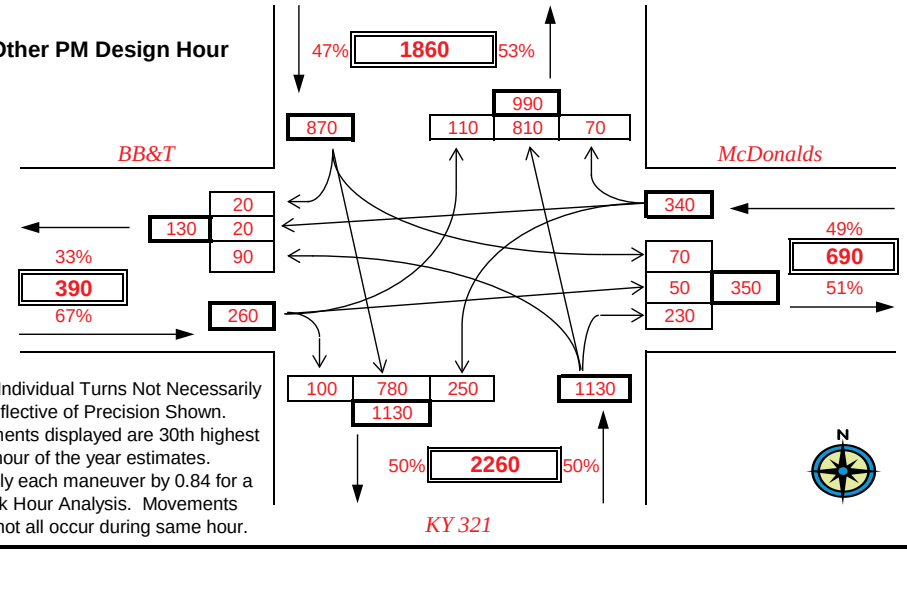
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2030 AM Design Hour



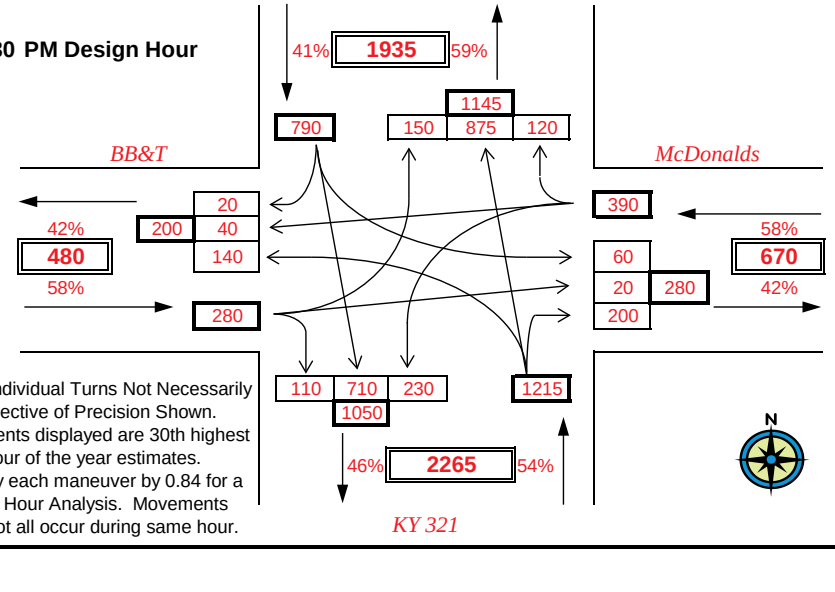
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2030 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2030 PM Design Hour



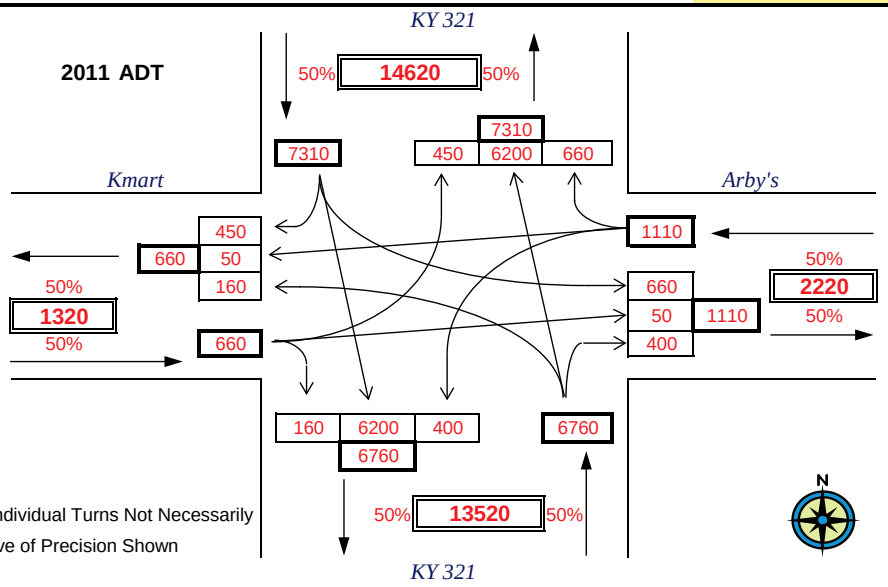
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

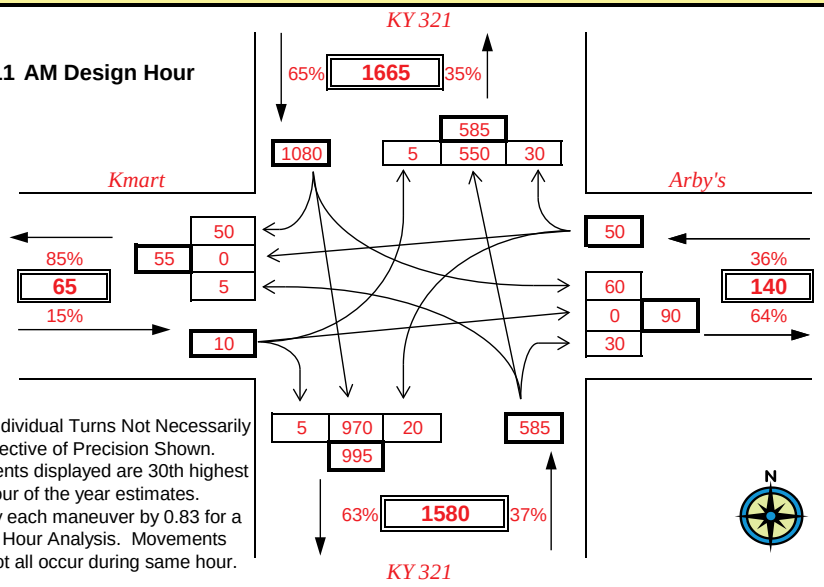
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



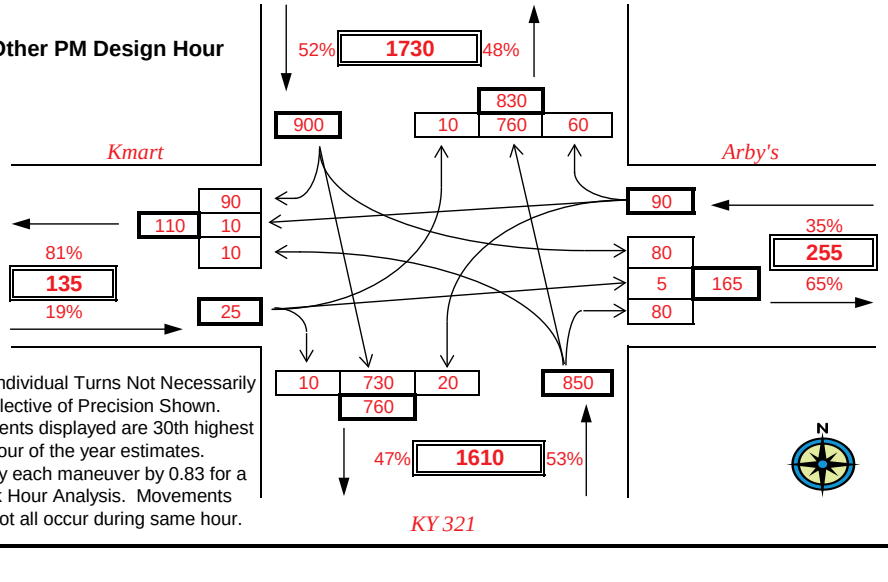
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



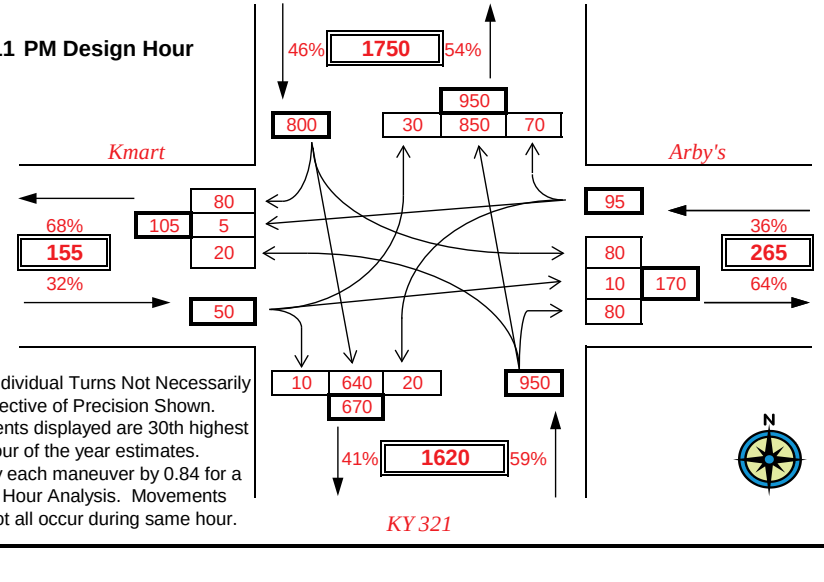
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



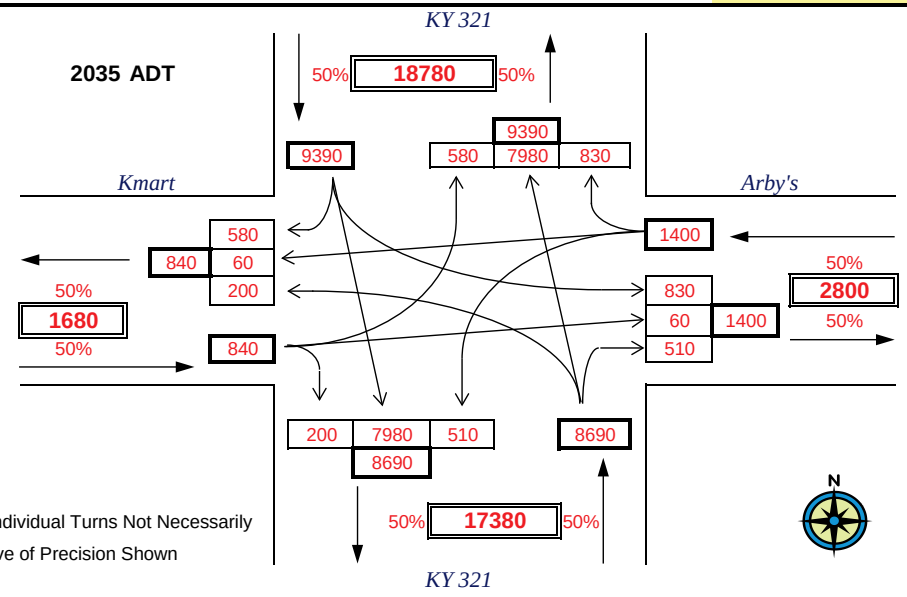
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

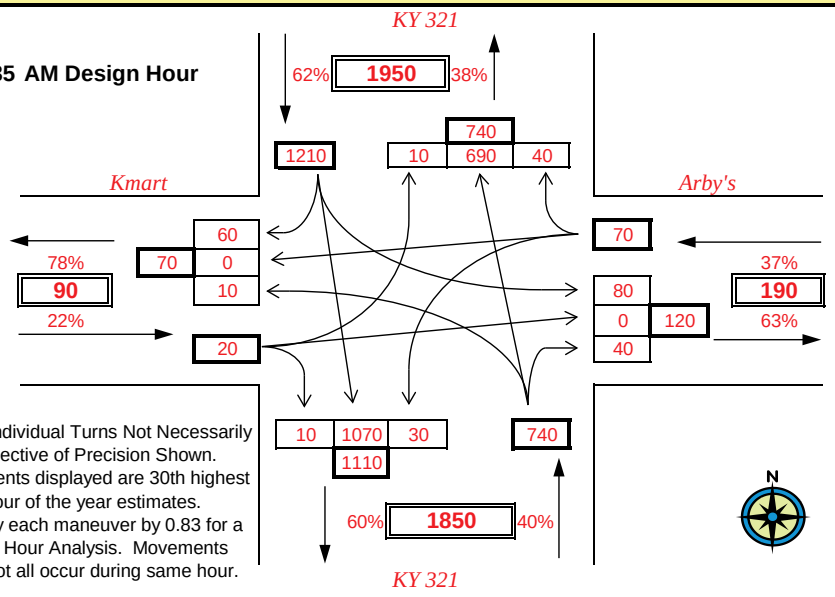
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



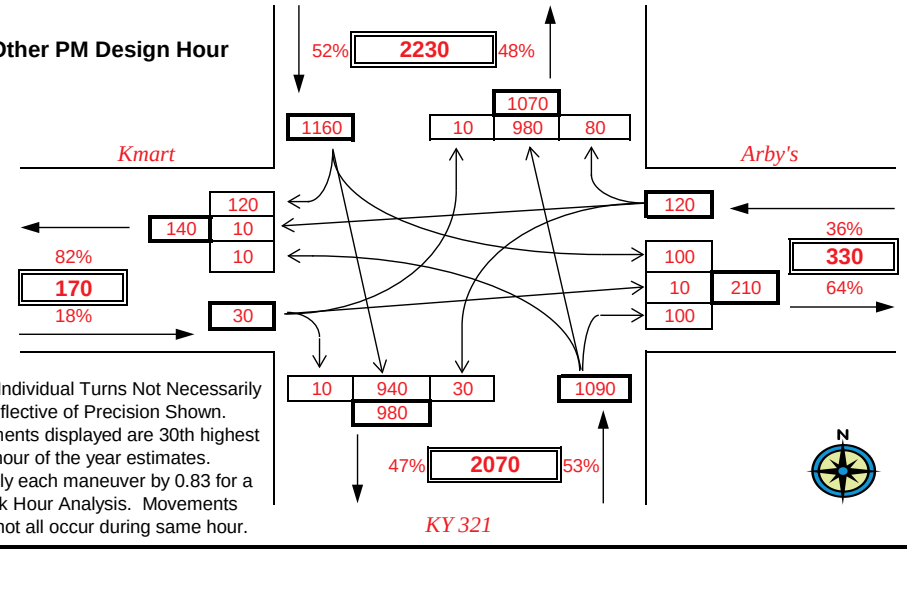
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



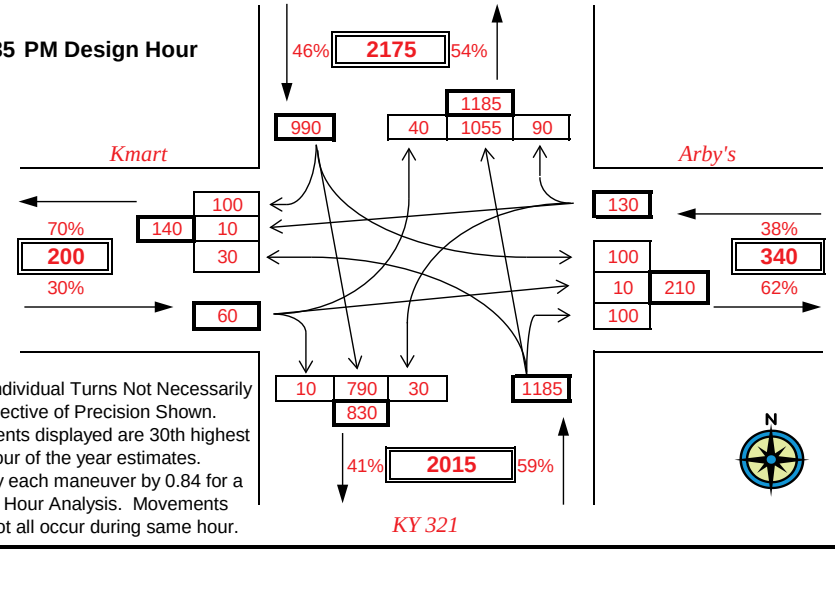
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

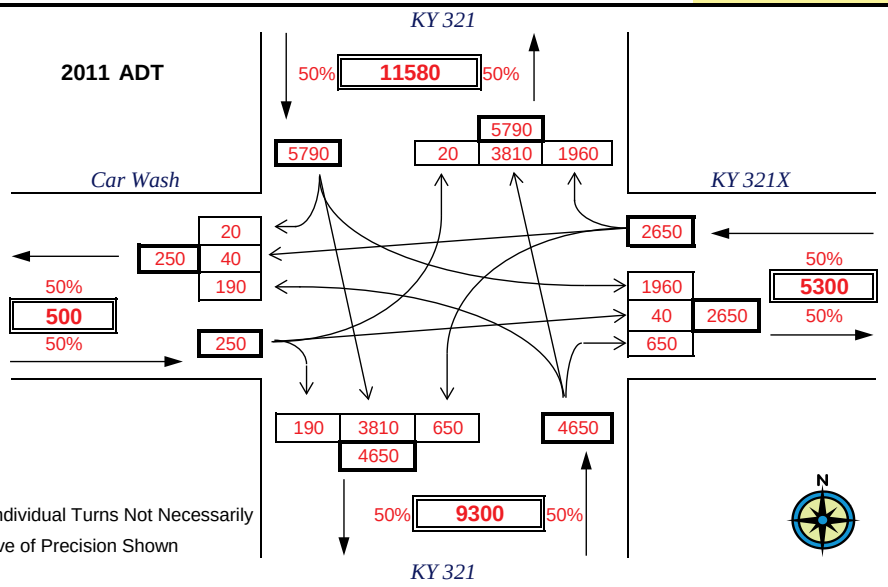
ALTERNATIVE 4D

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

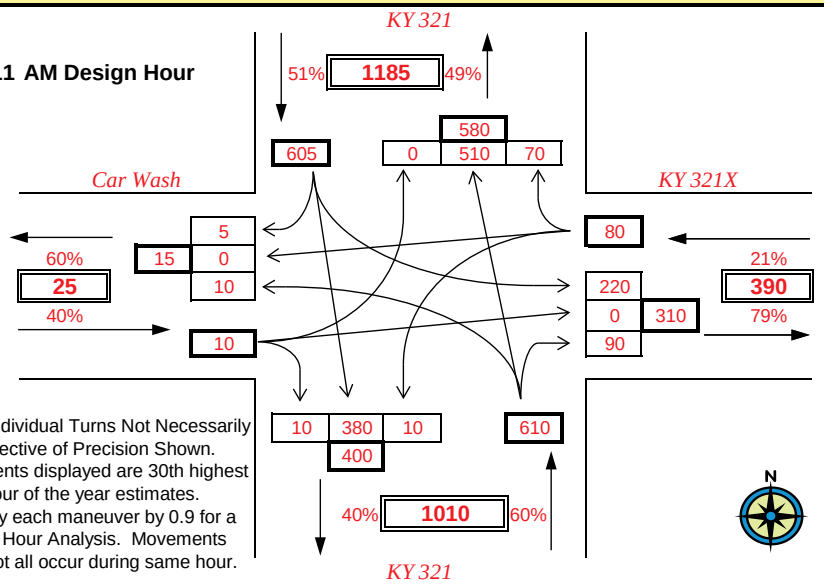
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



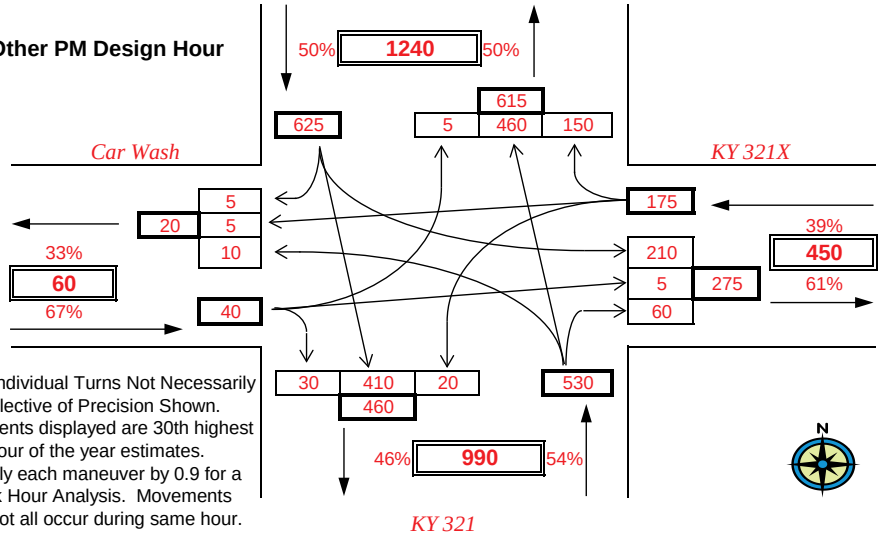
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



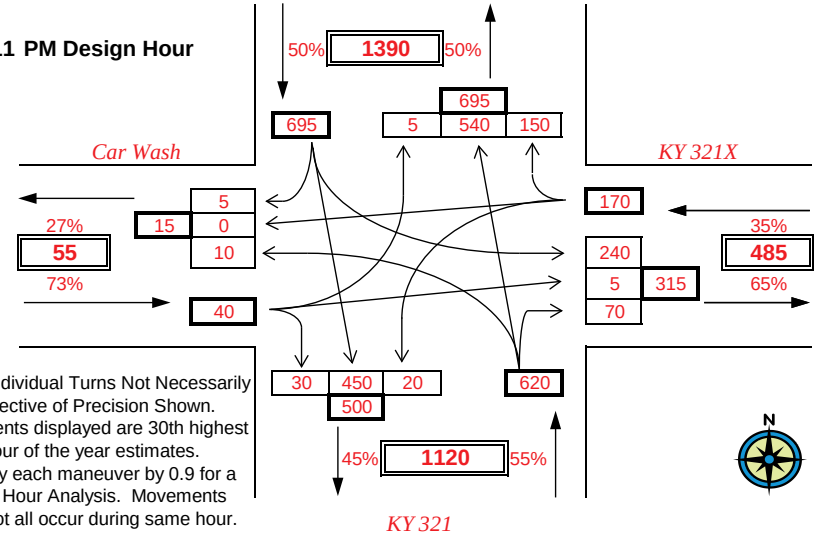
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



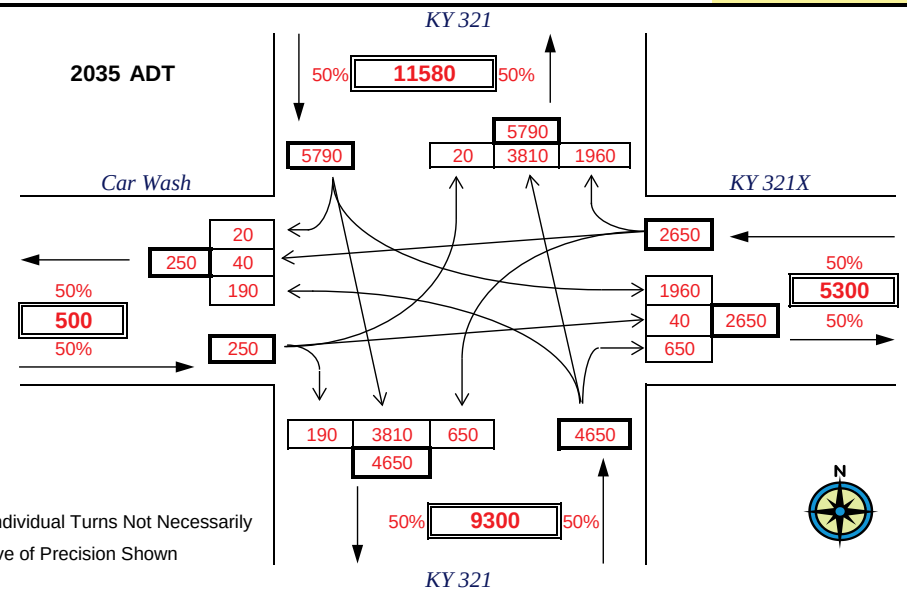
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2035 Build ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

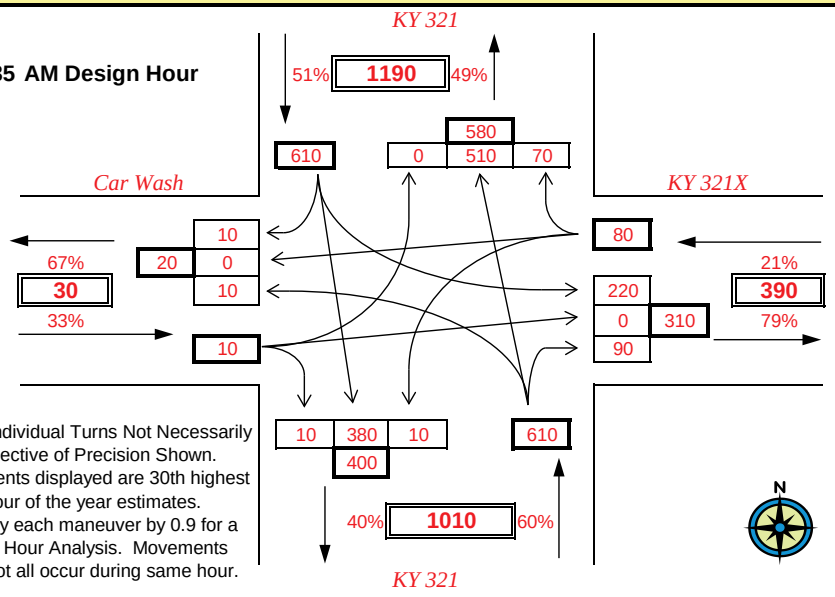
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



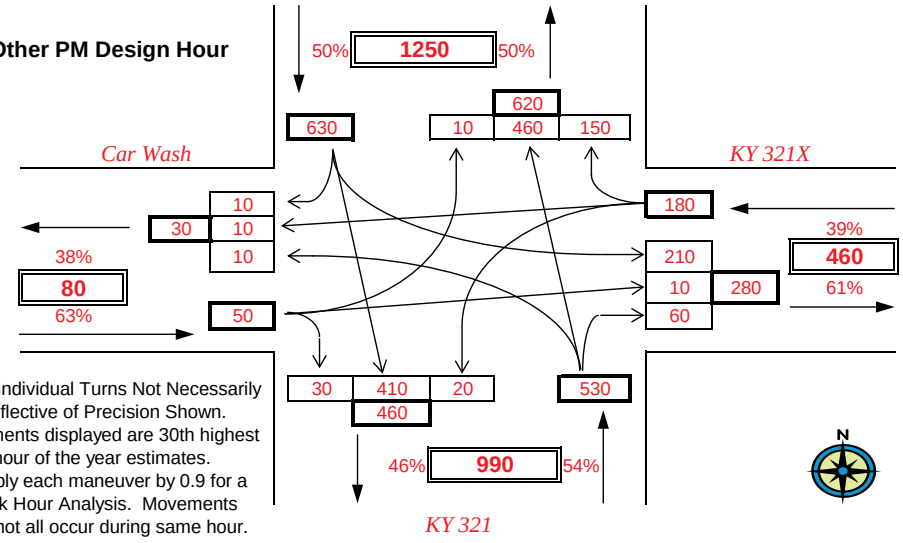
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



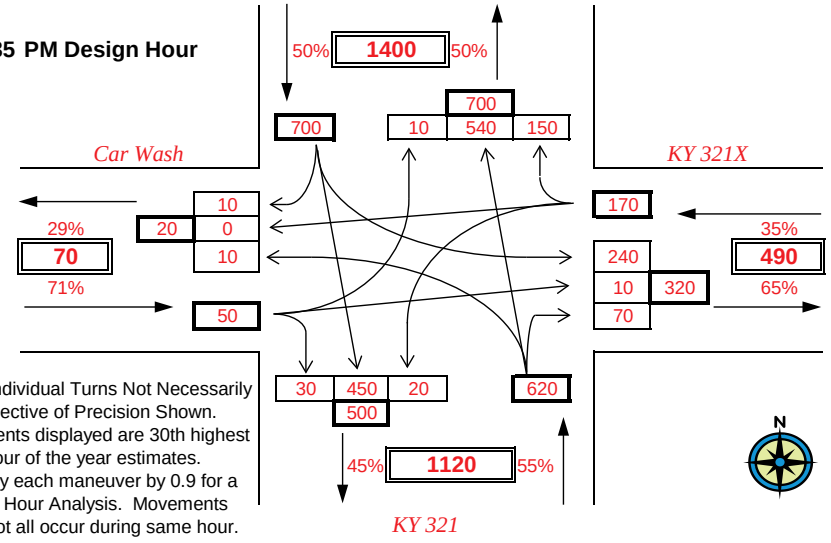
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

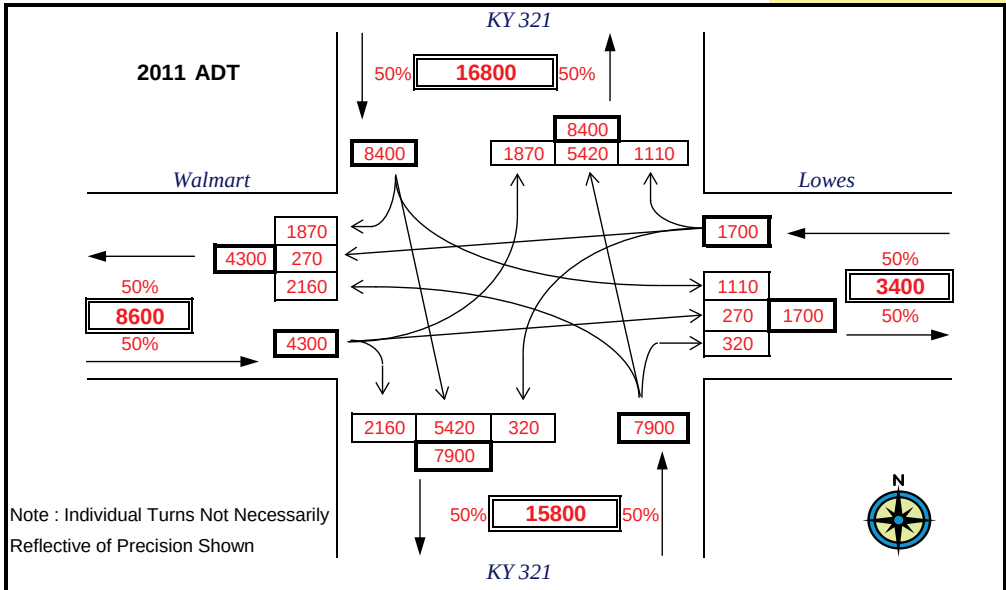


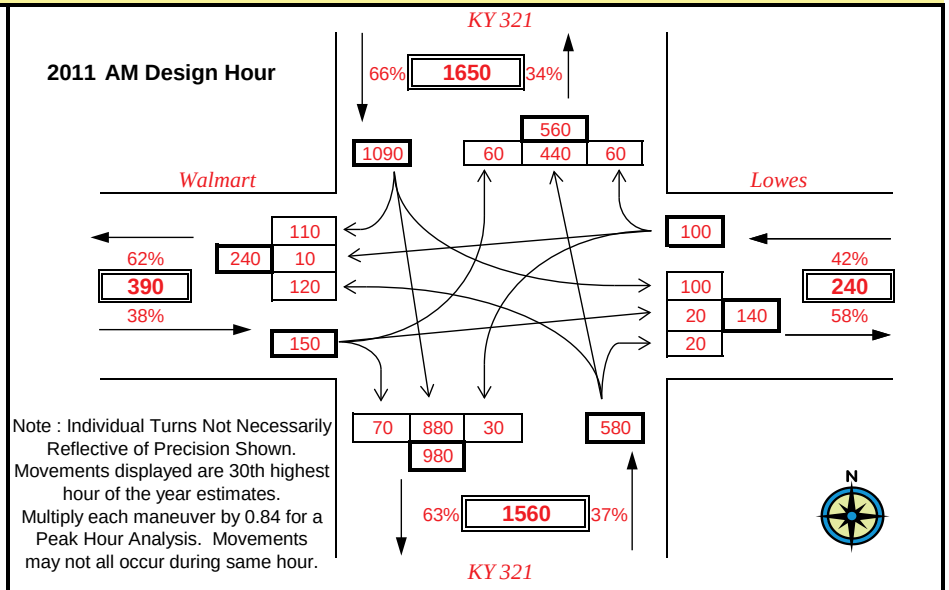
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

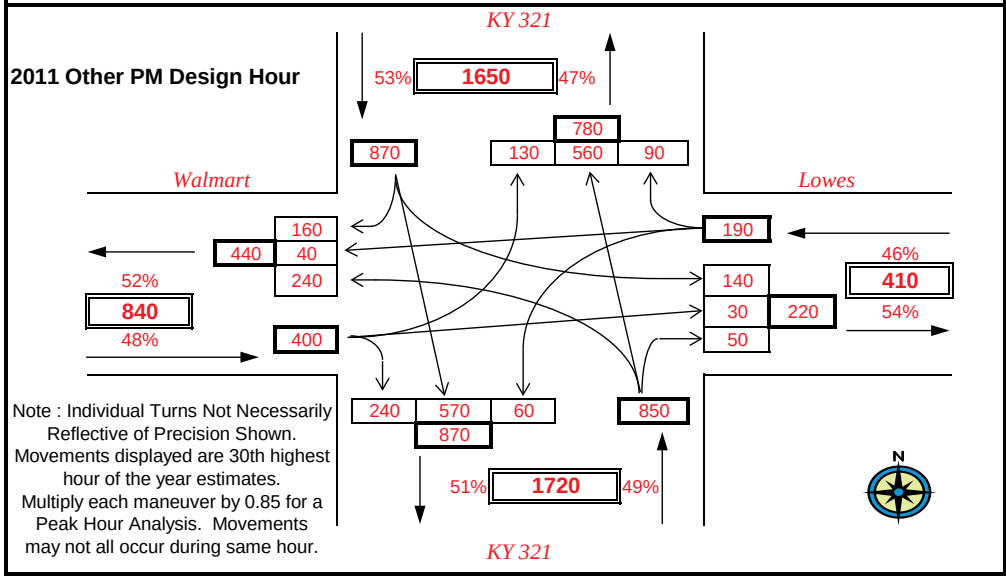
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

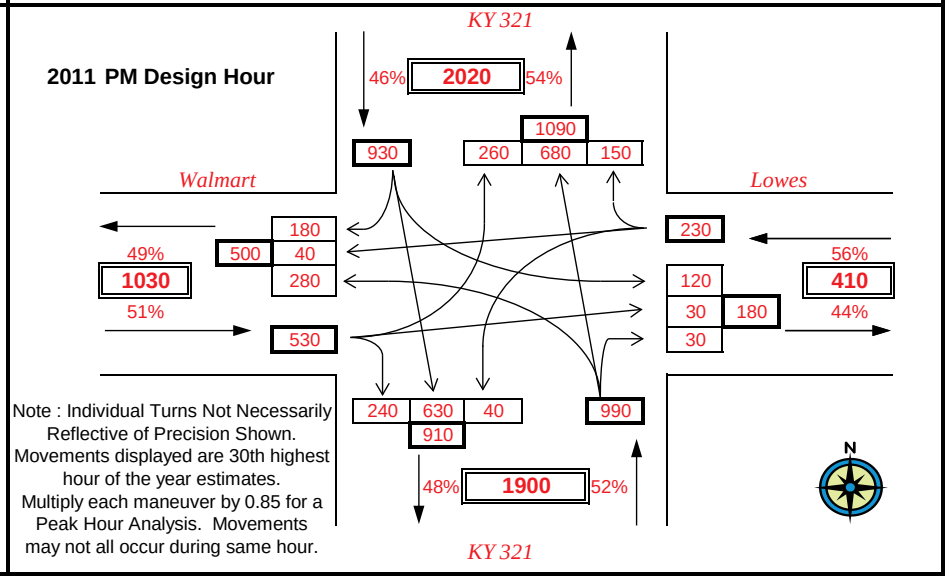
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**





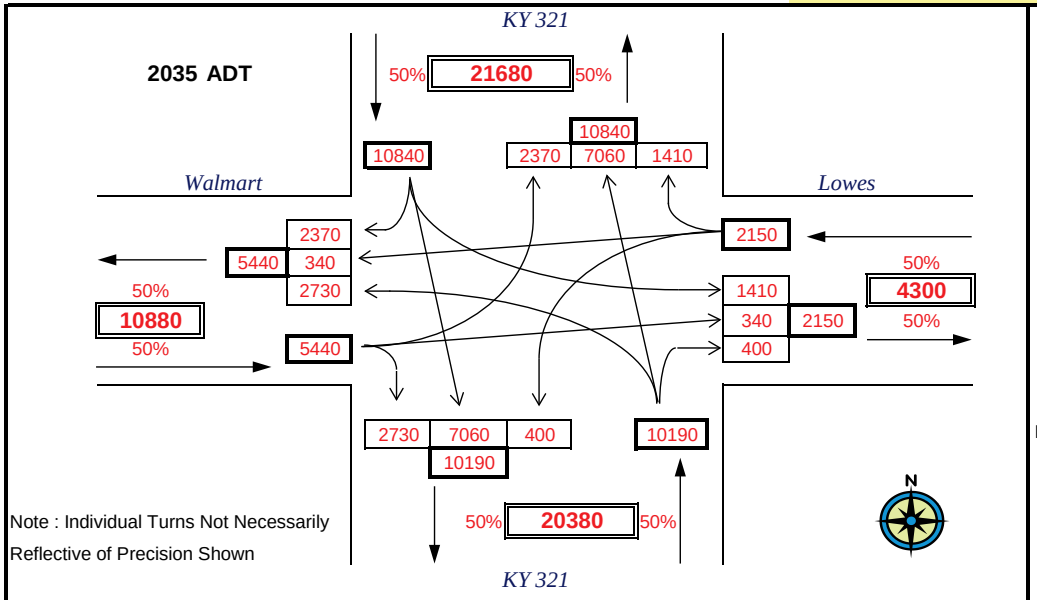




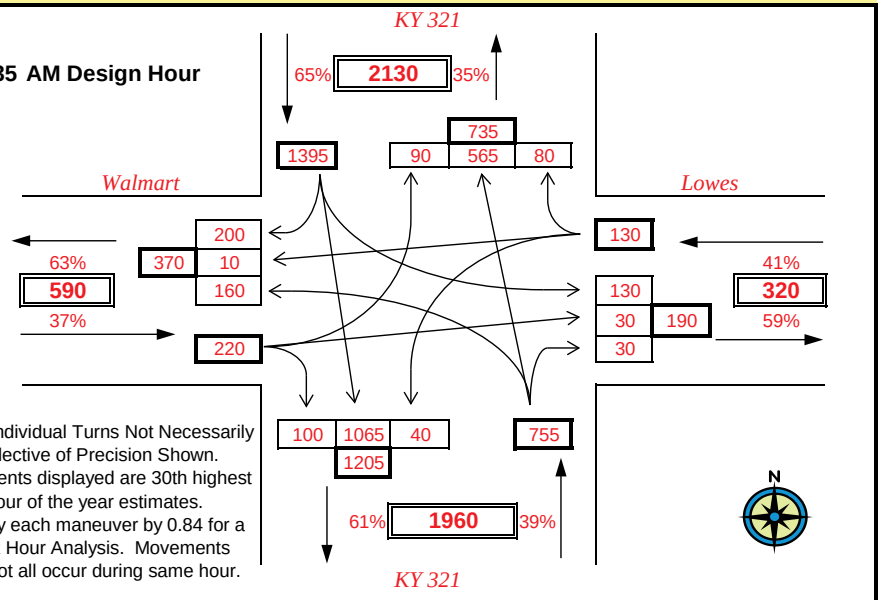
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

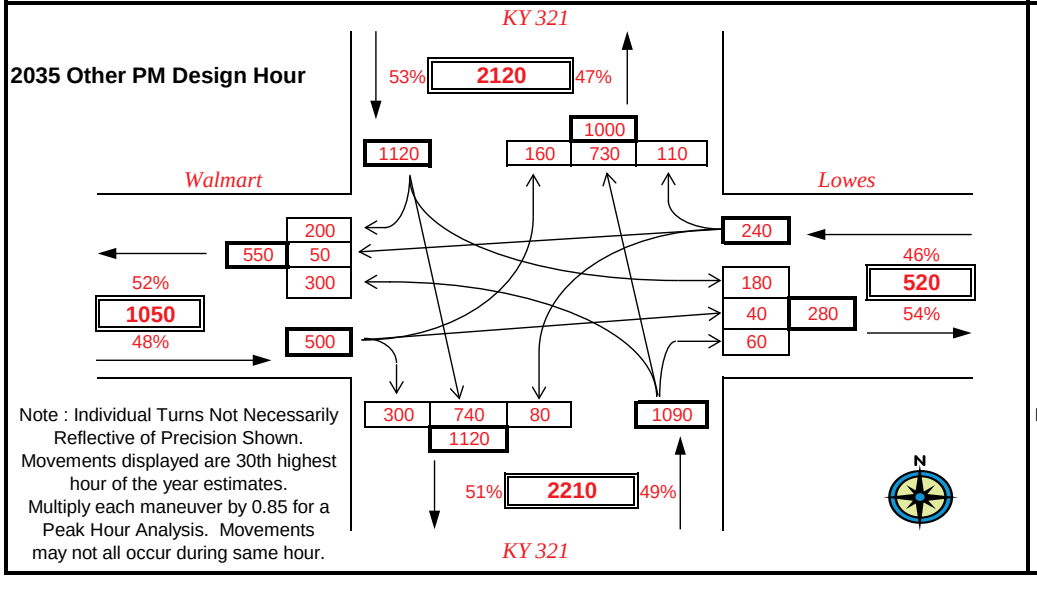
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



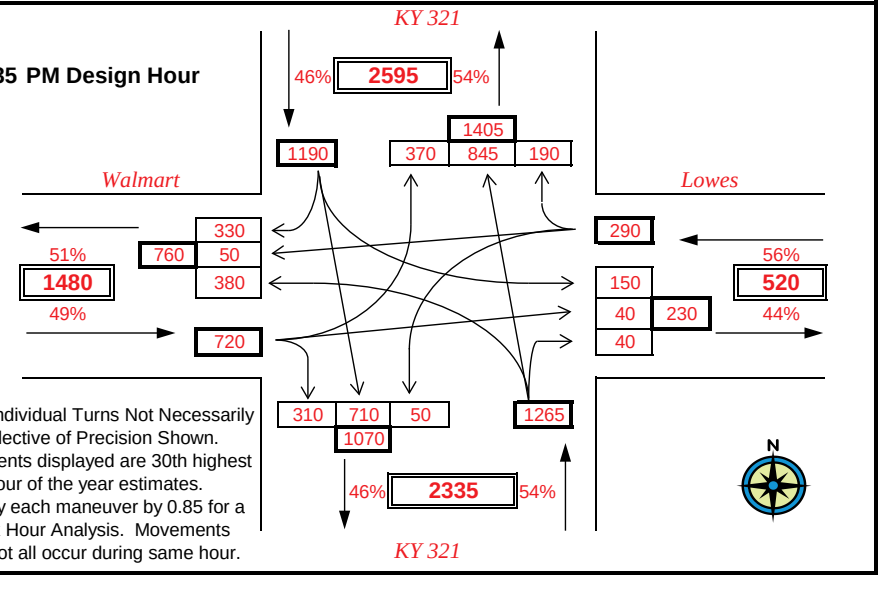
Note : Individual Turns Not Necessarily Reflective of Precision Shown



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.



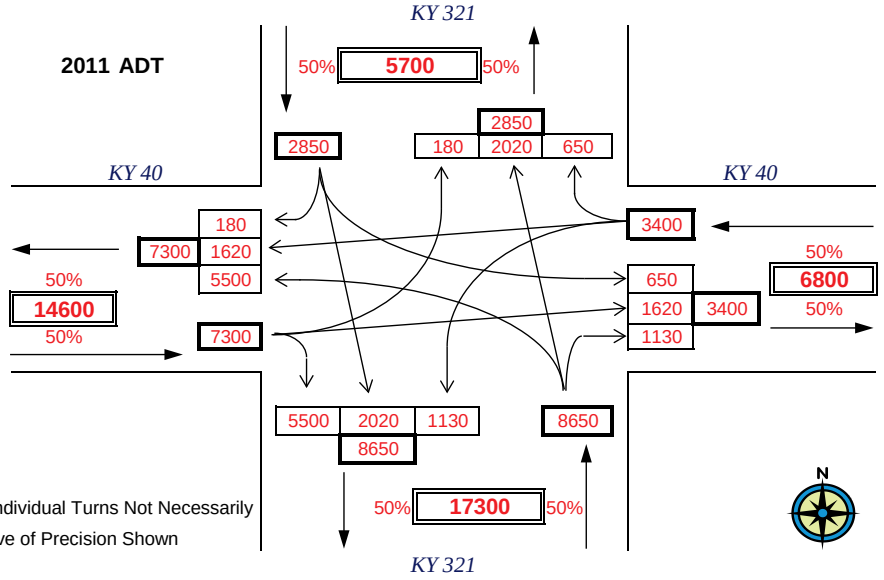
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

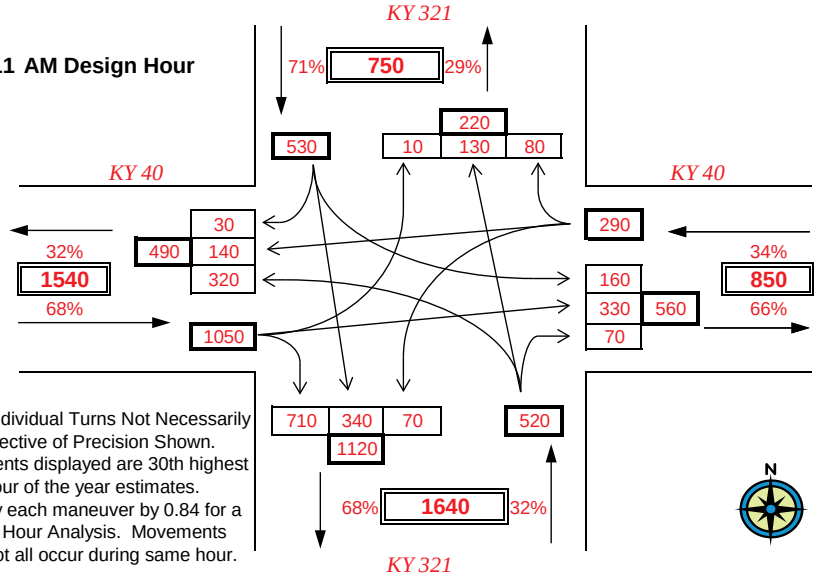
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



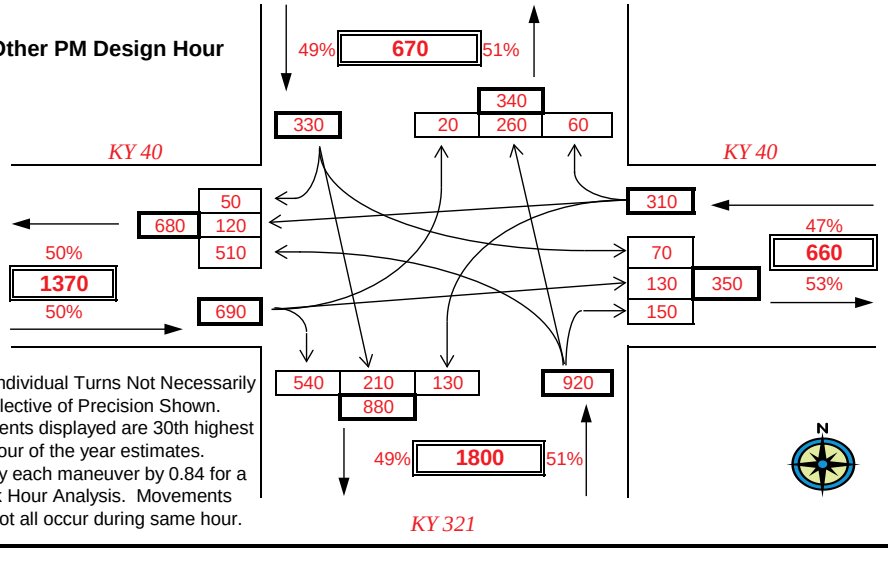
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



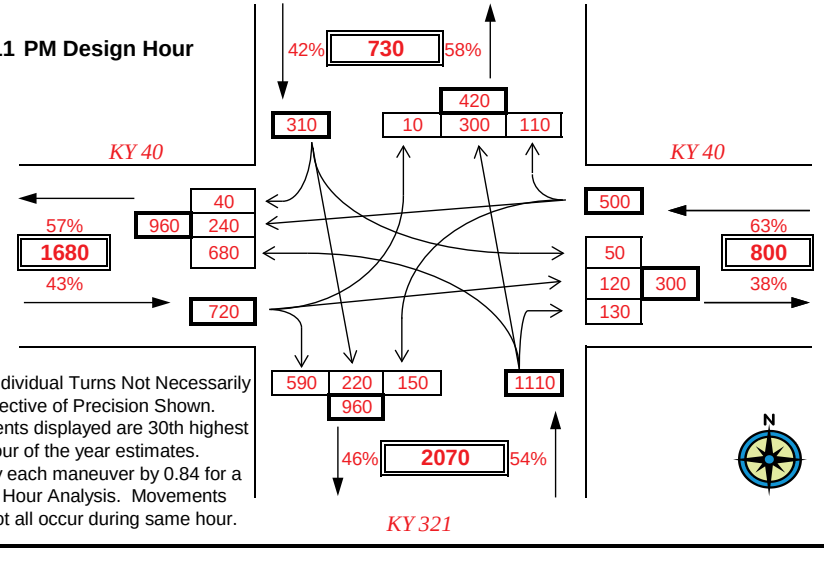
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



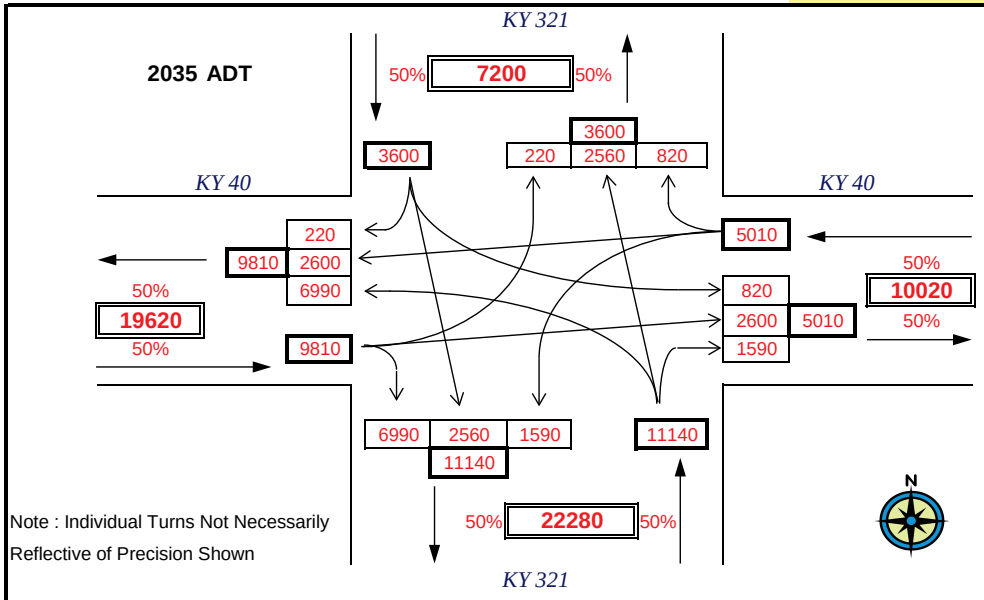
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

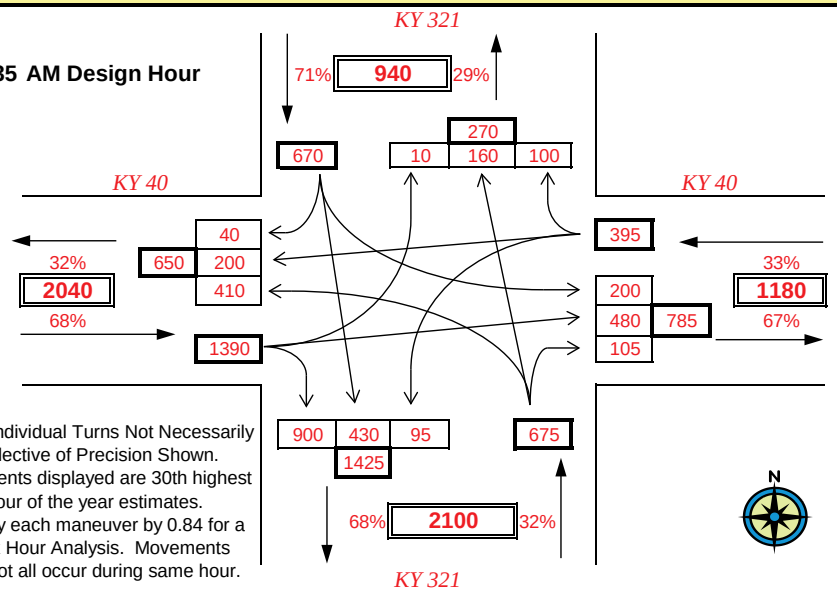
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



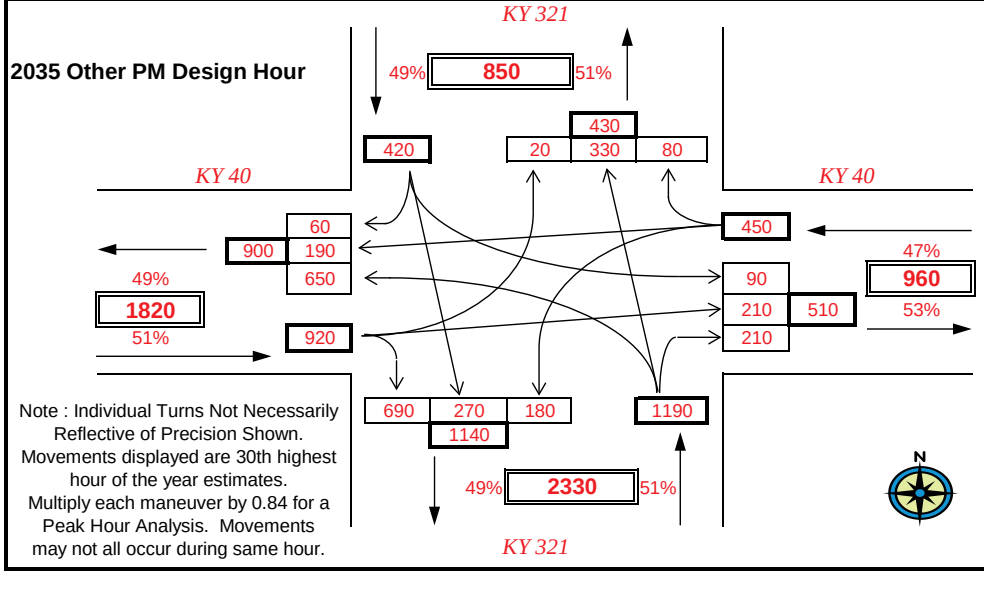
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



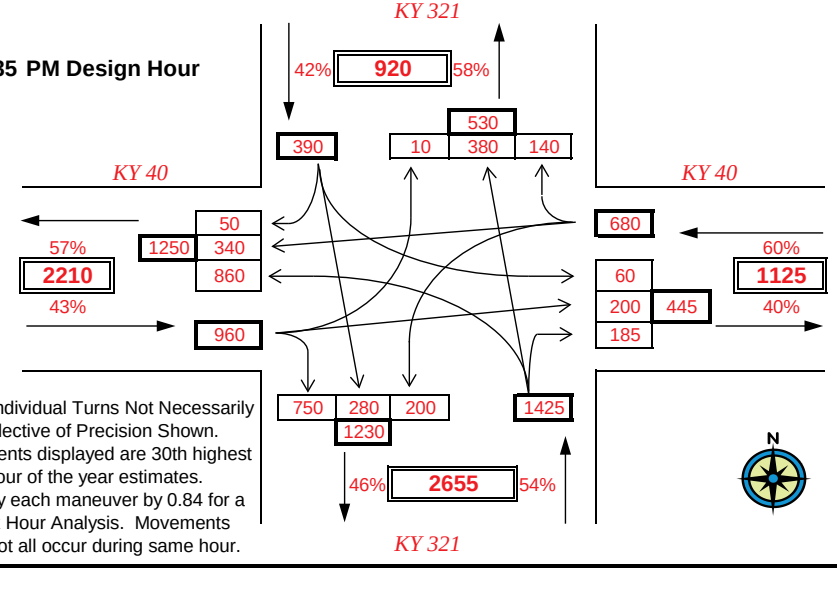
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



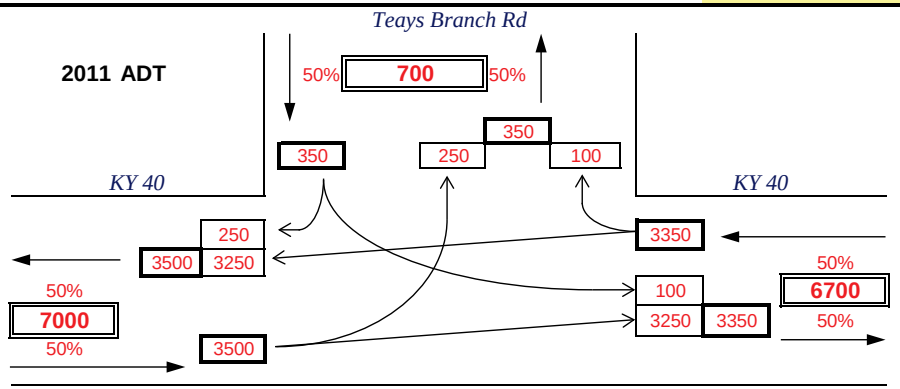
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

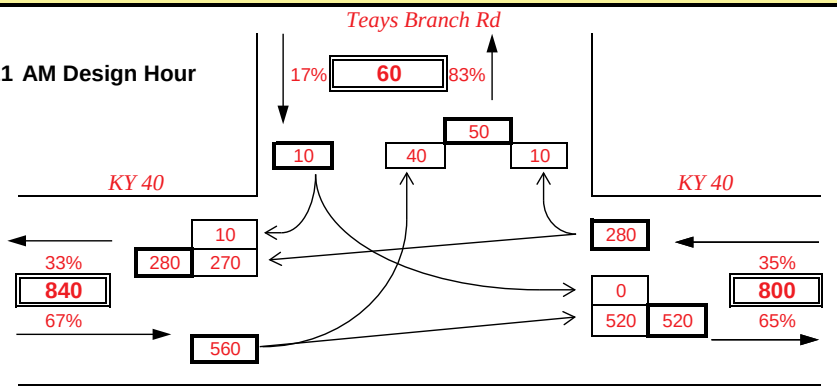
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



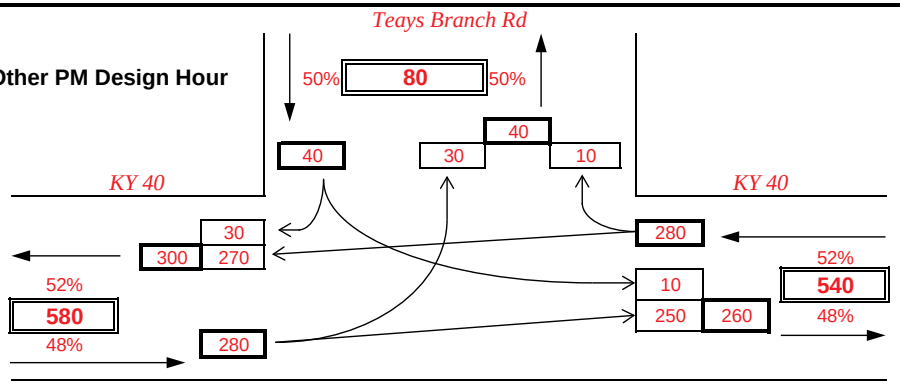
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



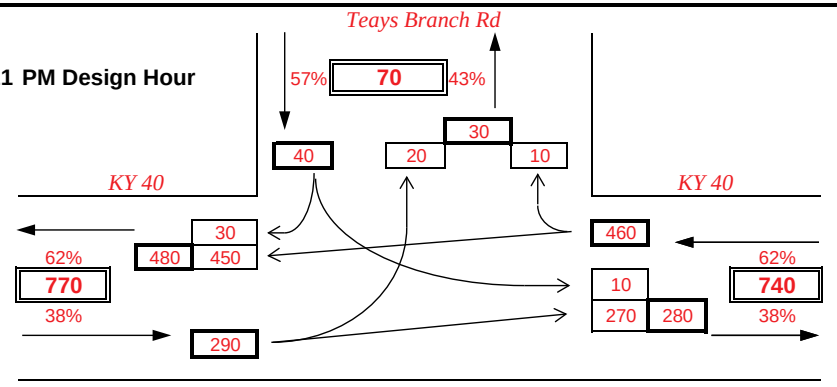
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour

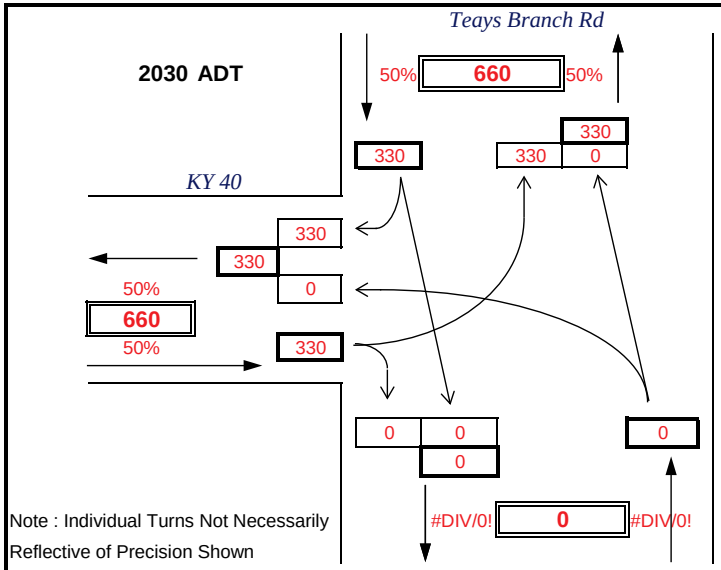


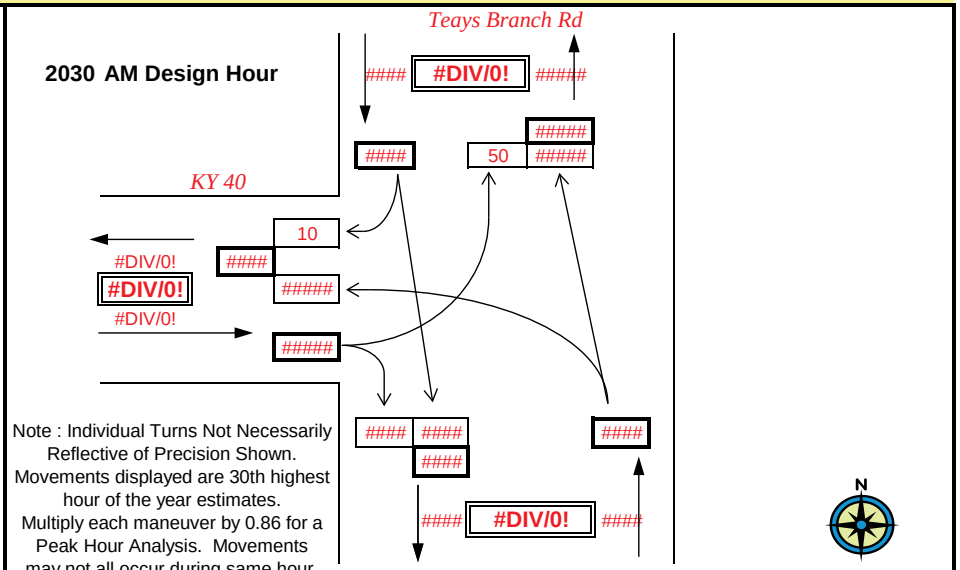
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

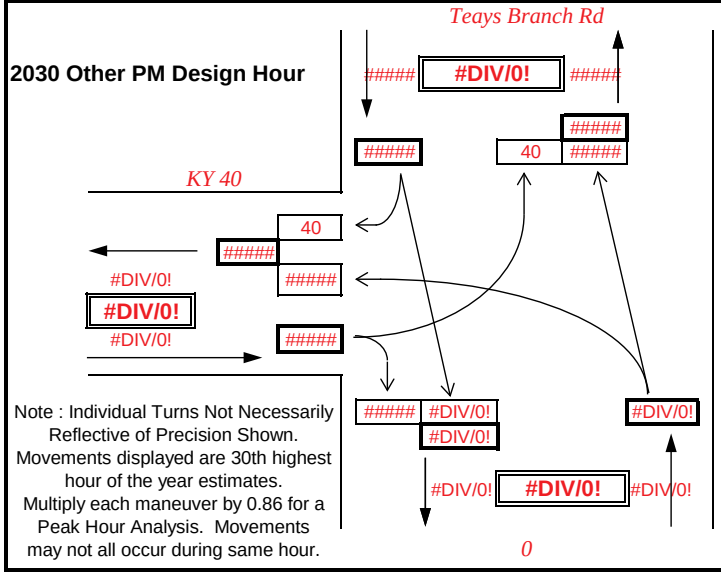
PROJECT: US 68 Widen Turn Lanes
ITEM NUMBER: 1-117.00
MARS NUMBER: 8072601D
REQUEST DATE: 9/4/2007
ANALYST: D. Hamilton
SCENARIO: **2030 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

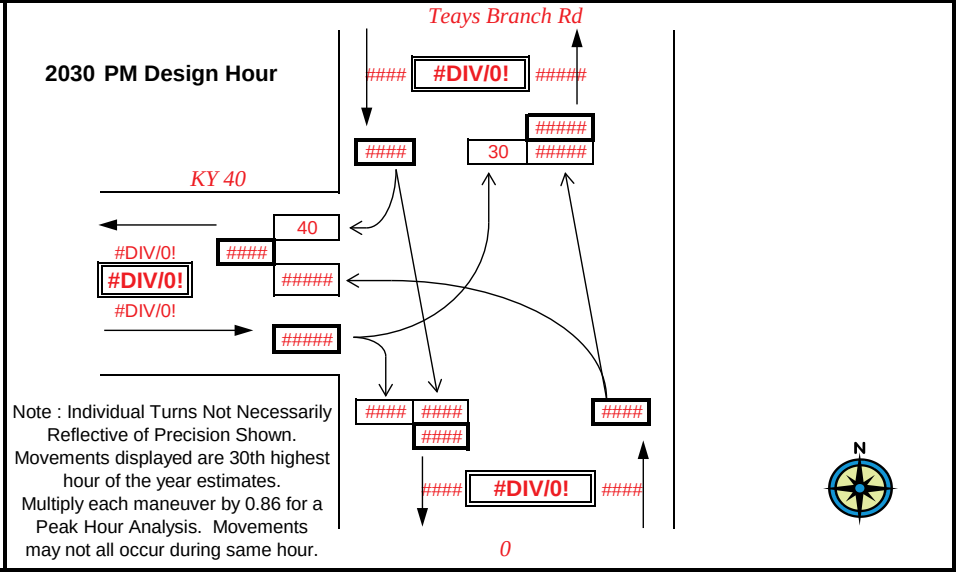
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







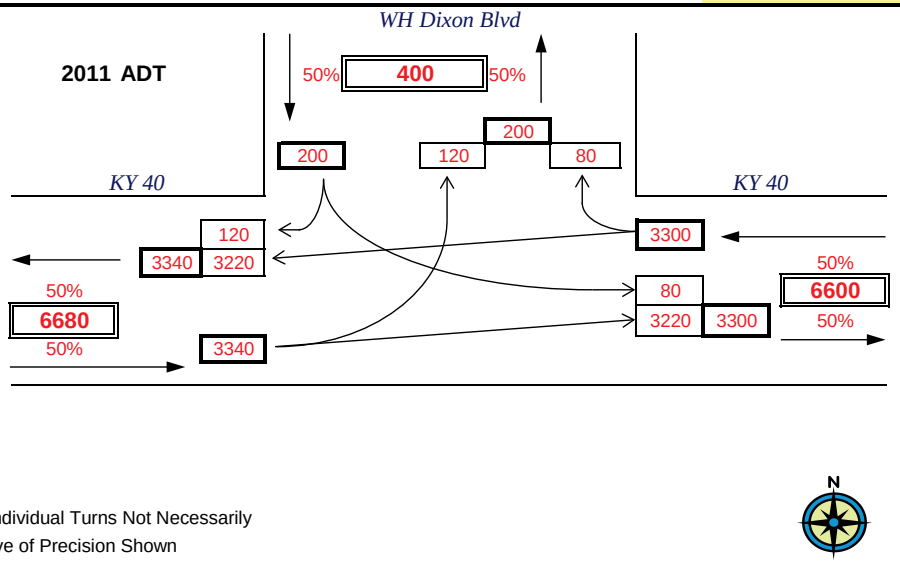


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

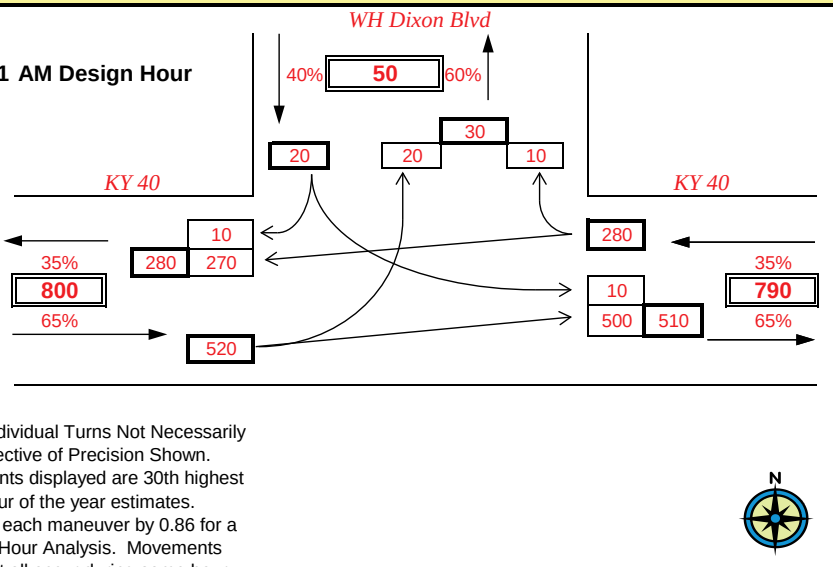
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



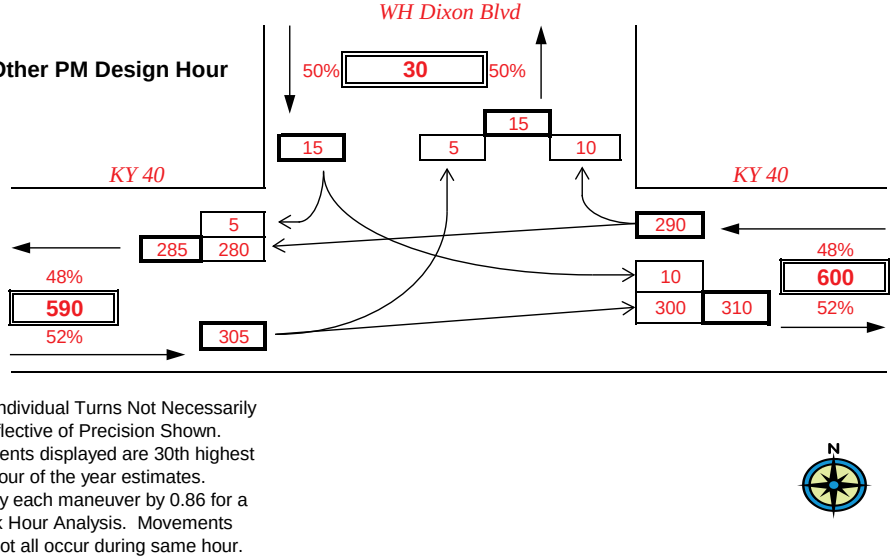
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



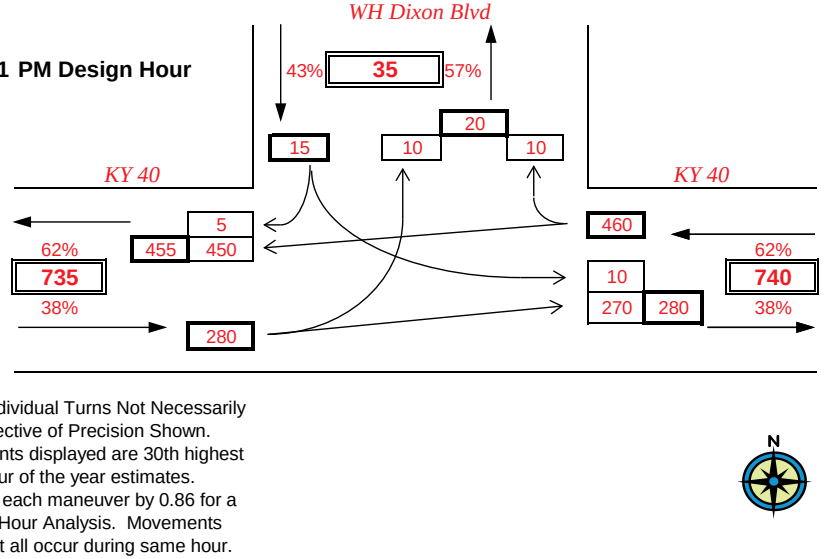
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



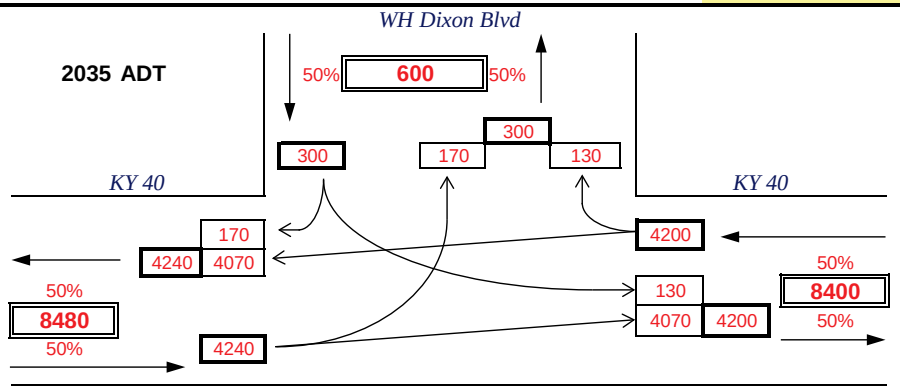
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

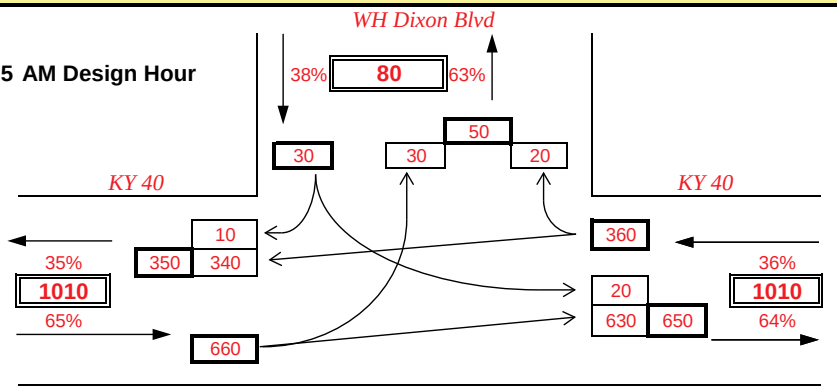
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



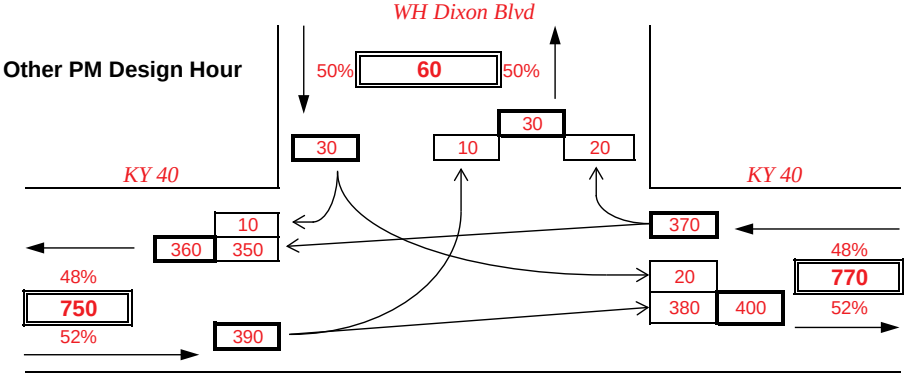
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



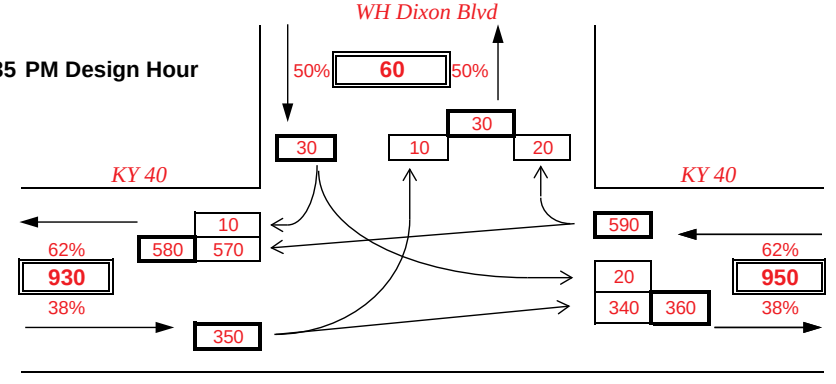
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



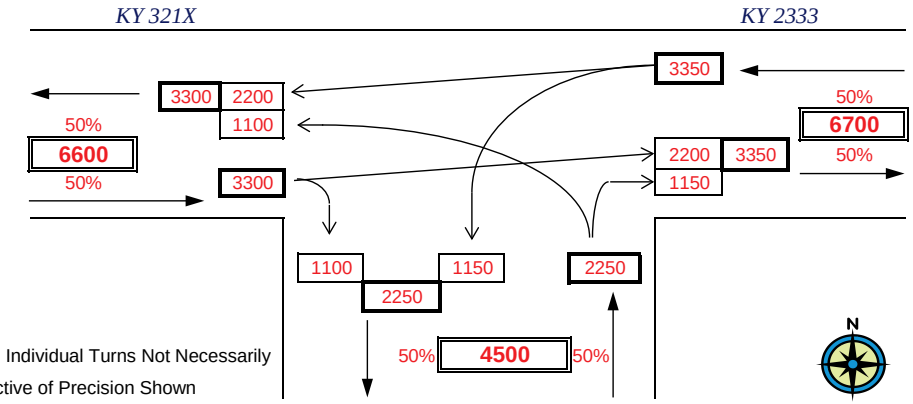
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

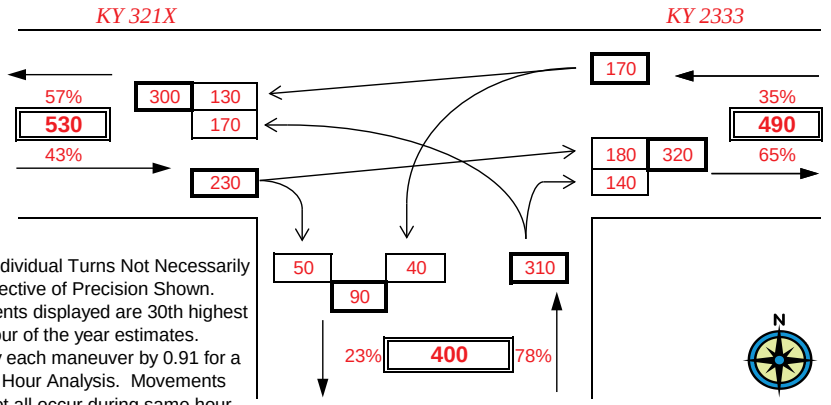
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



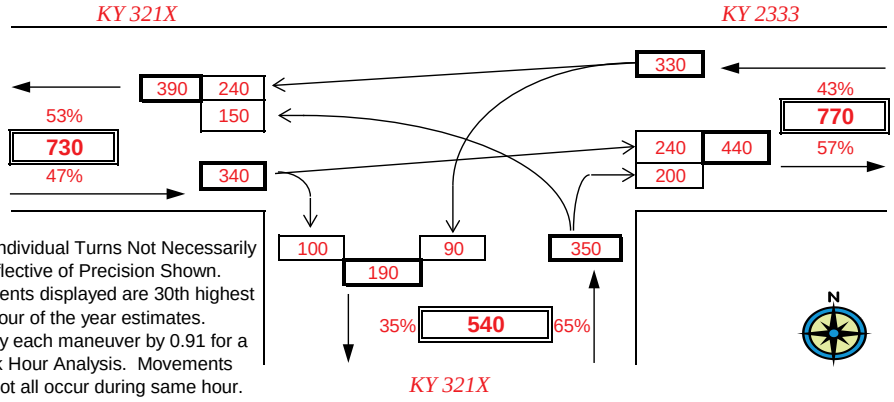
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



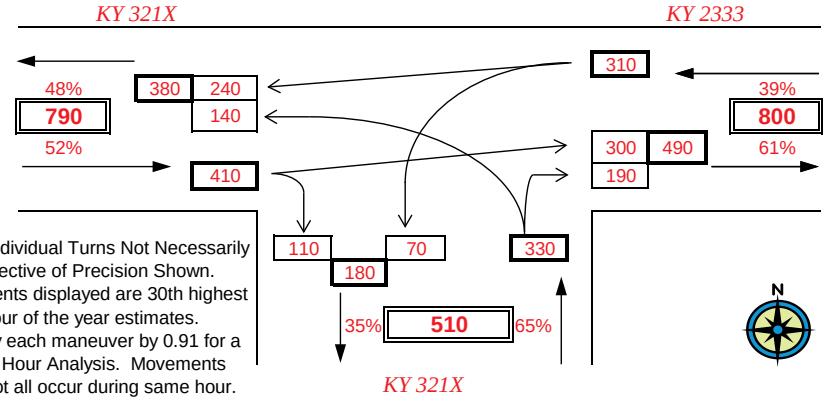
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



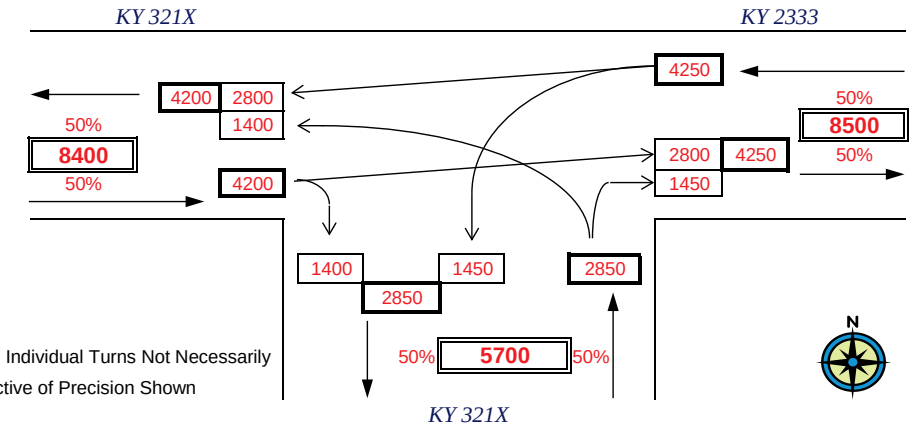
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

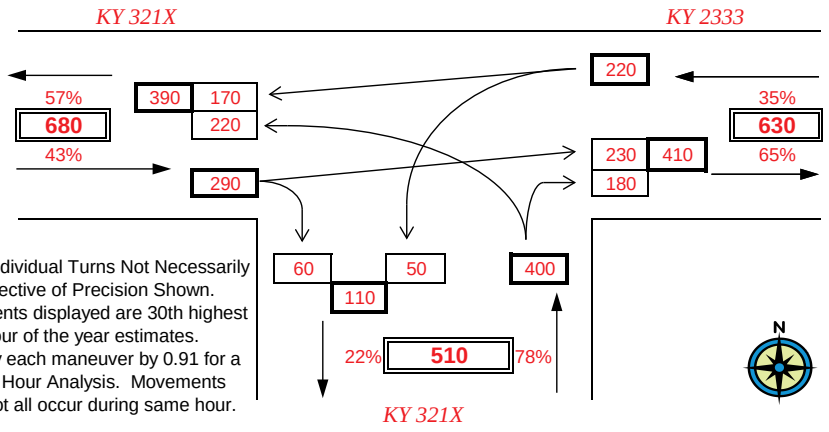
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



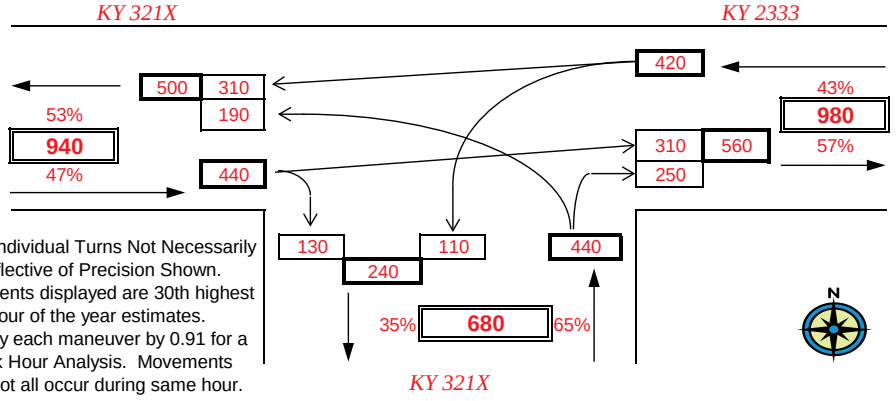
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



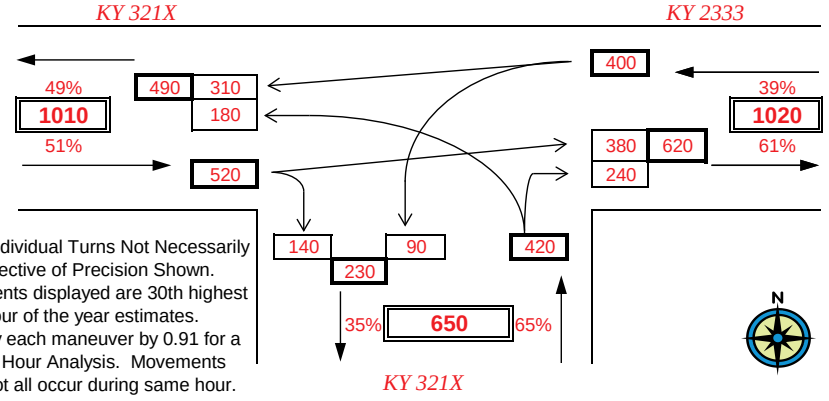
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



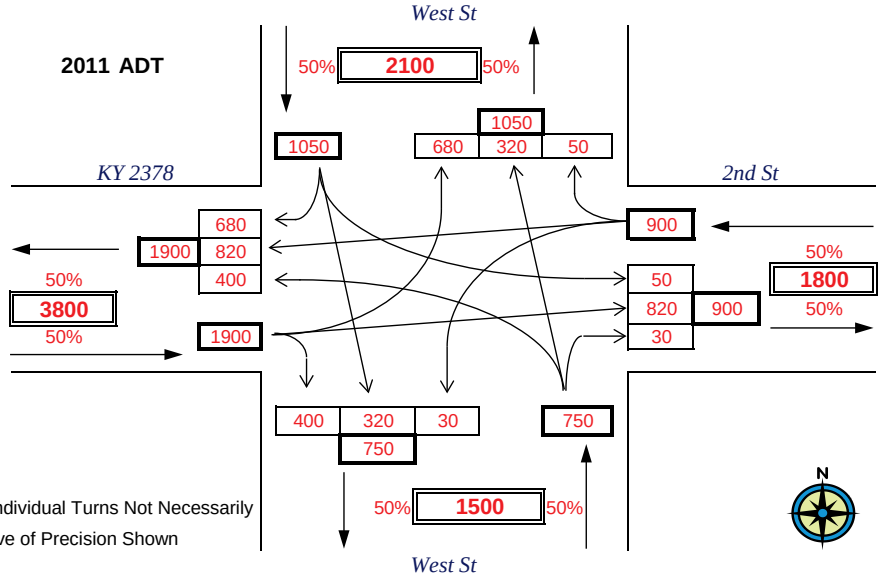
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

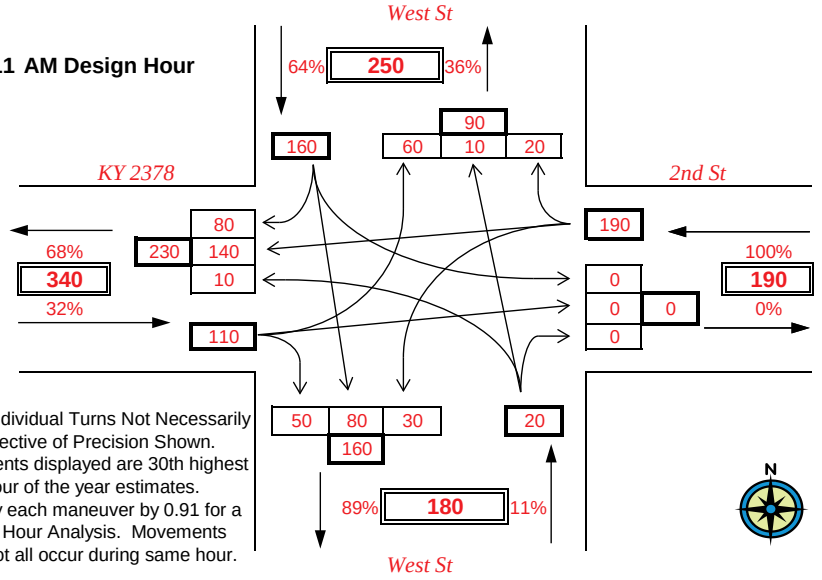
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



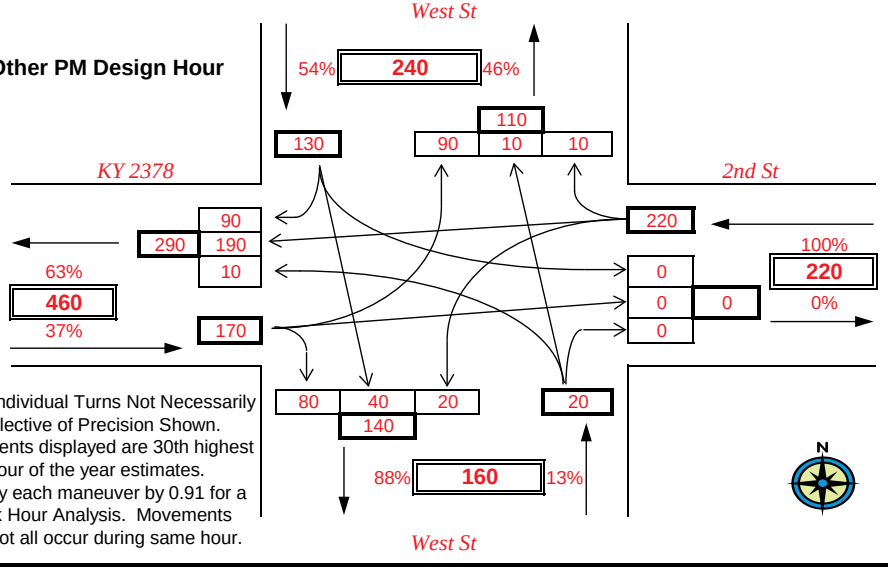
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



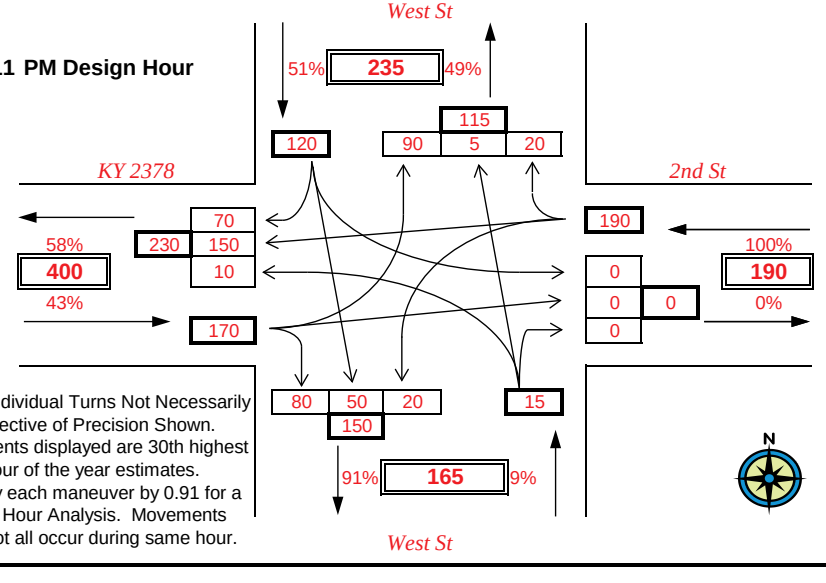
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



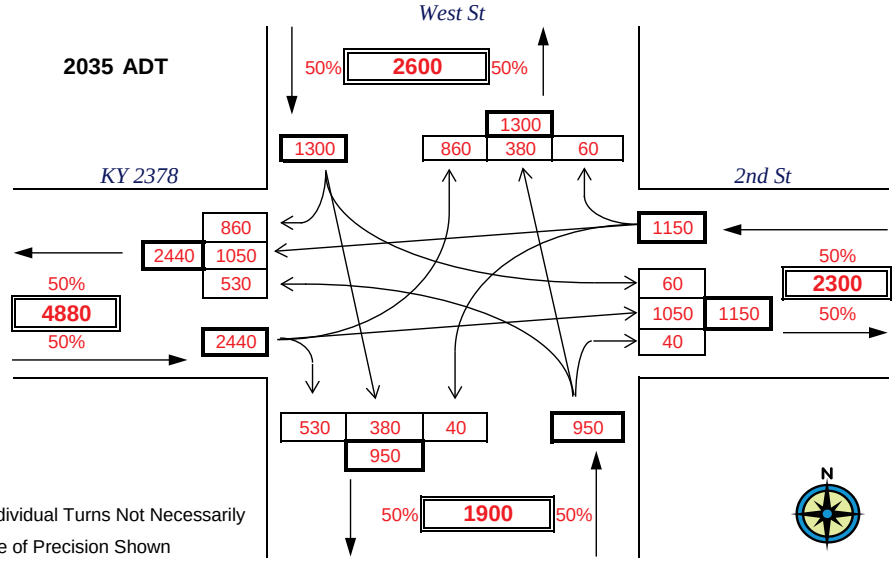
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

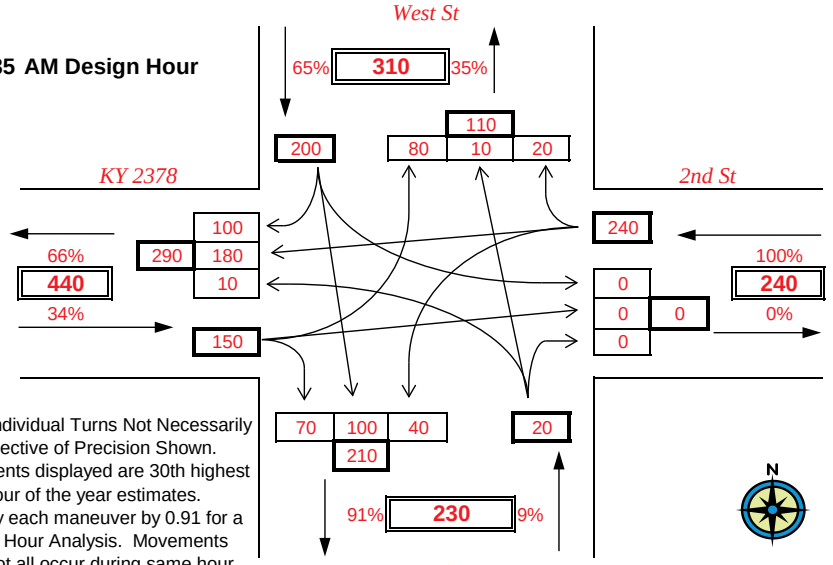
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



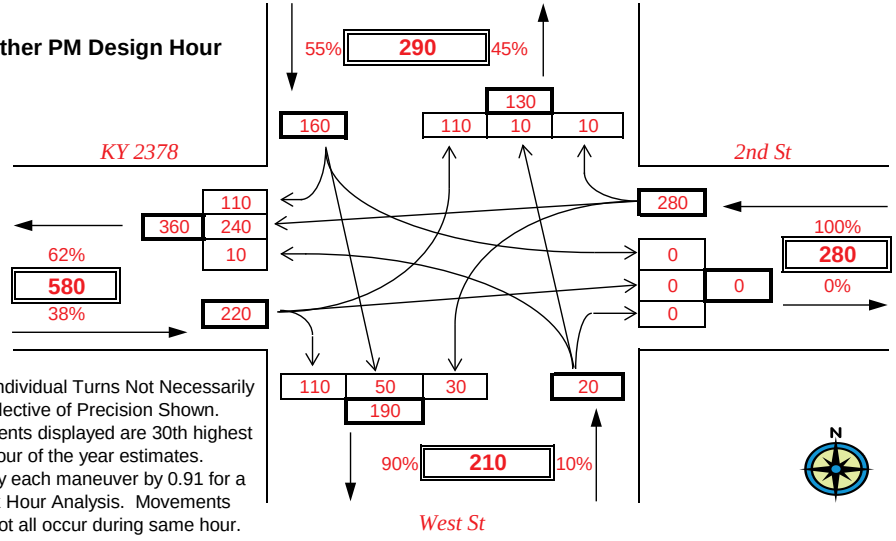
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



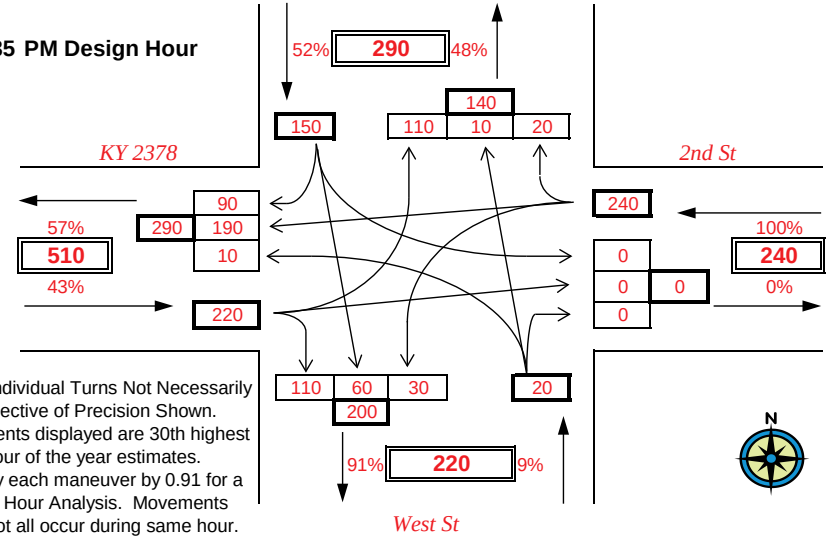
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



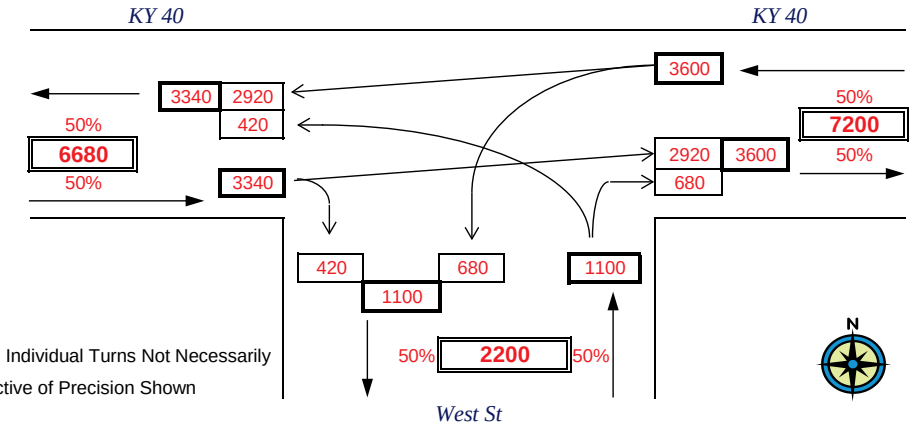
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

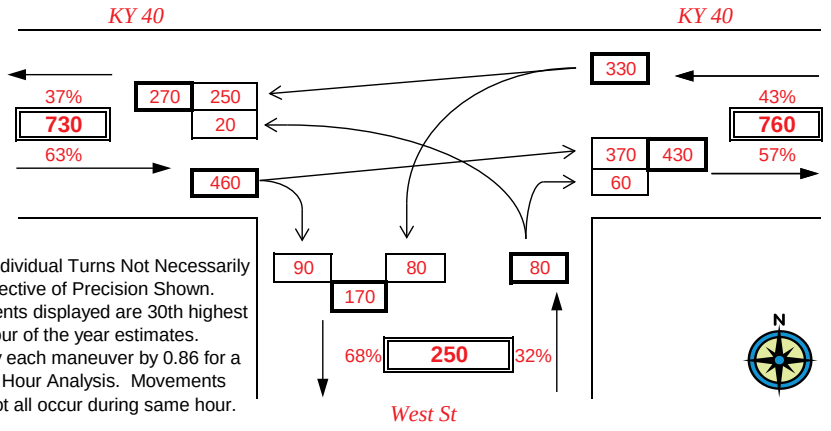
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



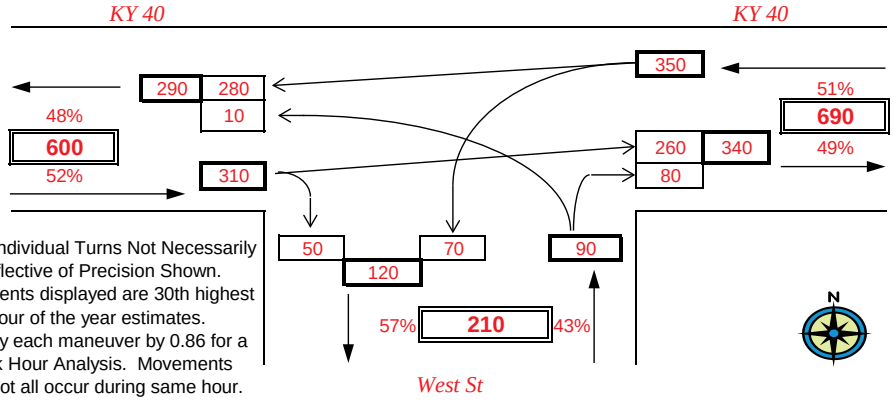
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



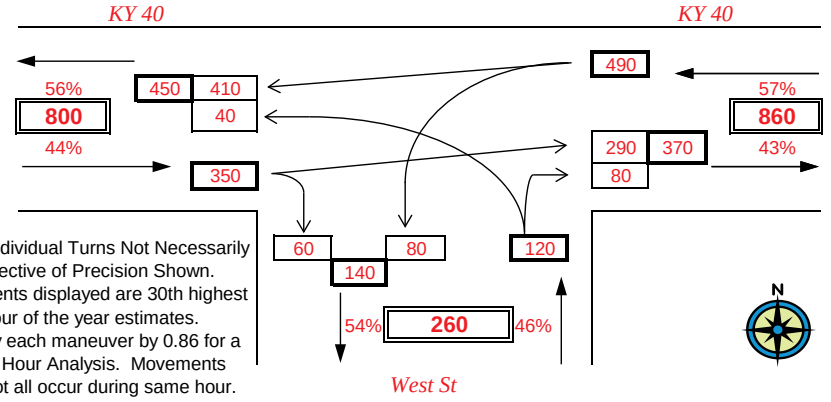
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



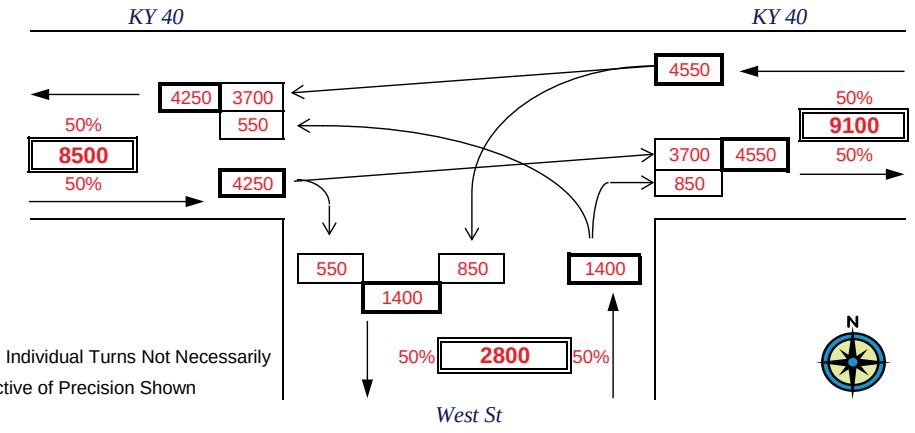
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

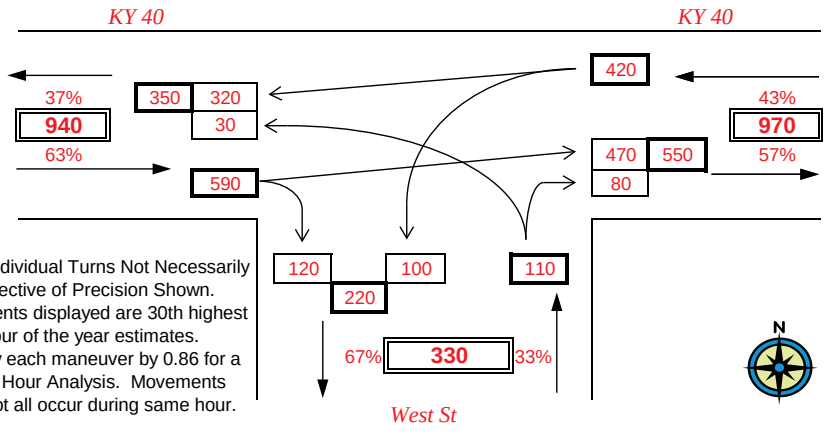
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



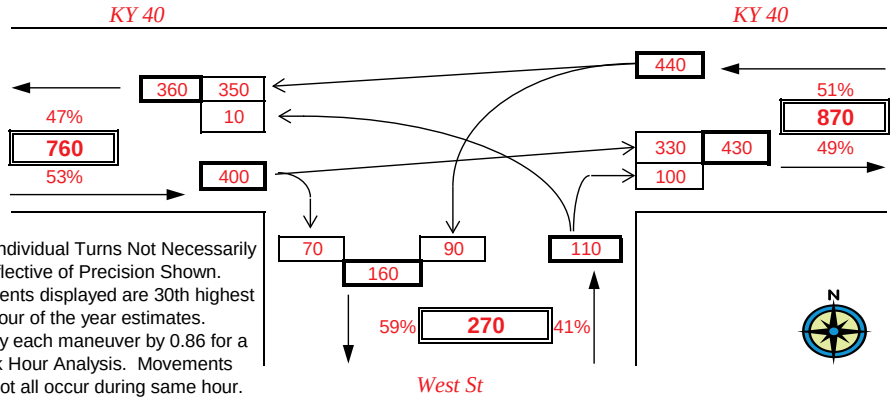
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



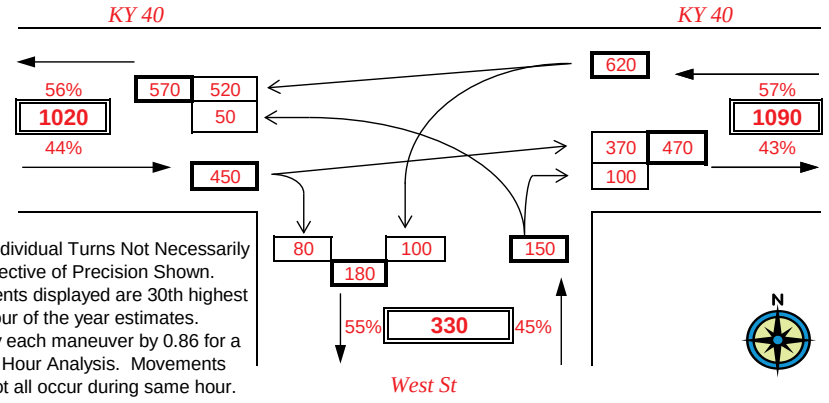
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



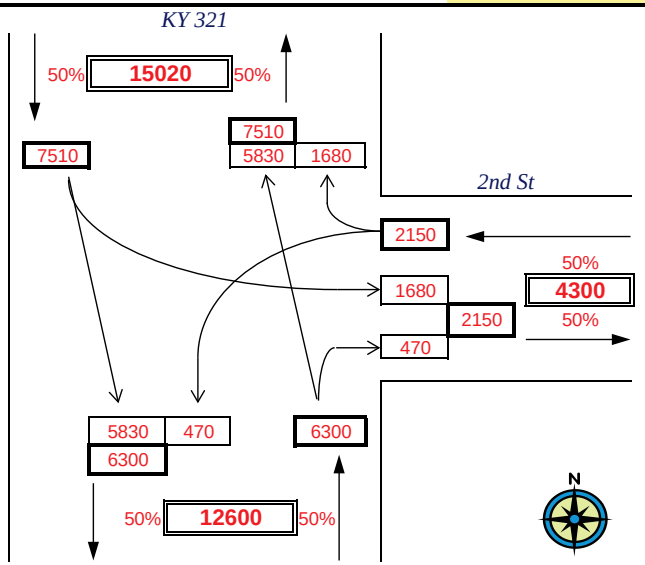
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

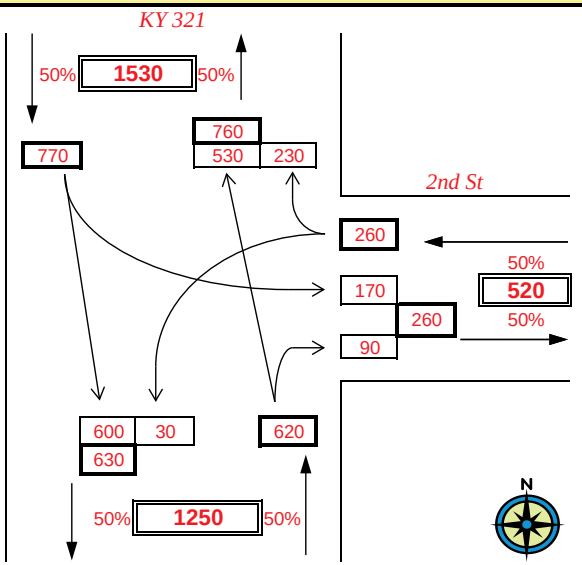
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



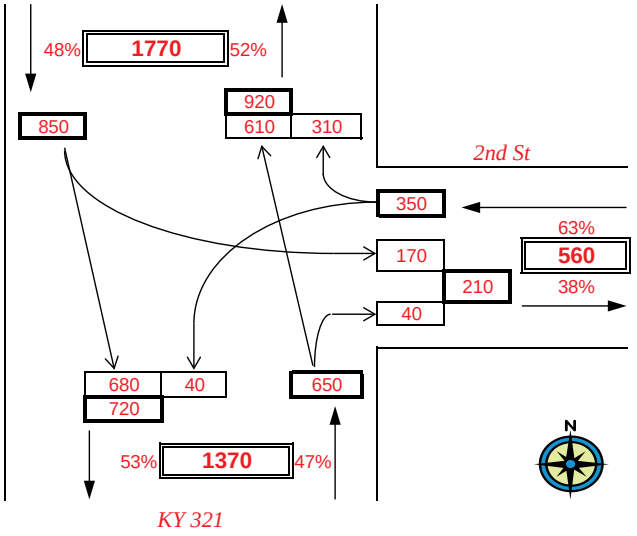
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



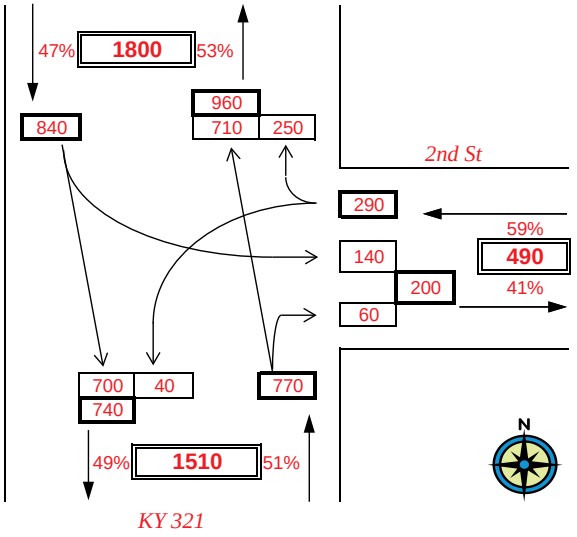
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



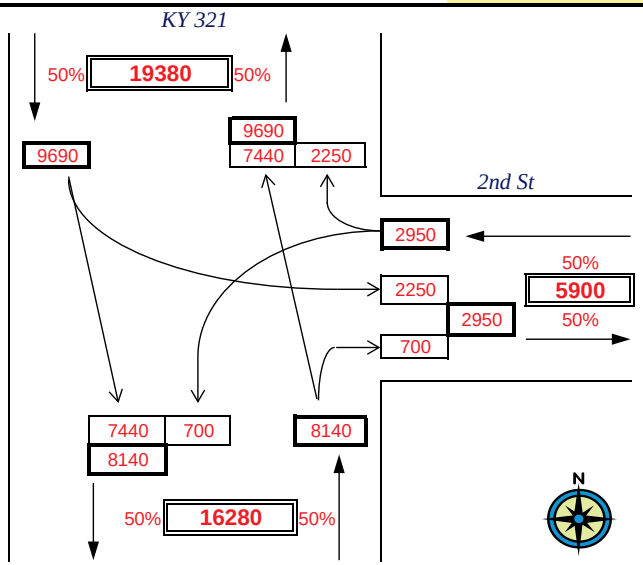
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

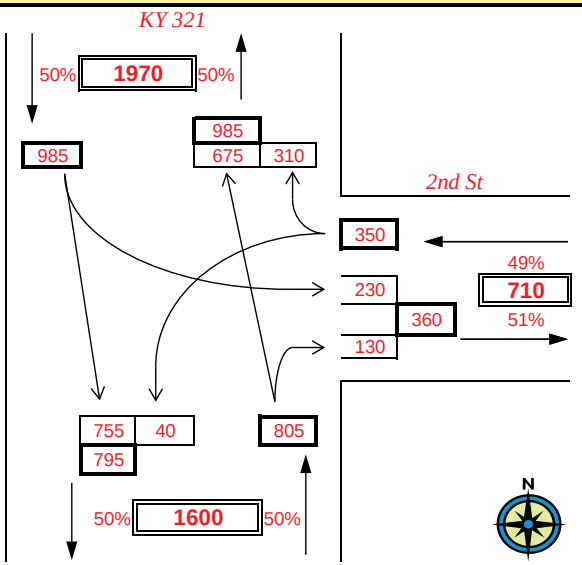
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



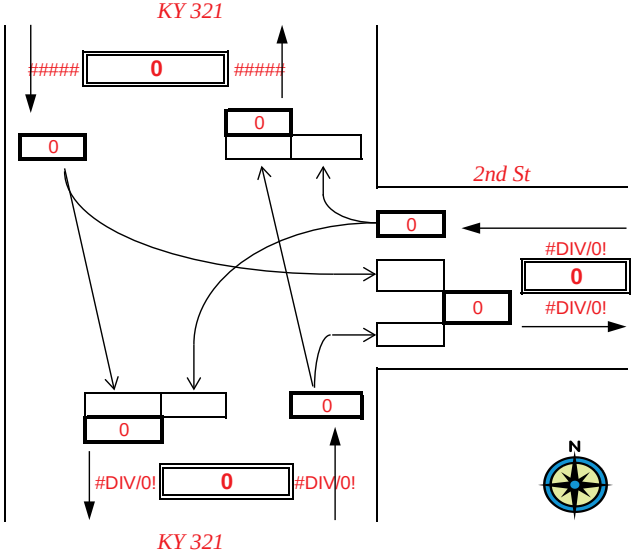
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



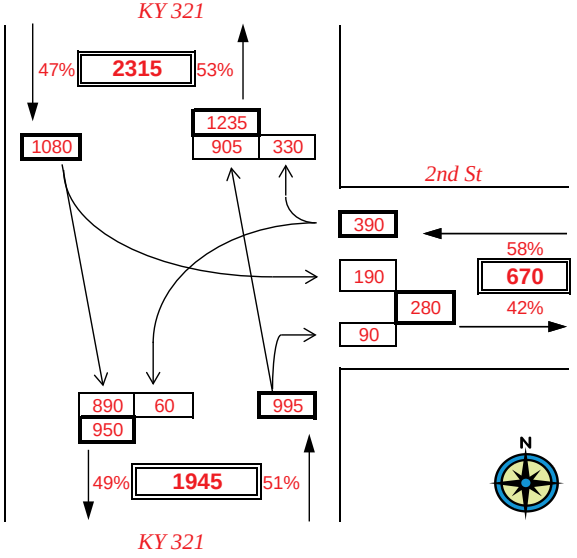
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



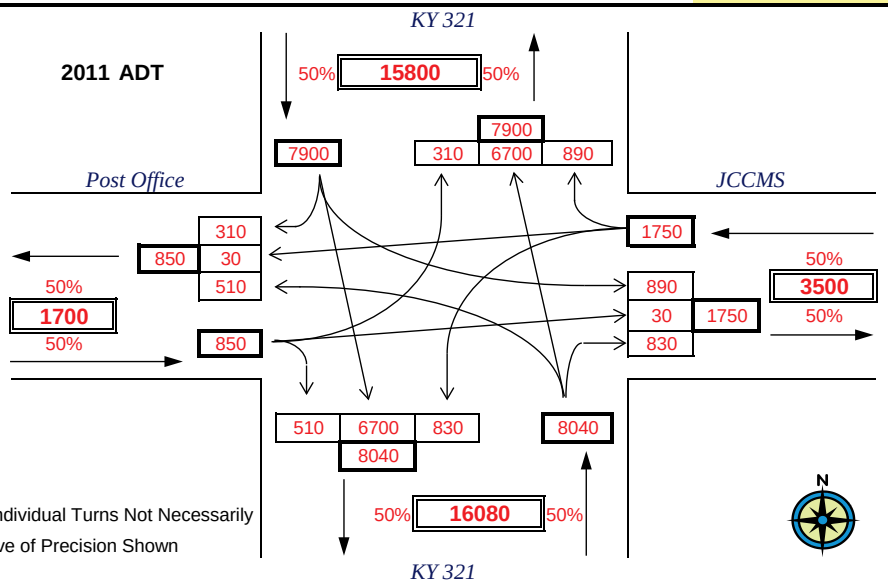
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

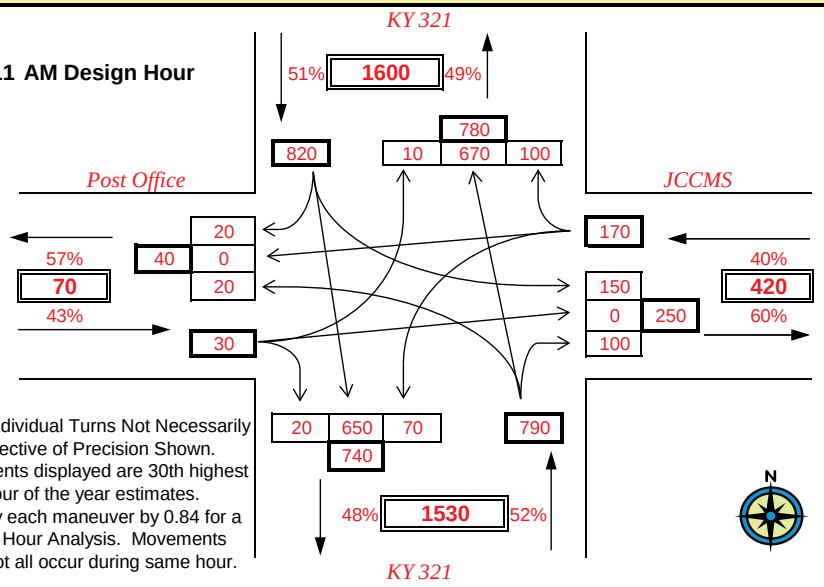
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



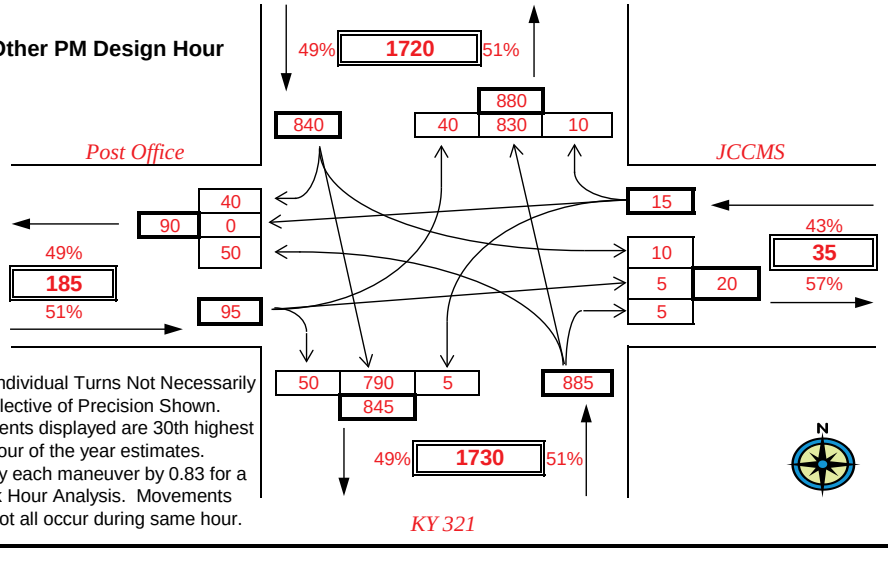
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



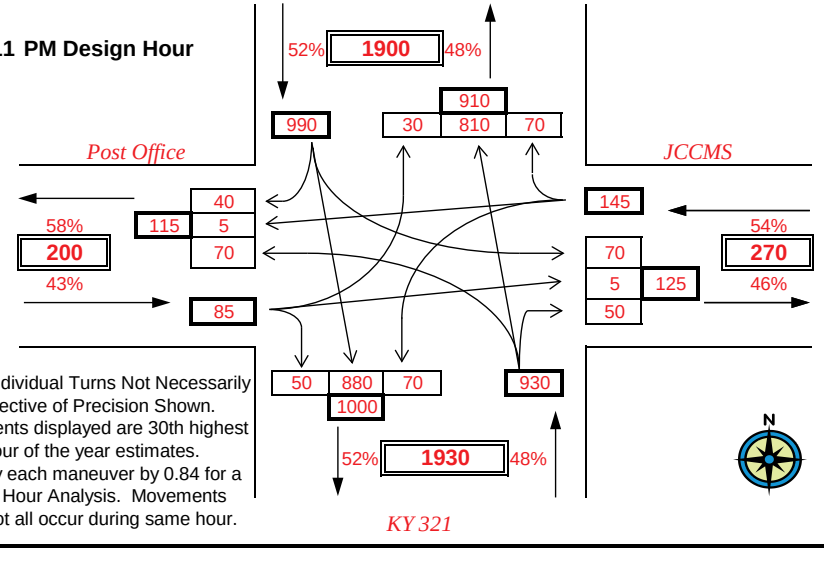
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



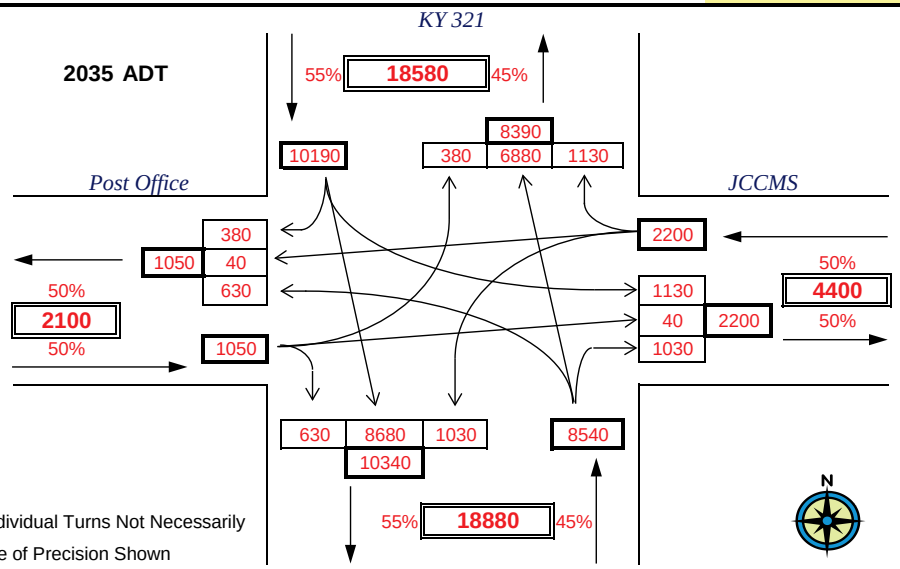
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

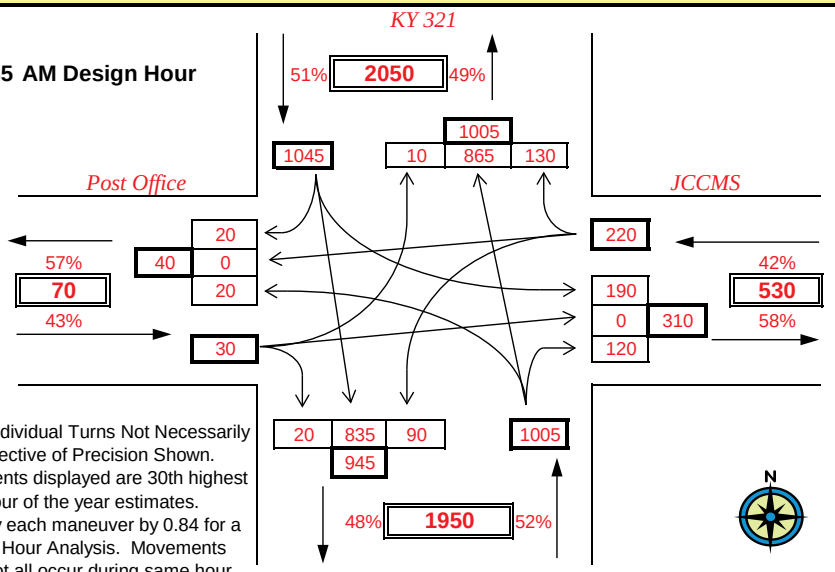
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



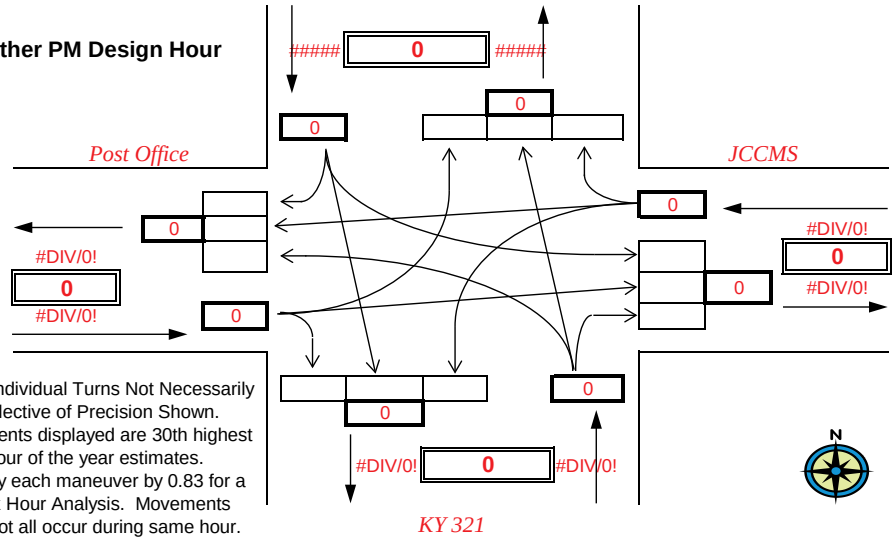
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



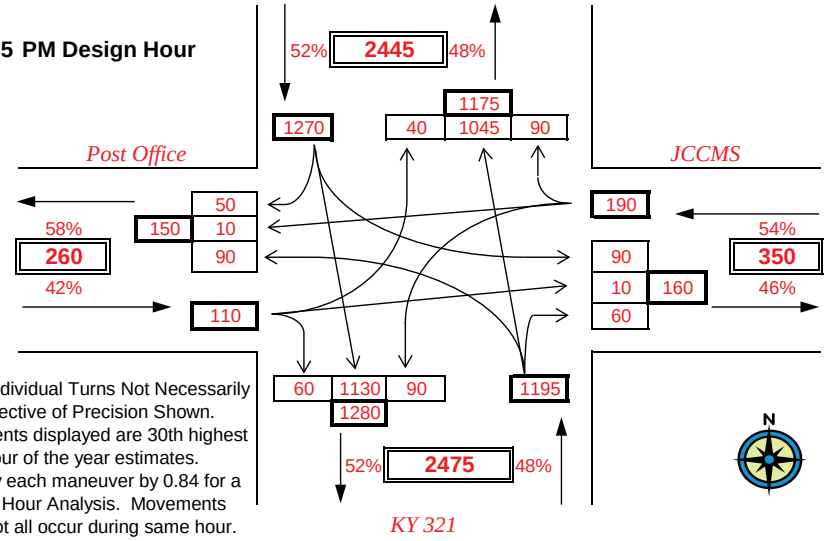
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



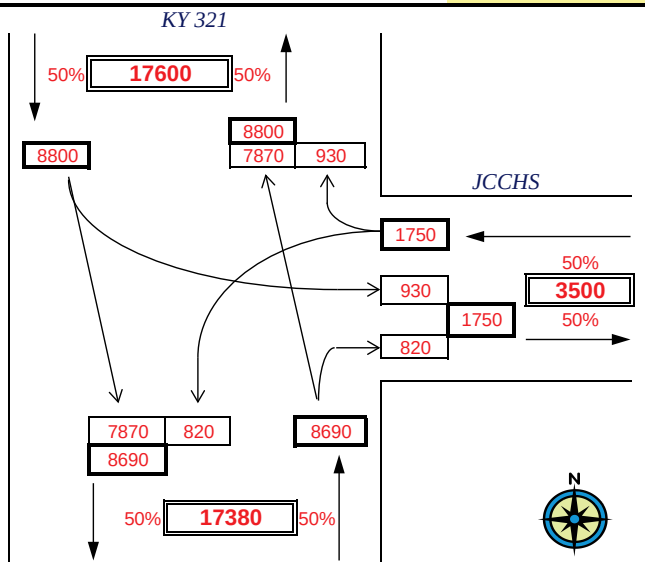
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

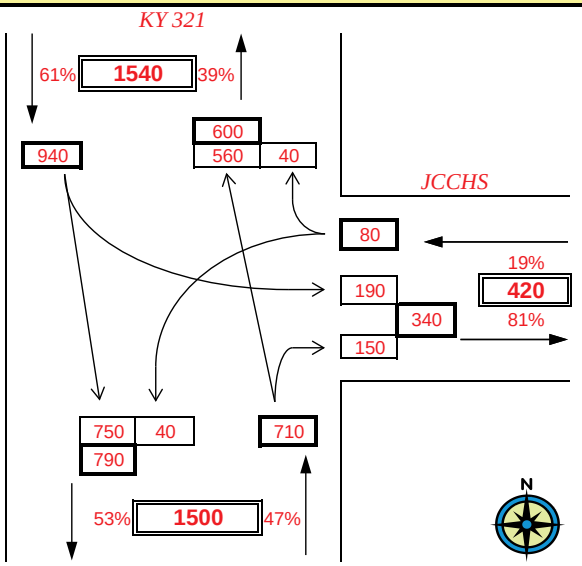
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



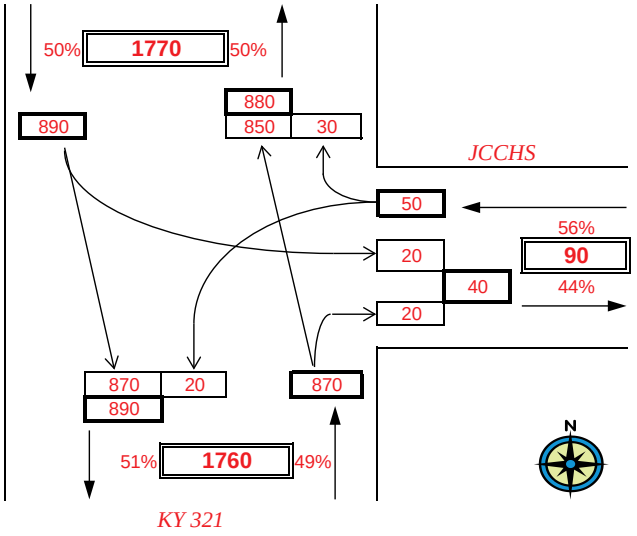
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



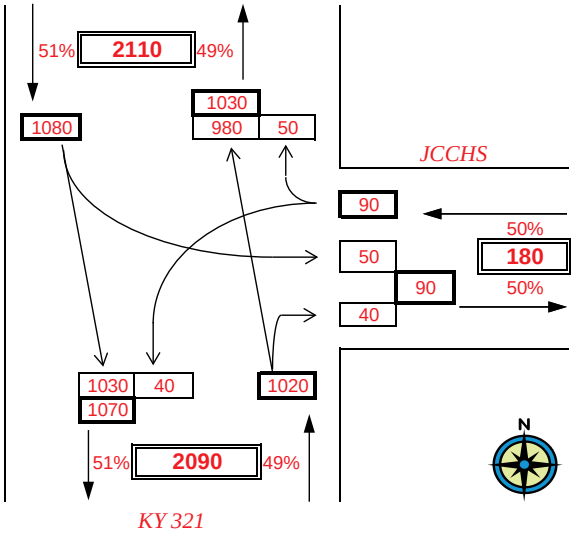
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



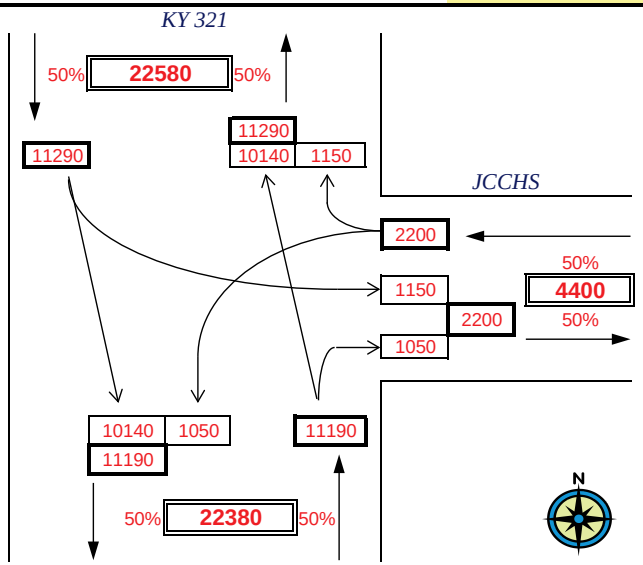
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

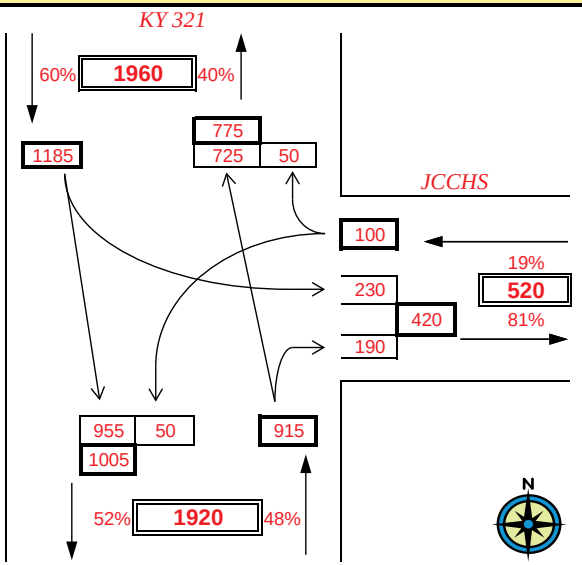
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



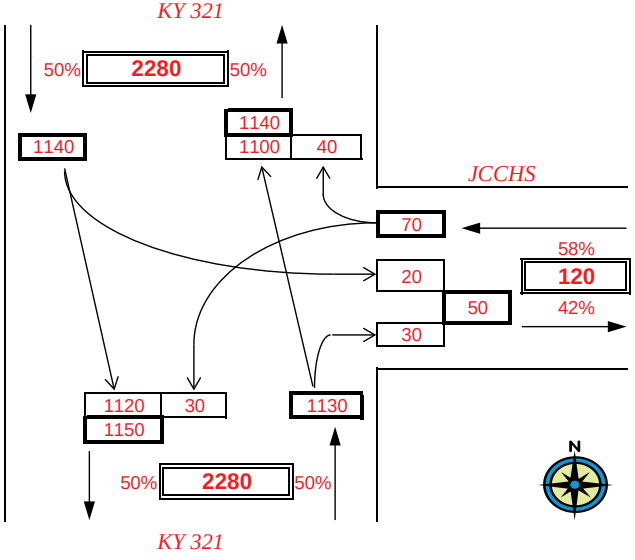
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



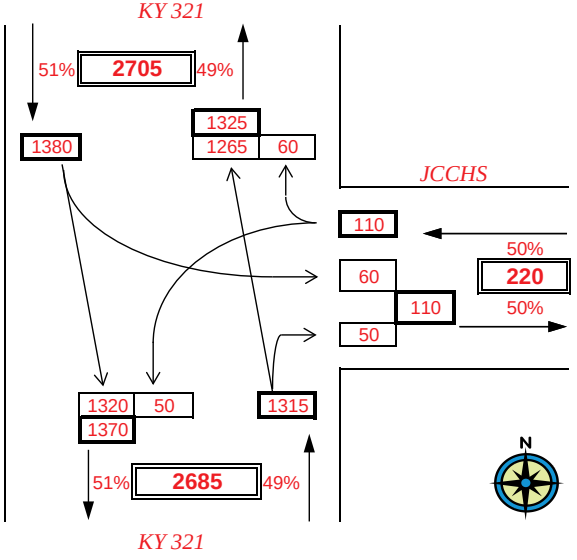
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



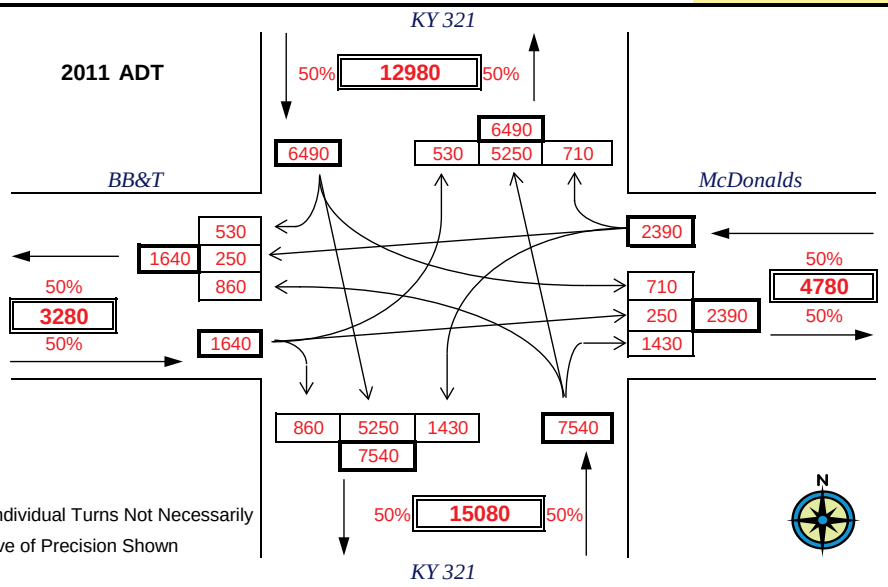
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

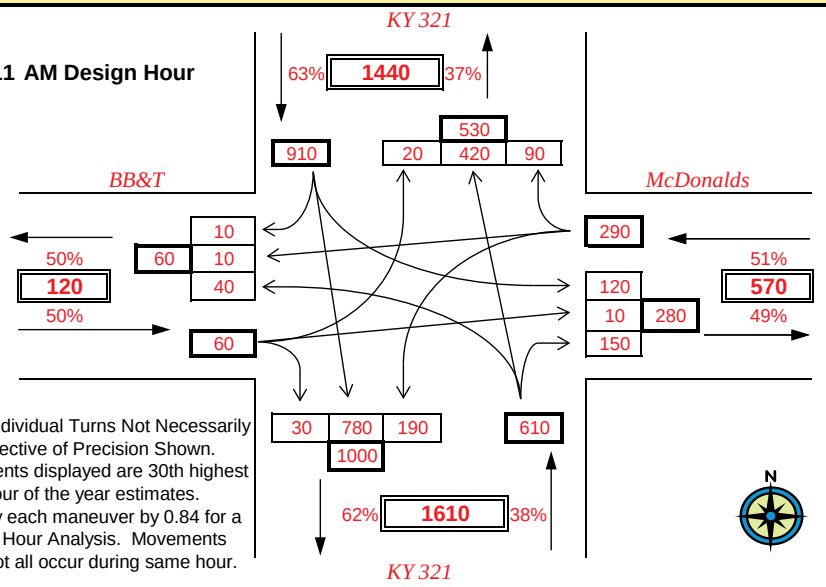
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



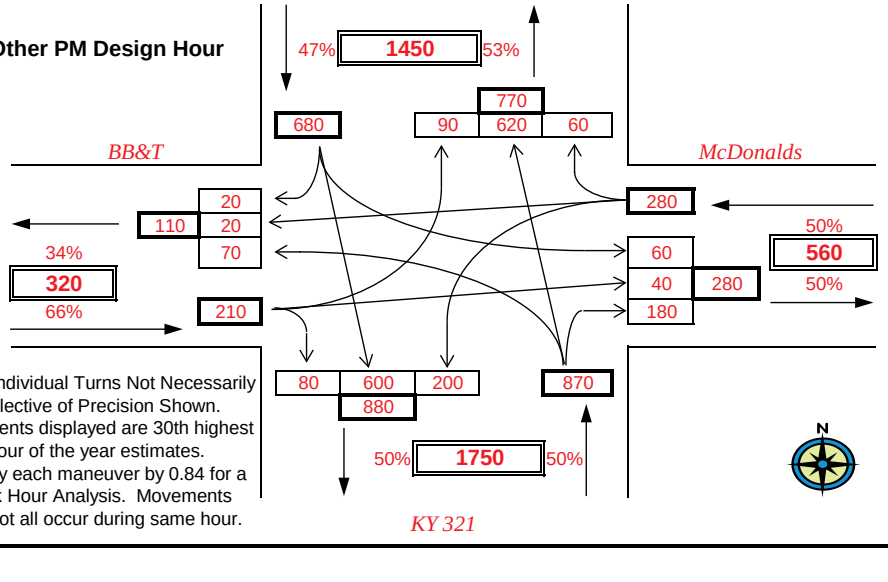
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



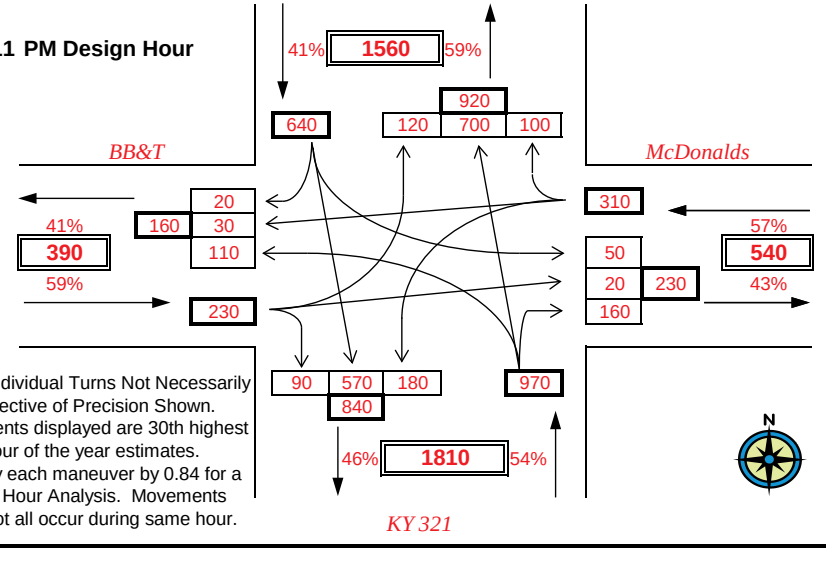
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



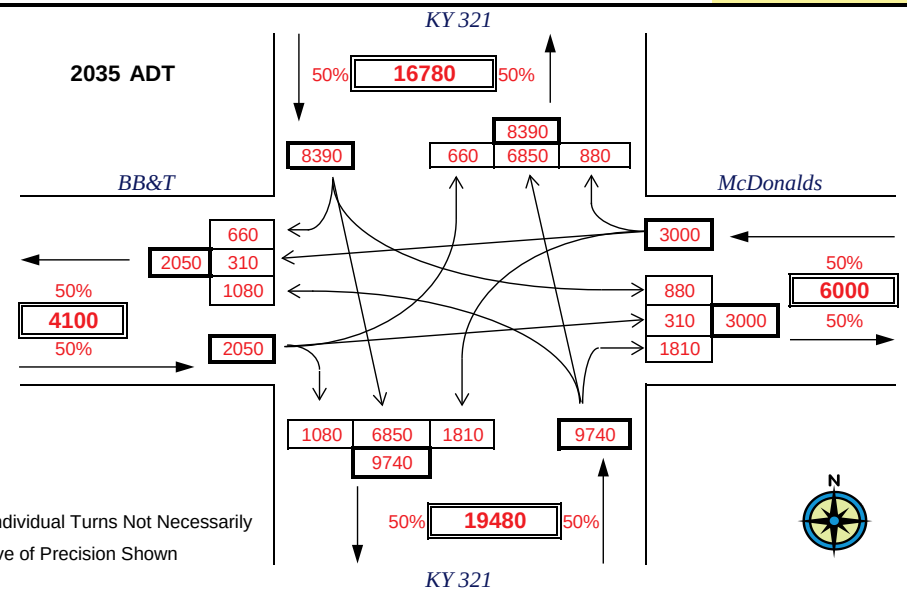
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

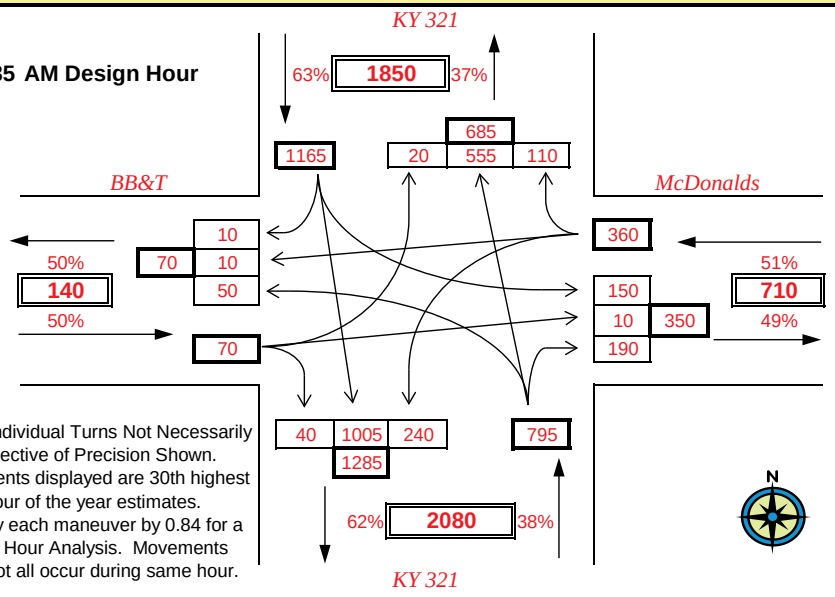
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



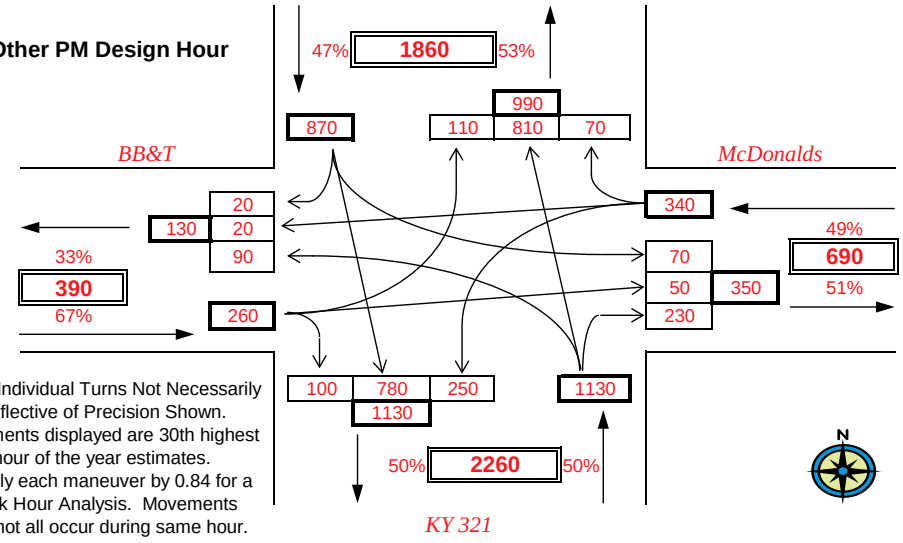
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



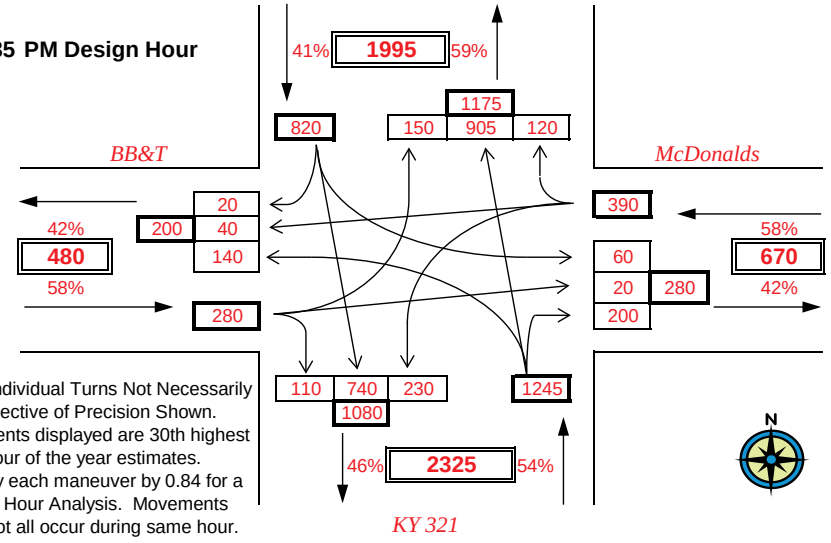
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



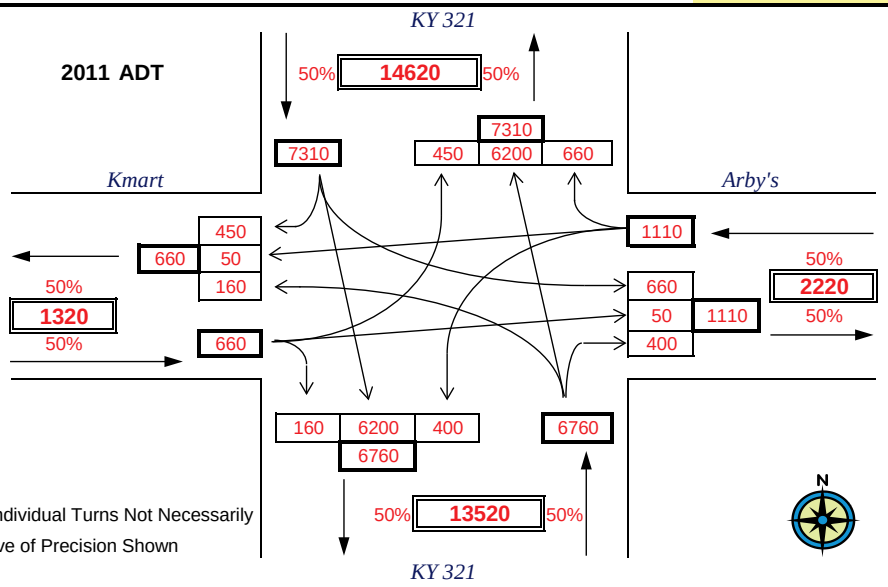
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

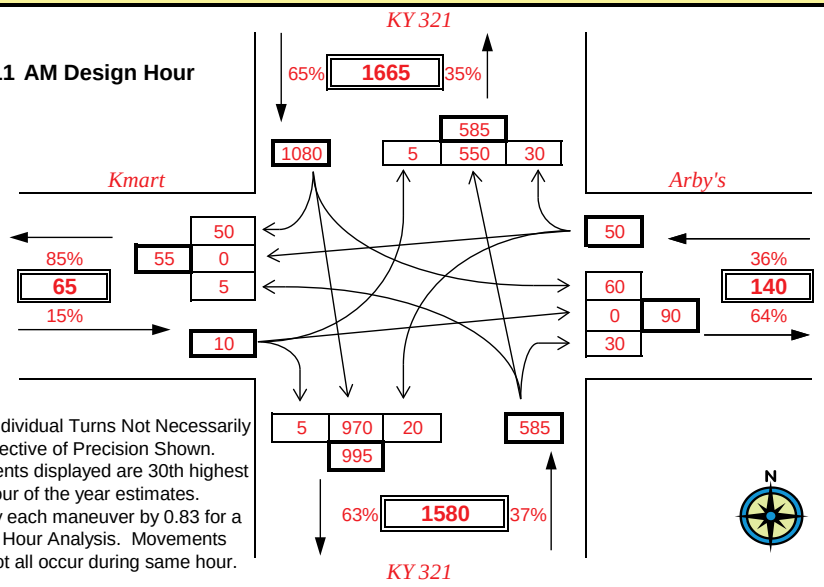
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



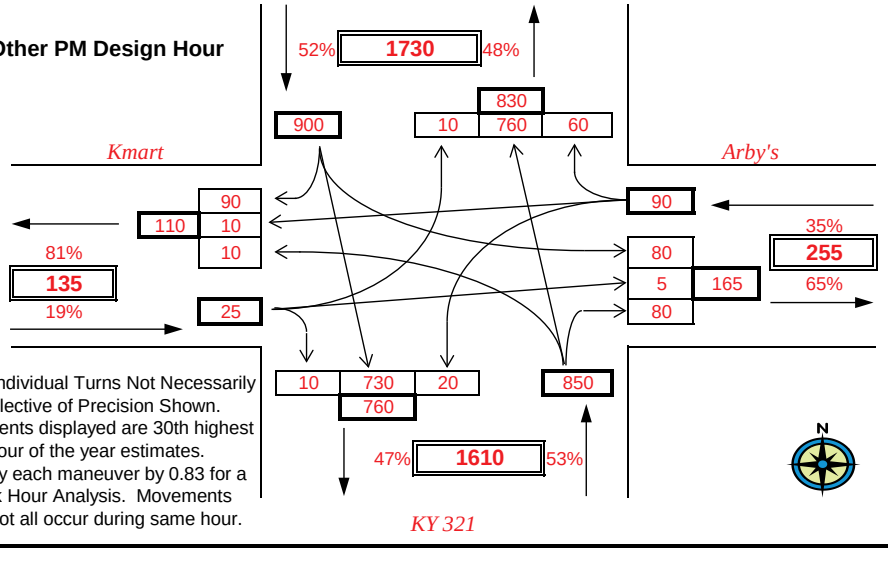
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



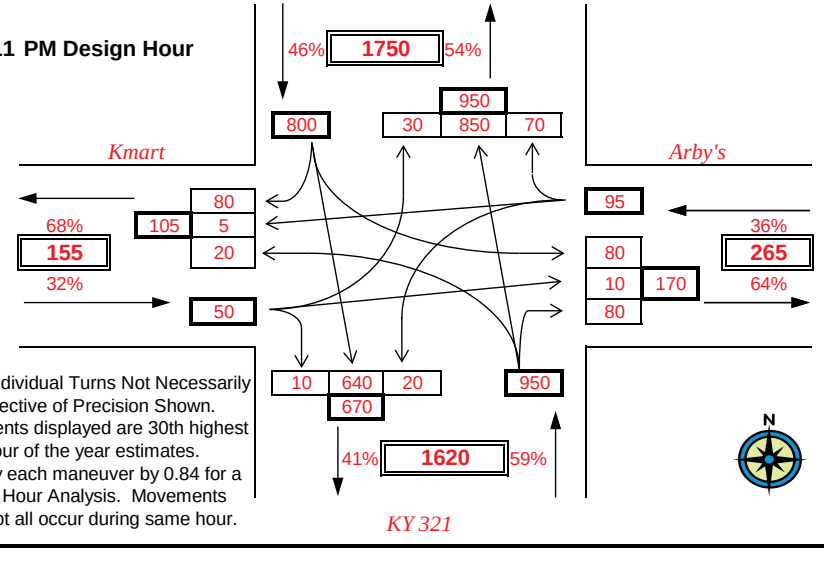
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



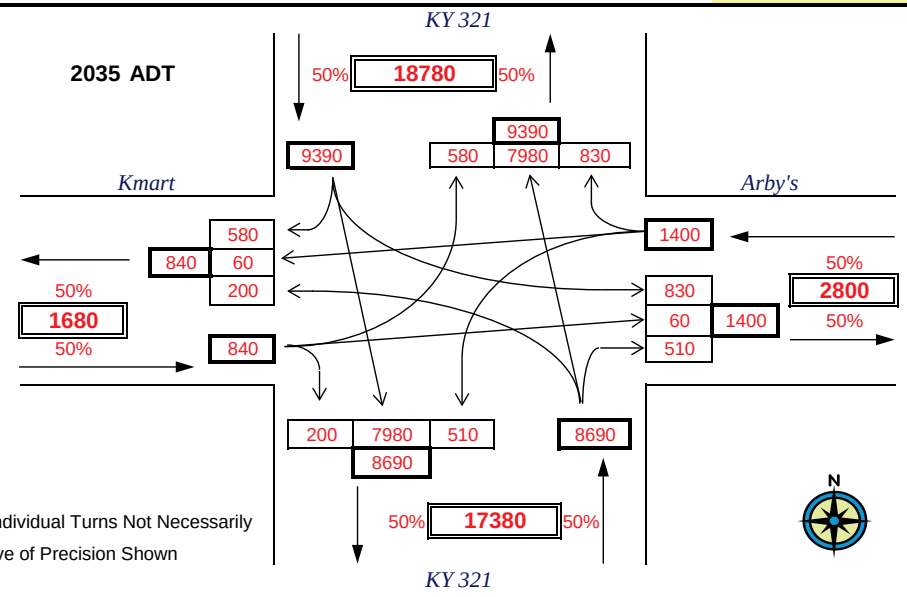
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

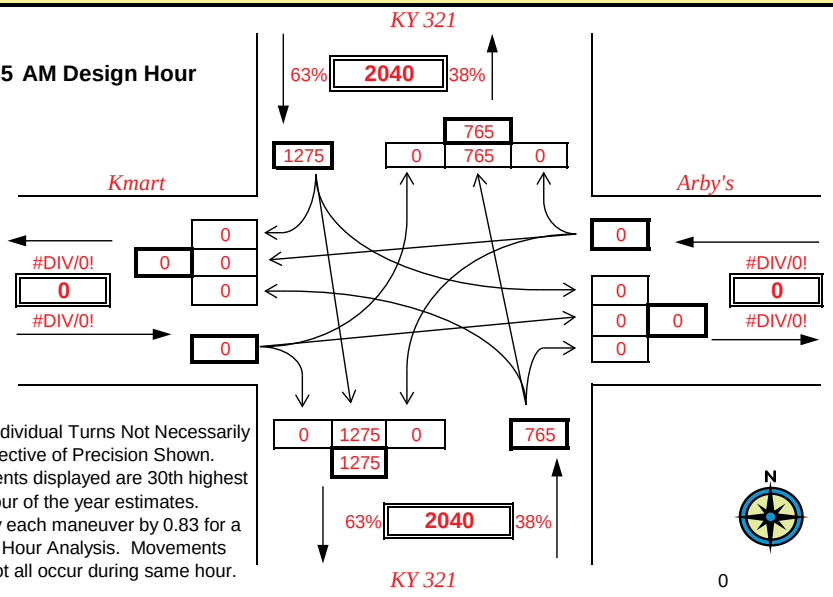
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



Note : Individual Turns Not Necessarily Reflective of Precision Shown

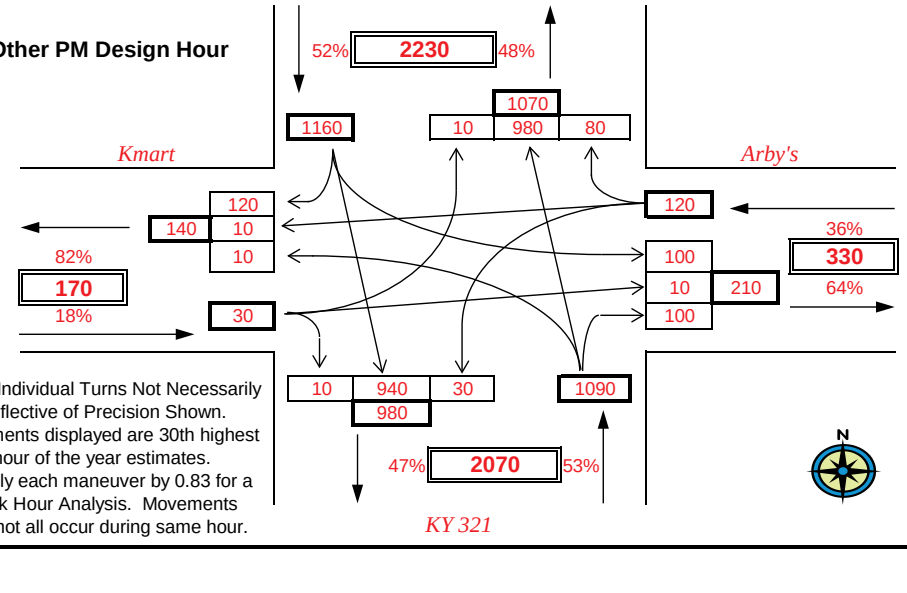
2035 AM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

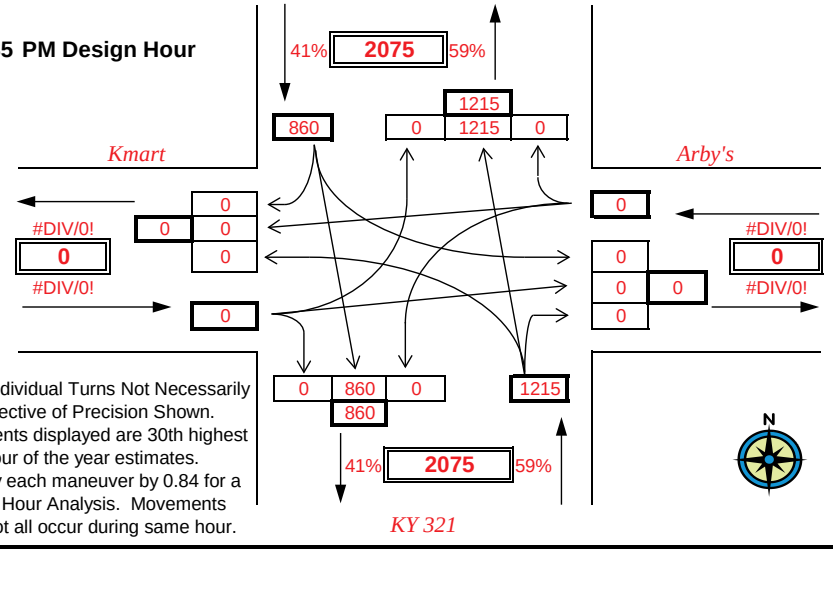
0

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

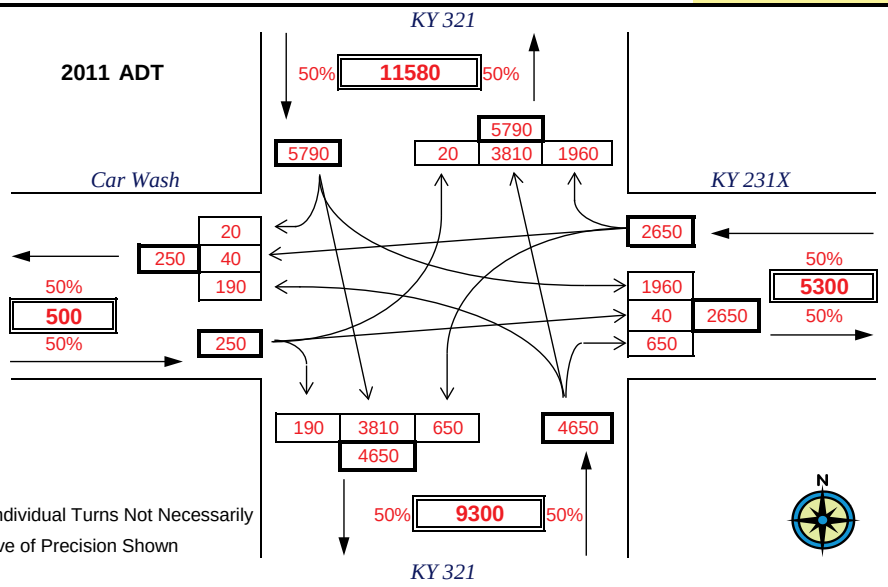
ALTERNATIVE 7

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

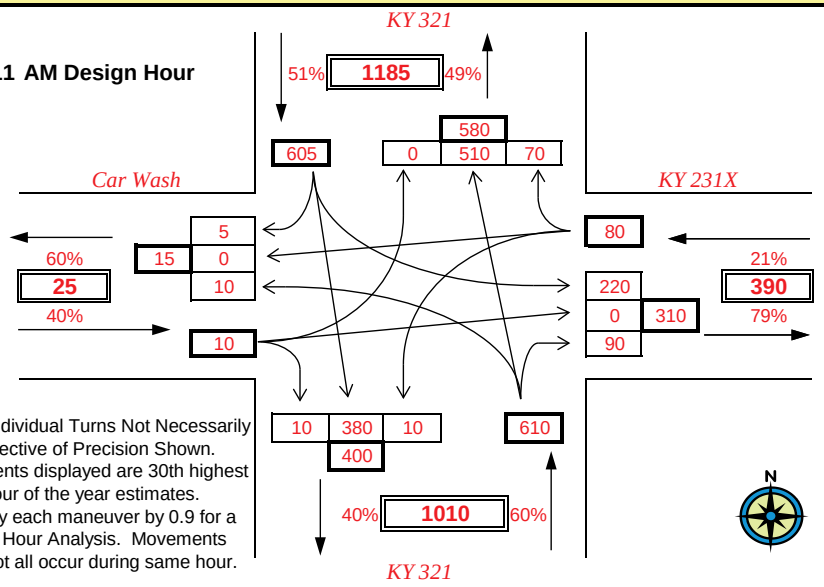
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



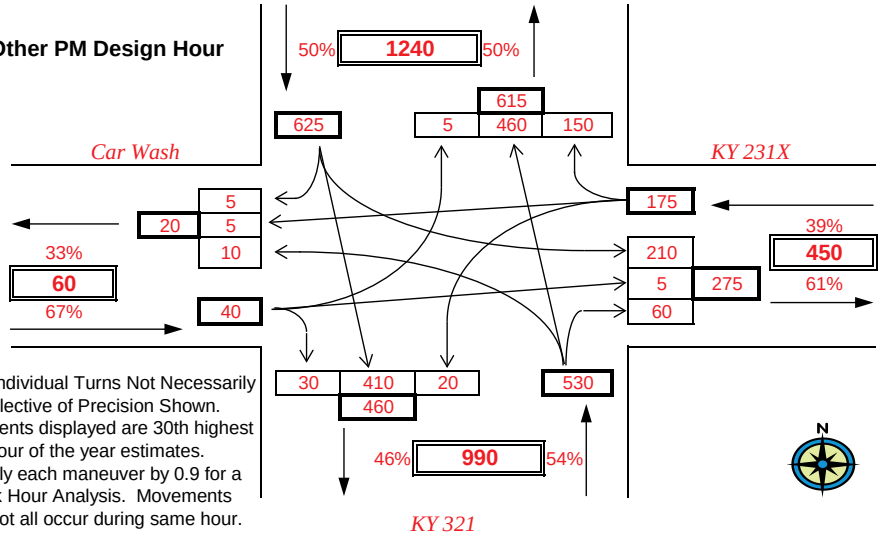
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



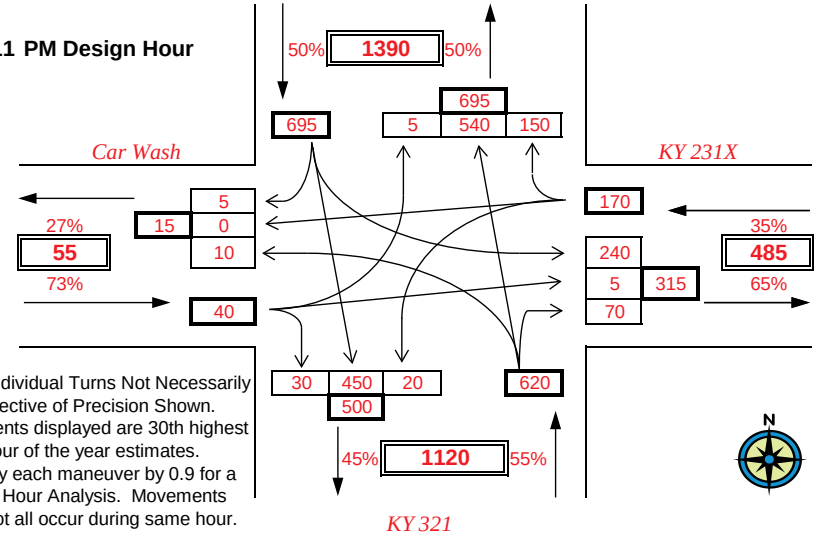
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



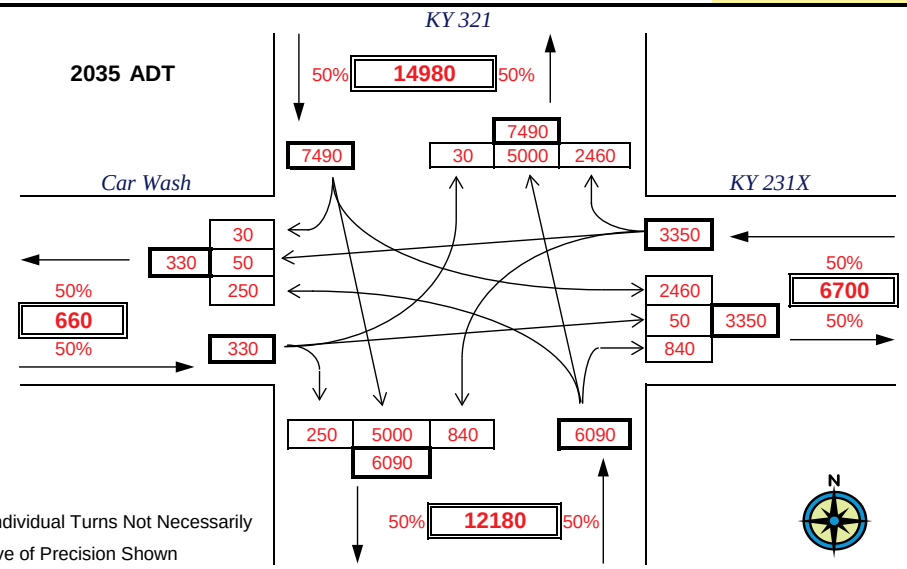
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

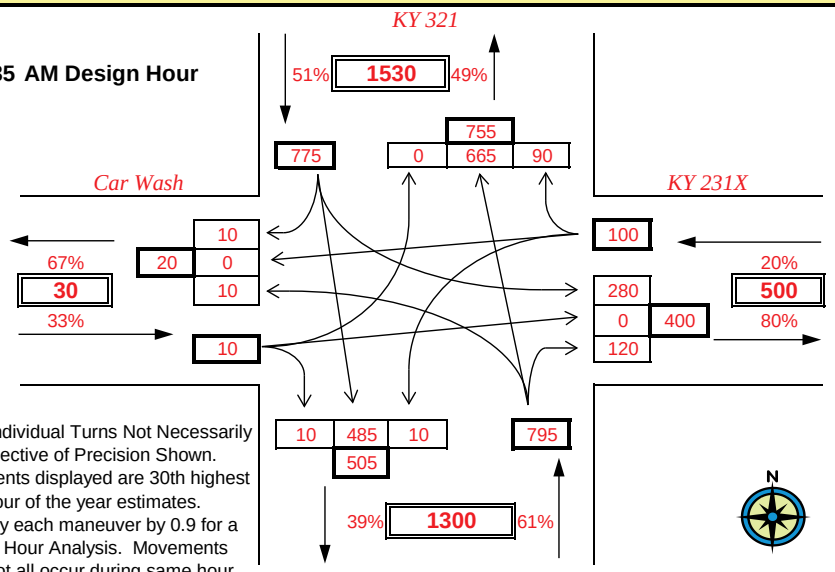
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



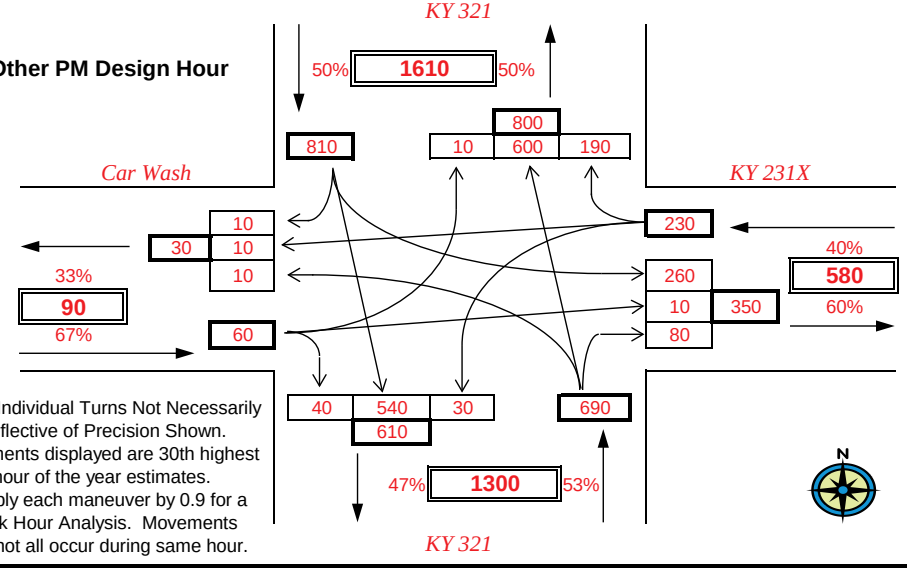
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



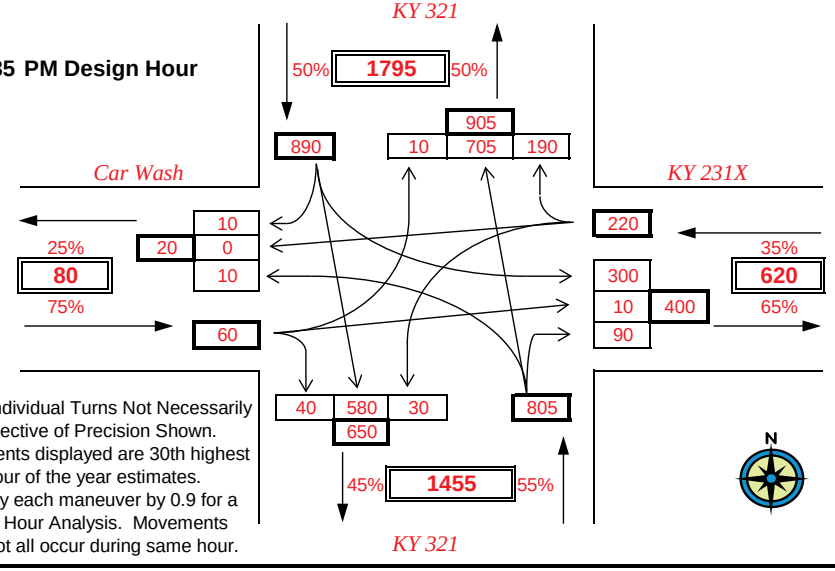
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

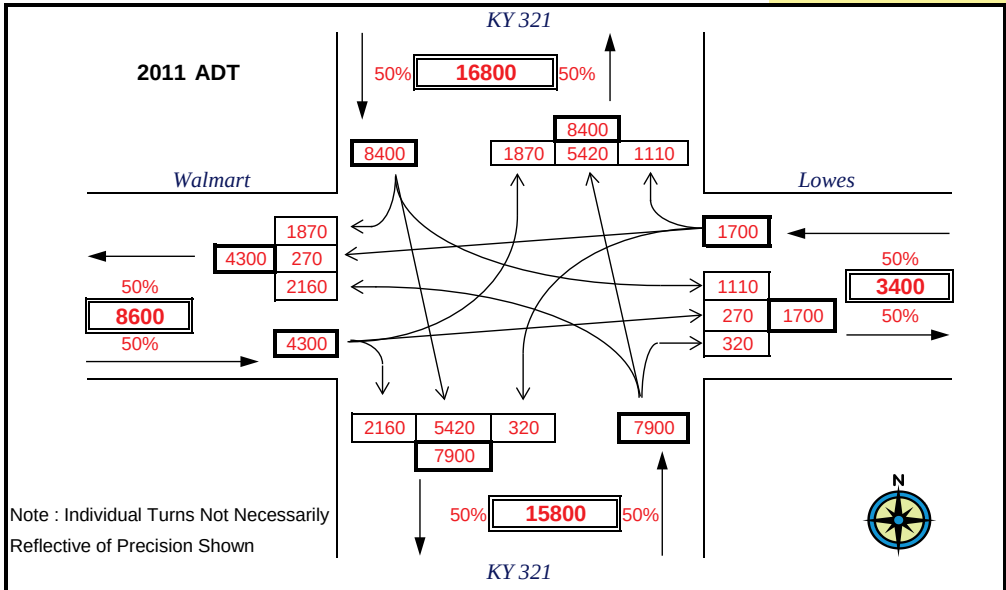


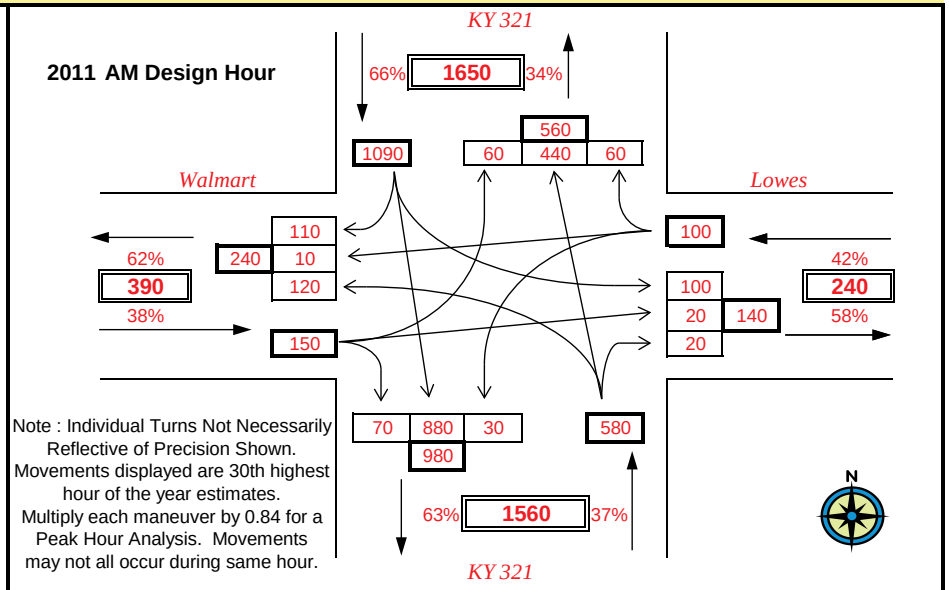
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

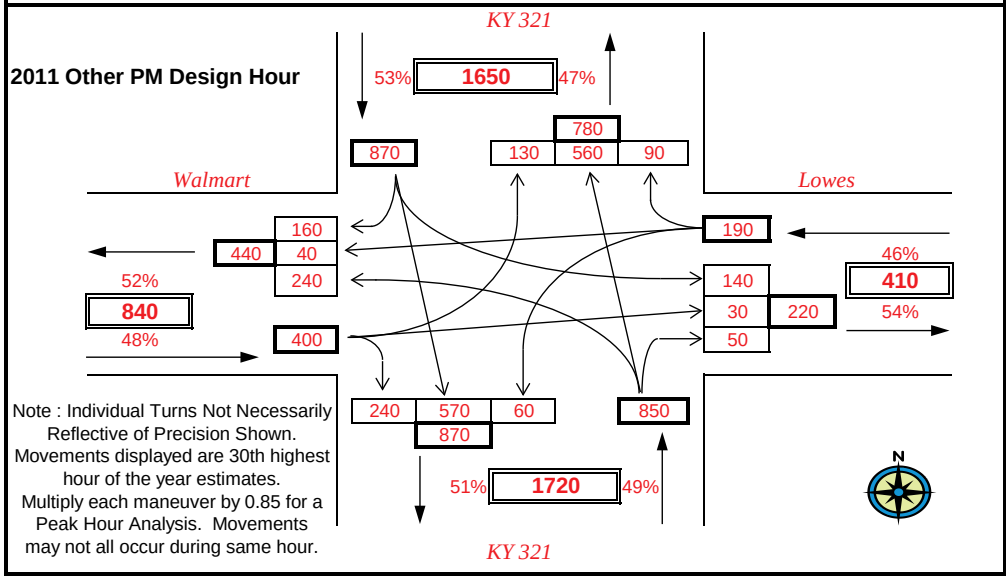
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

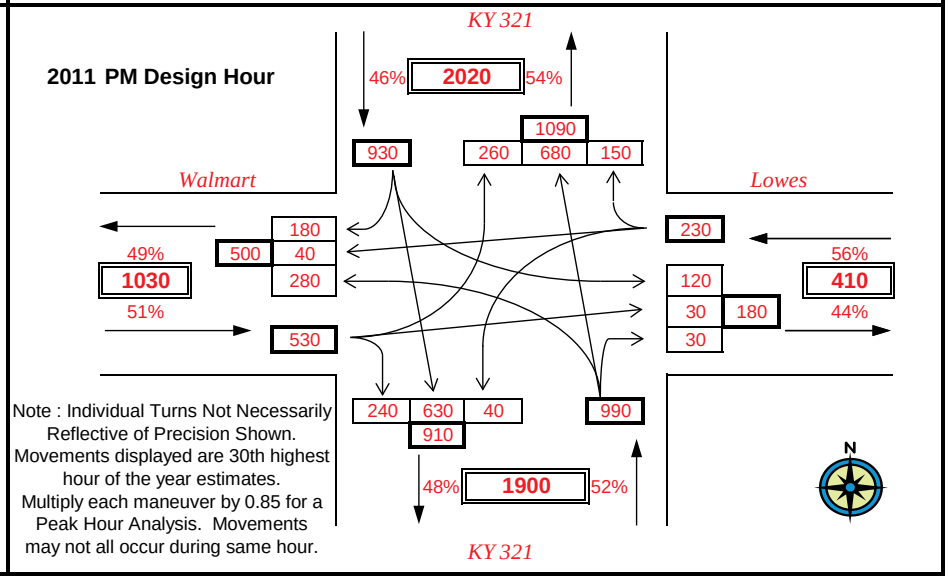
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







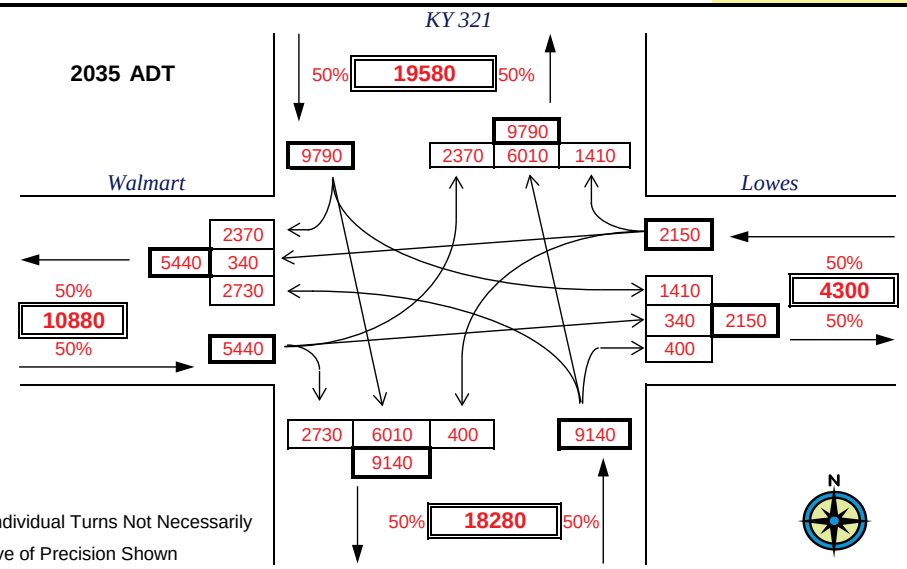


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

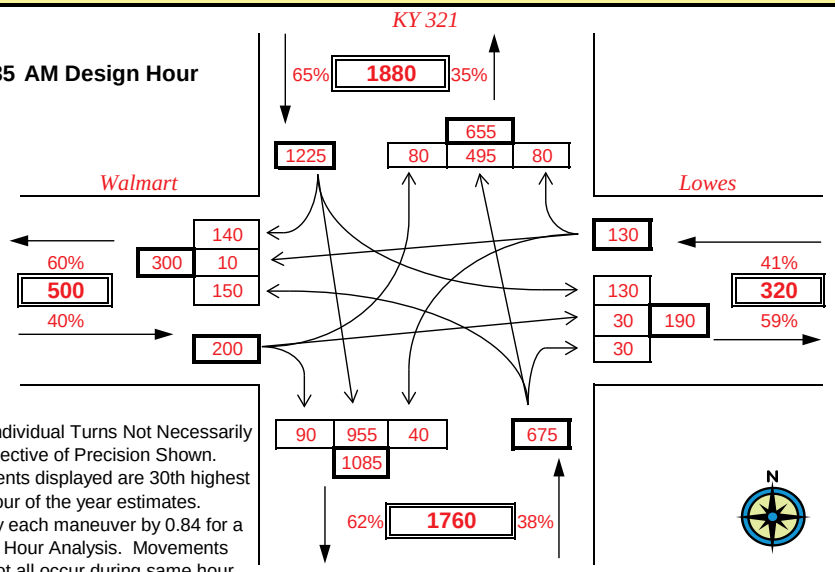
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



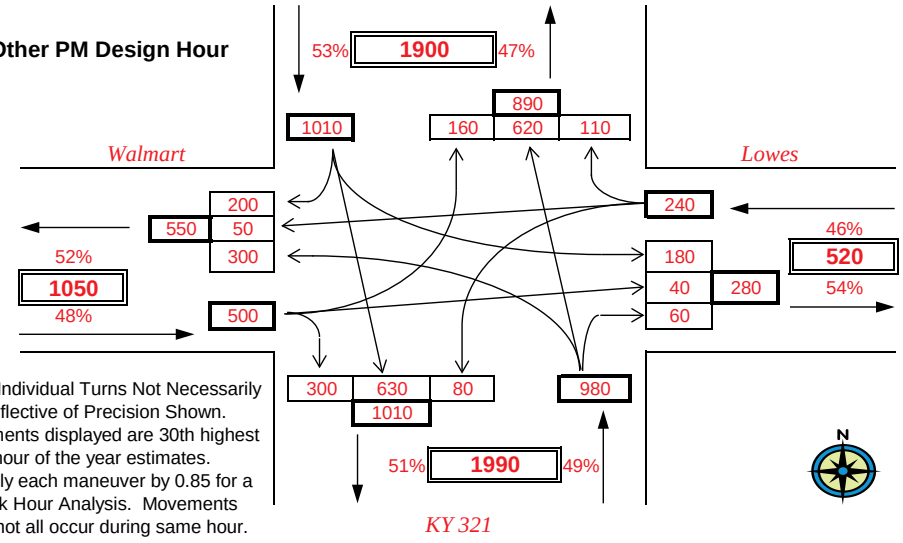
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



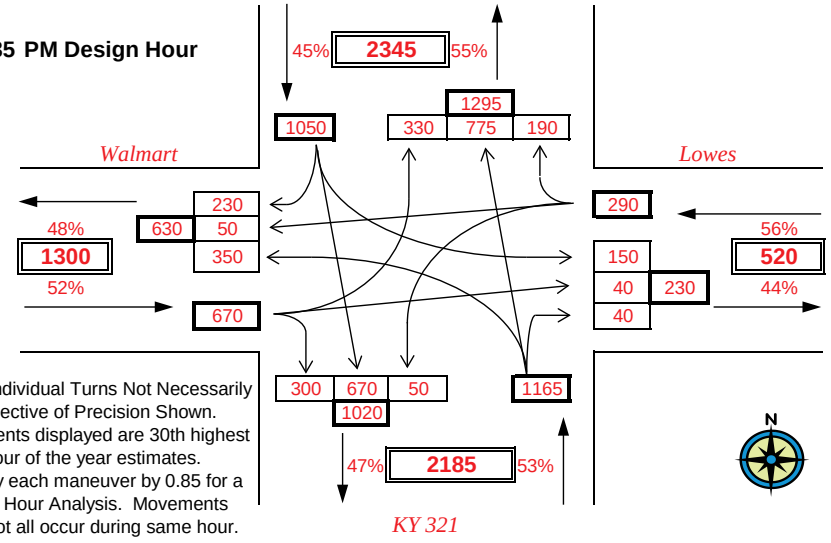
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



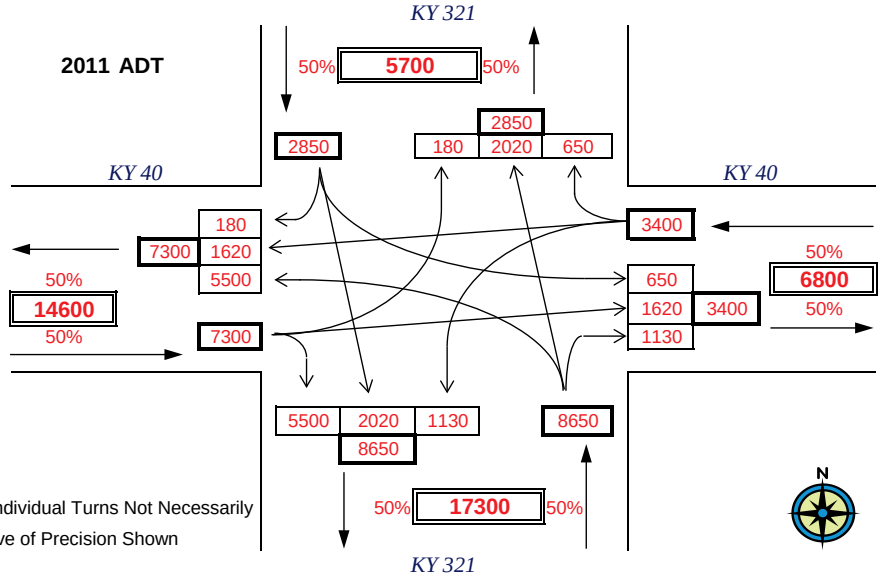
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

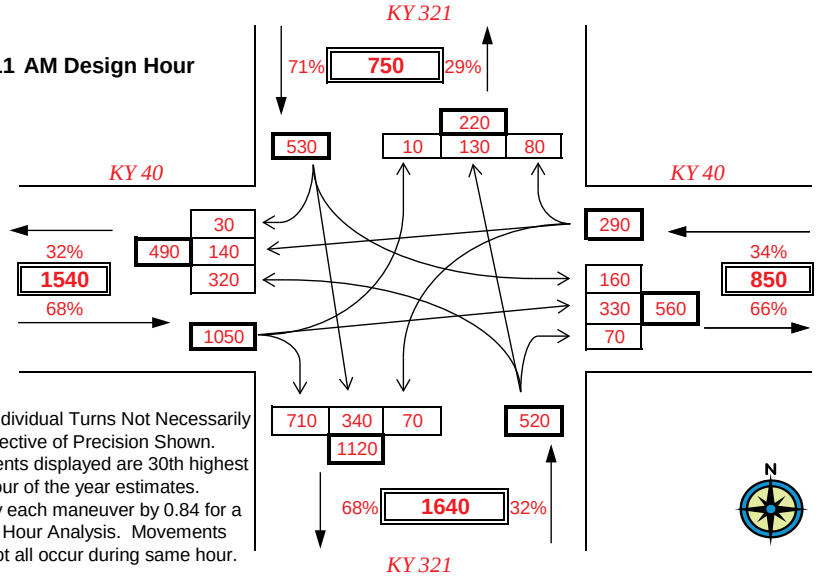
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



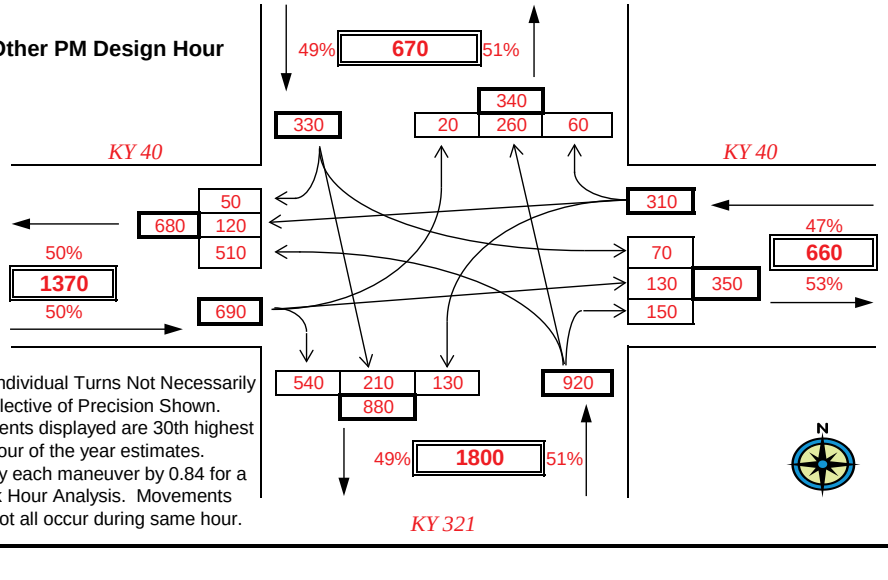
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



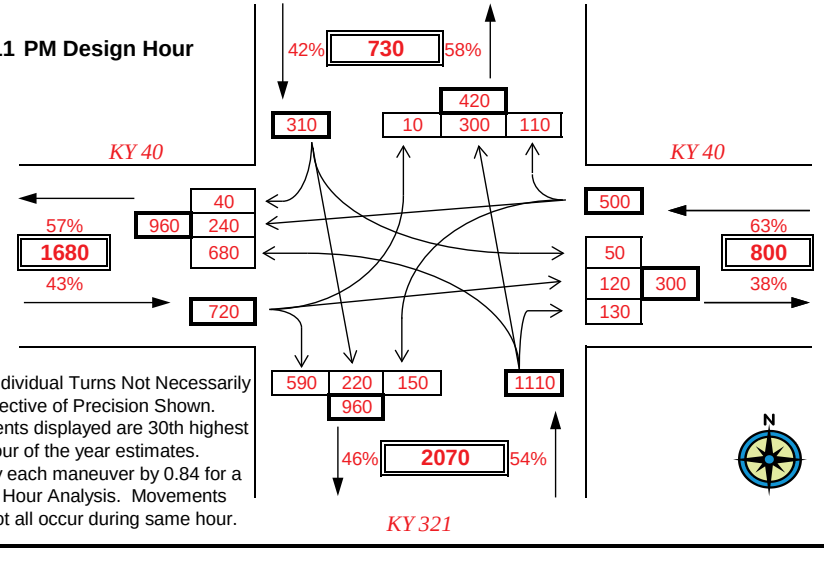
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



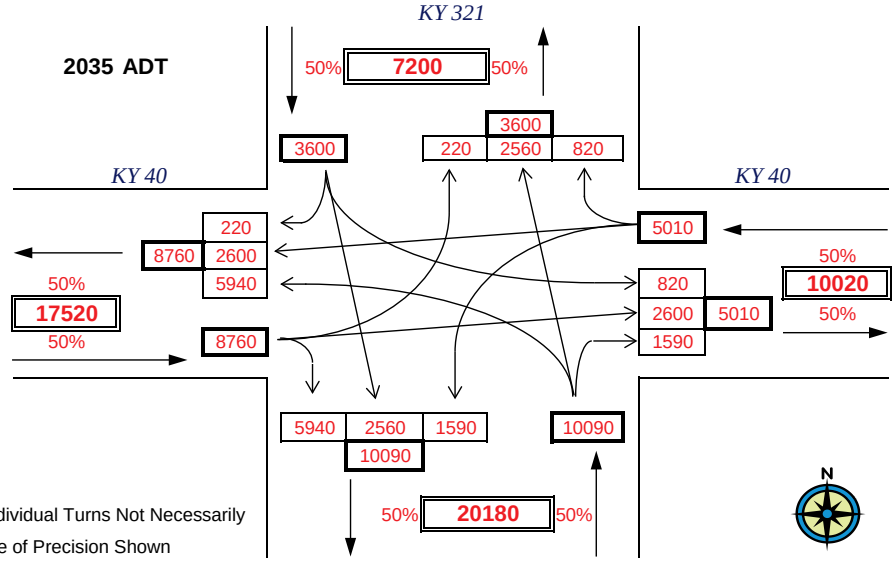
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

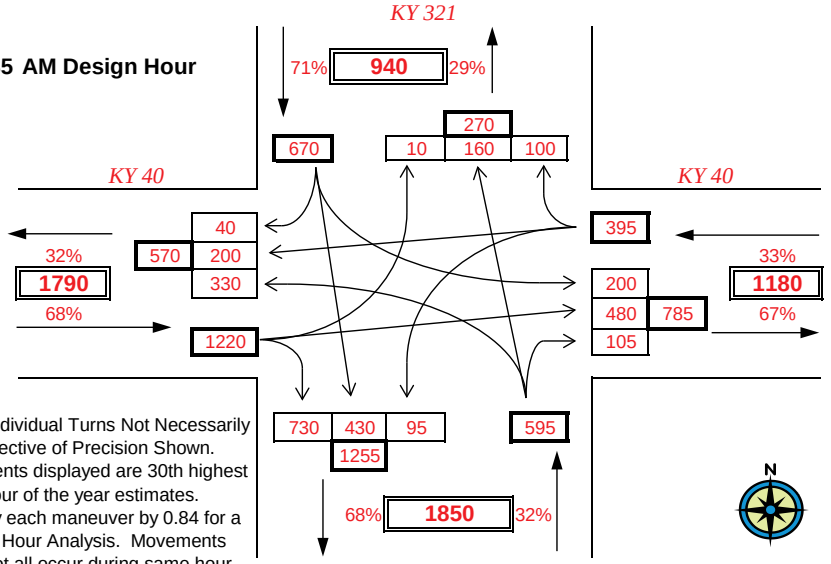
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



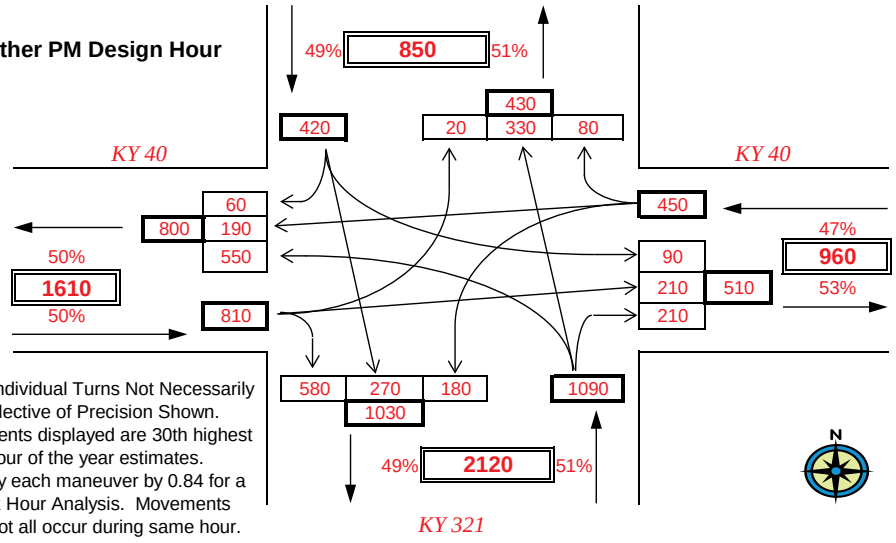
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



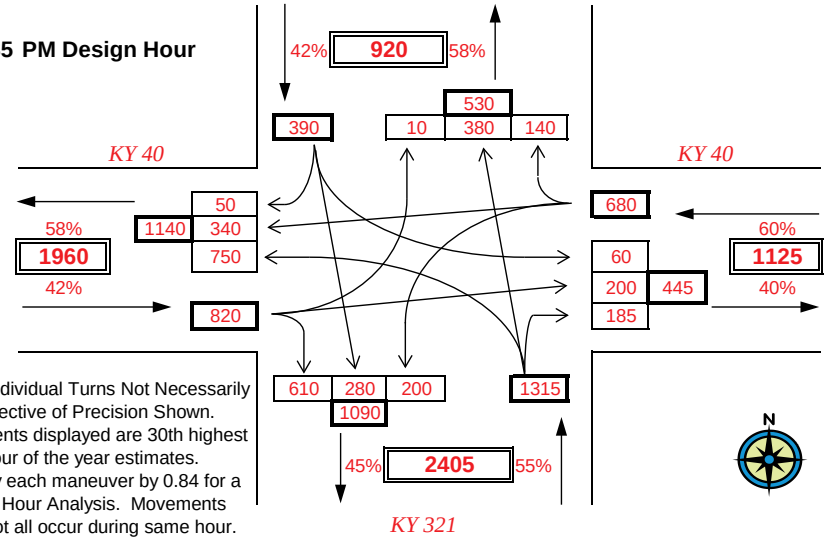
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



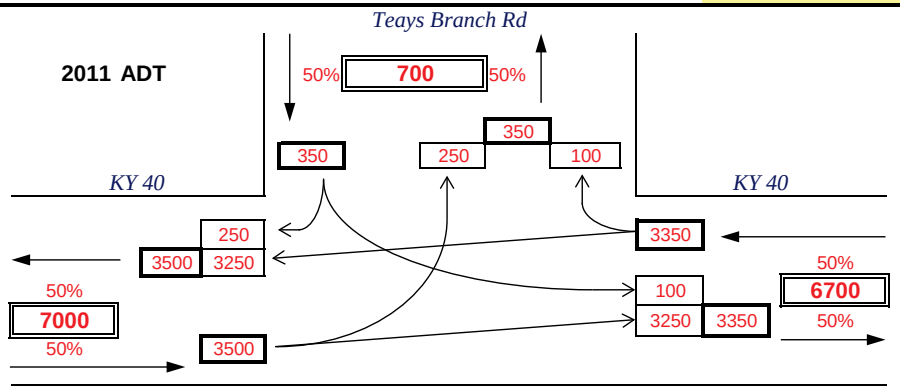
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

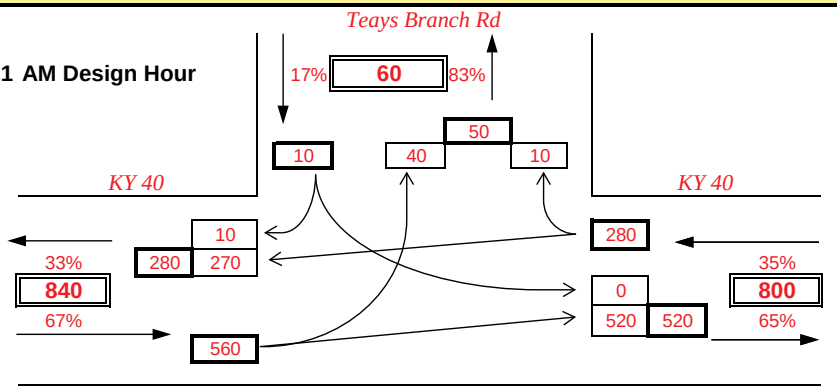
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



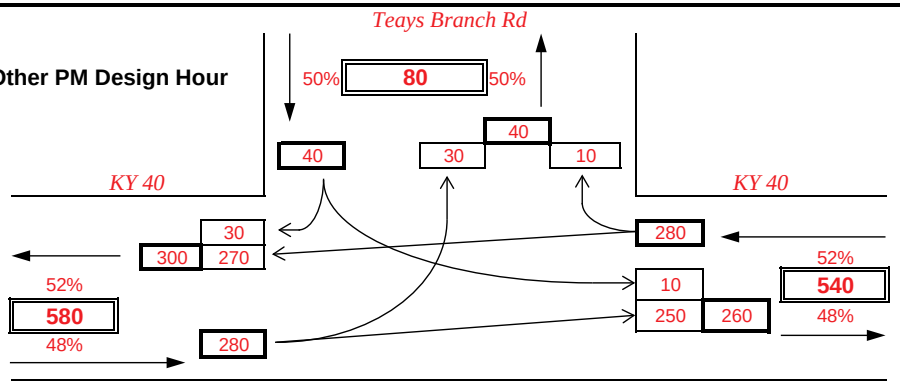
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



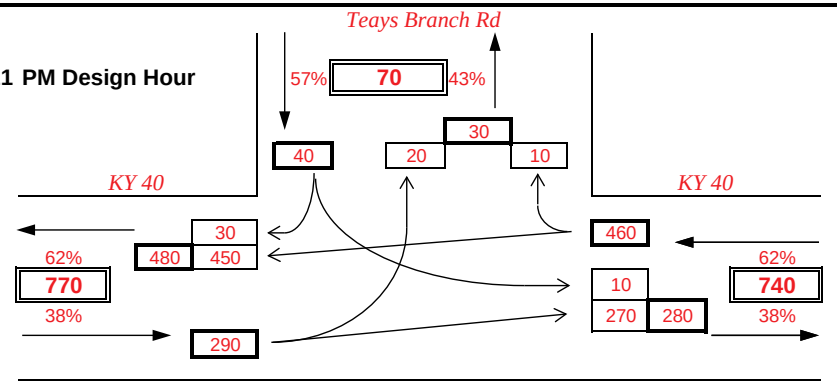
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour

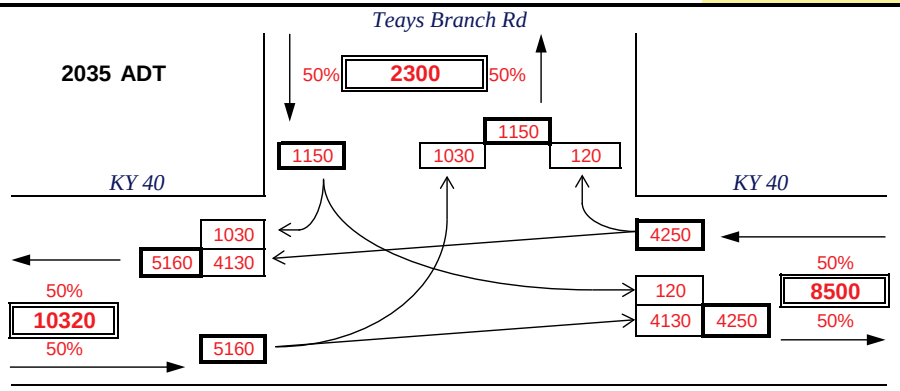


Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

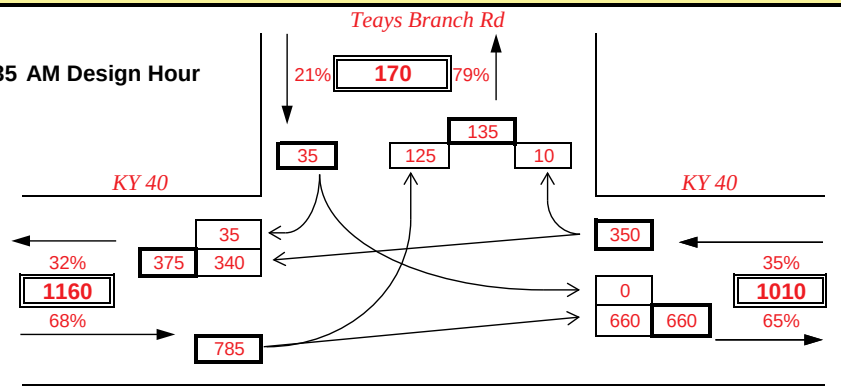
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

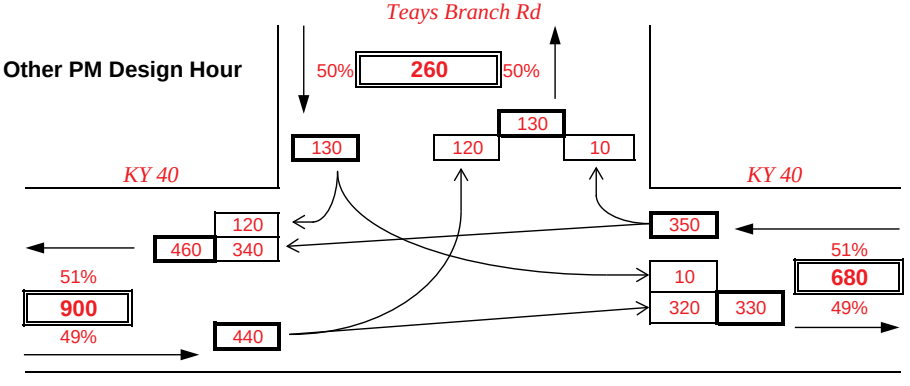
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



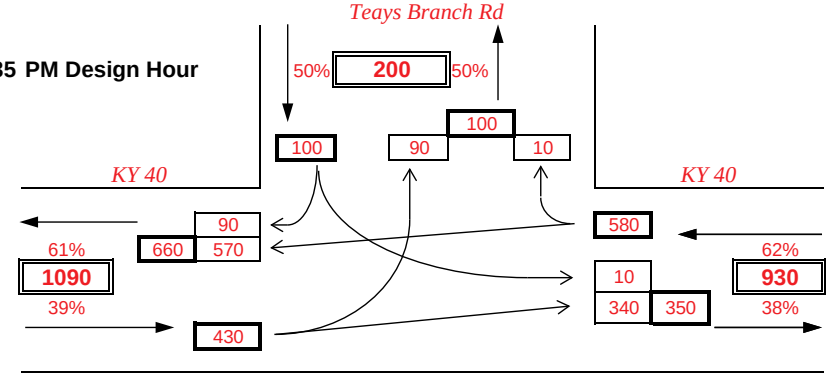
Note : Individual Turns Not Necessarily Reflective of Precision Shown



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



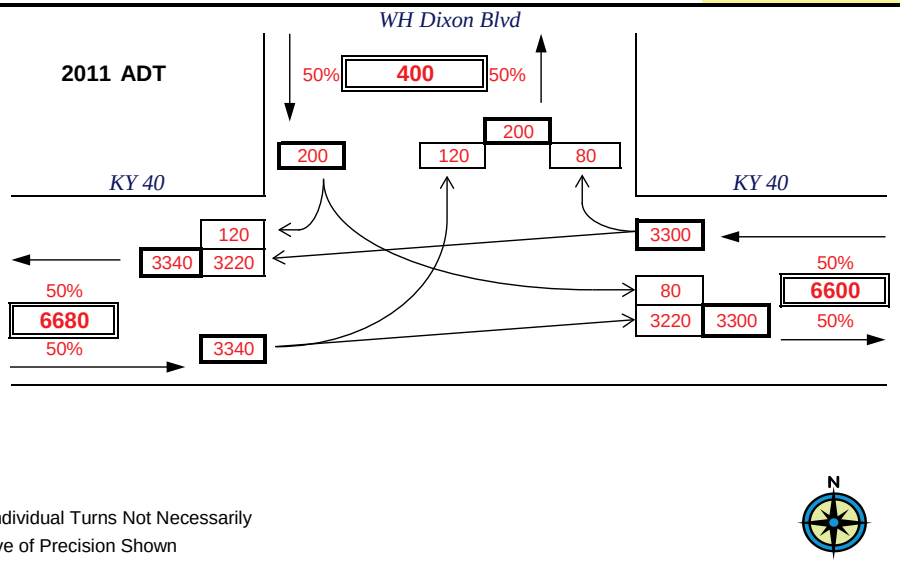
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

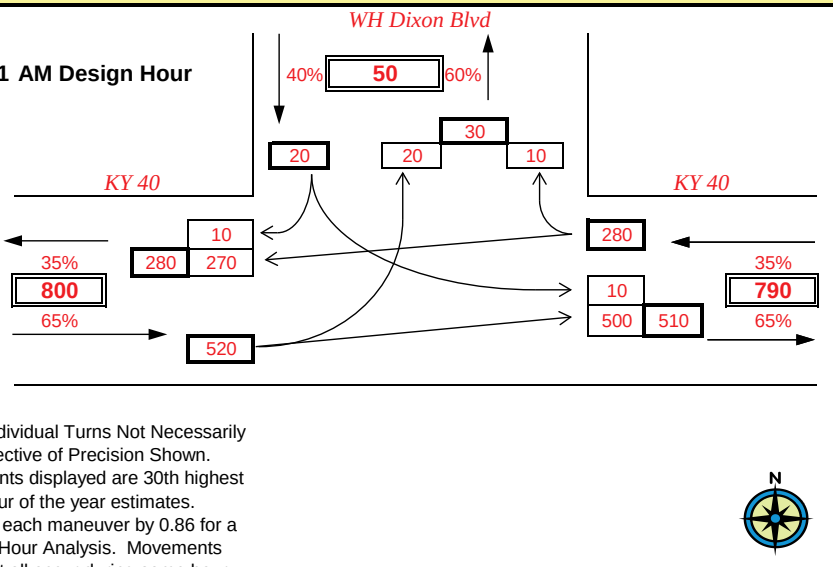
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



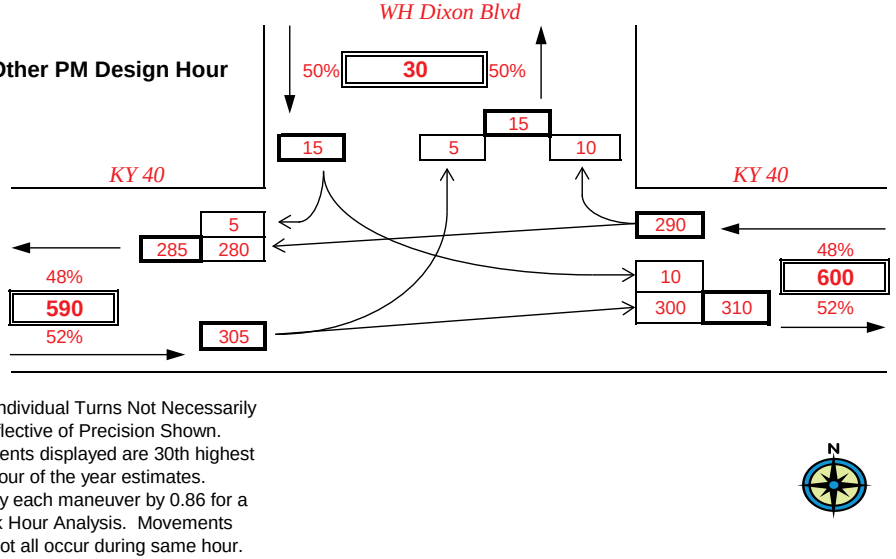
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



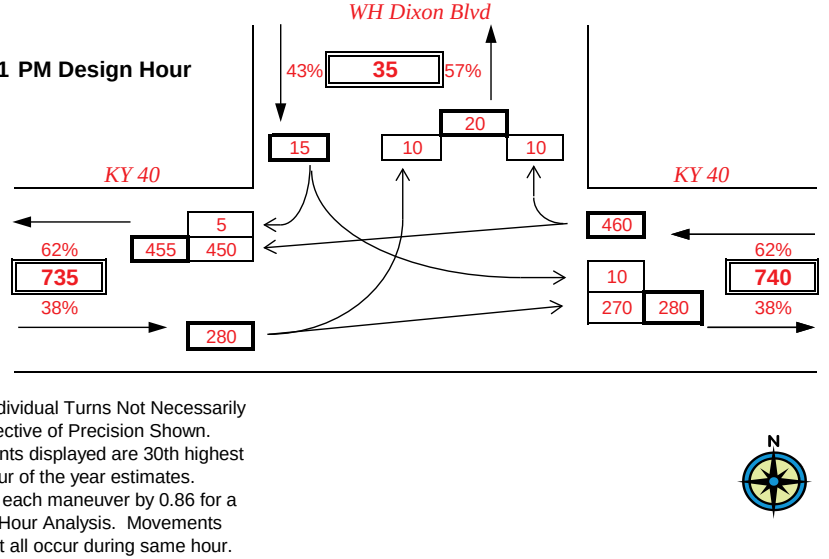
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



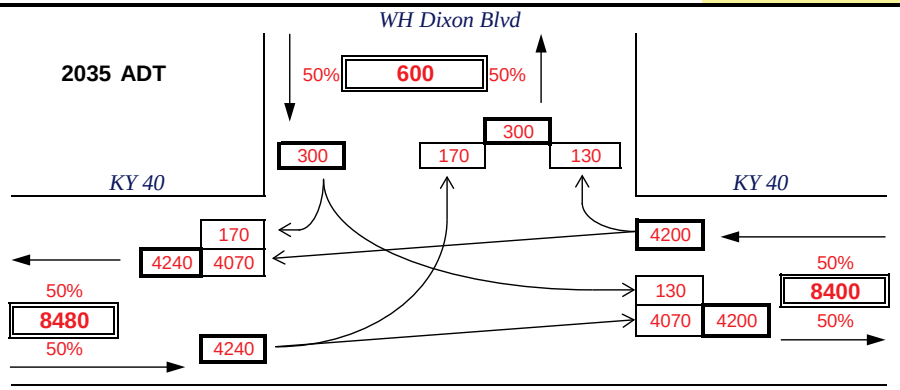
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

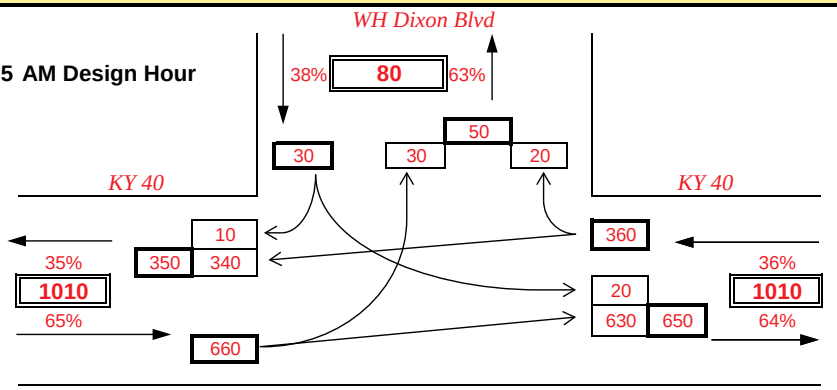
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



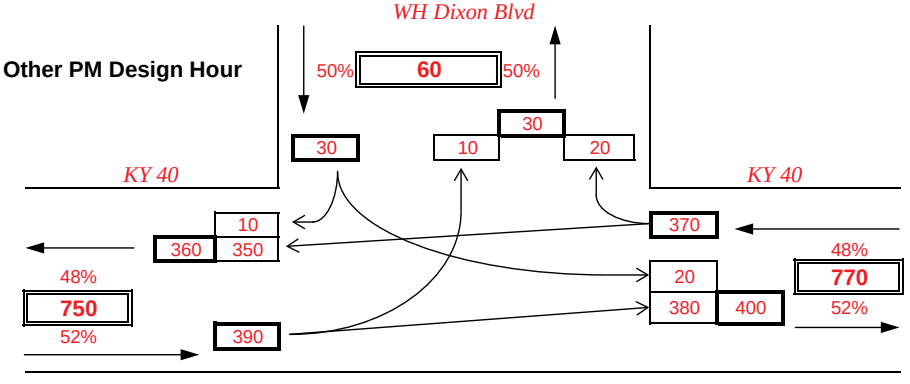
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



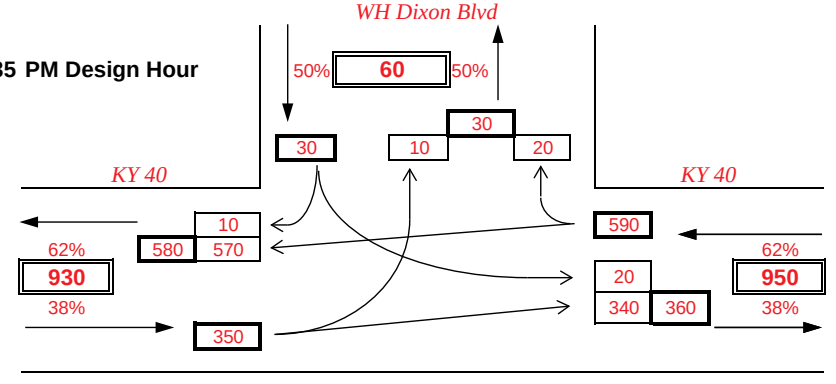
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



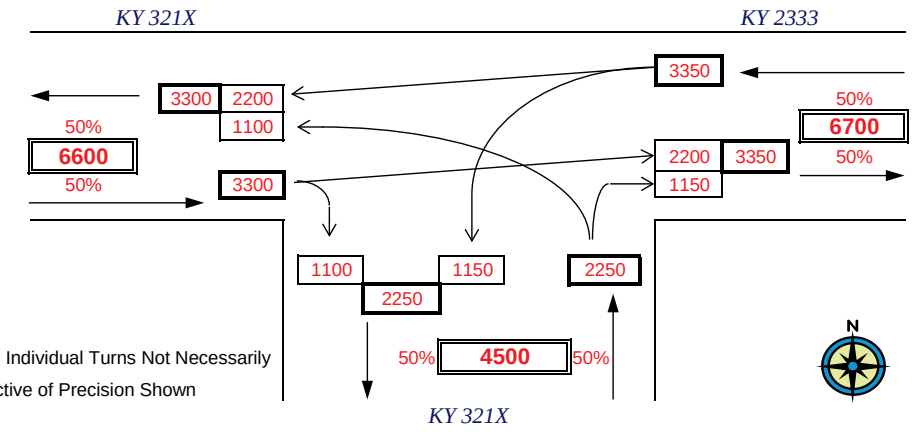
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

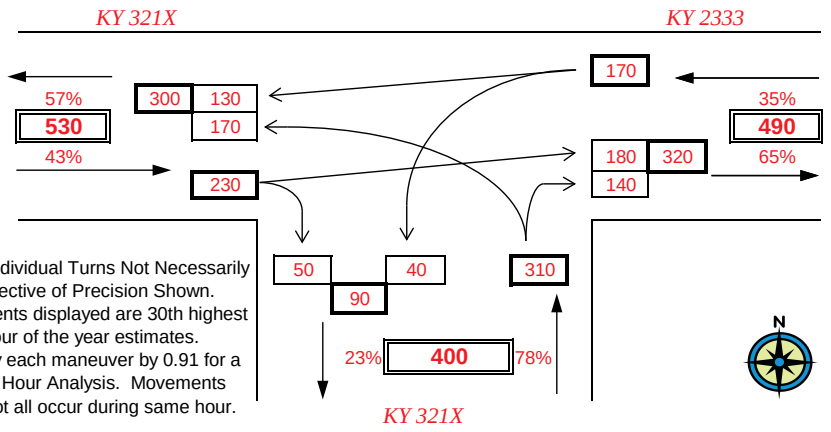
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



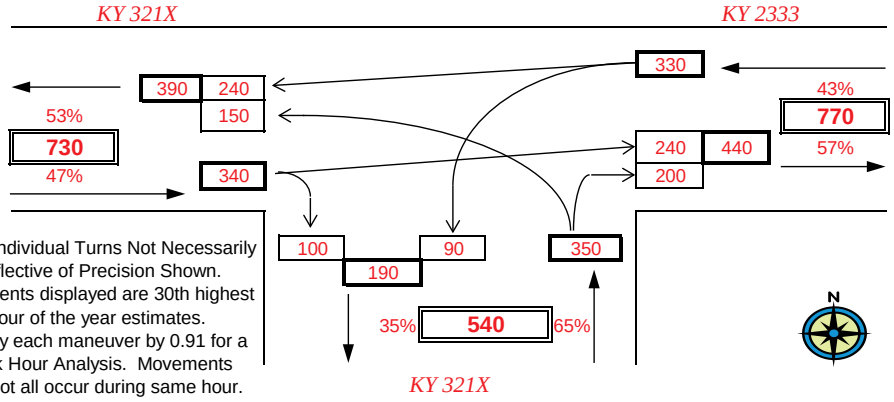
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



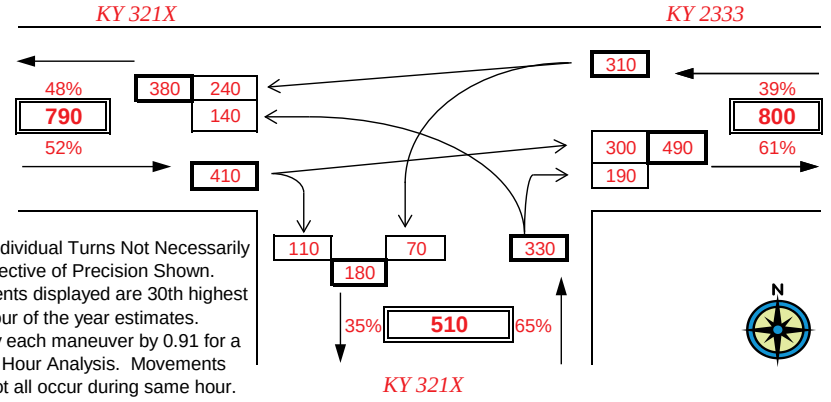
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



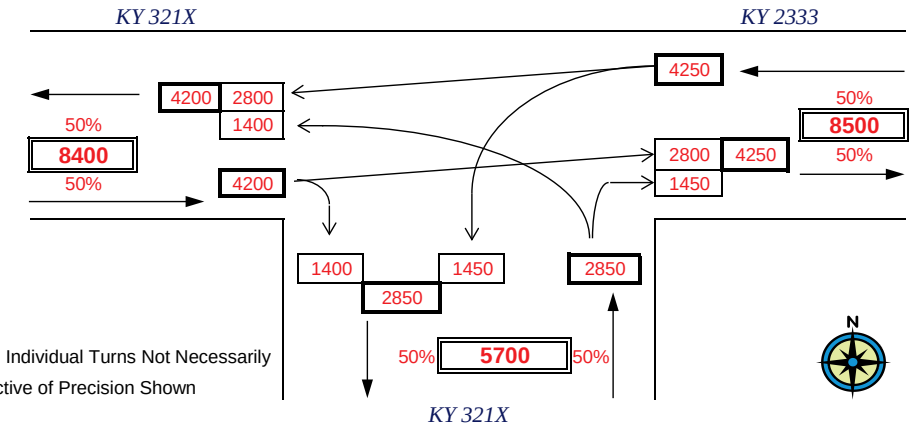
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

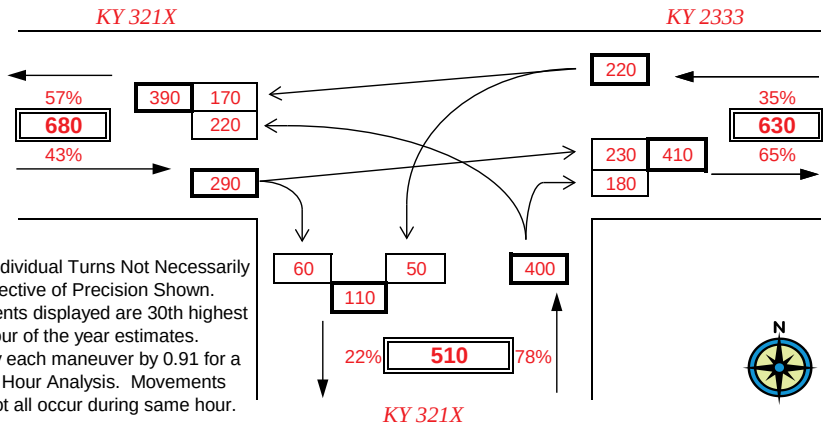
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



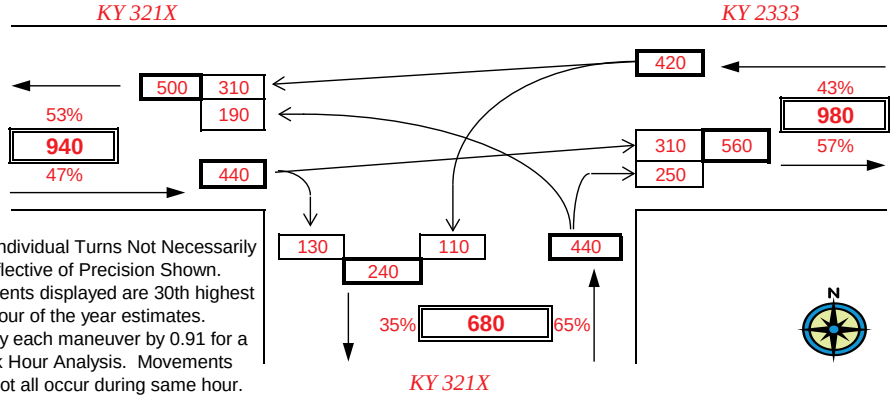
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



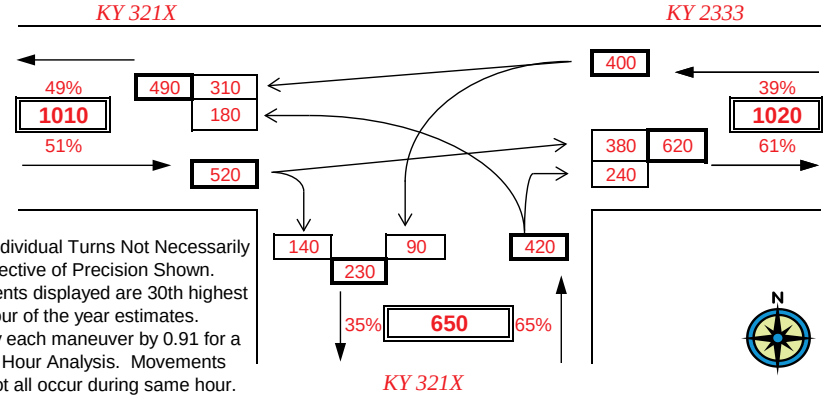
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



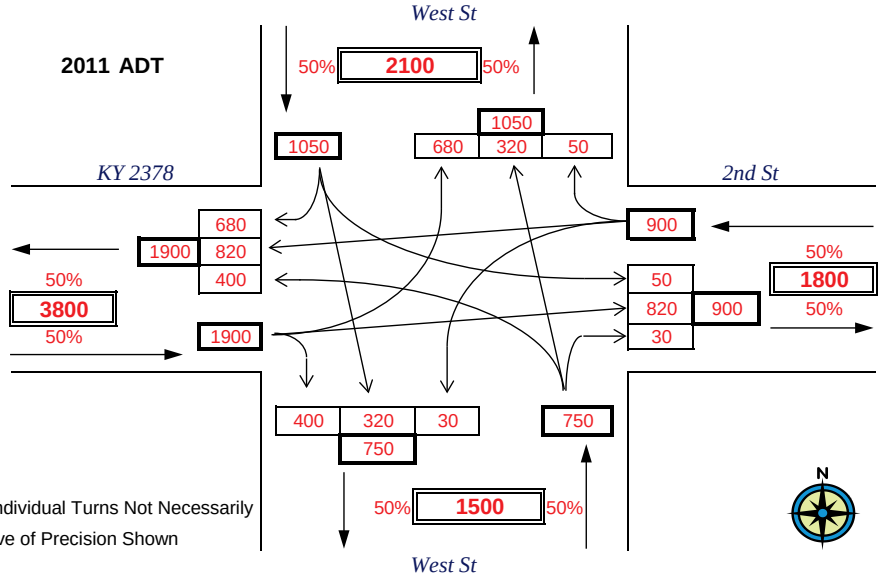
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

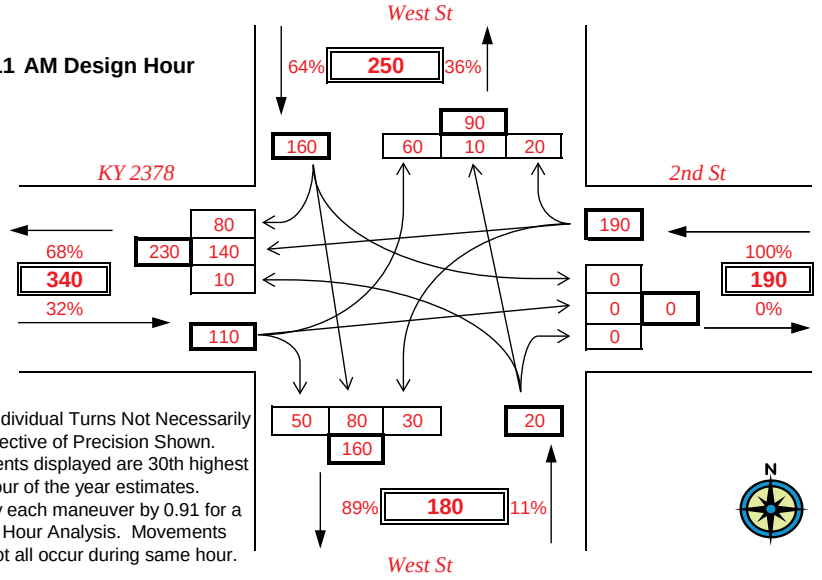
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



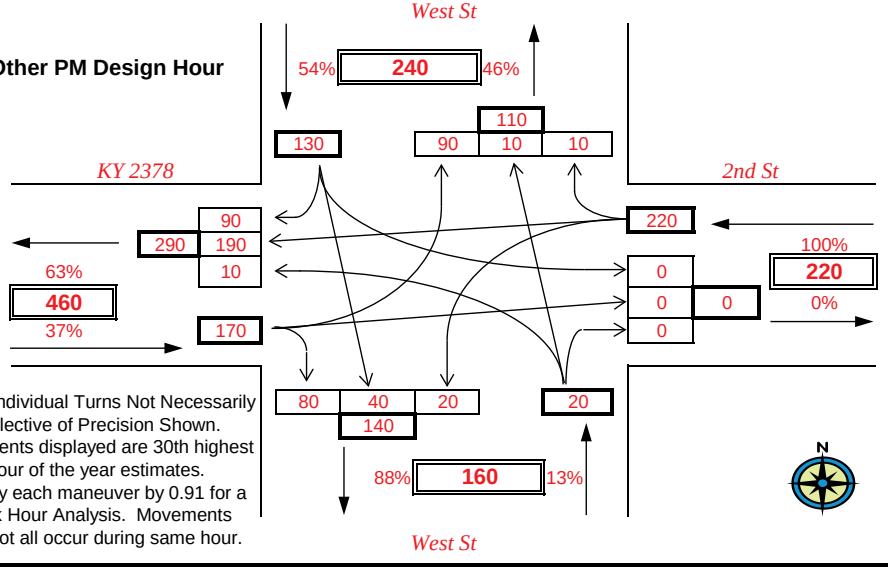
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



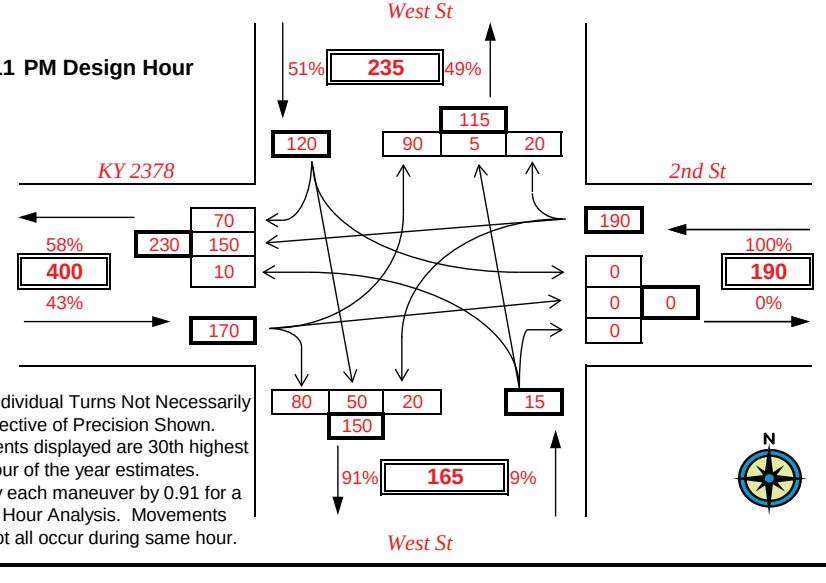
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



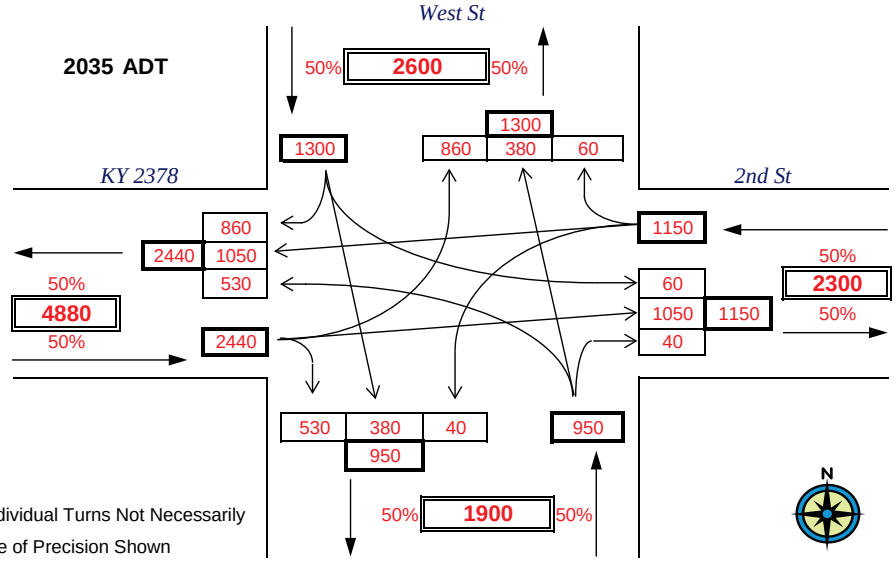
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

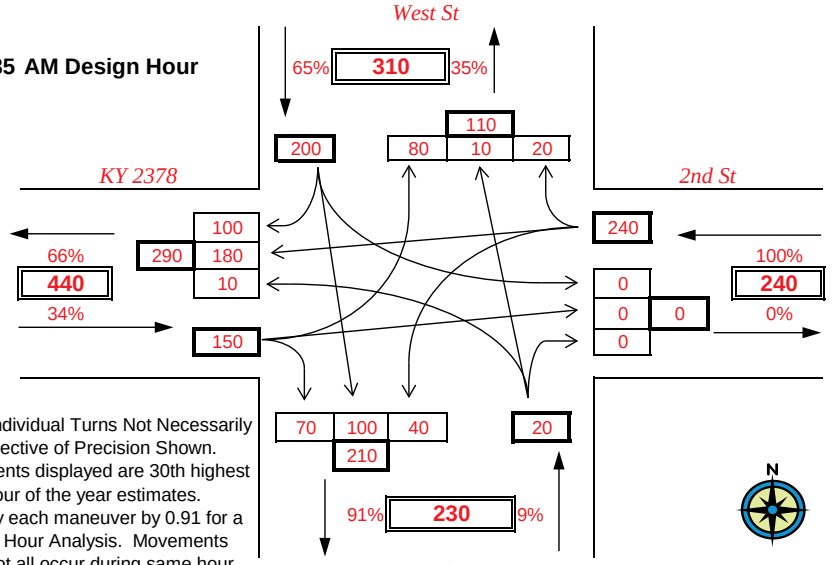
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



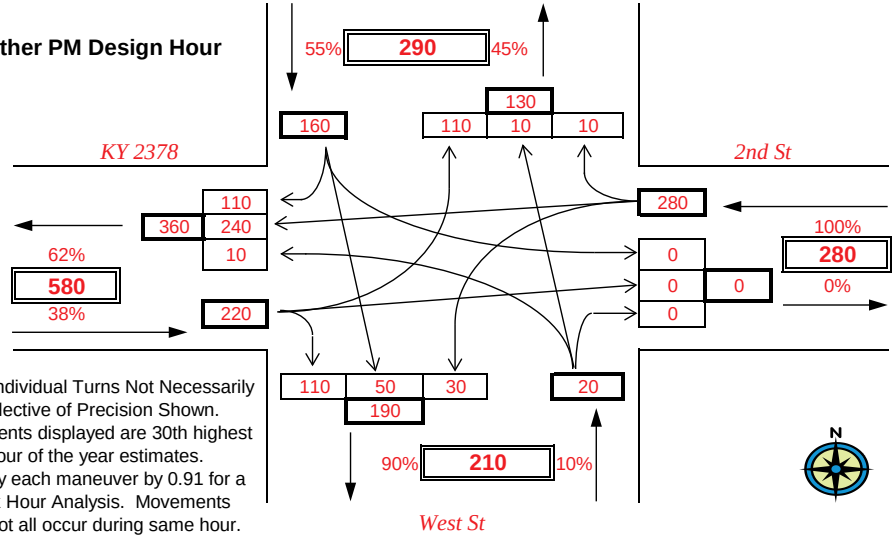
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



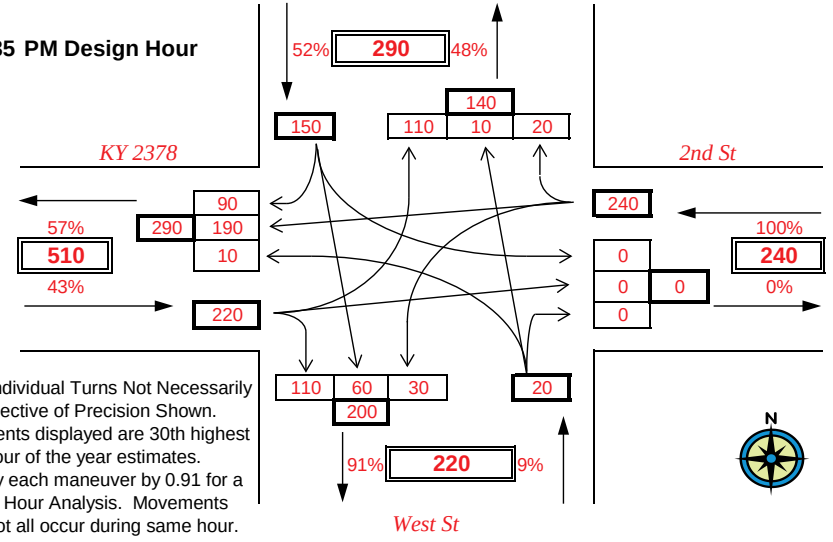
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



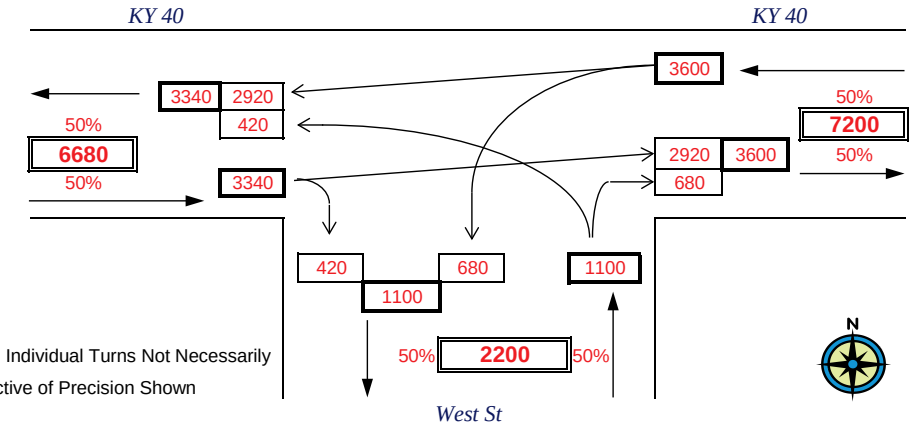
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

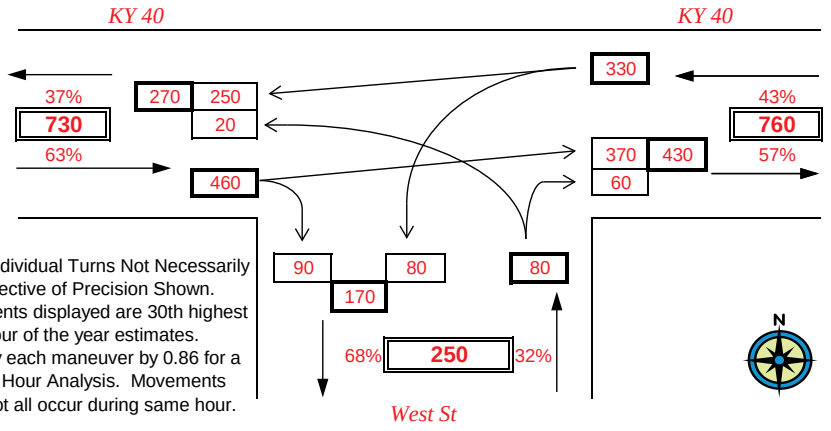
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



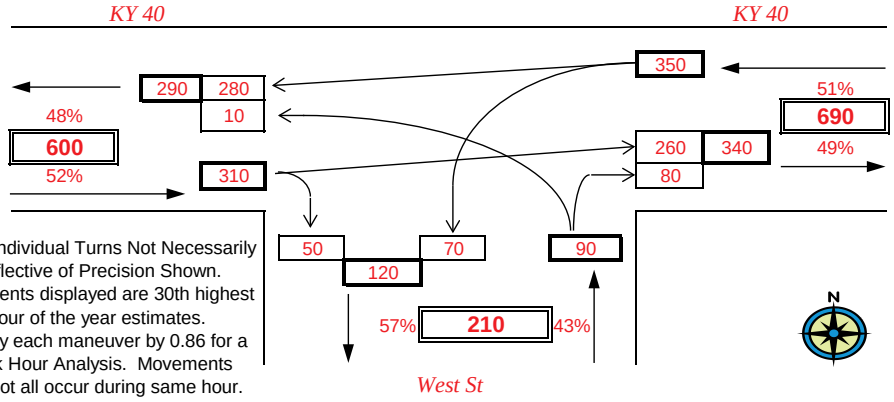
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



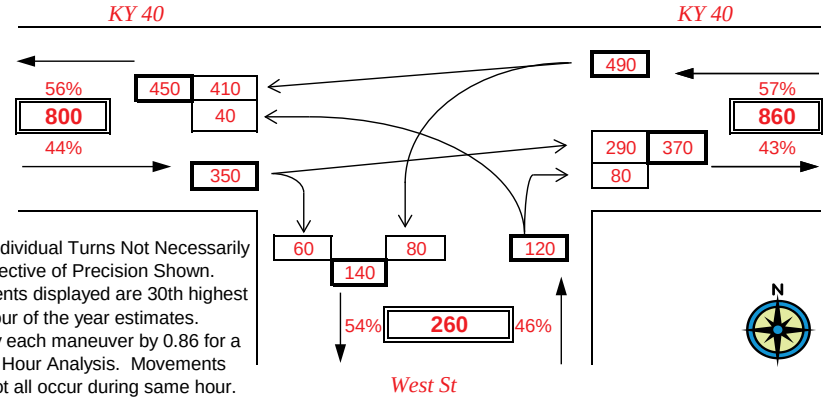
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



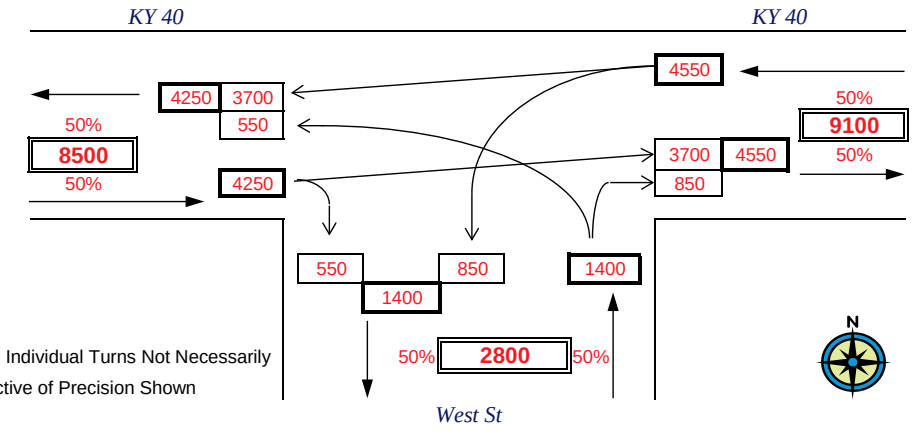
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

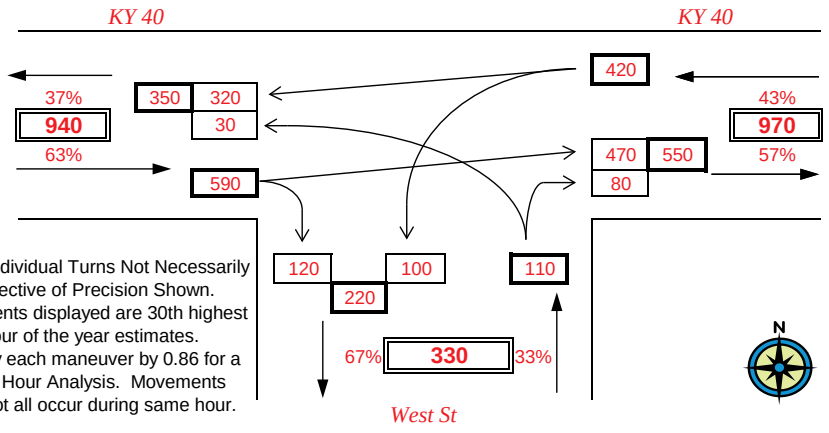
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



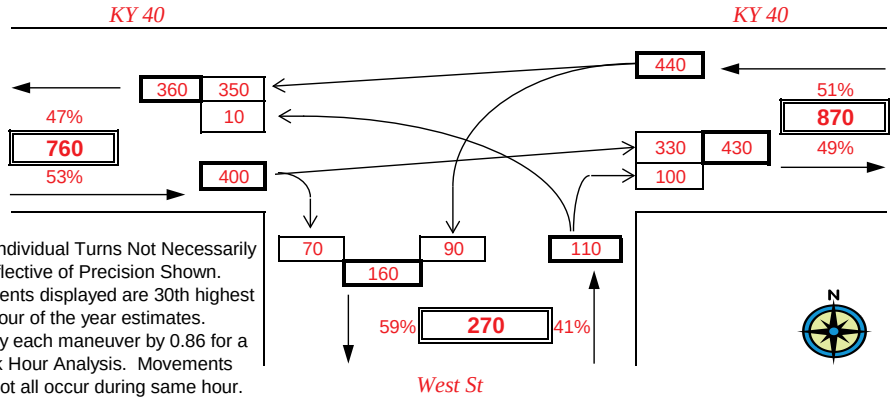
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



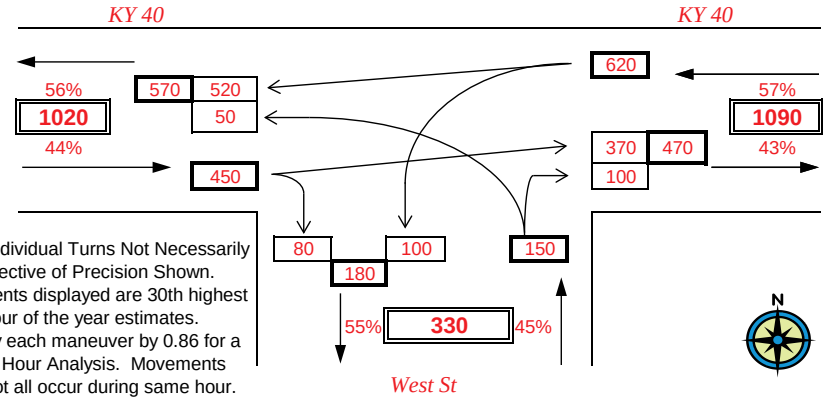
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



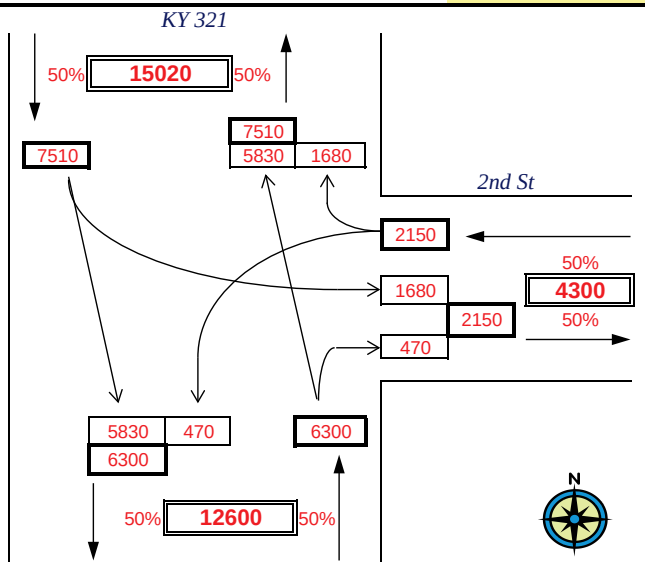
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

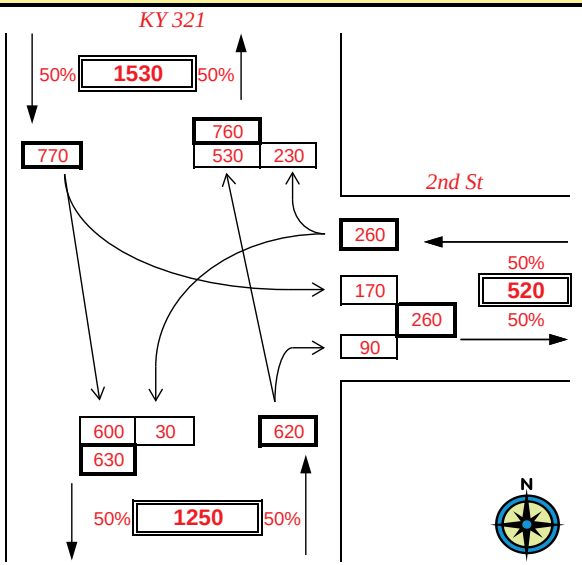
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



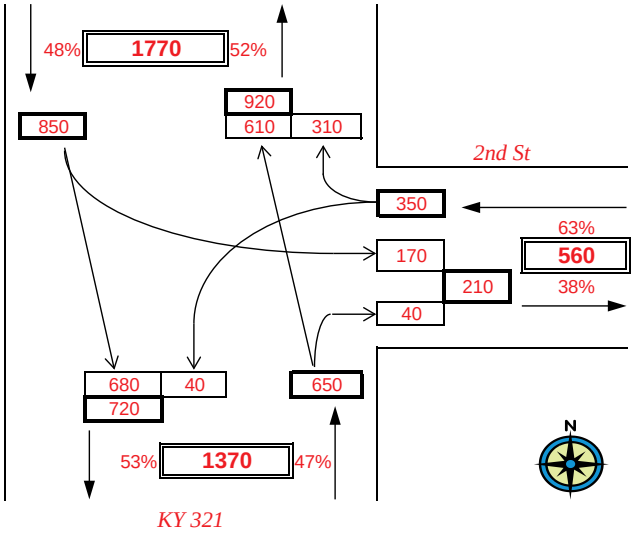
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



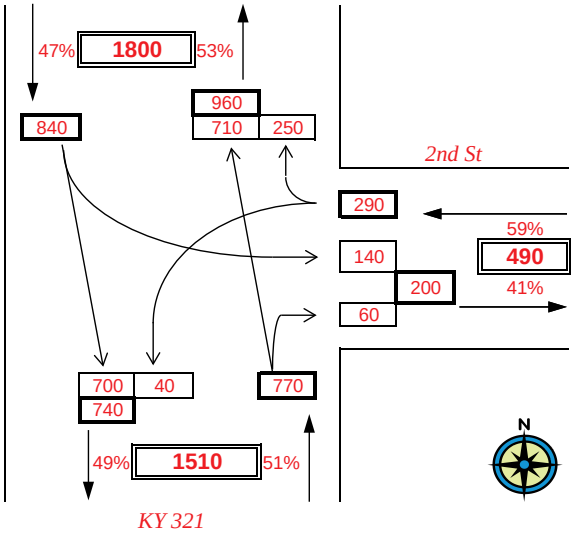
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



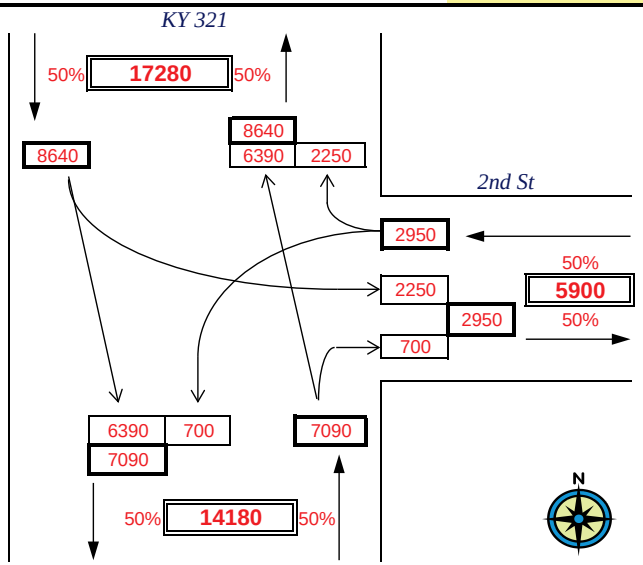
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

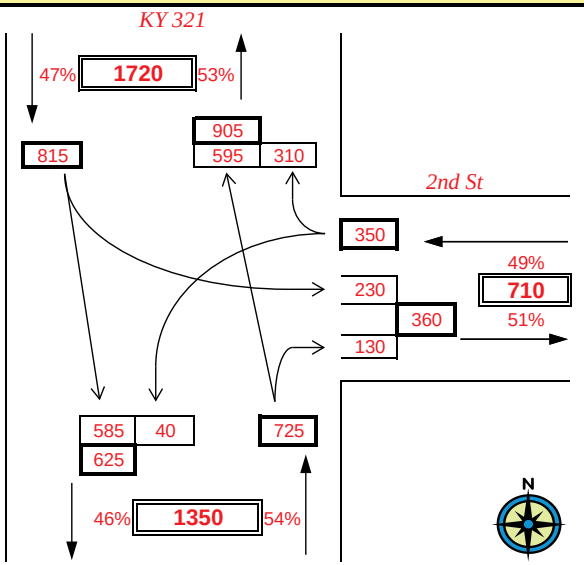
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



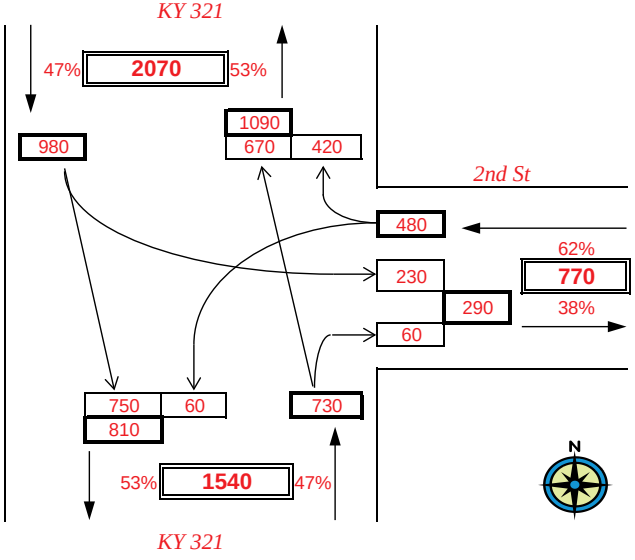
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



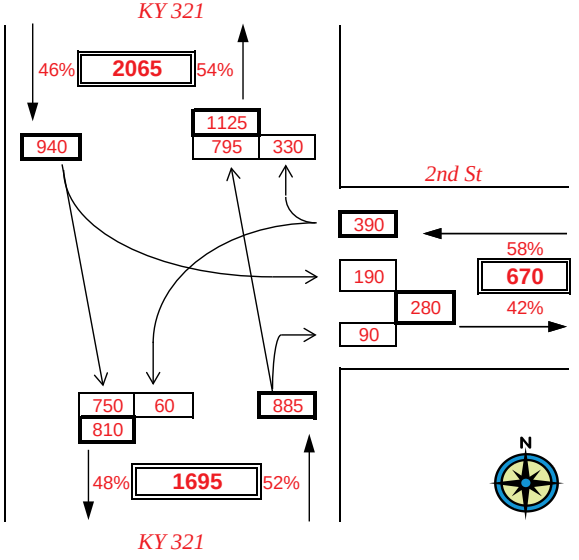
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



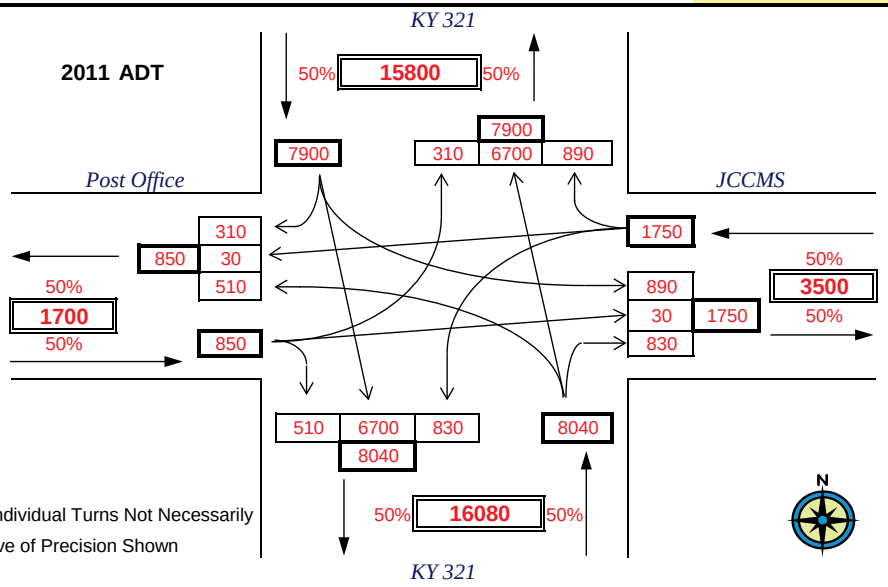
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

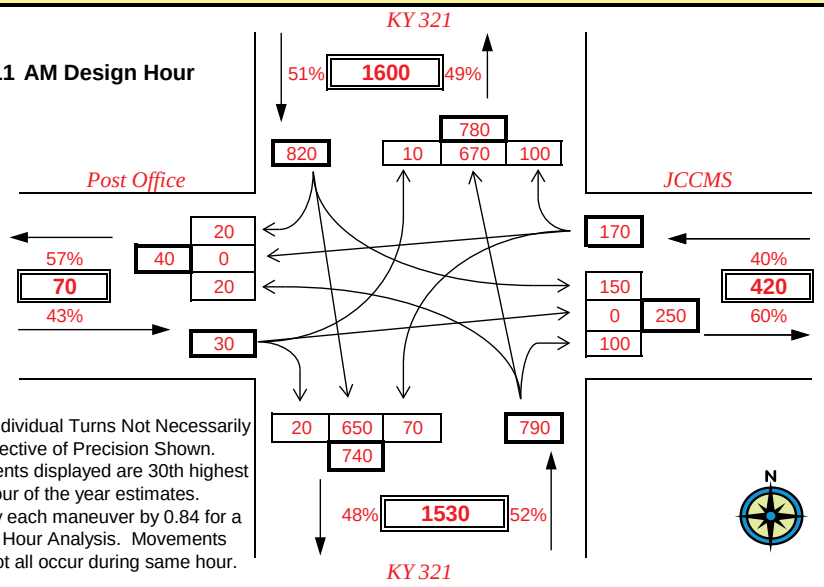
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



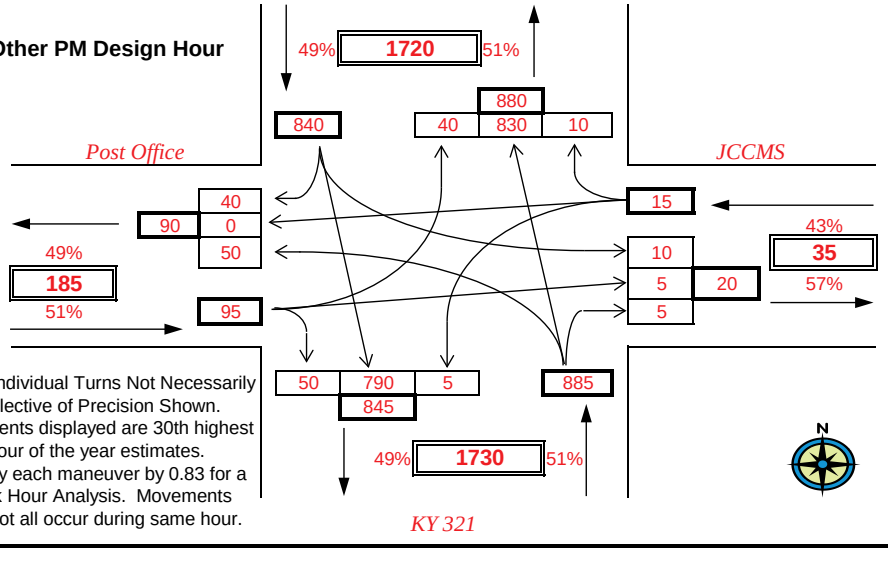
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



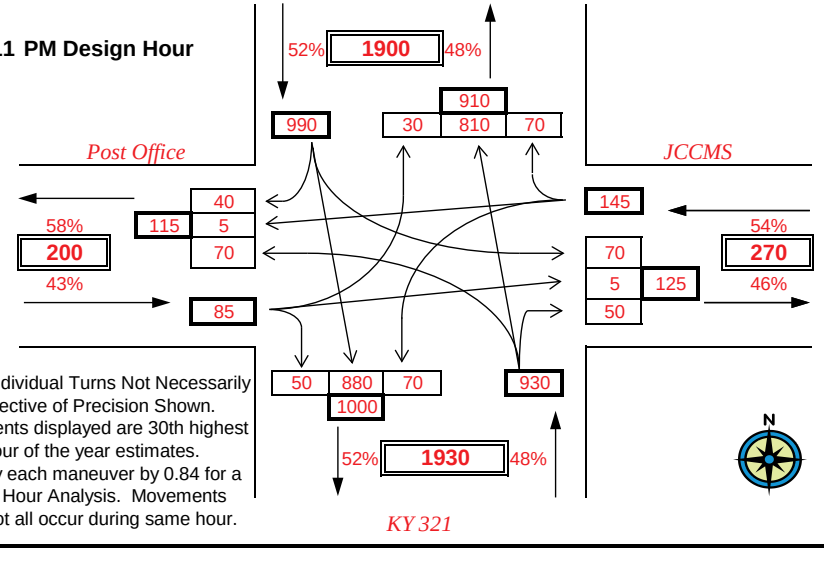
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



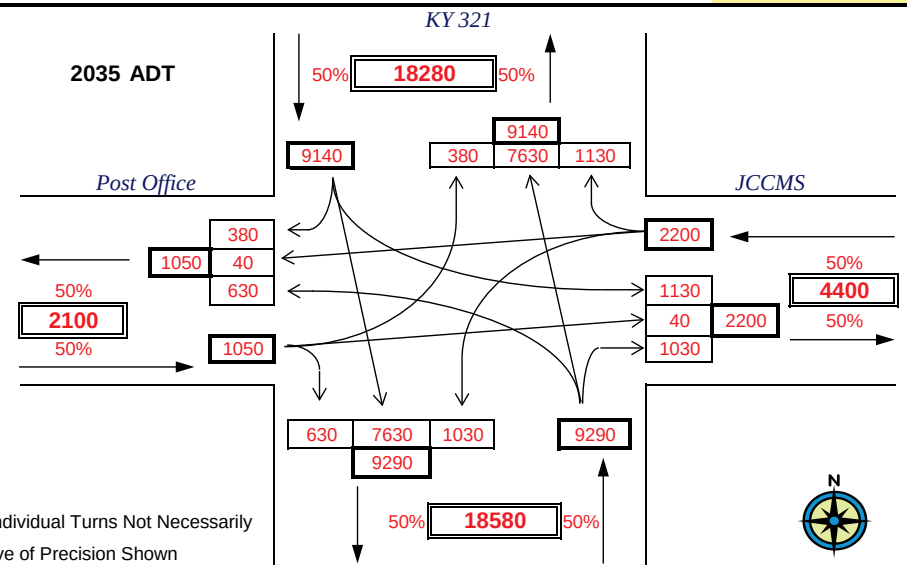
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

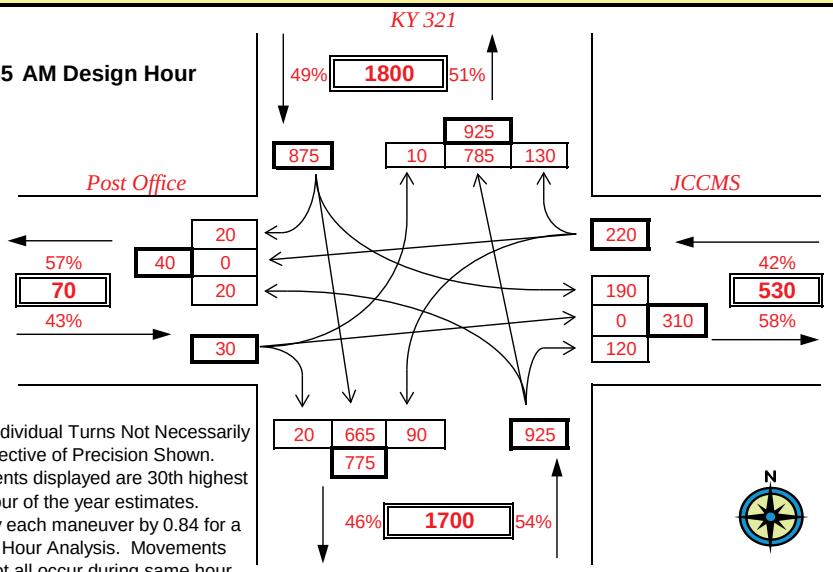
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



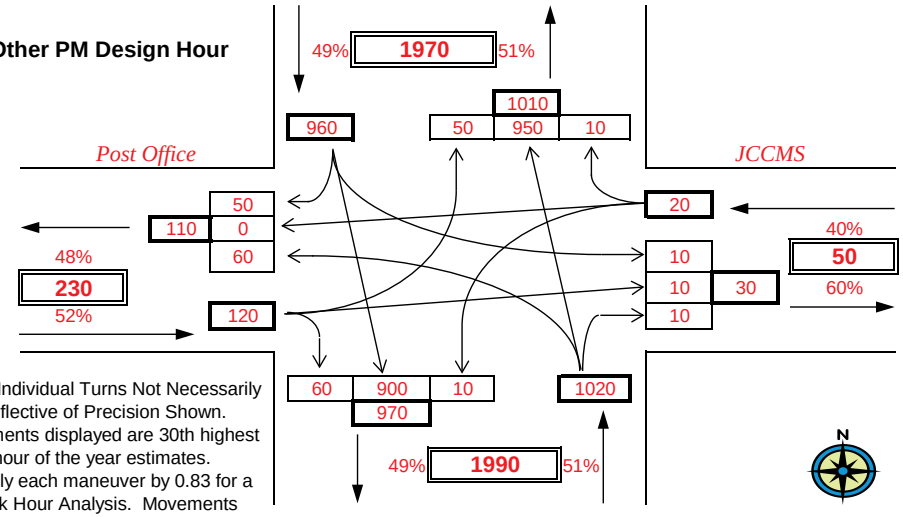
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



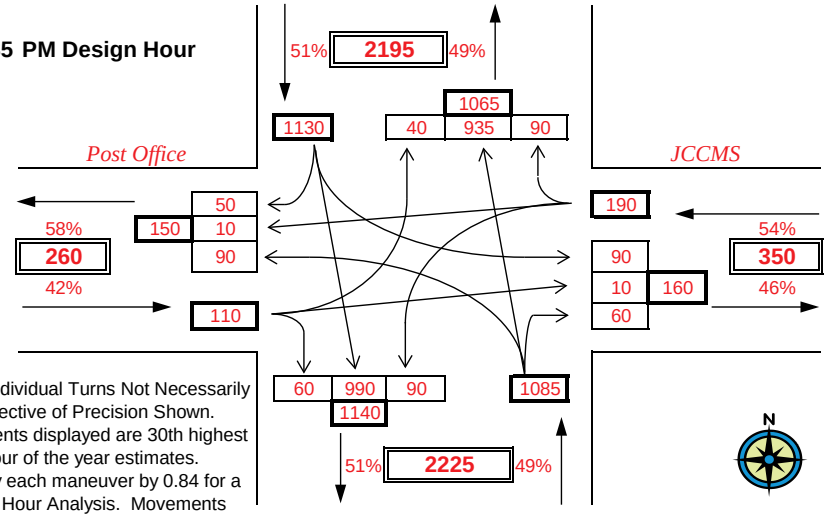
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



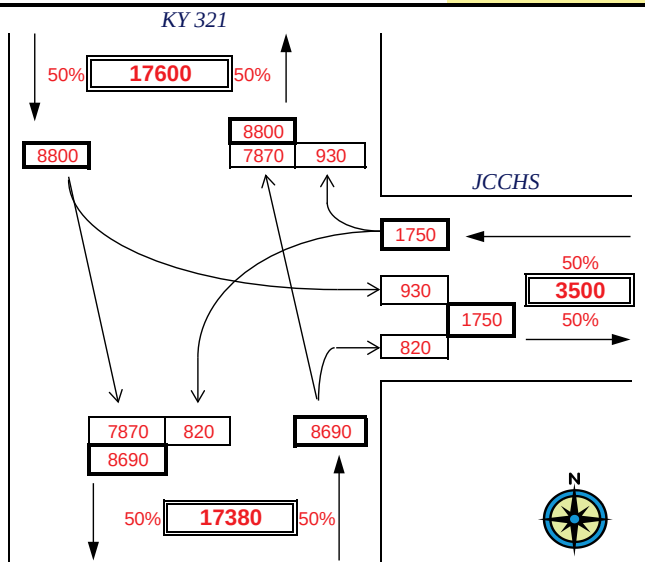
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

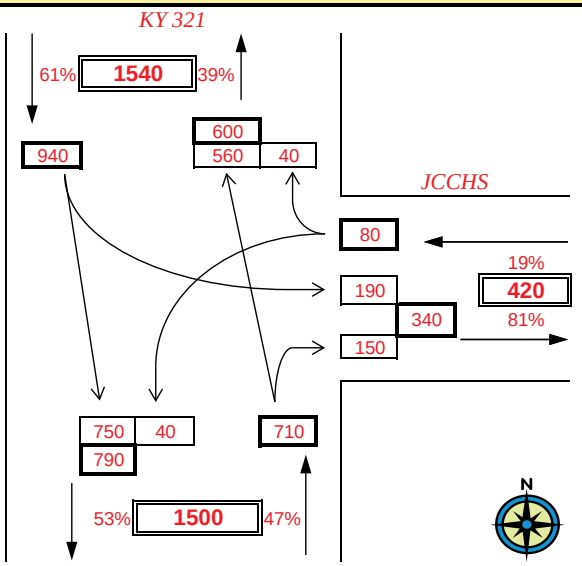
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



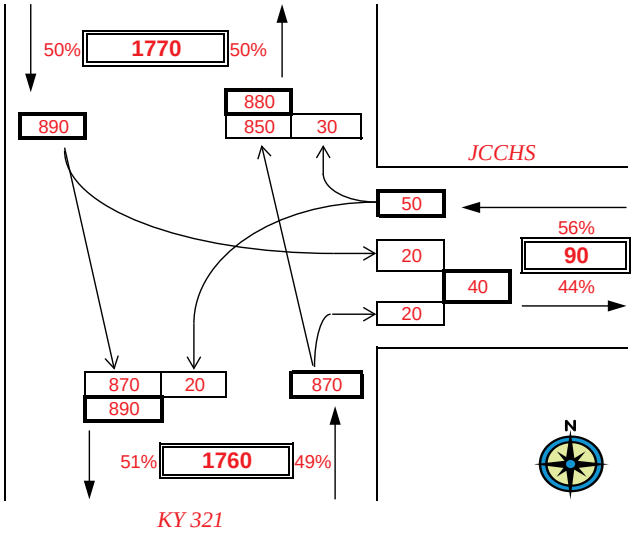
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



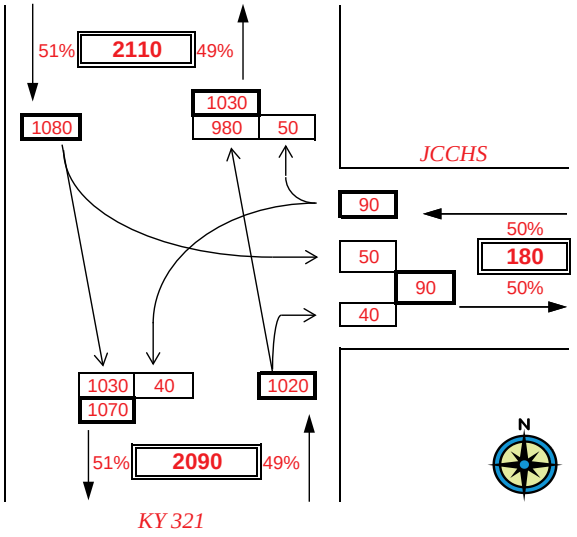
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



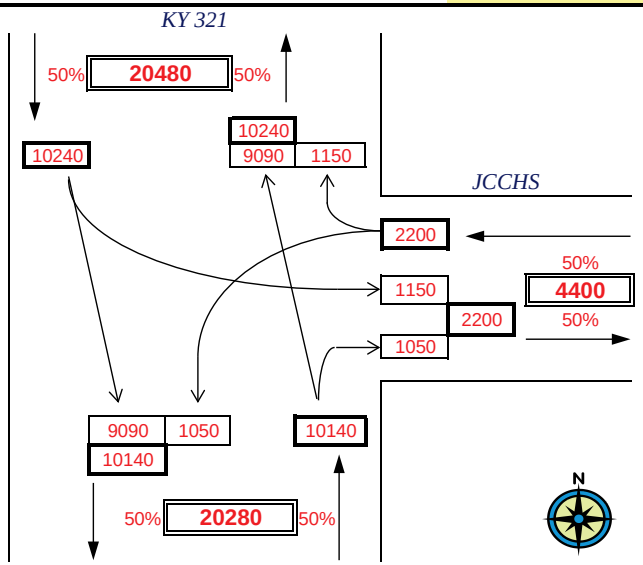
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

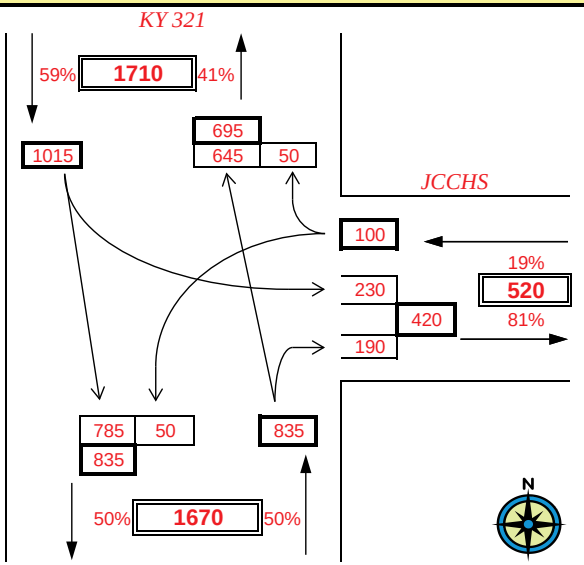
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



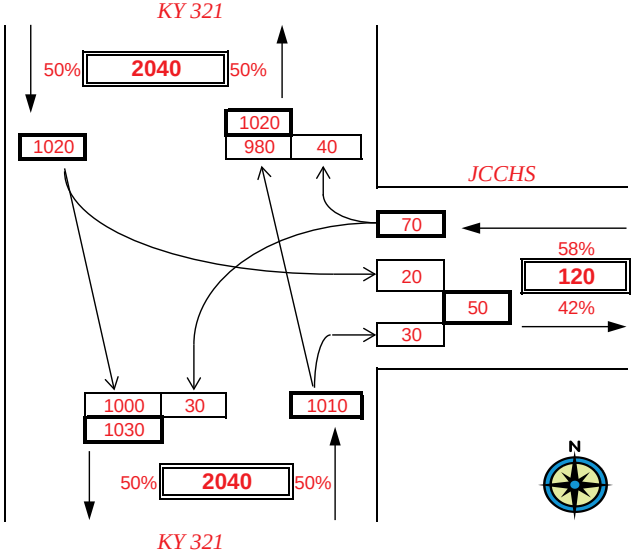
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



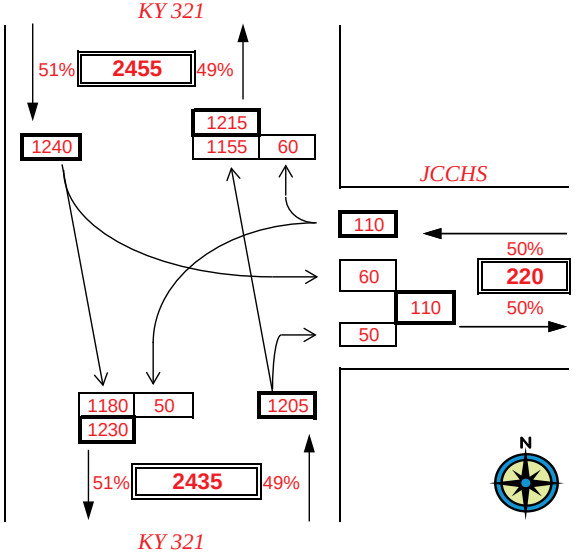
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



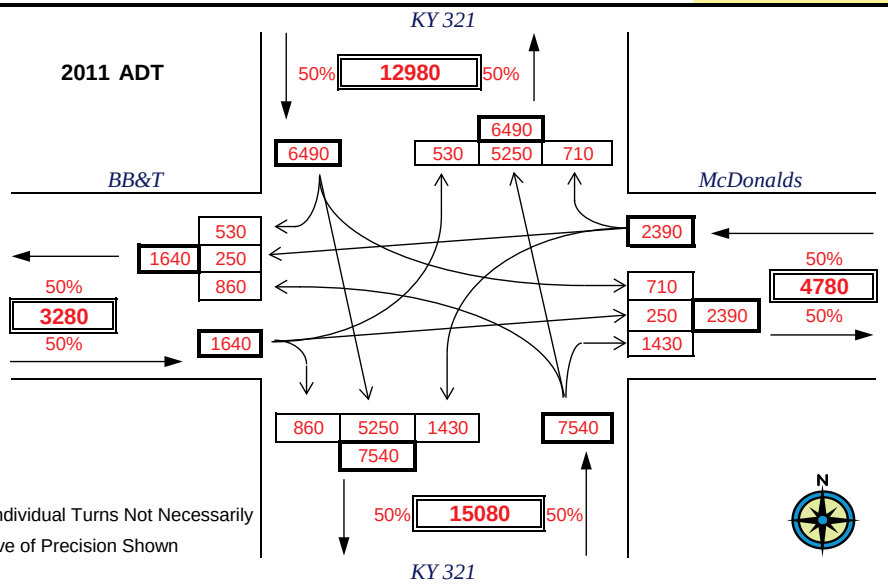
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

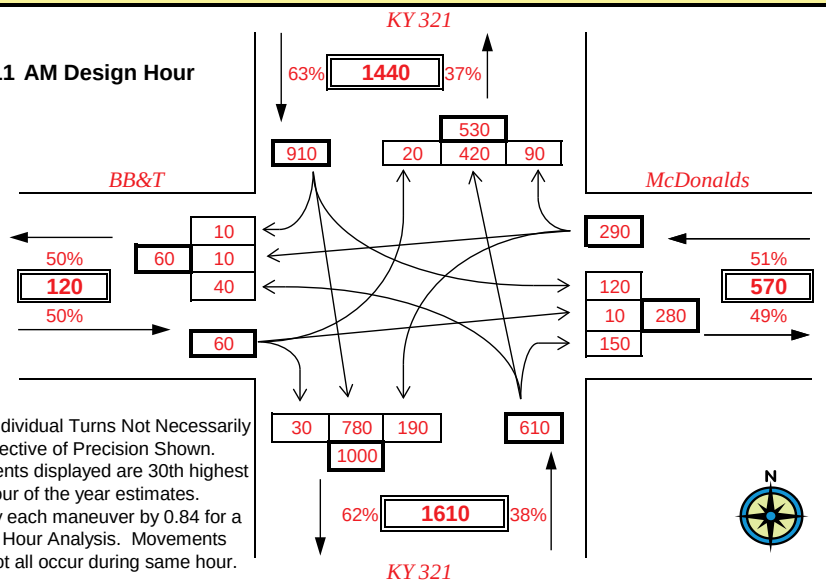
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



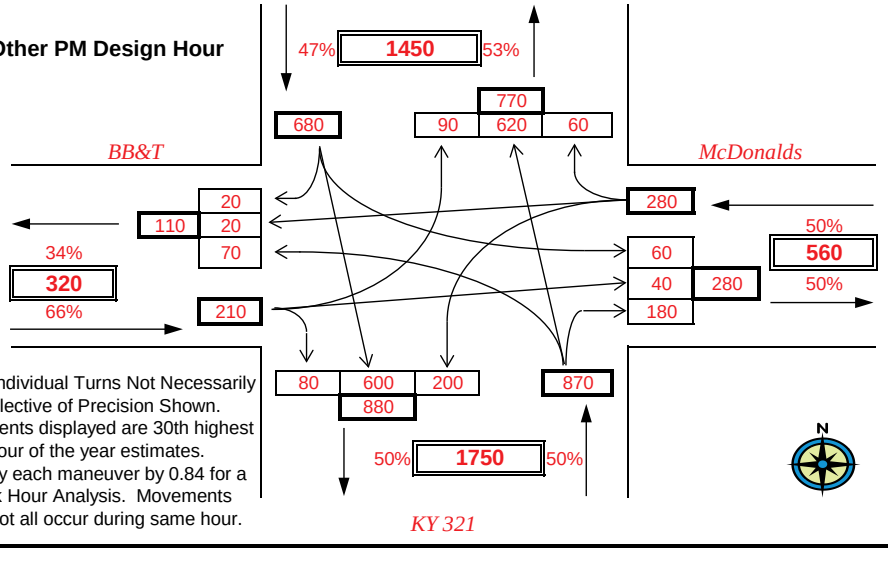
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



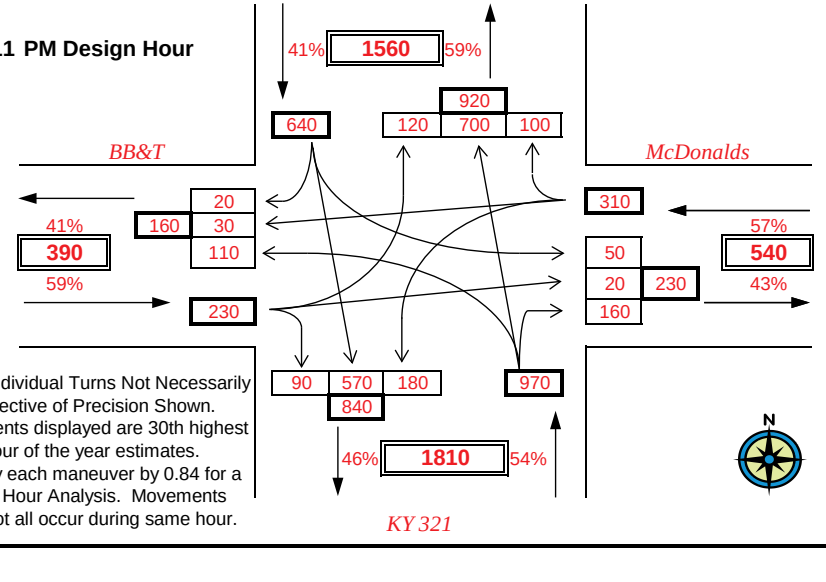
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



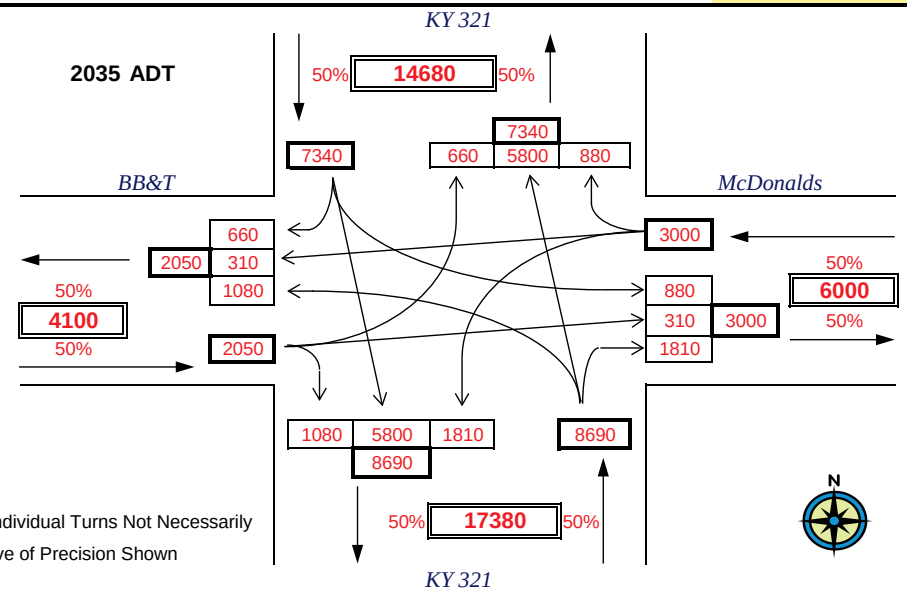
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

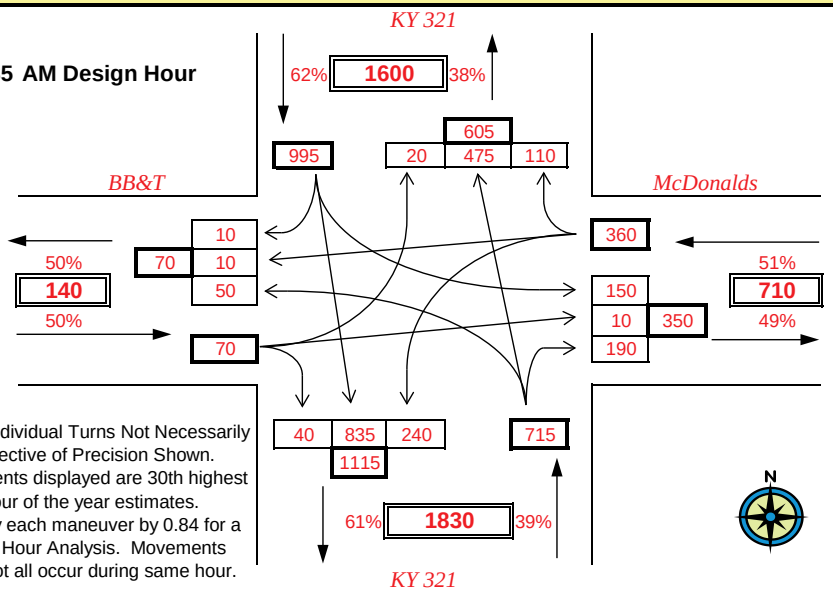
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



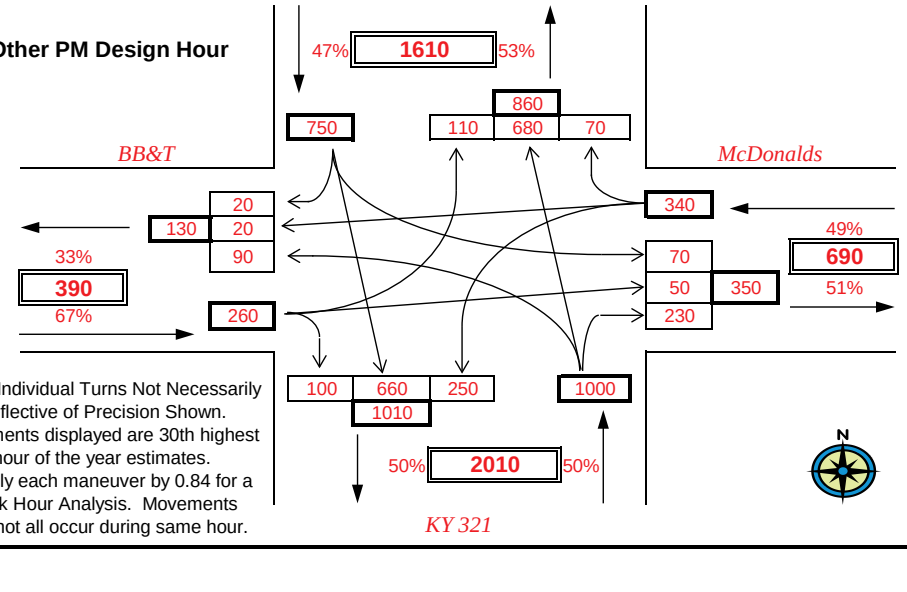
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



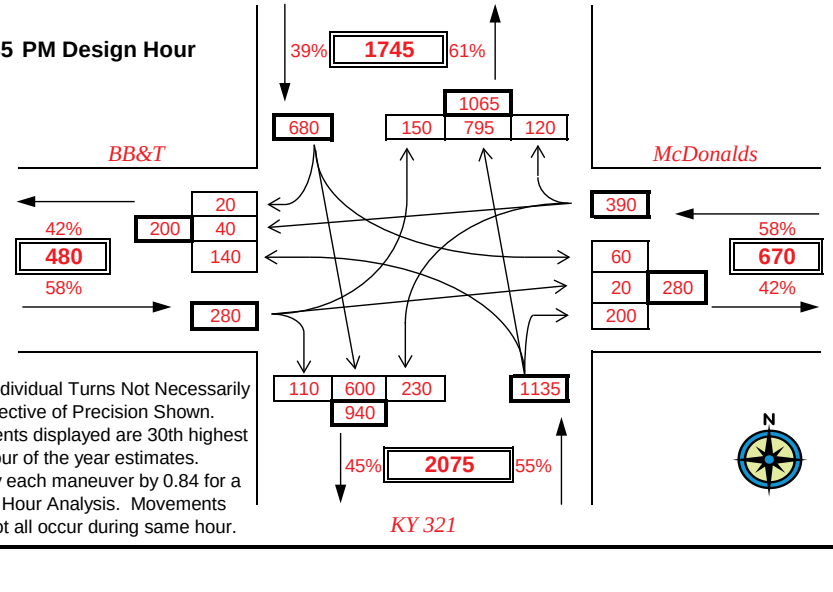
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



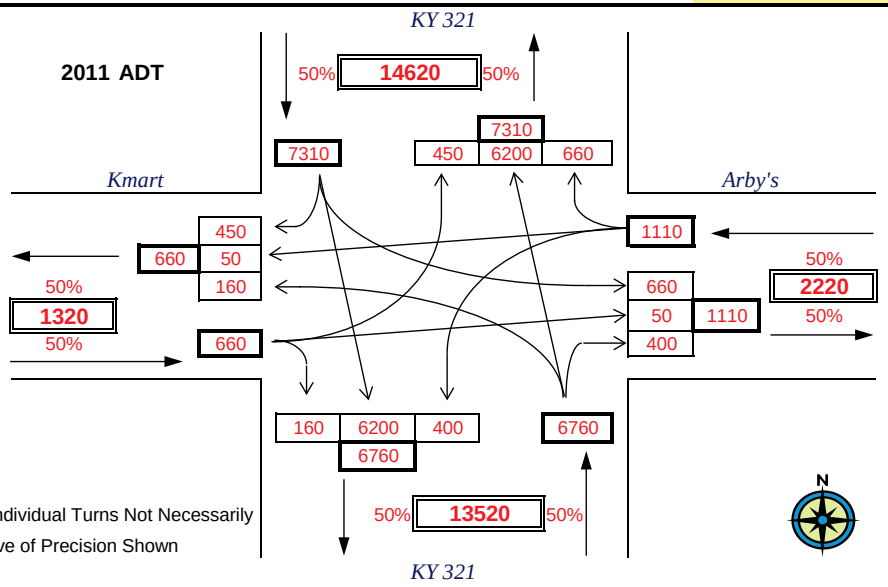
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

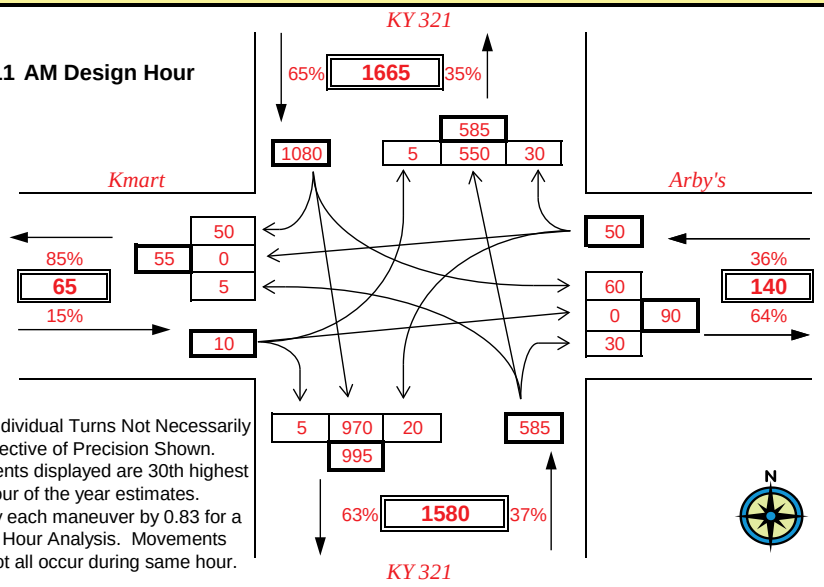
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



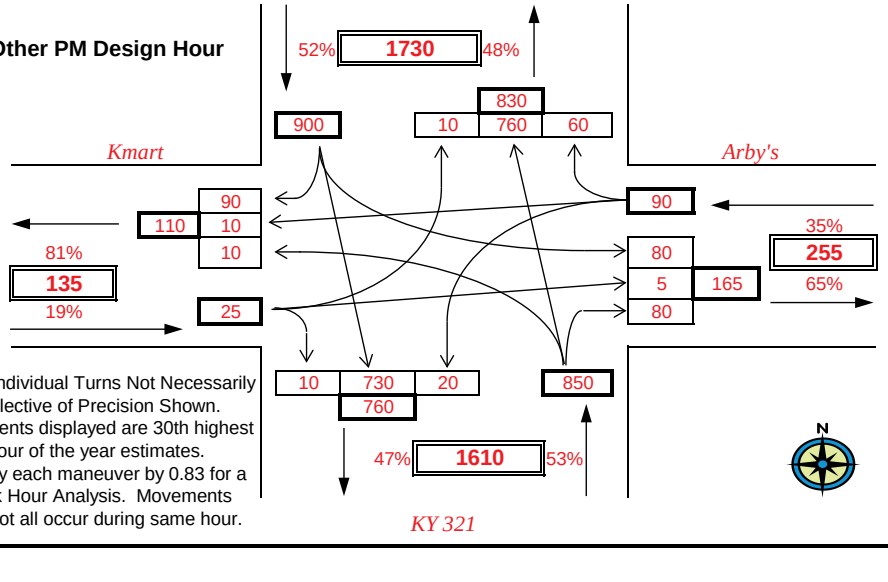
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



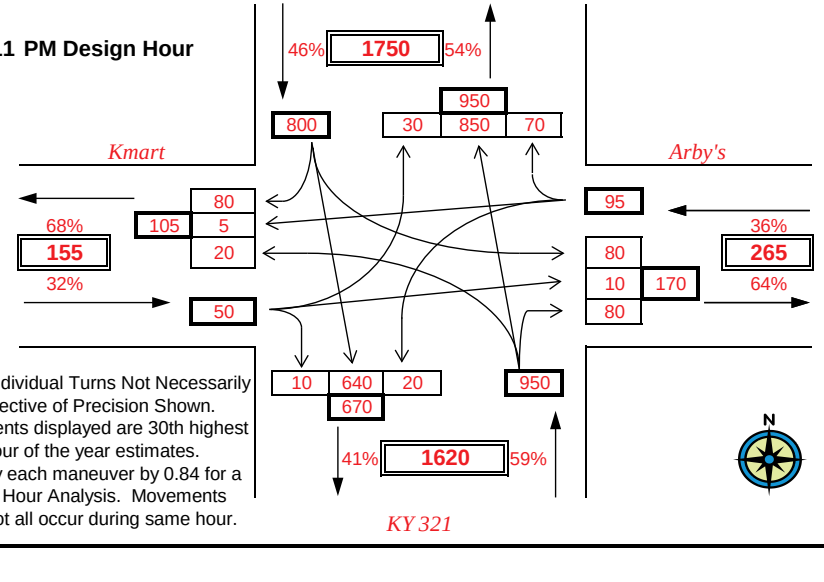
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



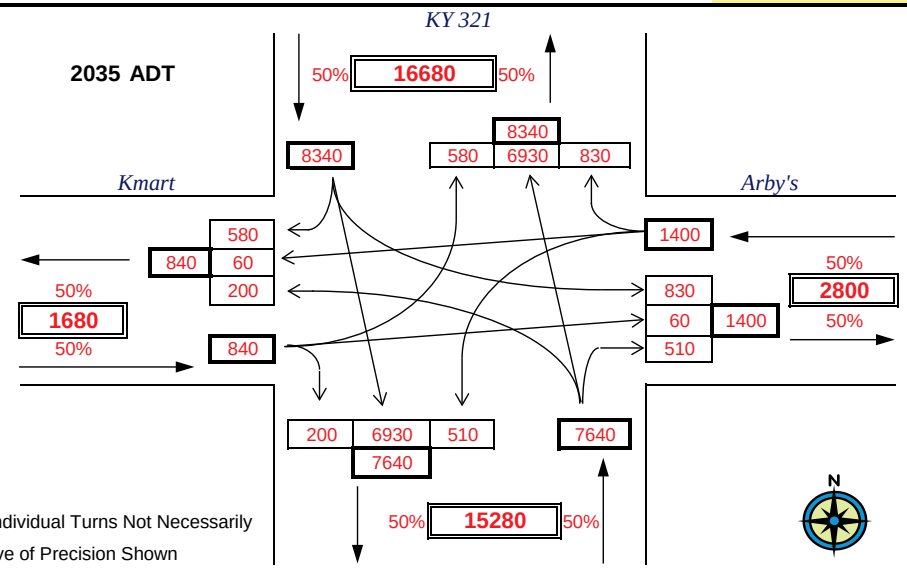
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

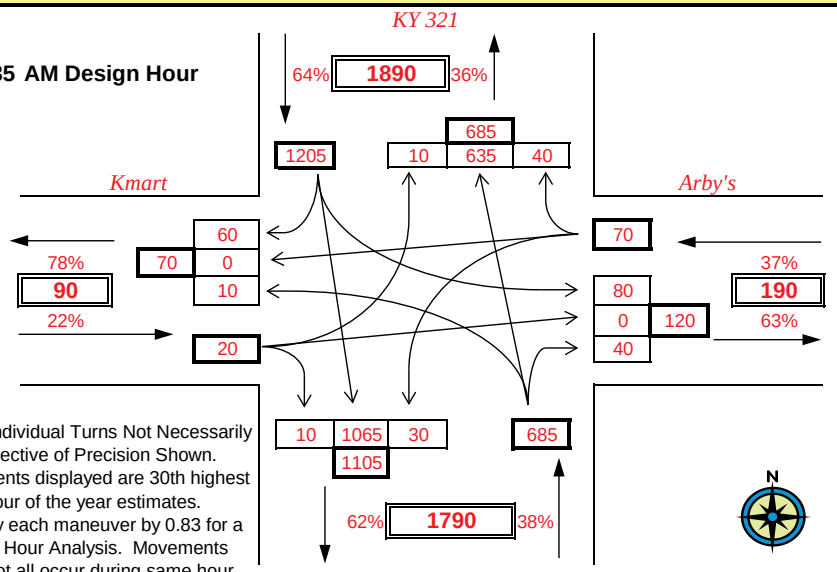
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



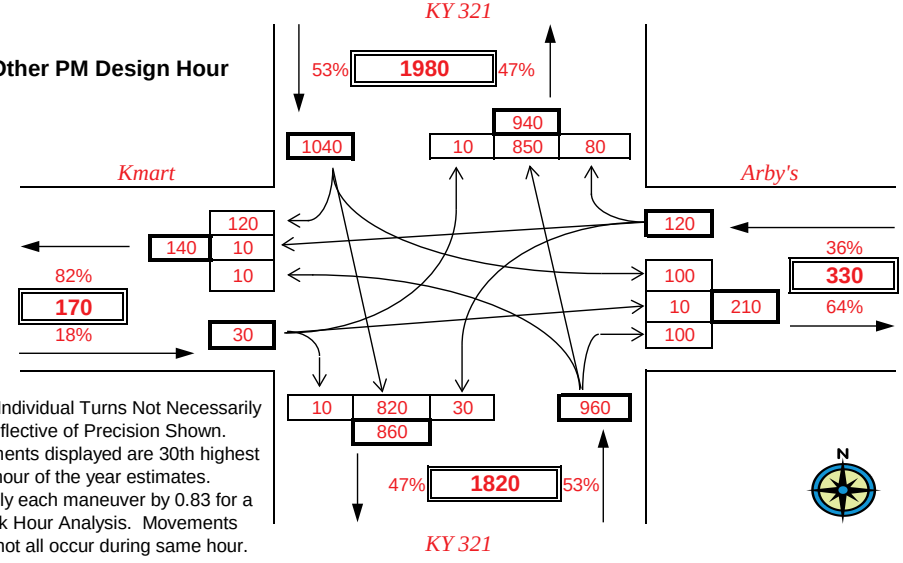
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



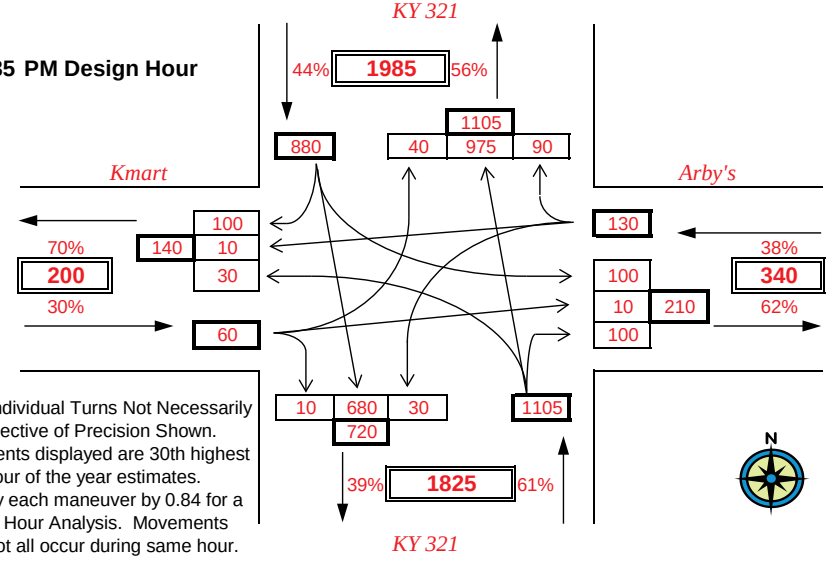
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

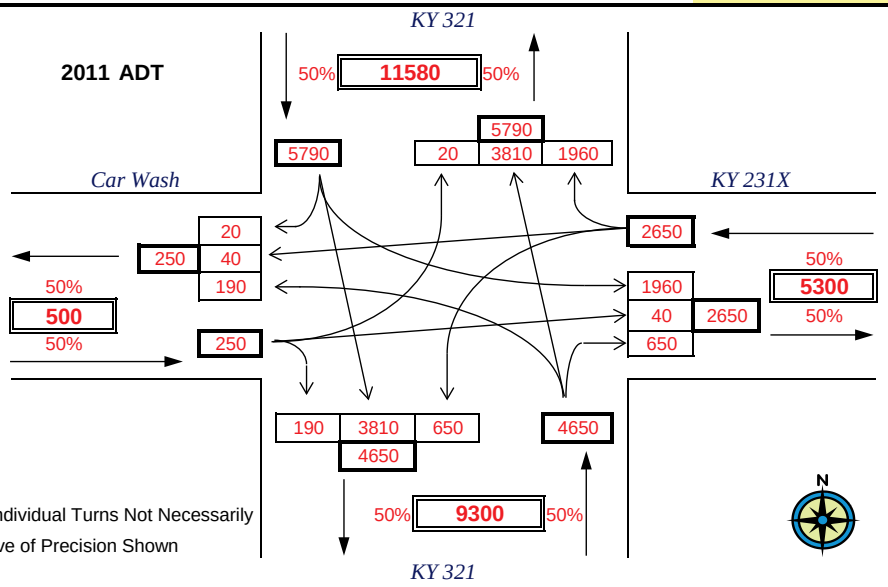
ALTERNATIVE 8

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

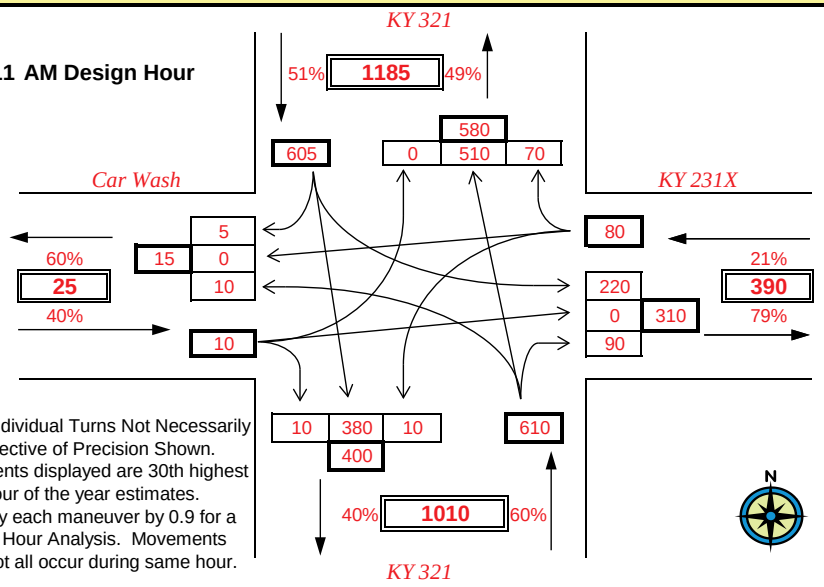
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



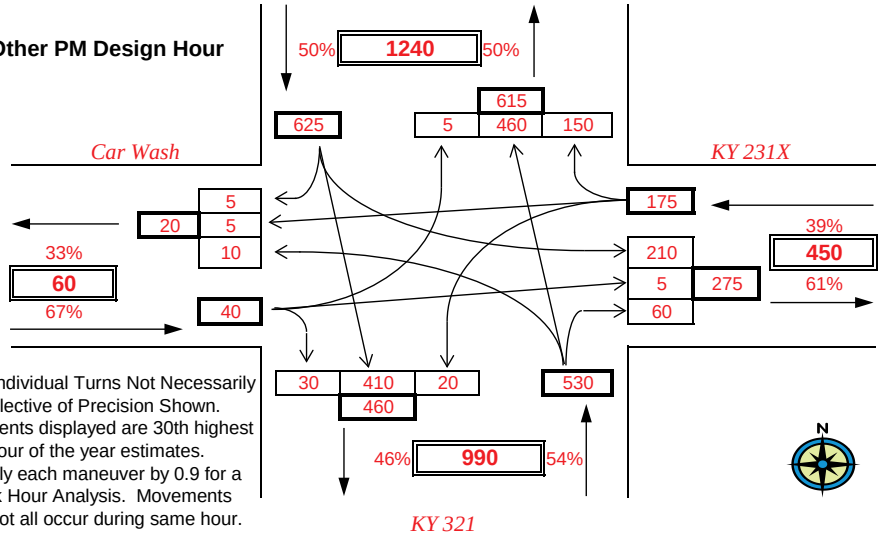
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



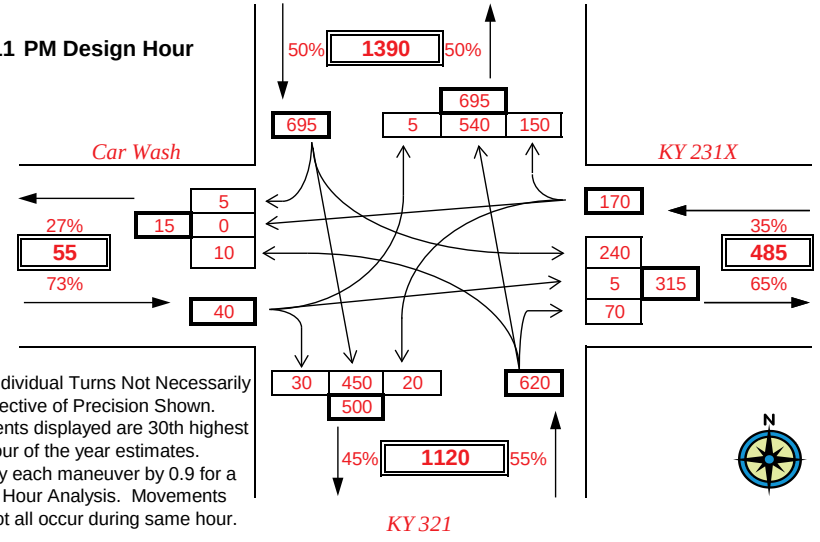
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



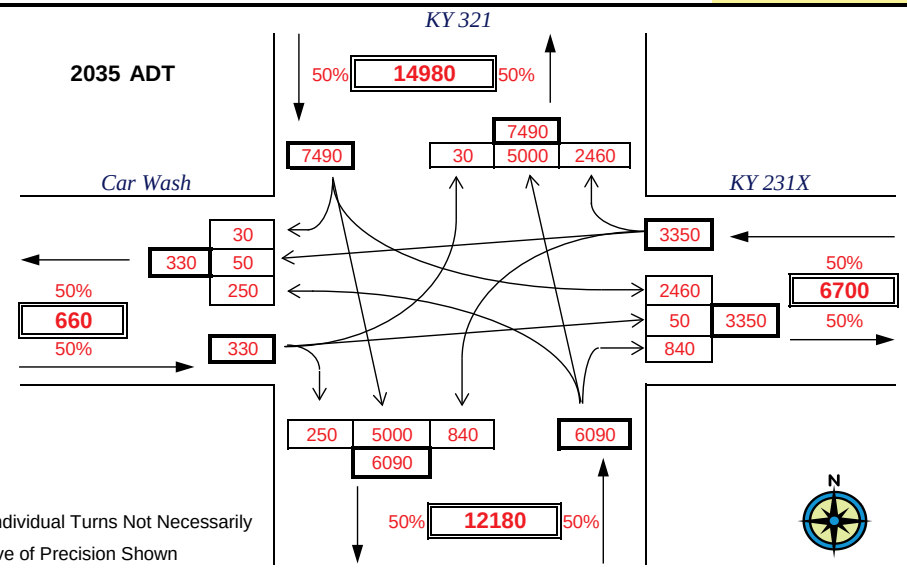
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

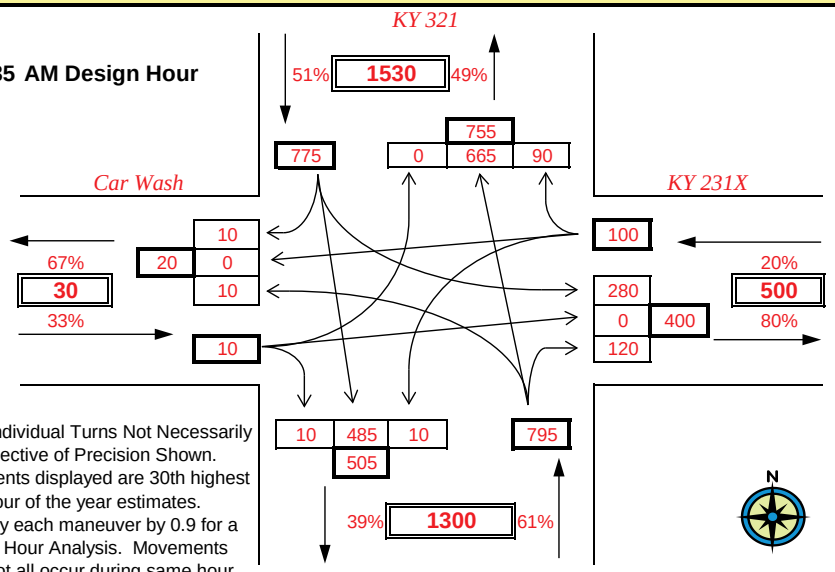
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



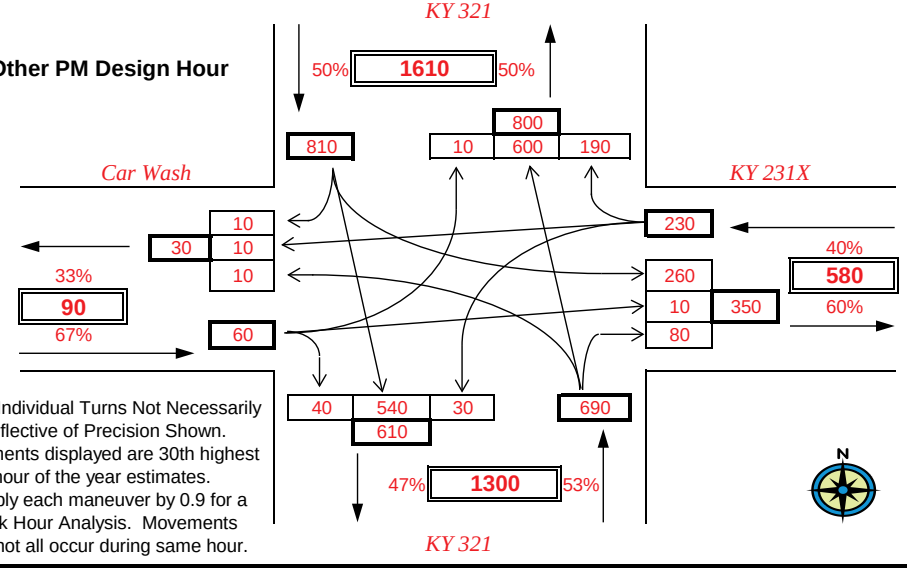
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



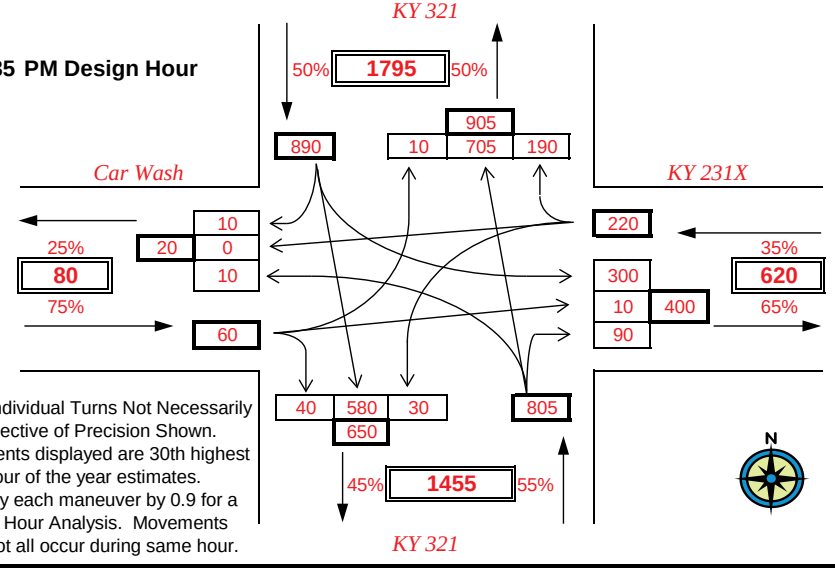
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



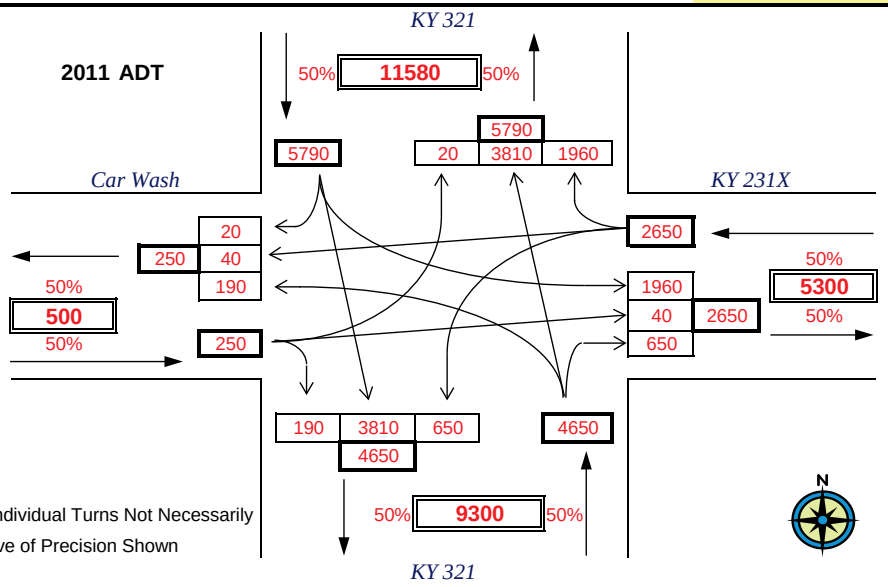
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

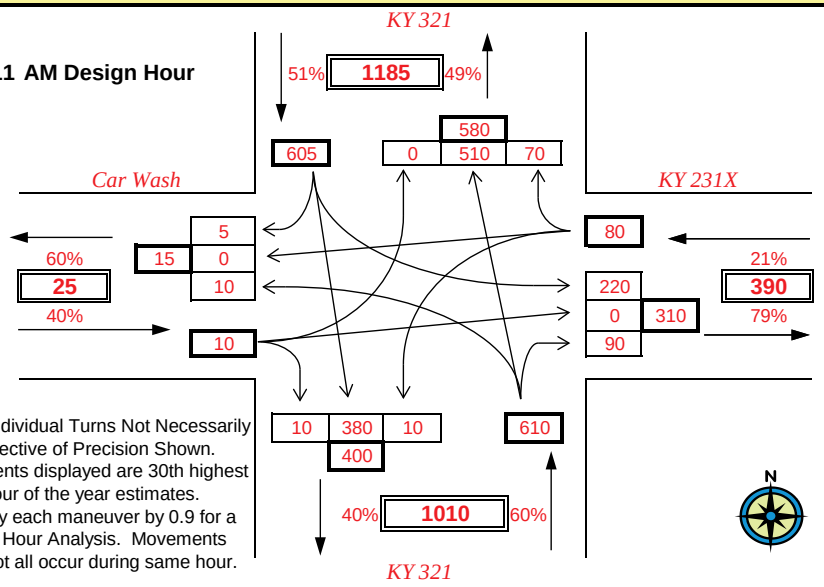
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



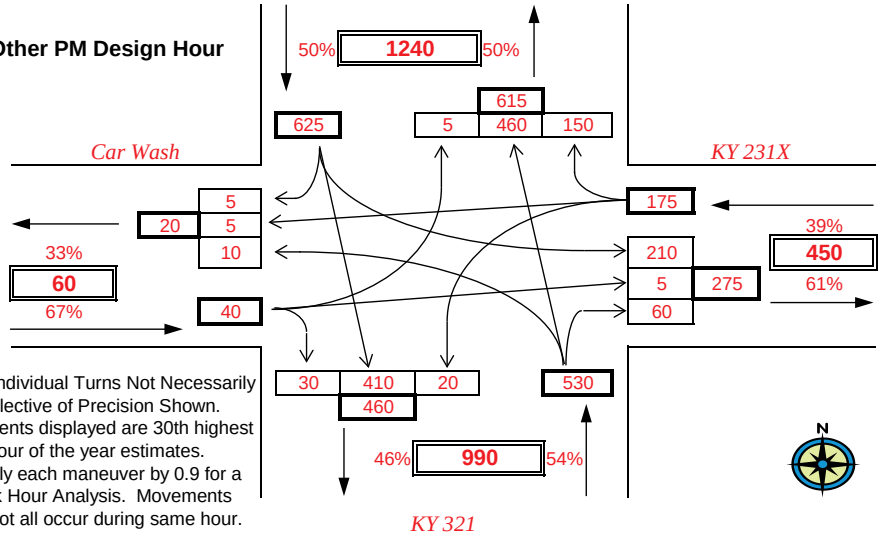
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



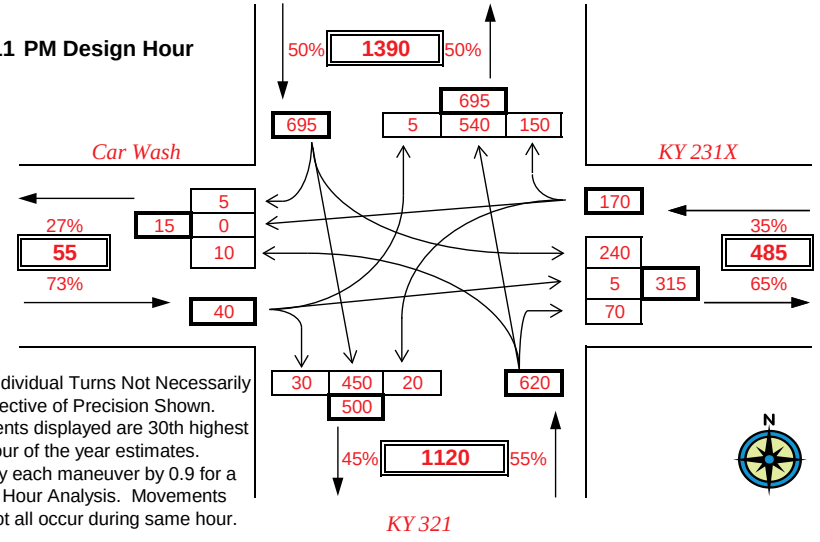
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



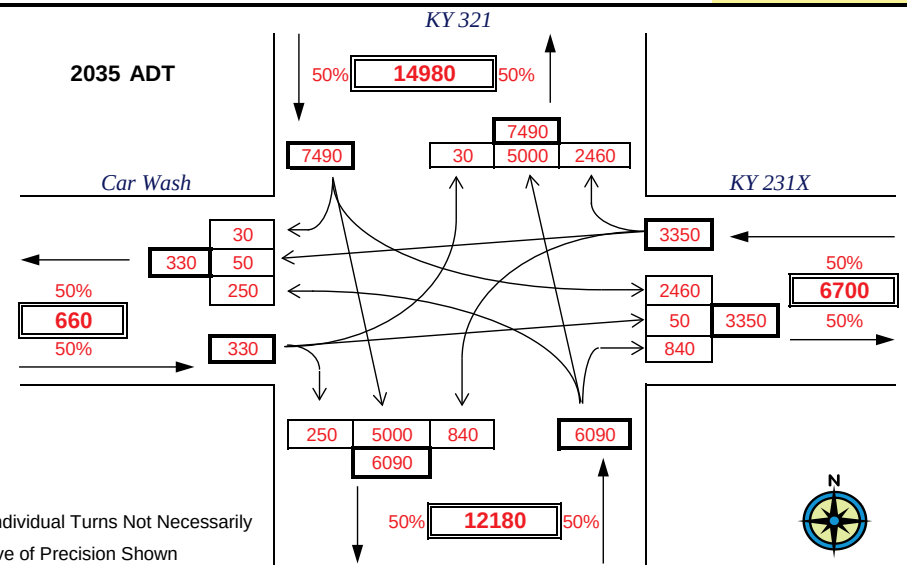
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

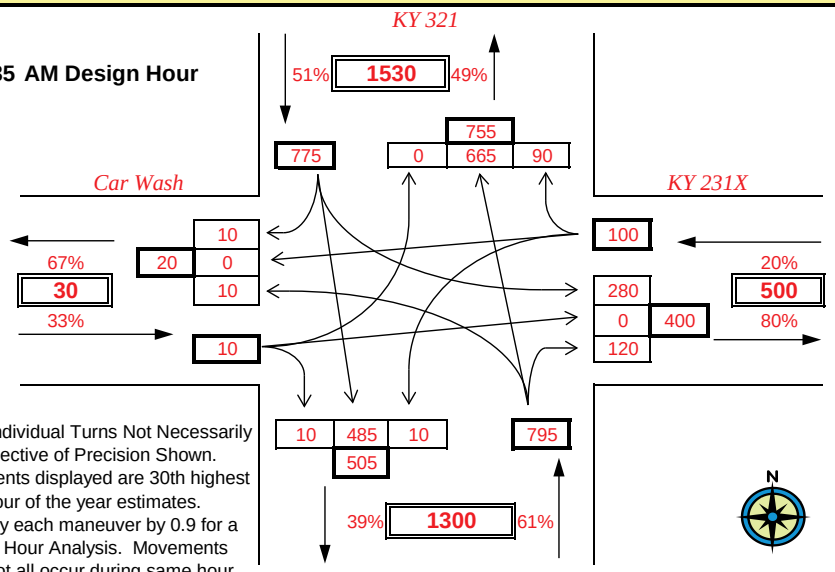
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



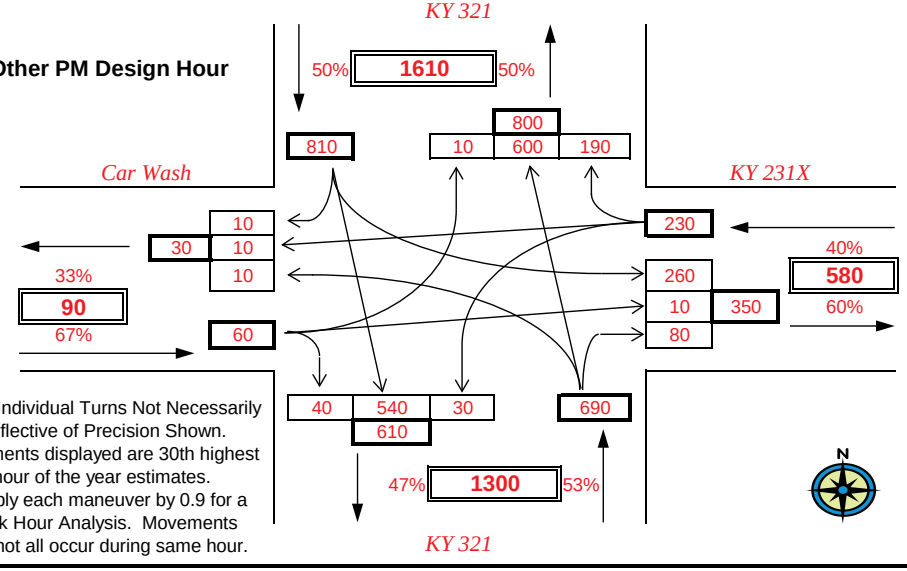
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



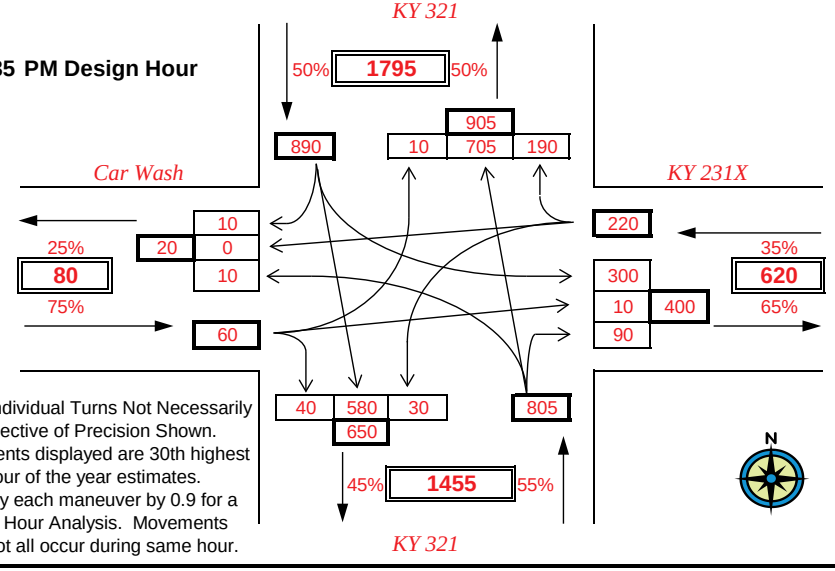
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

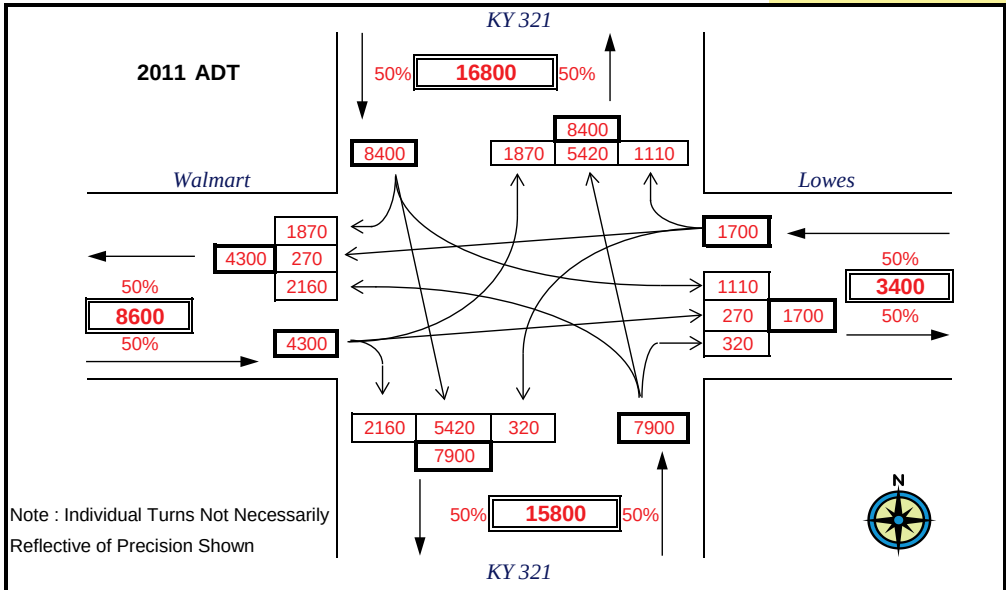


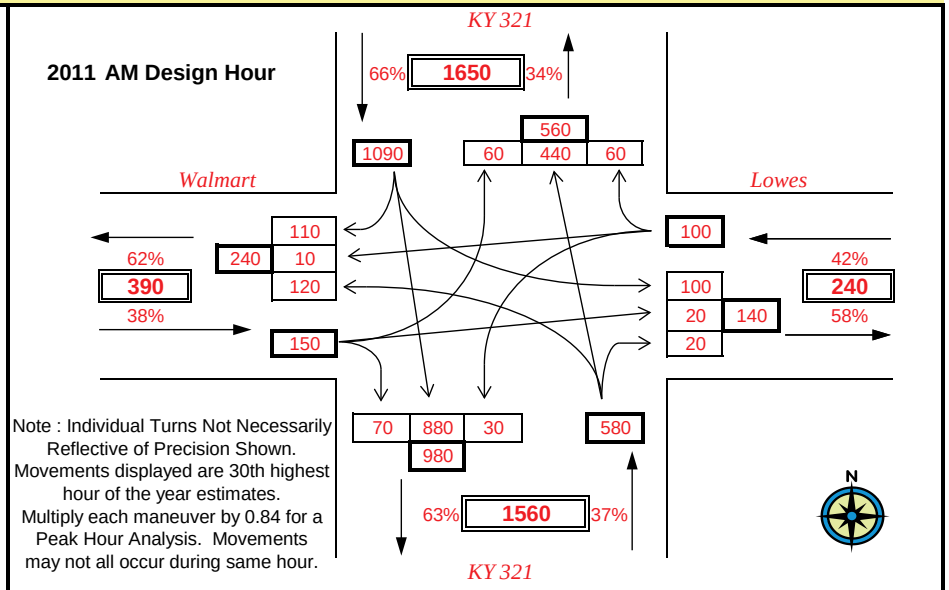
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

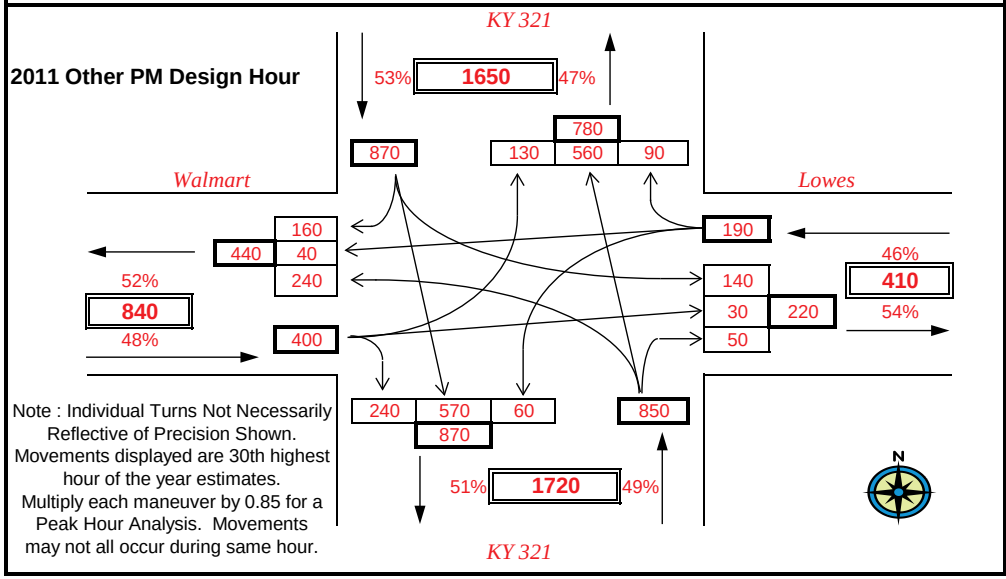
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

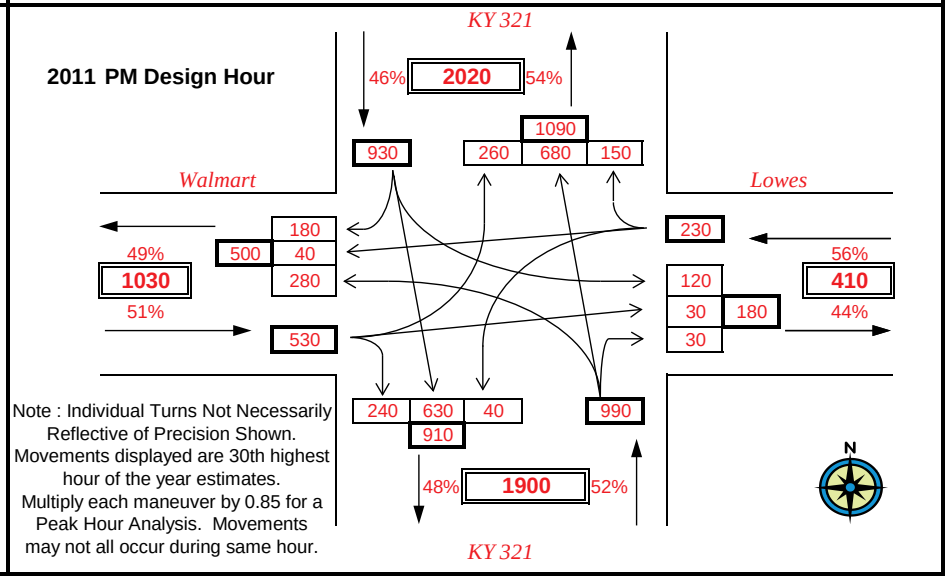
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







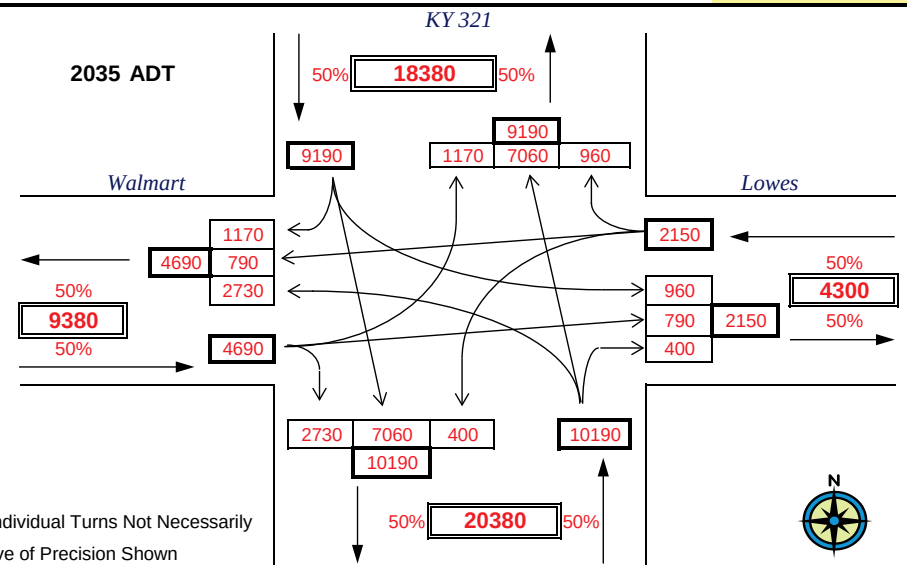


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

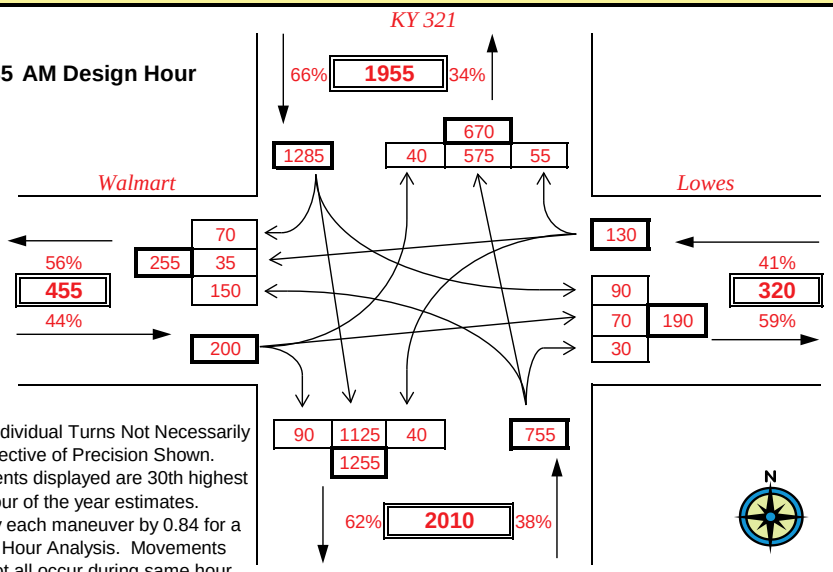
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



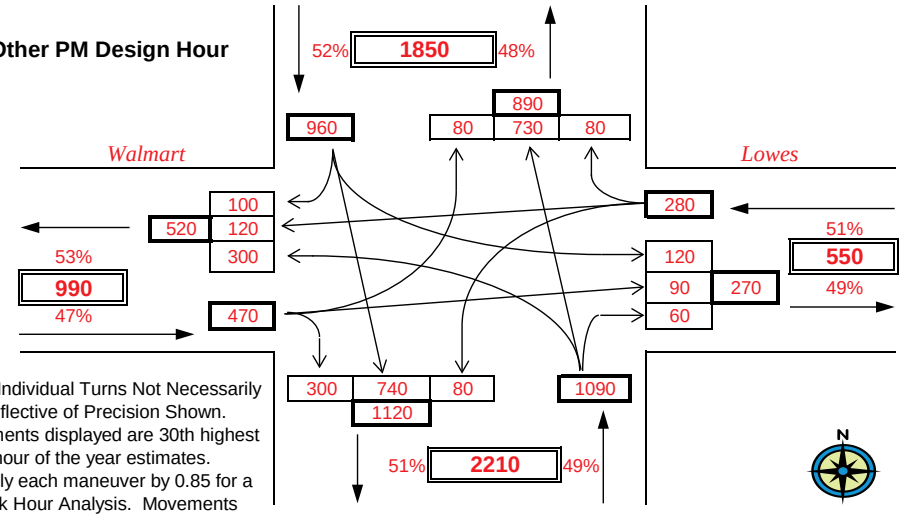
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



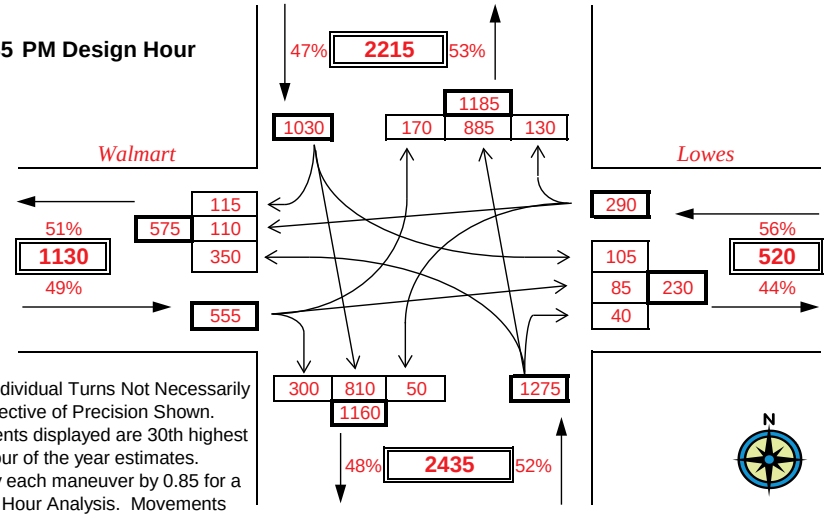
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



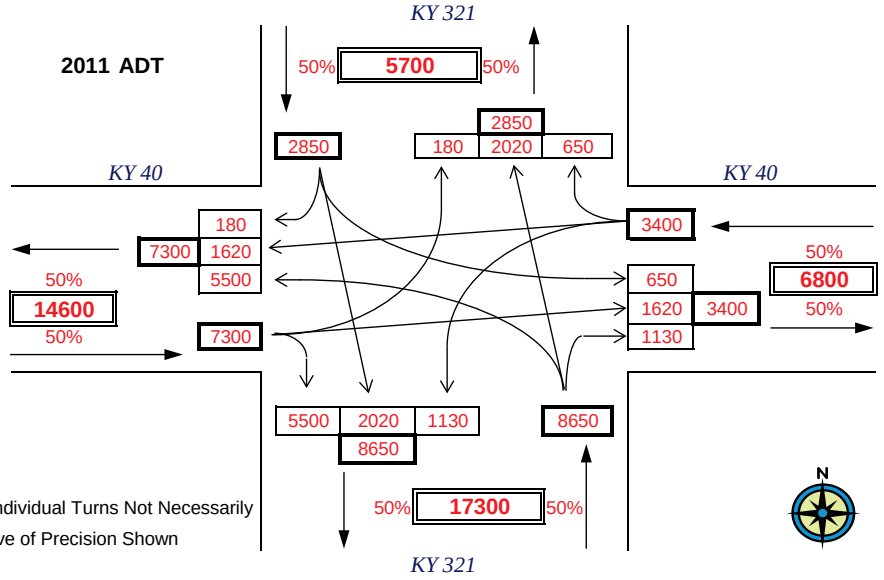
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

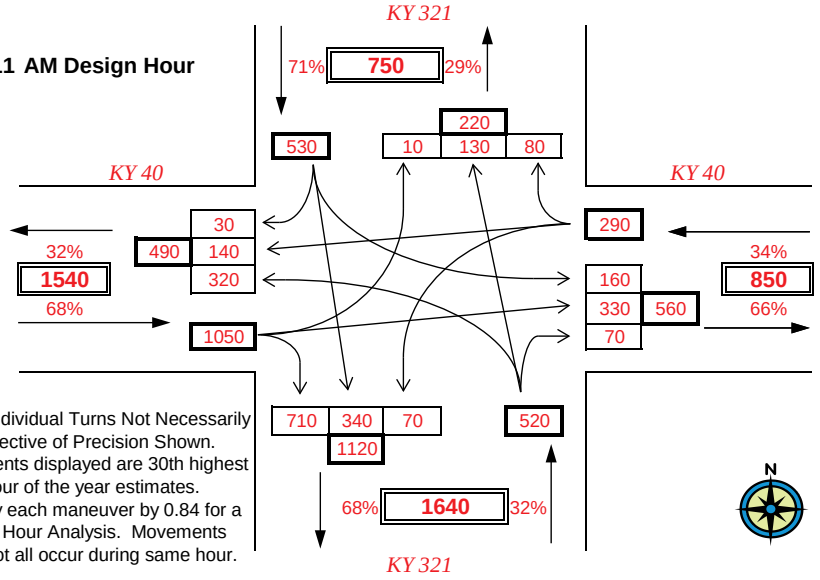
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



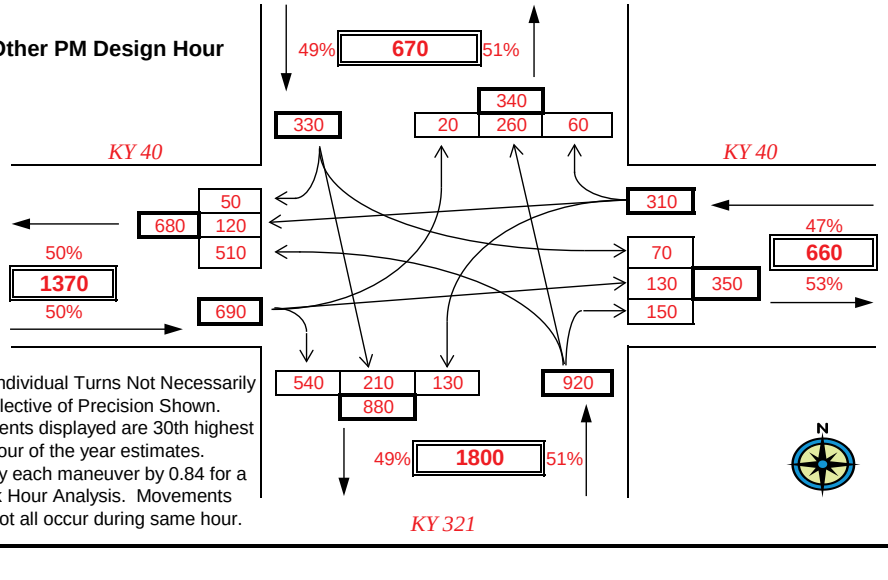
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



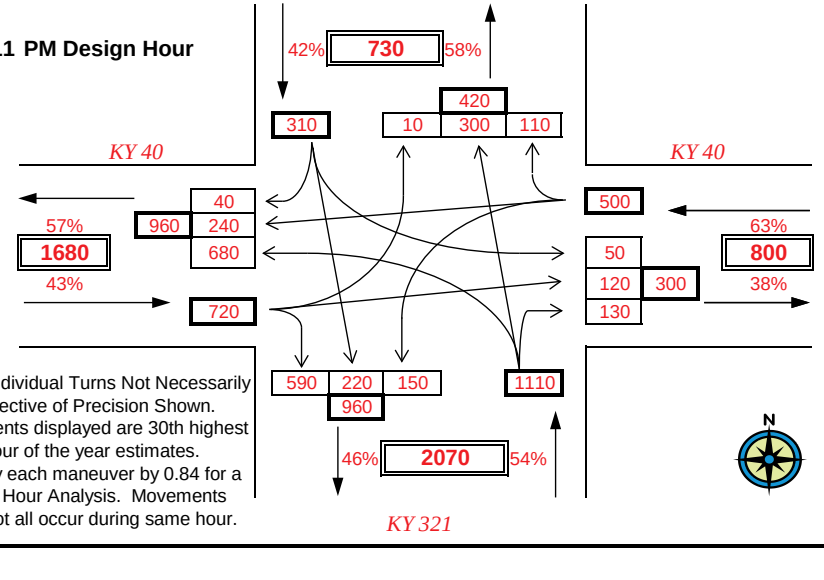
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



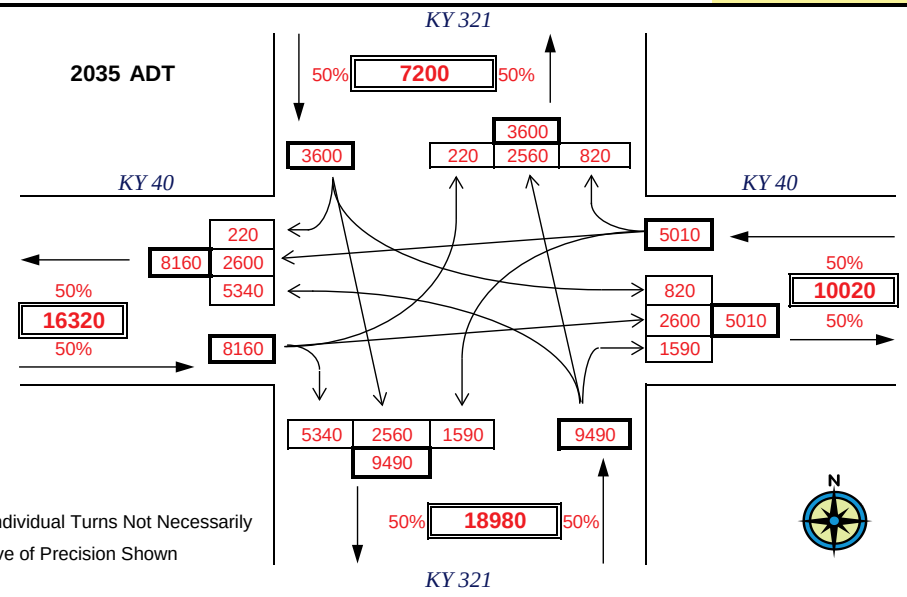
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

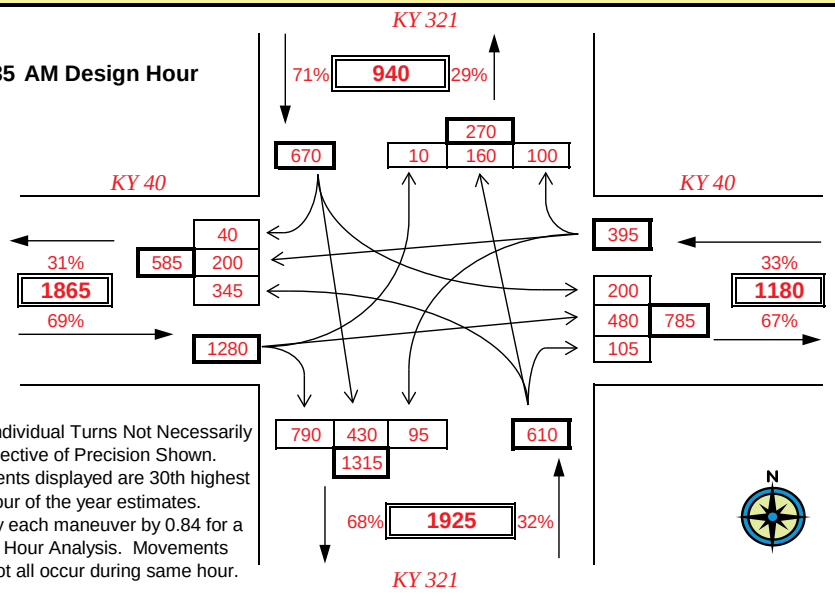
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



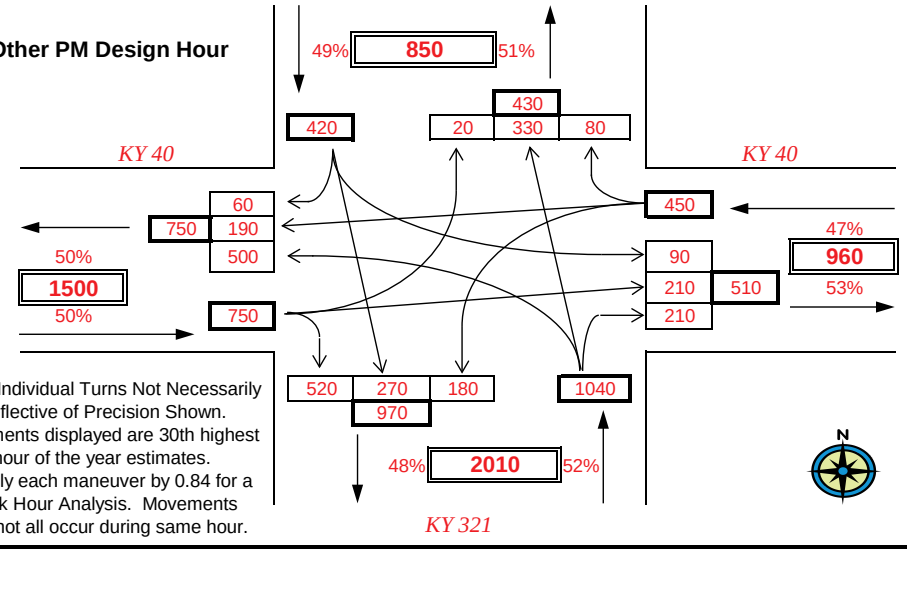
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



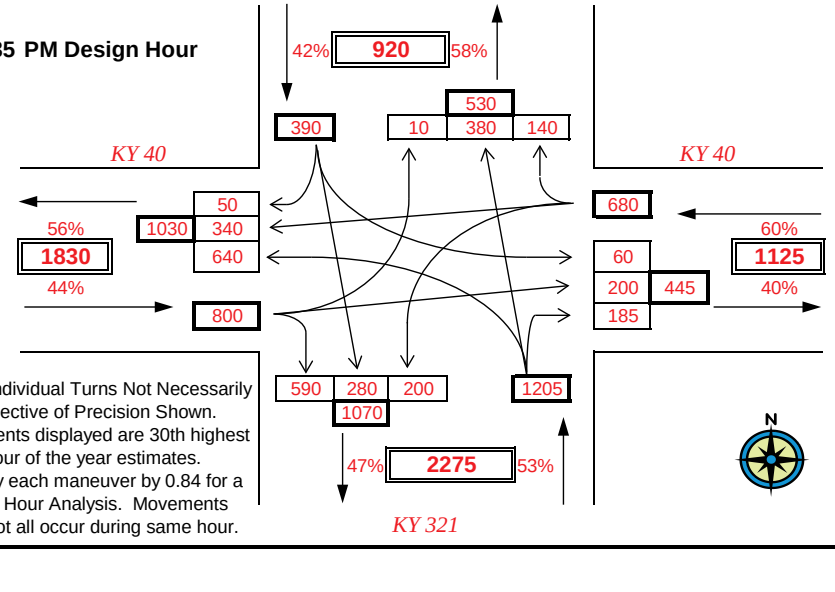
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



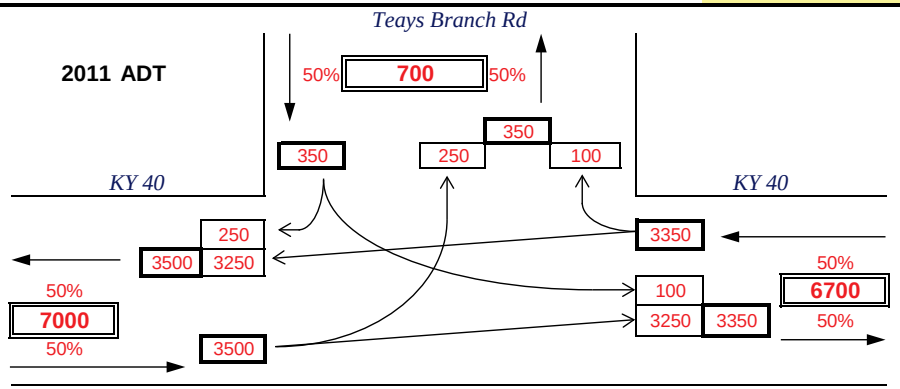
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

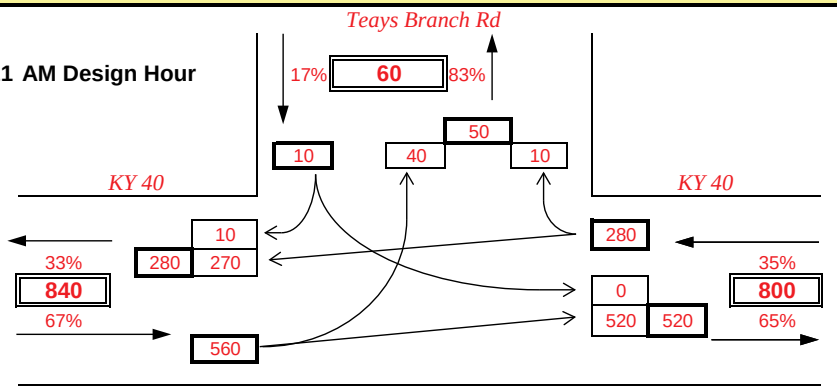
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



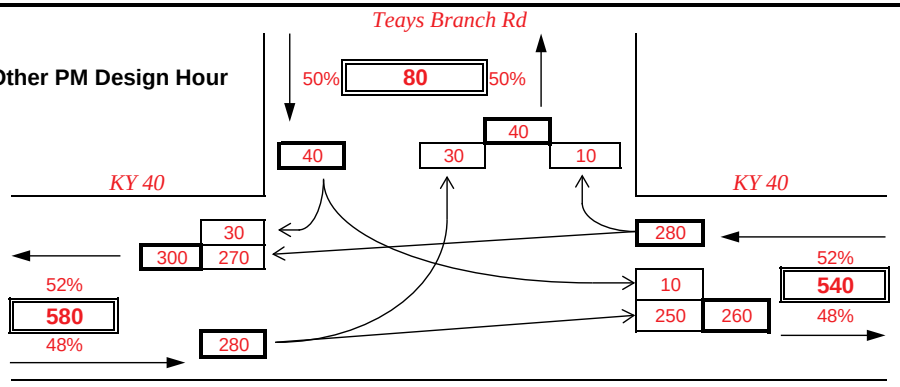
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



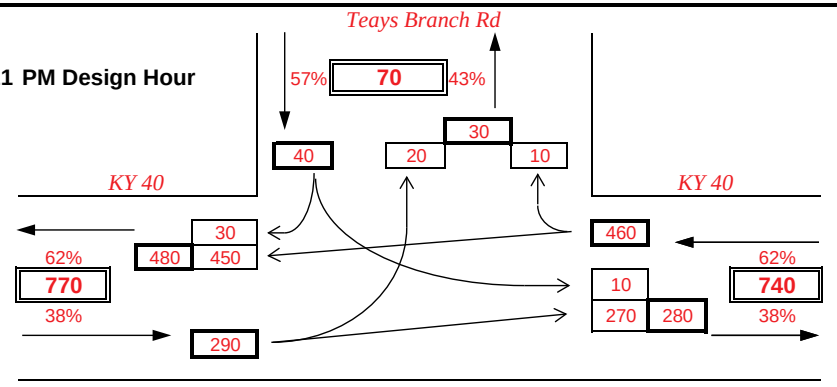
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour

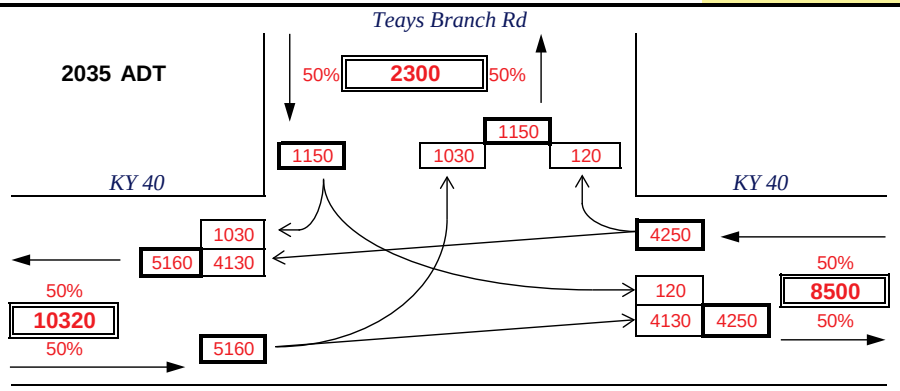


Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

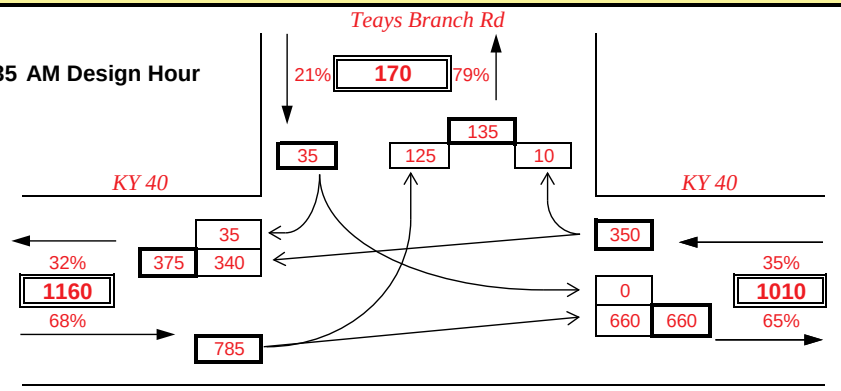
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

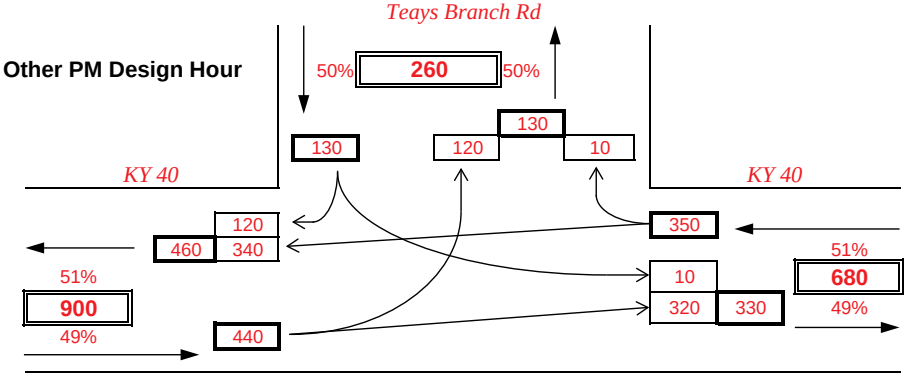
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



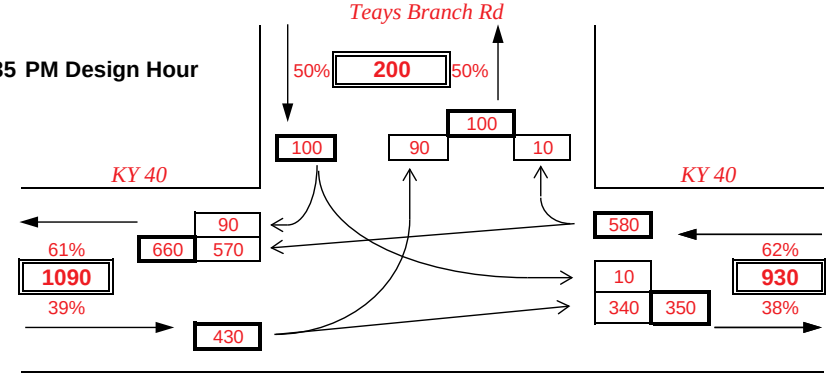
Note : Individual Turns Not Necessarily Reflective of Precision Shown



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



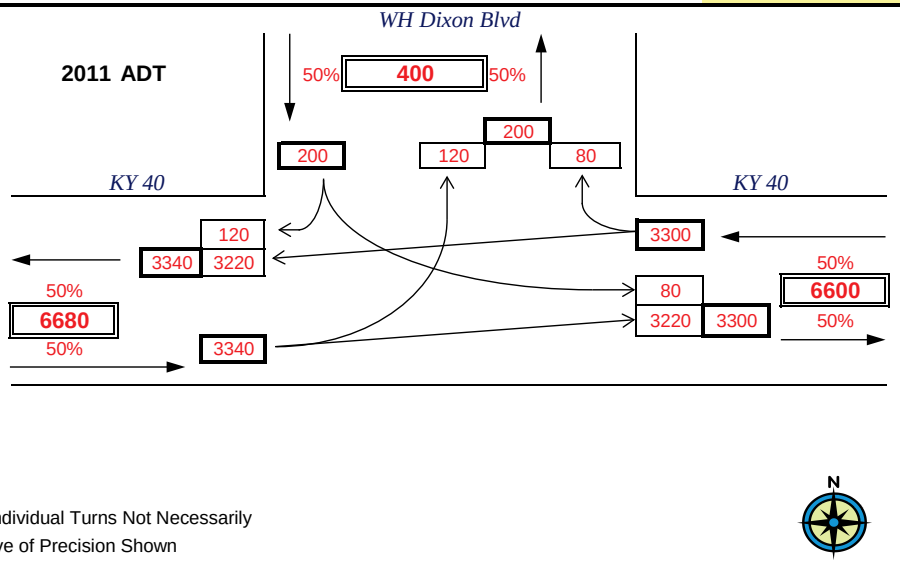
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

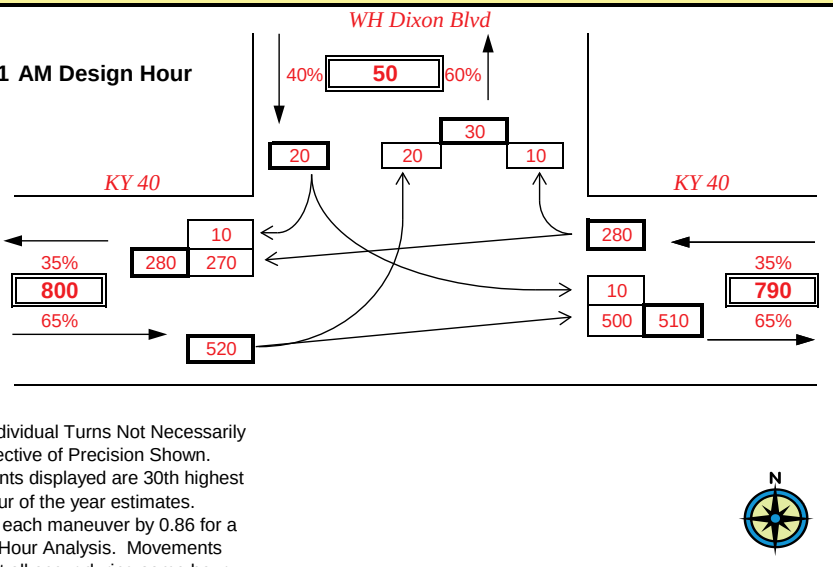
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



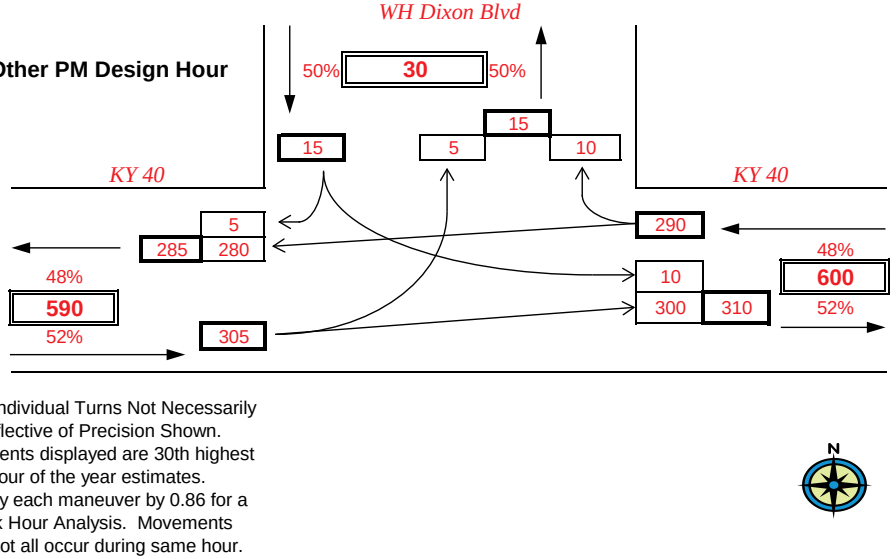
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



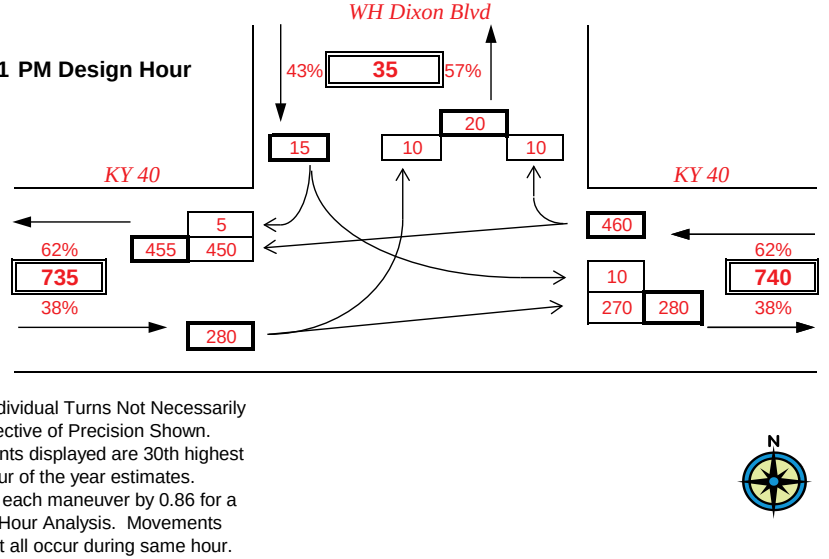
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



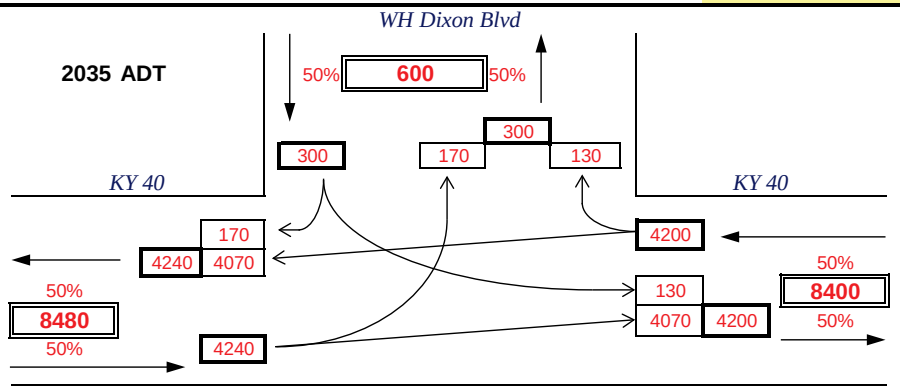
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

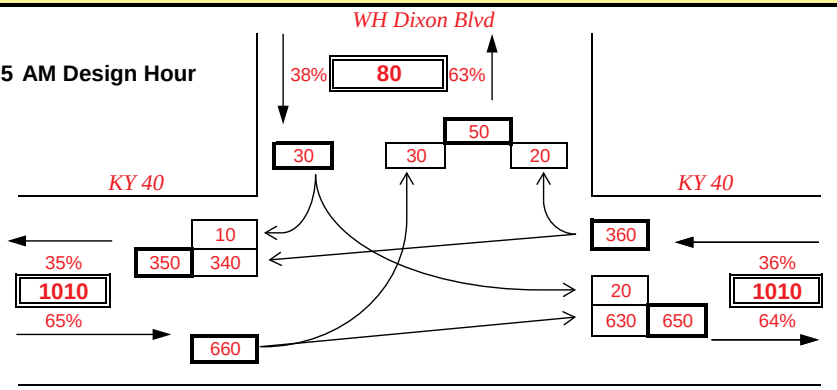
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



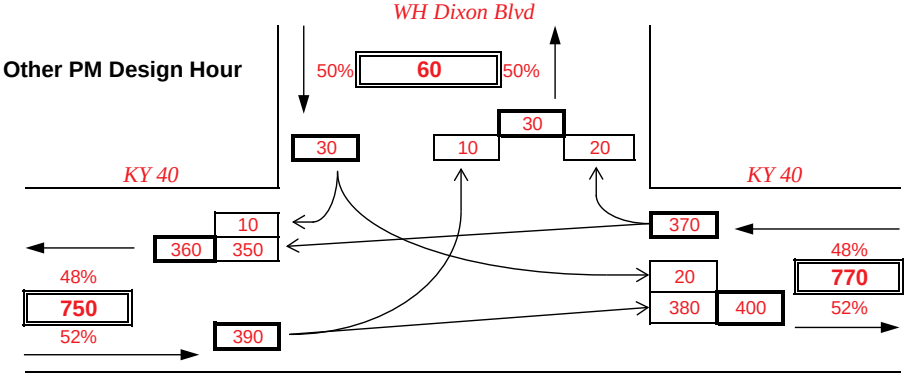
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



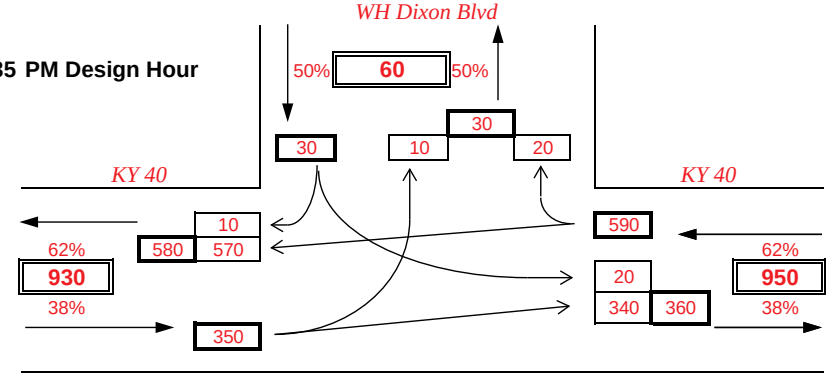
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



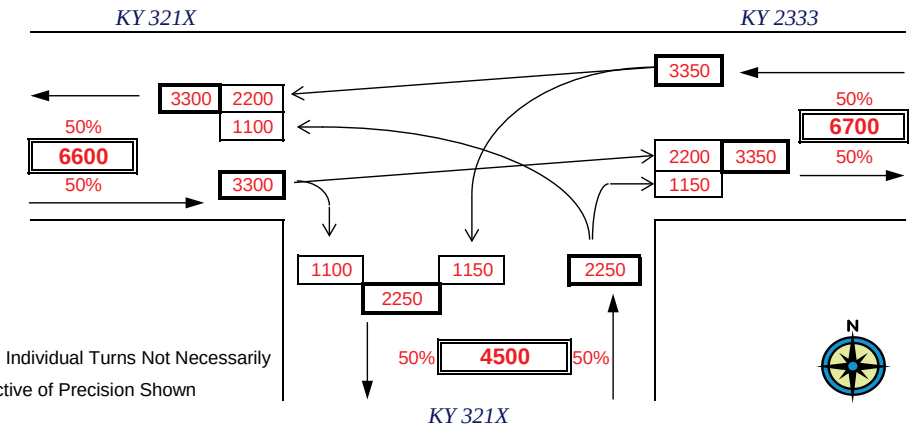
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

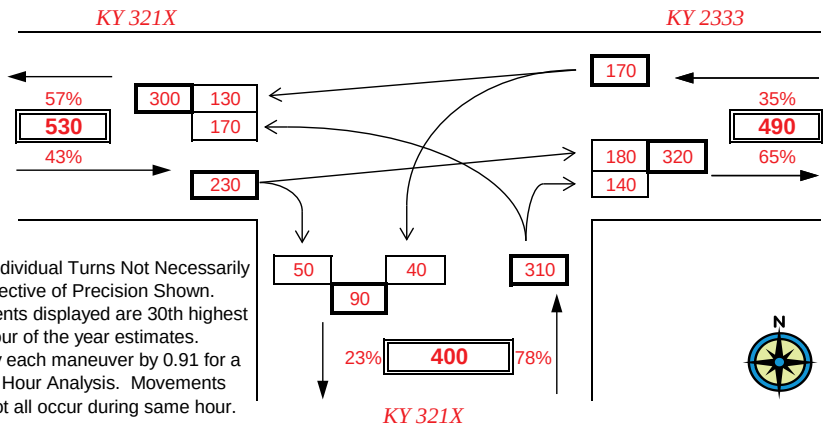
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



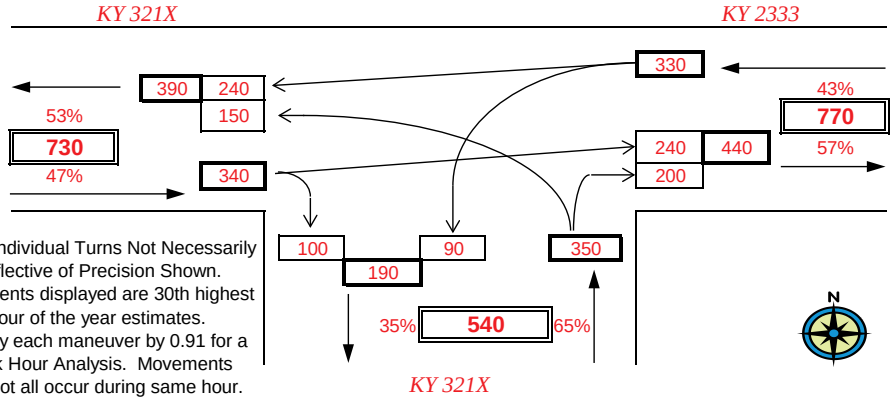
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



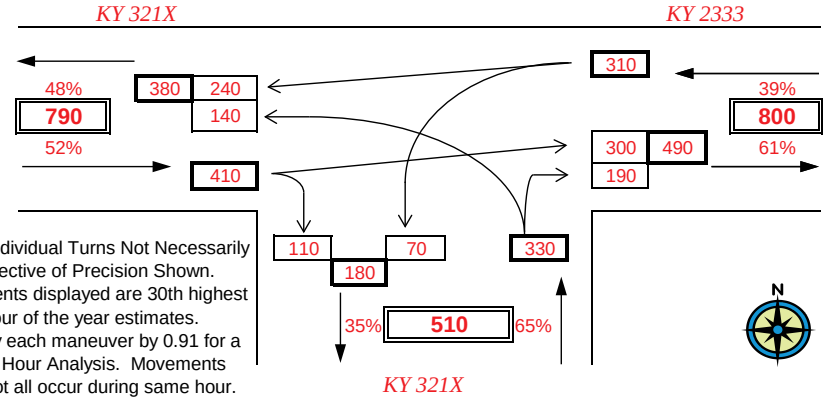
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



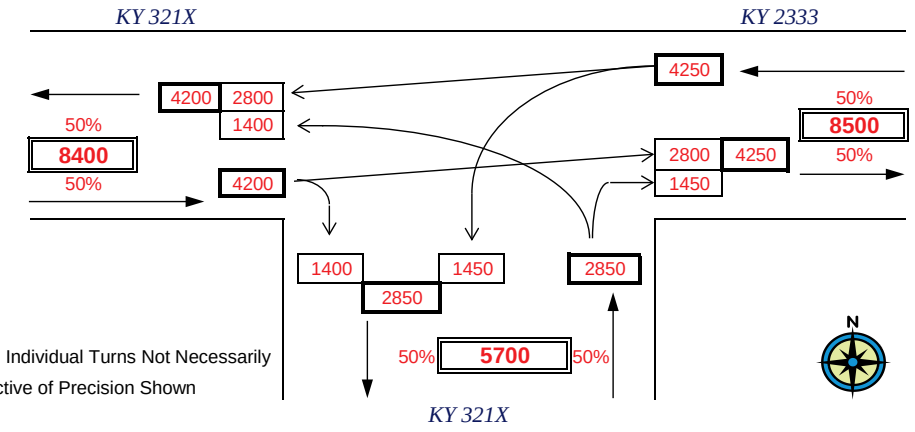
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

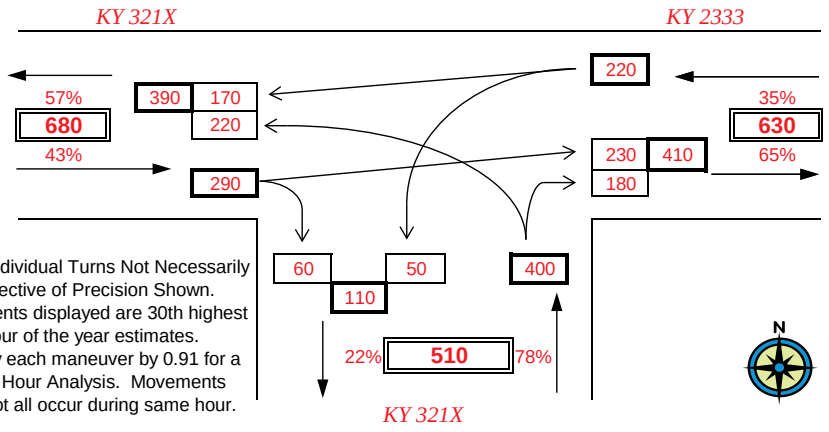
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



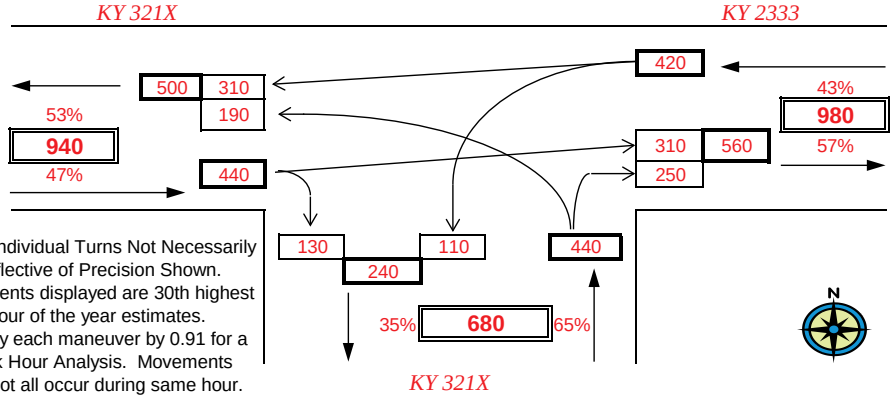
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



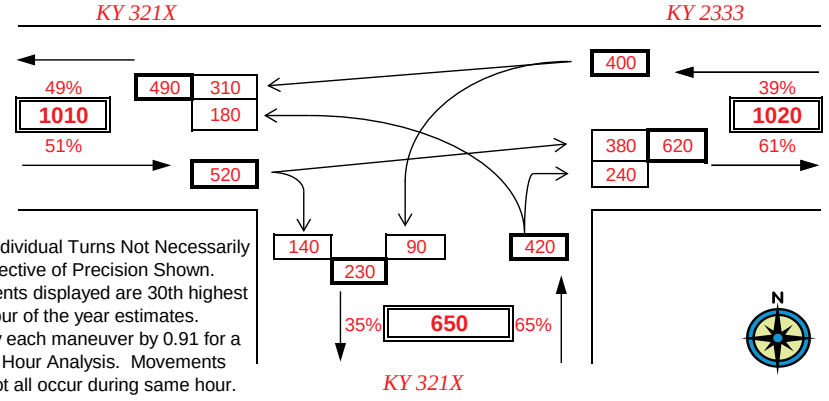
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



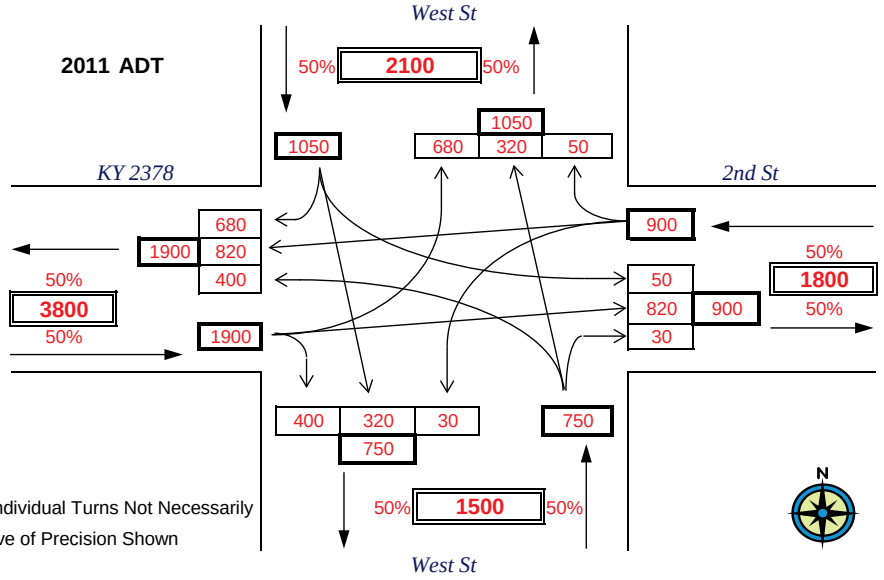
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

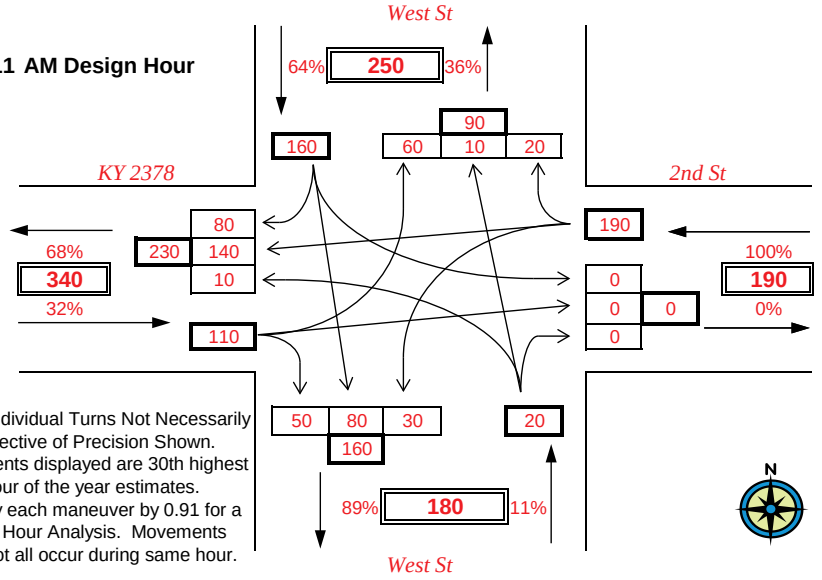
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



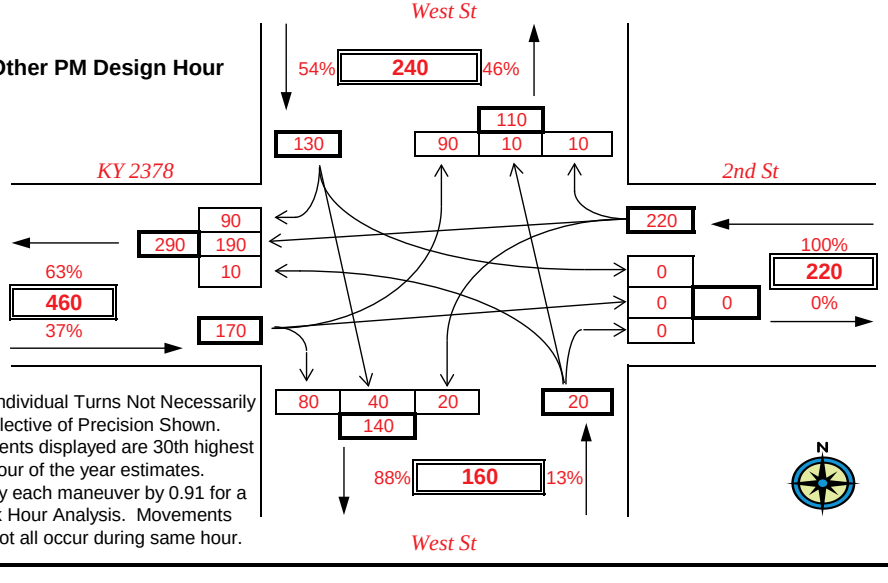
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



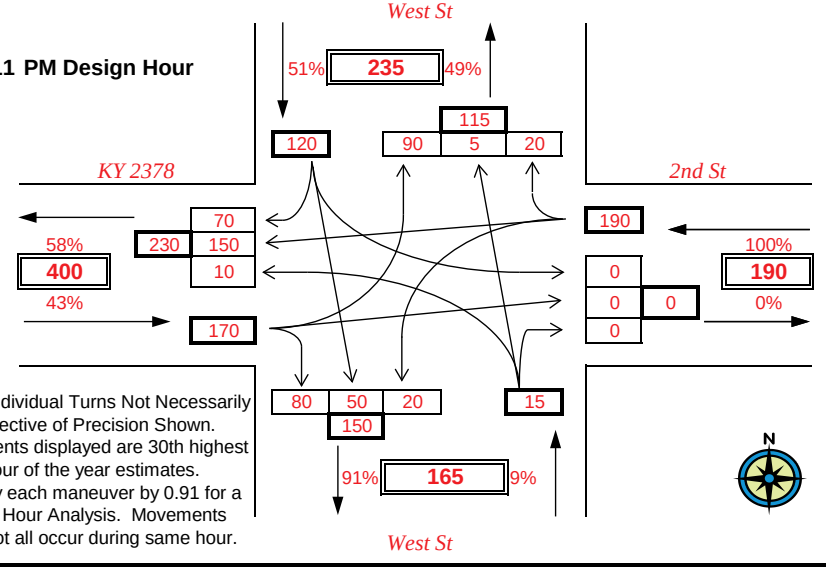
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



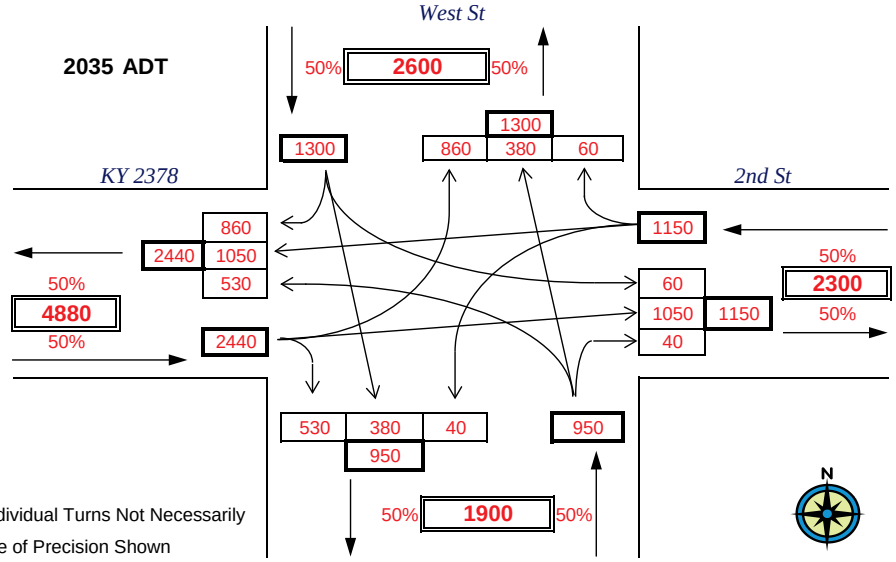
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

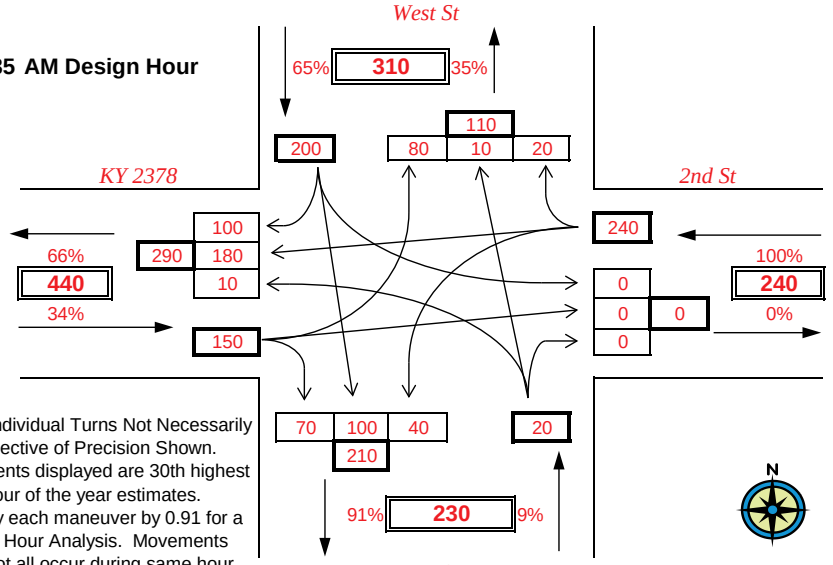
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



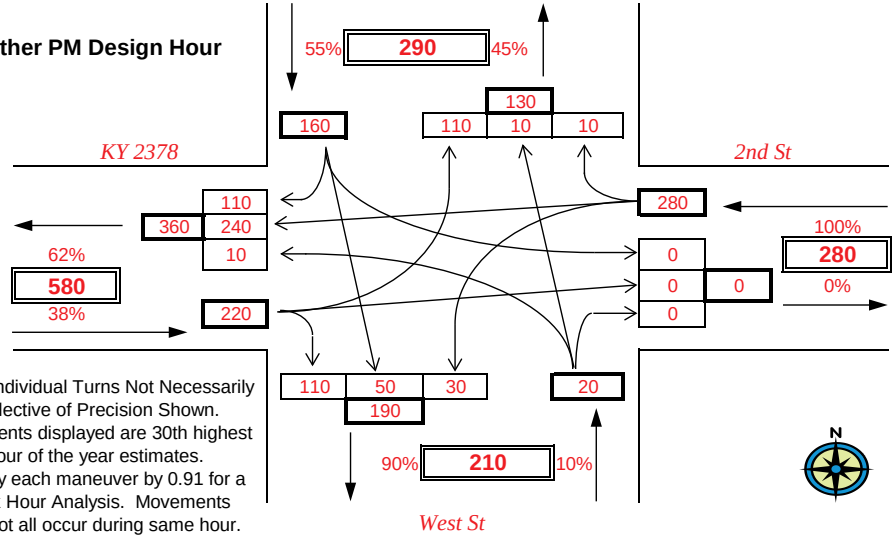
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



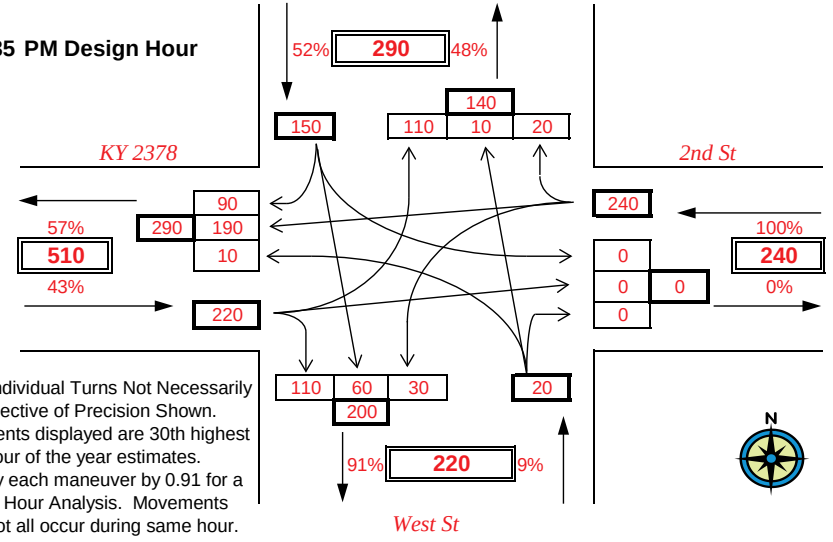
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



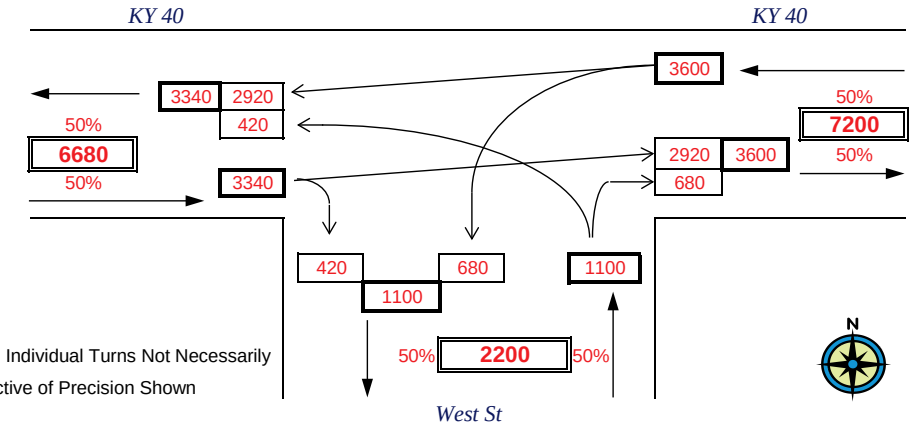
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

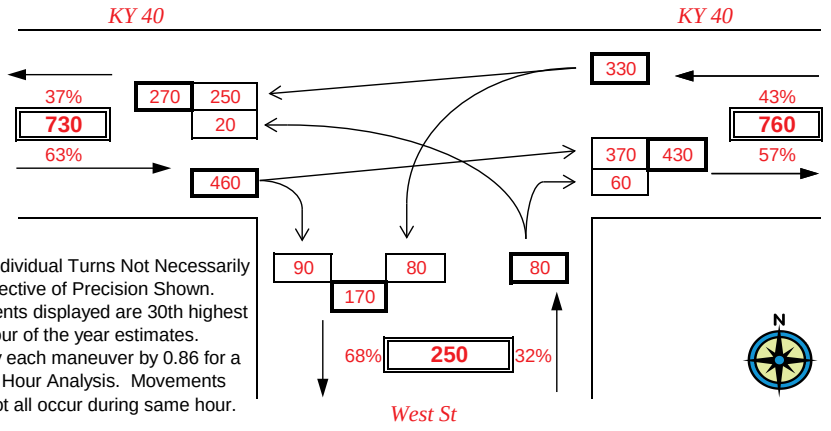
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



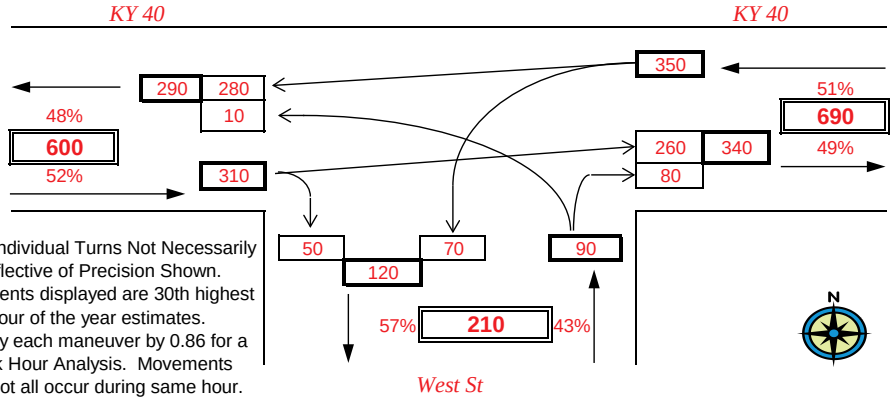
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



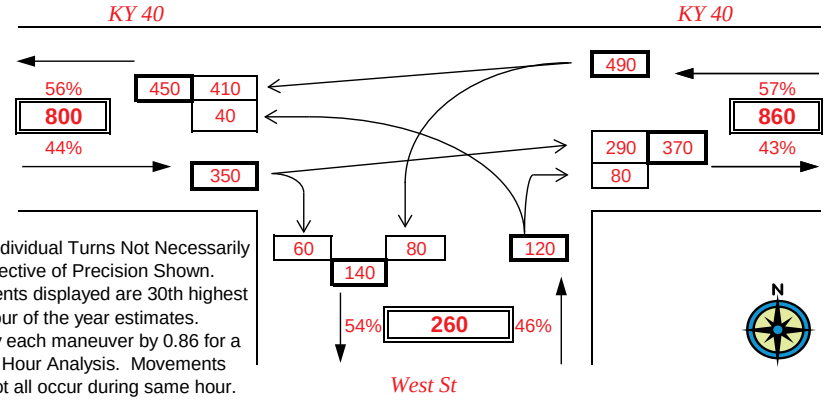
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



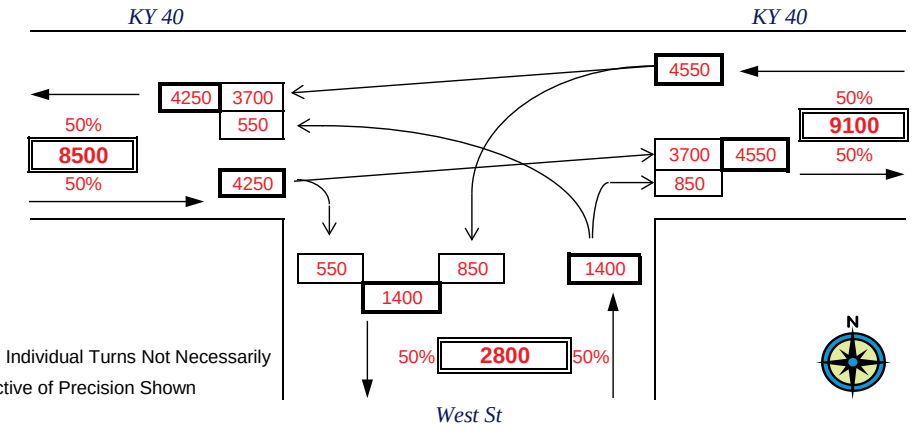
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

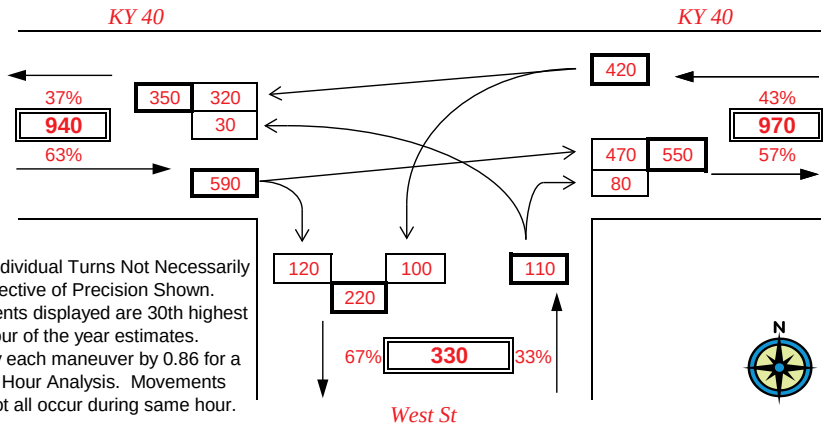
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



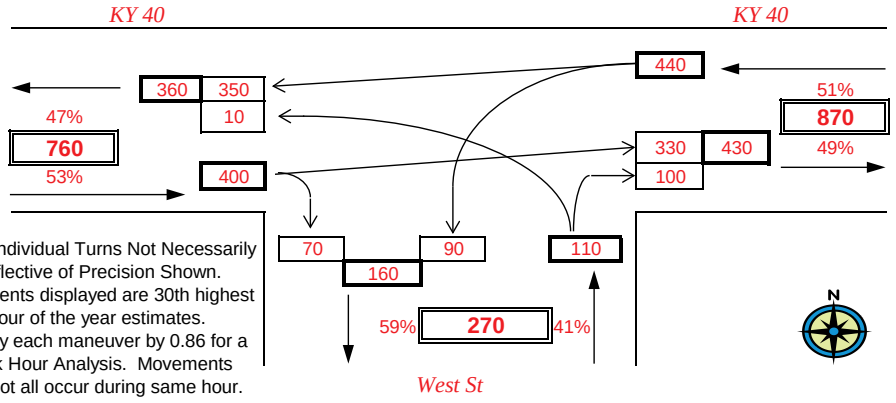
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



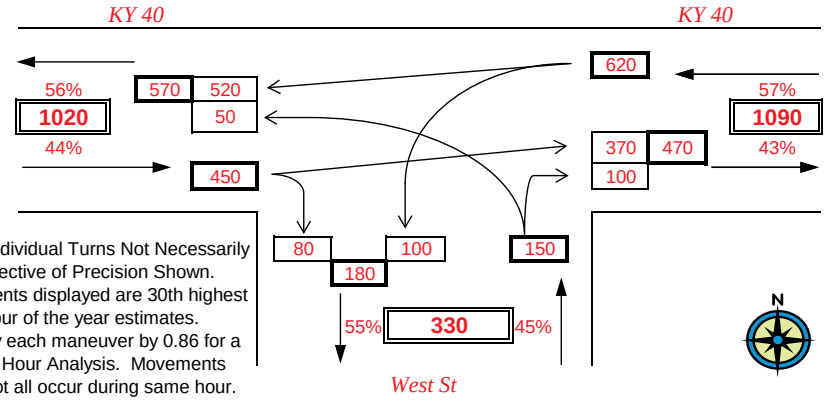
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



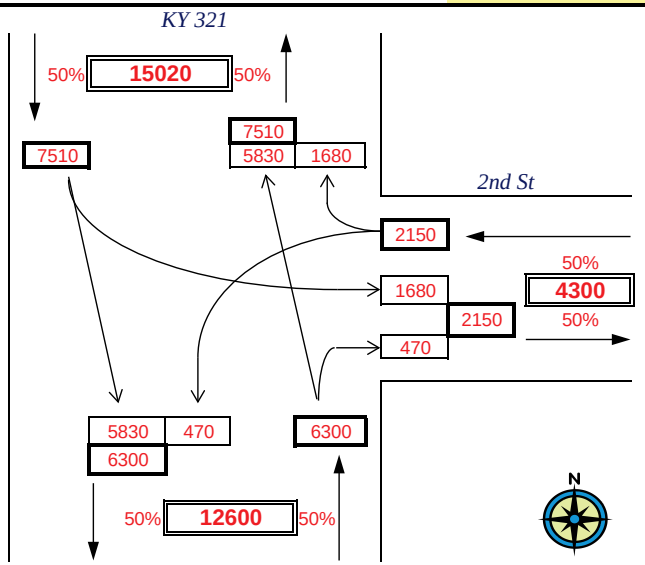
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

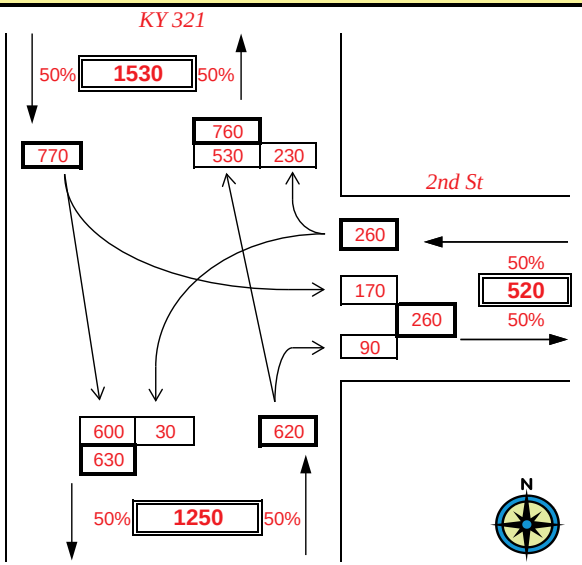
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



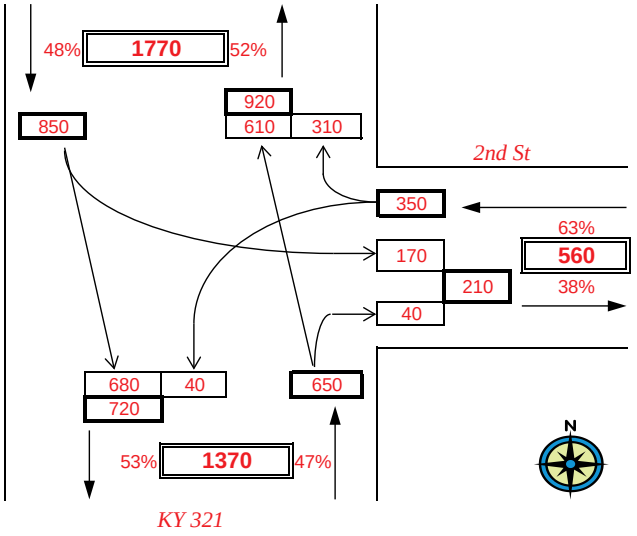
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



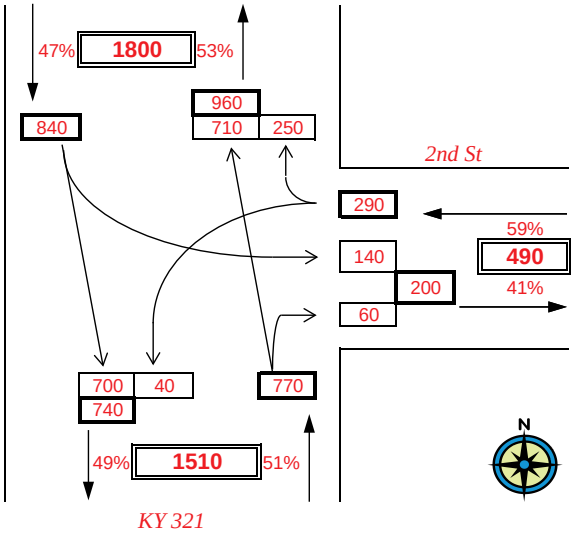
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



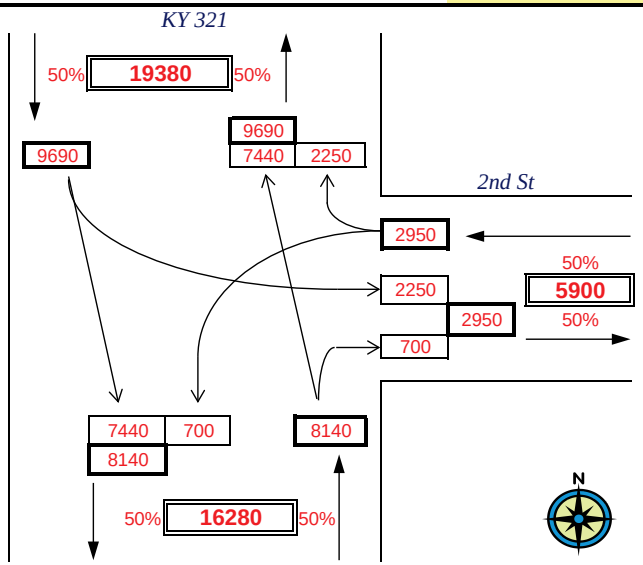
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

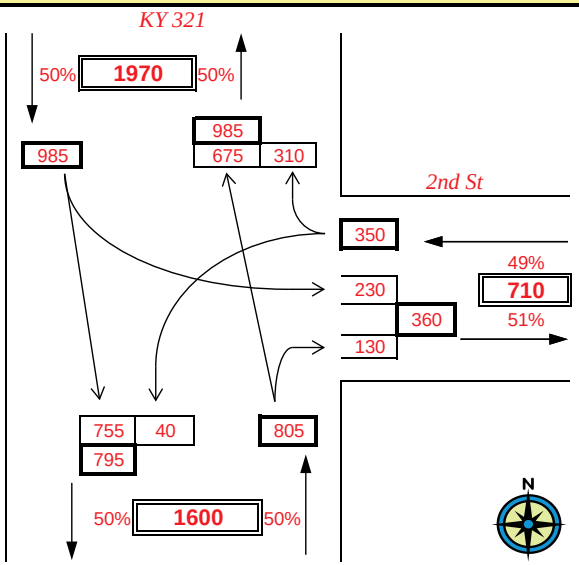
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



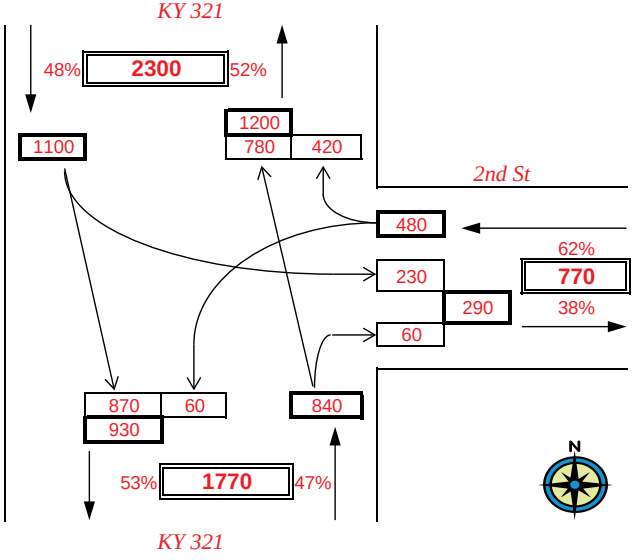
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



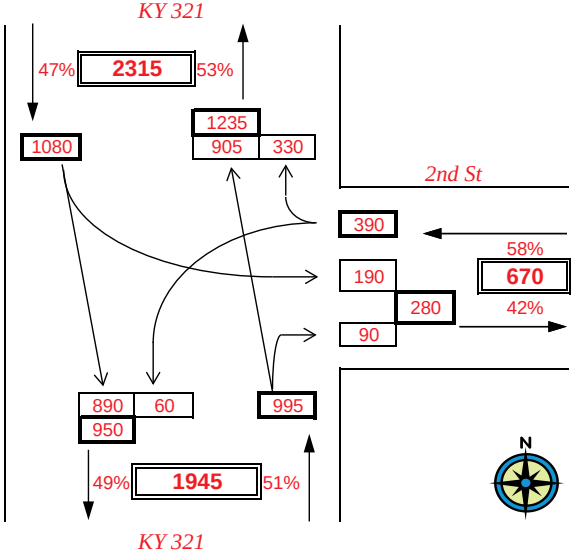
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



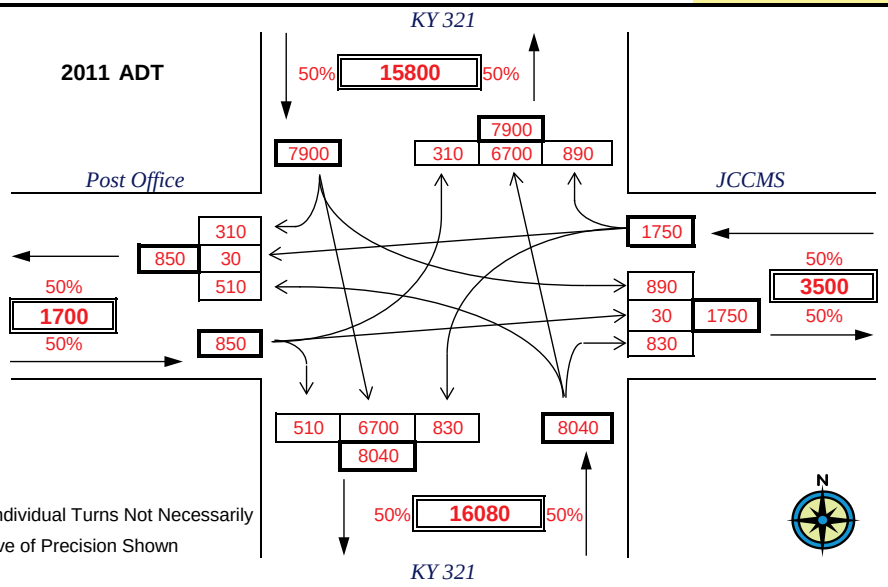
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

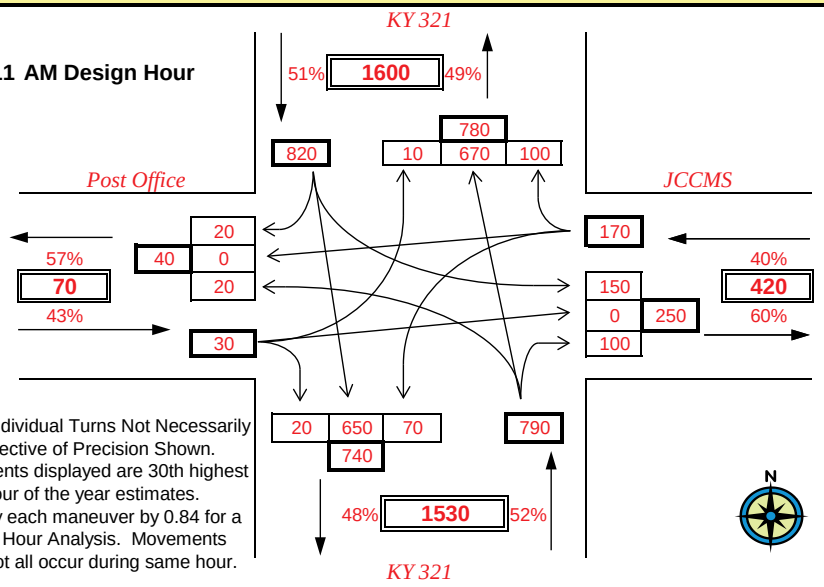
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



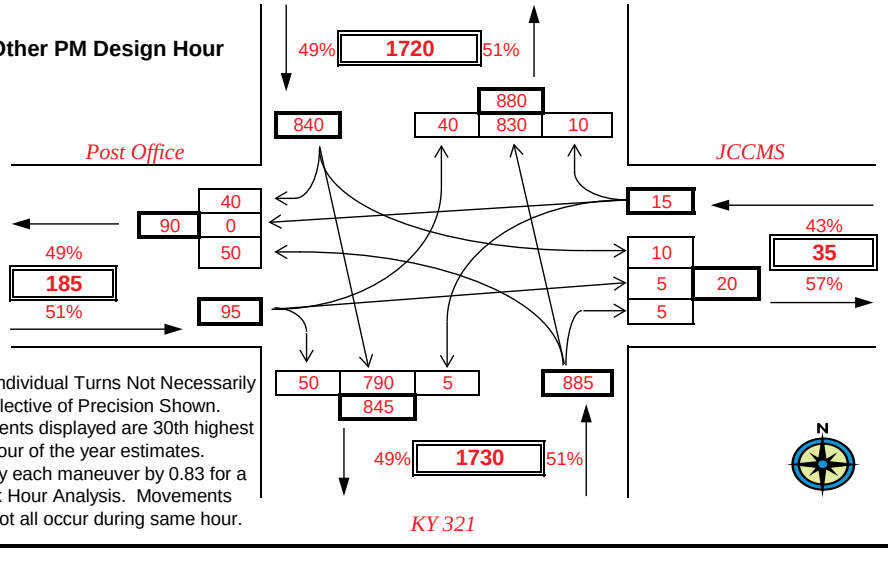
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



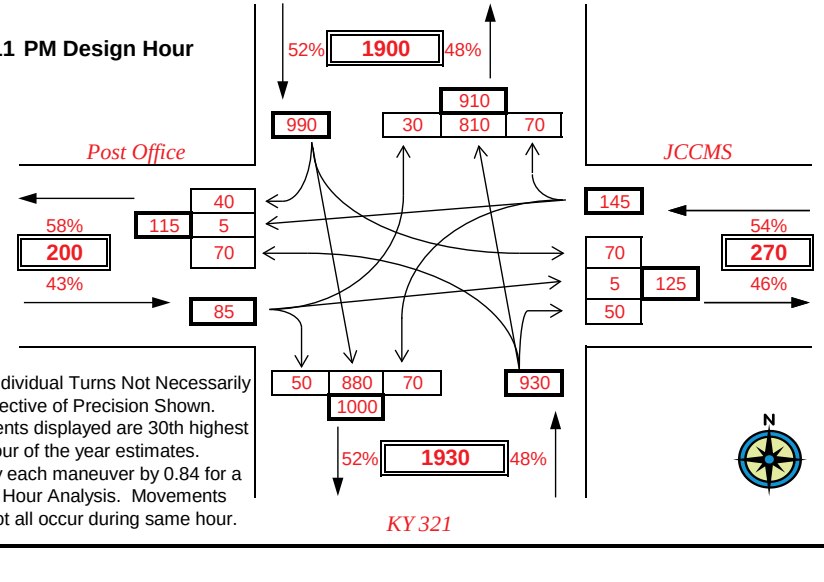
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



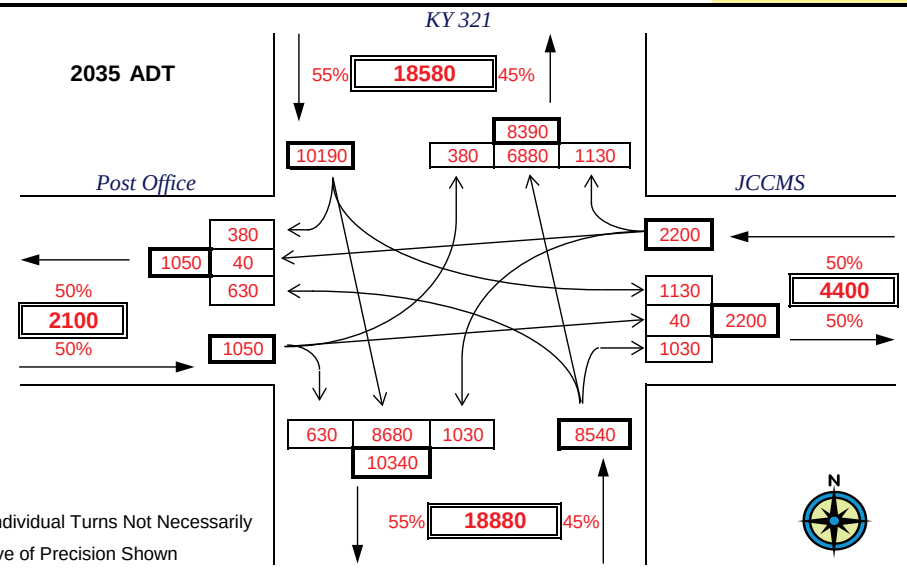
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

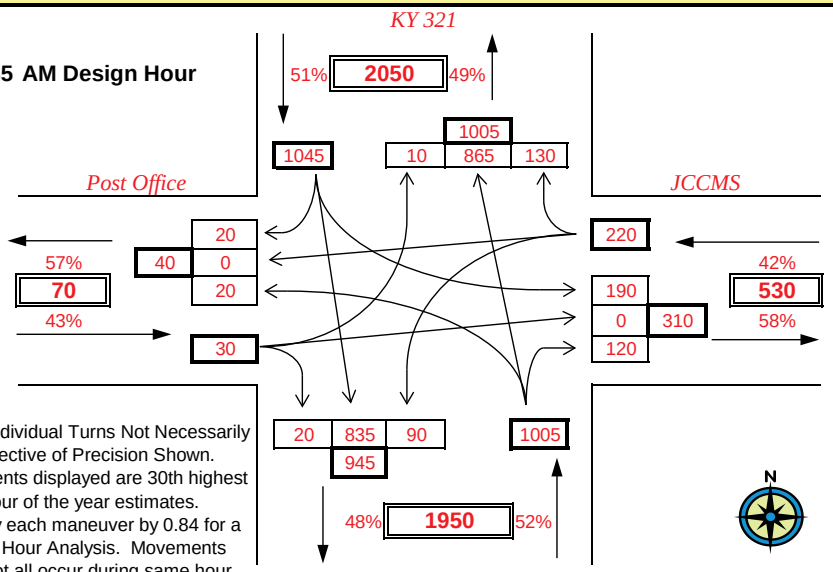
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



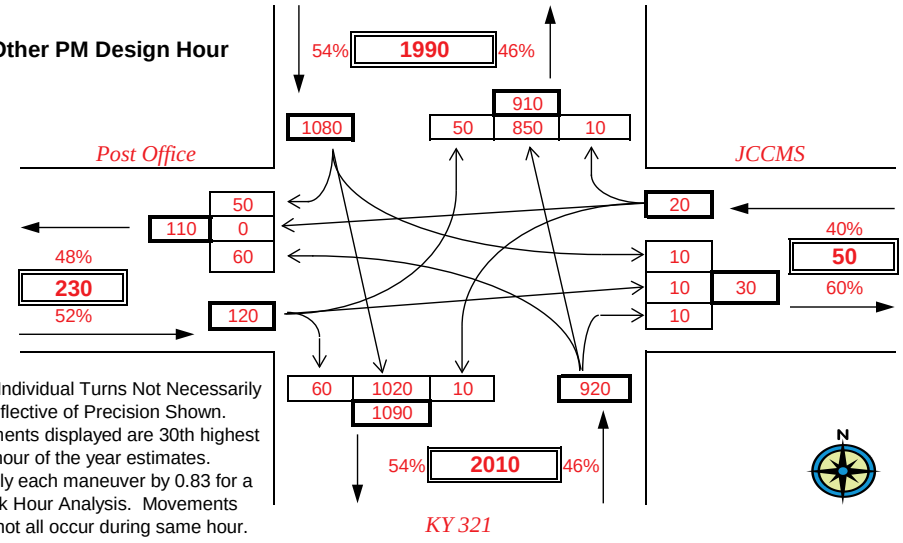
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



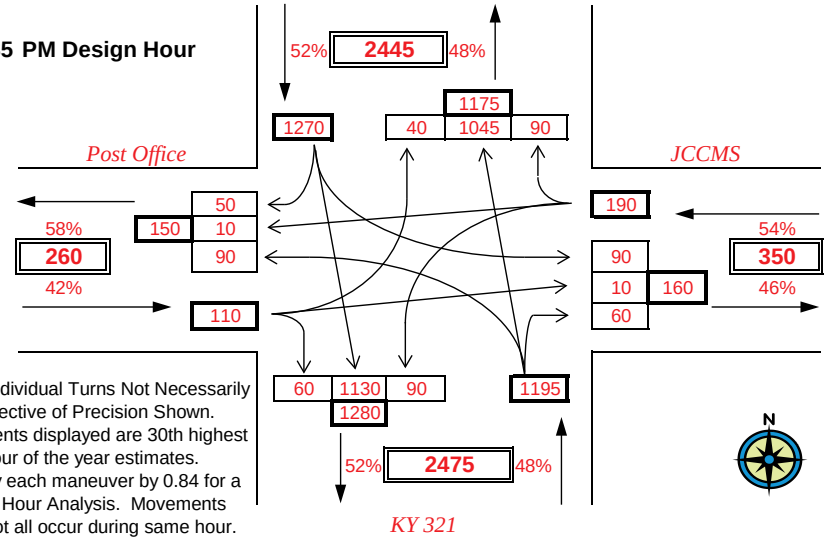
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



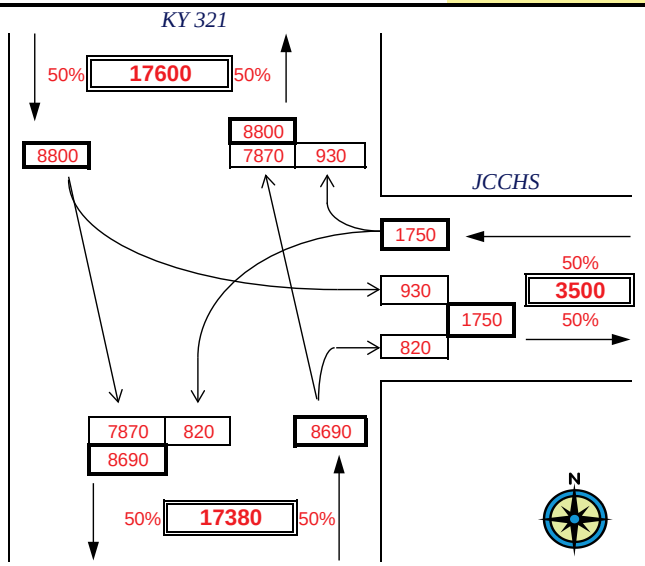
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

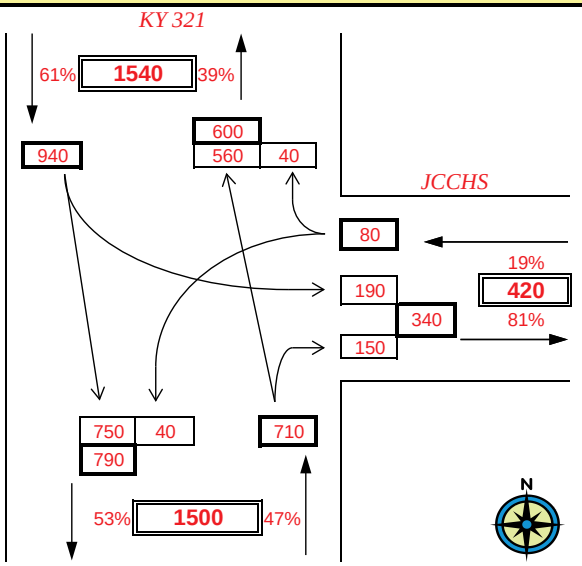
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



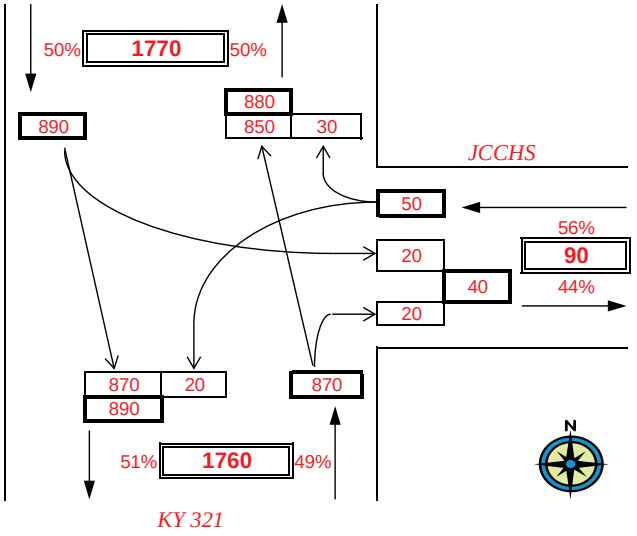
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



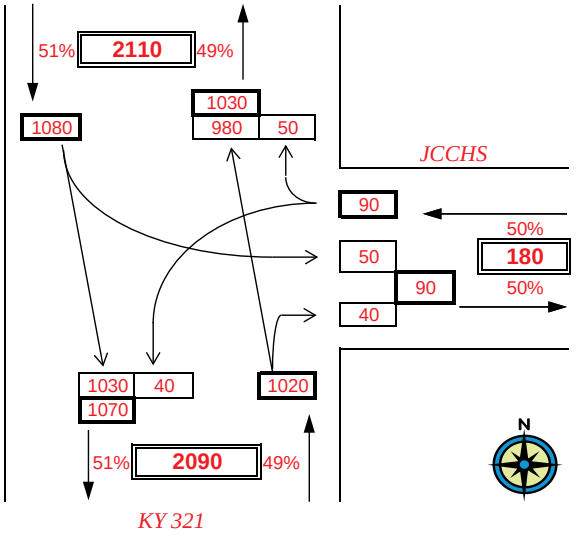
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



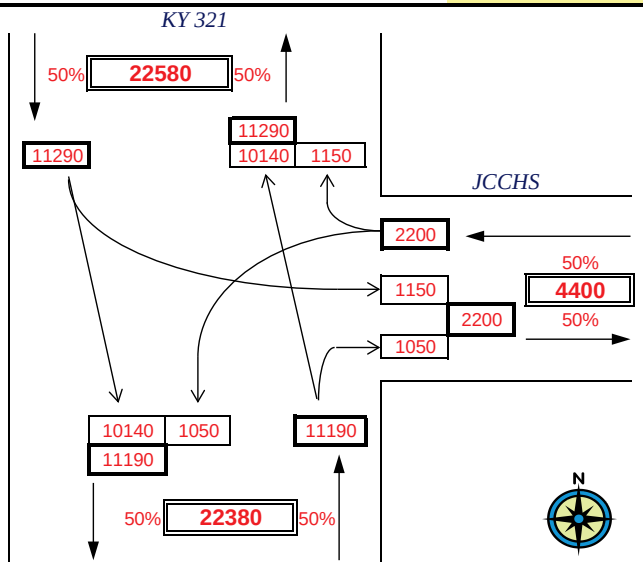
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

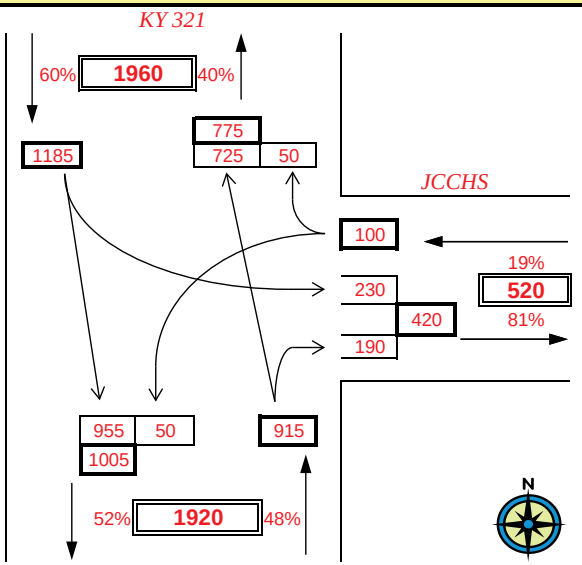
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



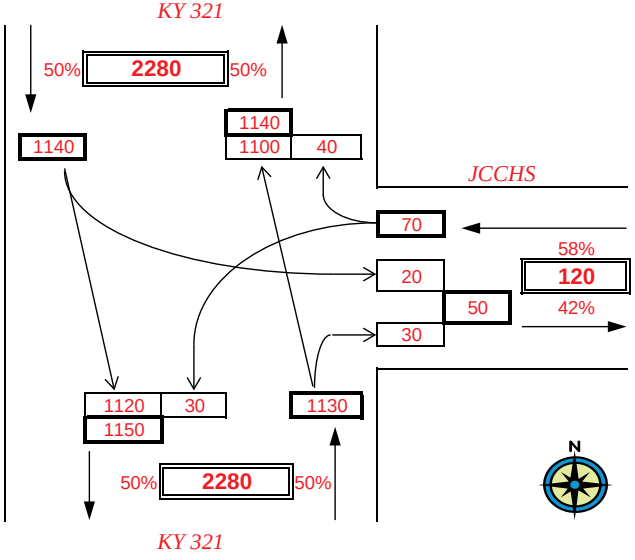
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



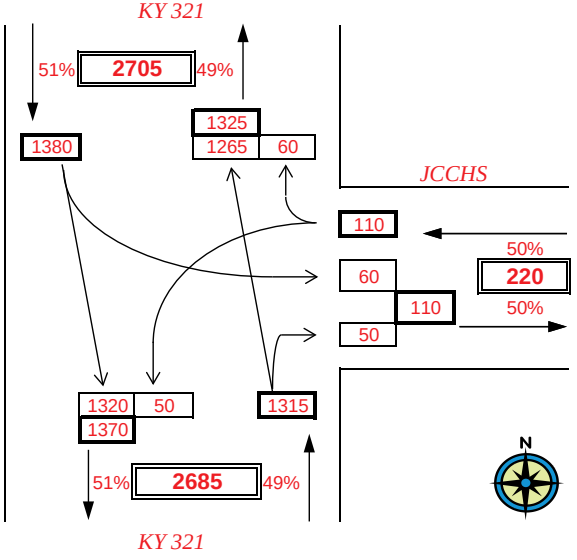
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



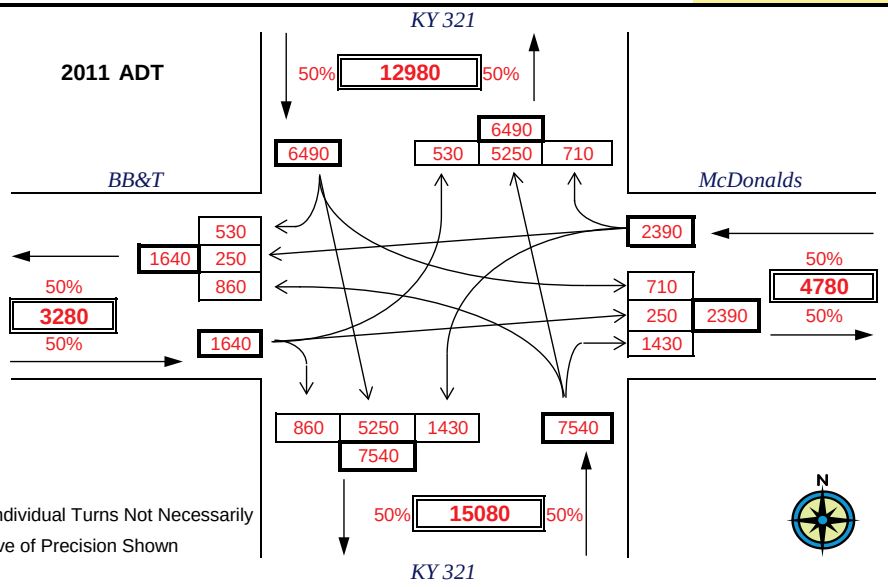
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

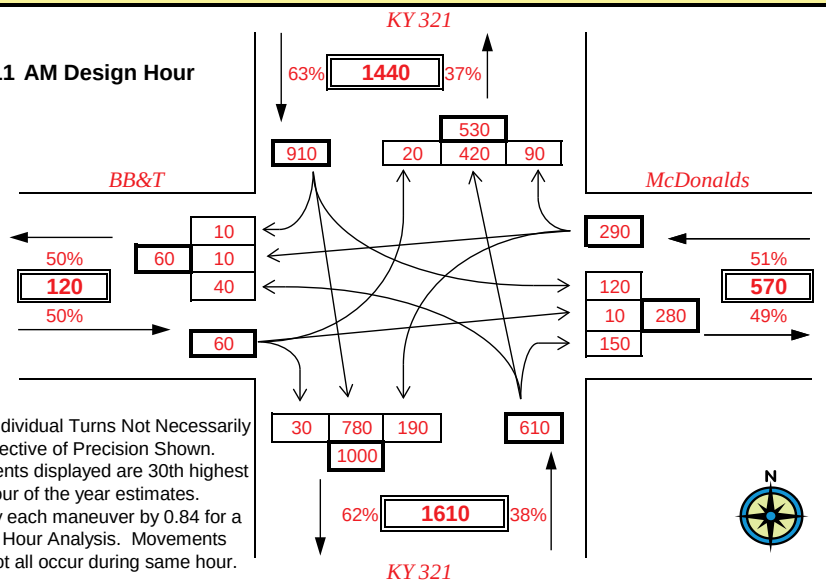
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



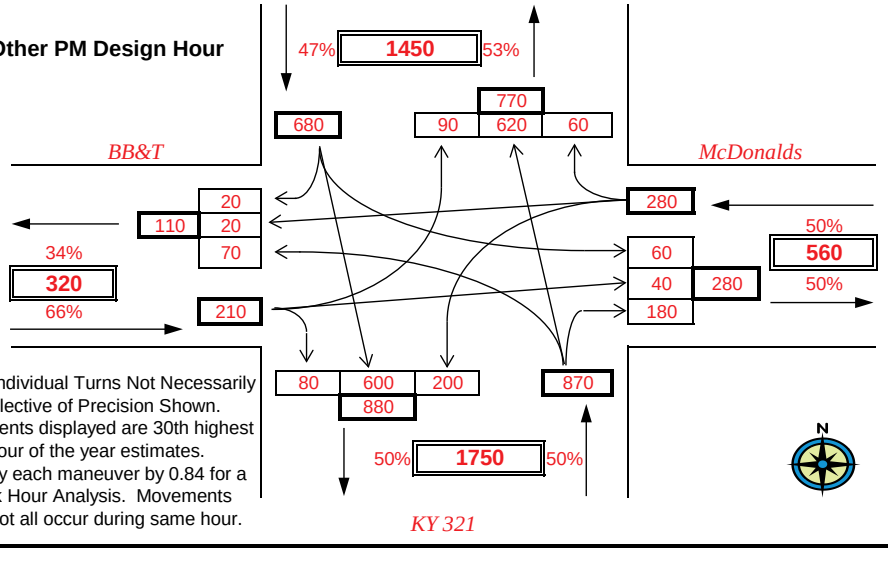
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



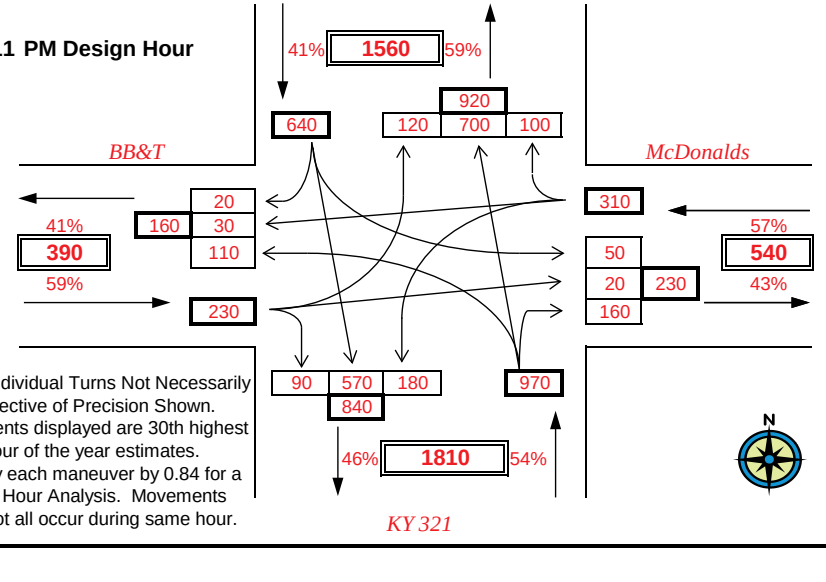
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



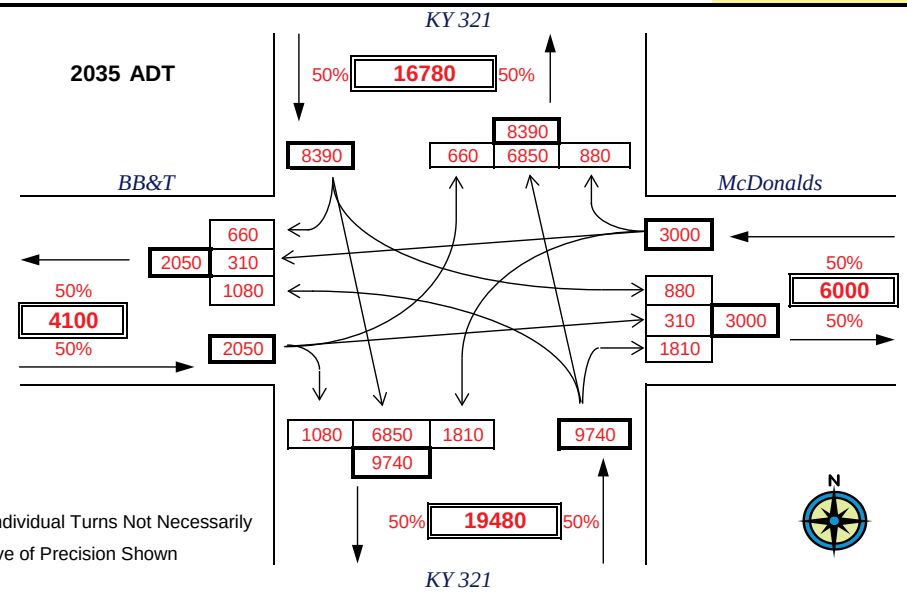
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

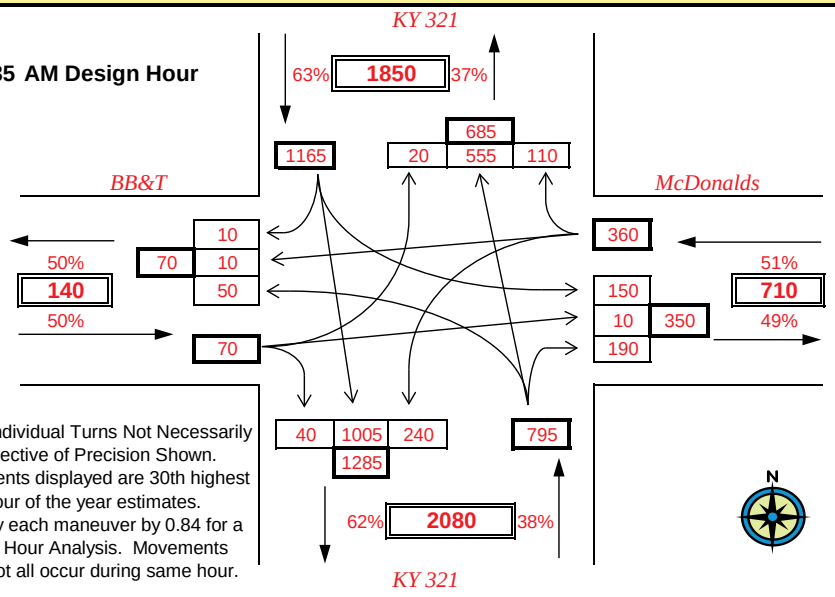
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



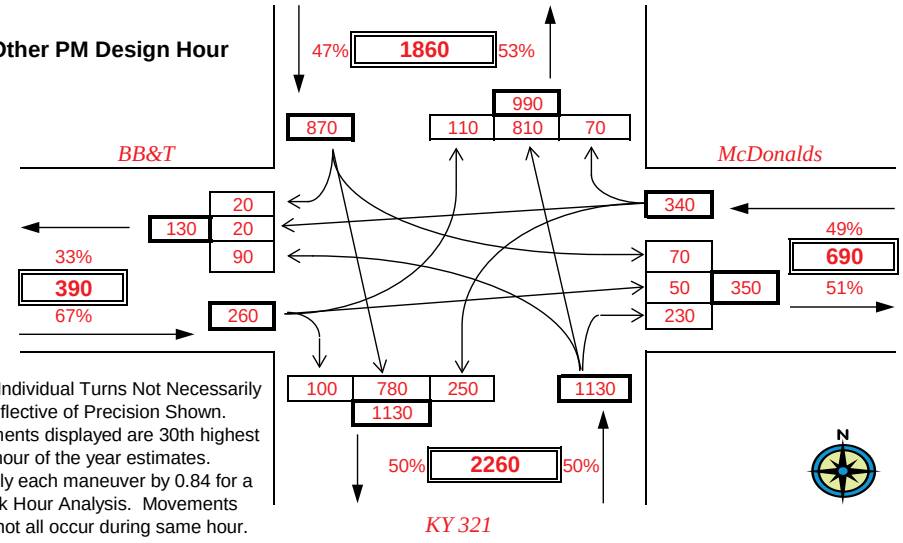
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



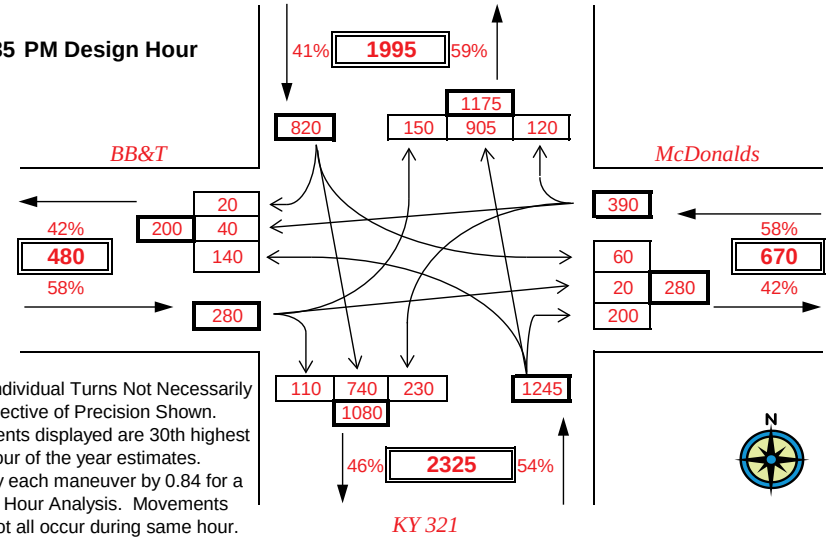
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



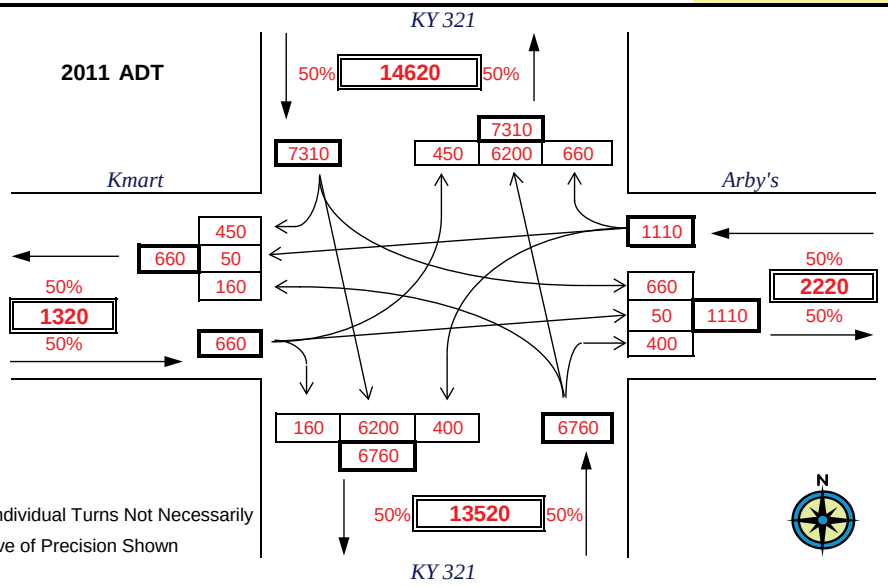
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

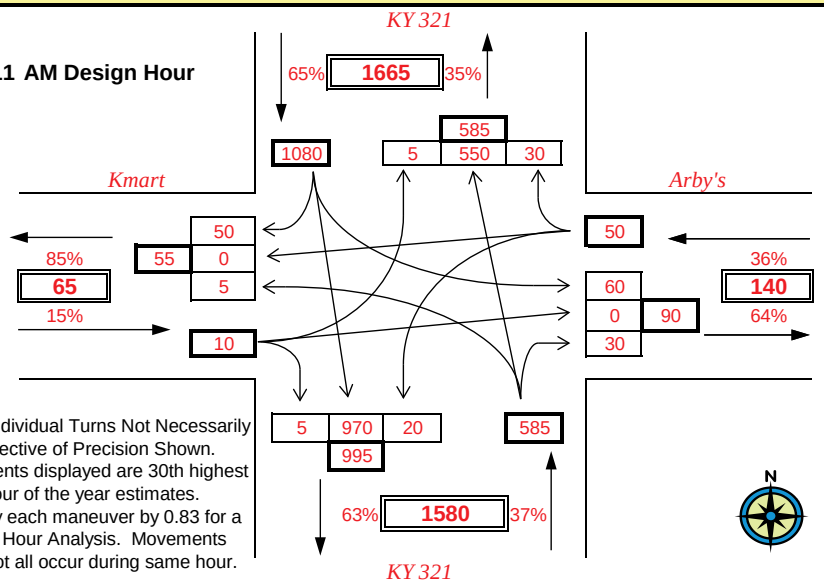
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



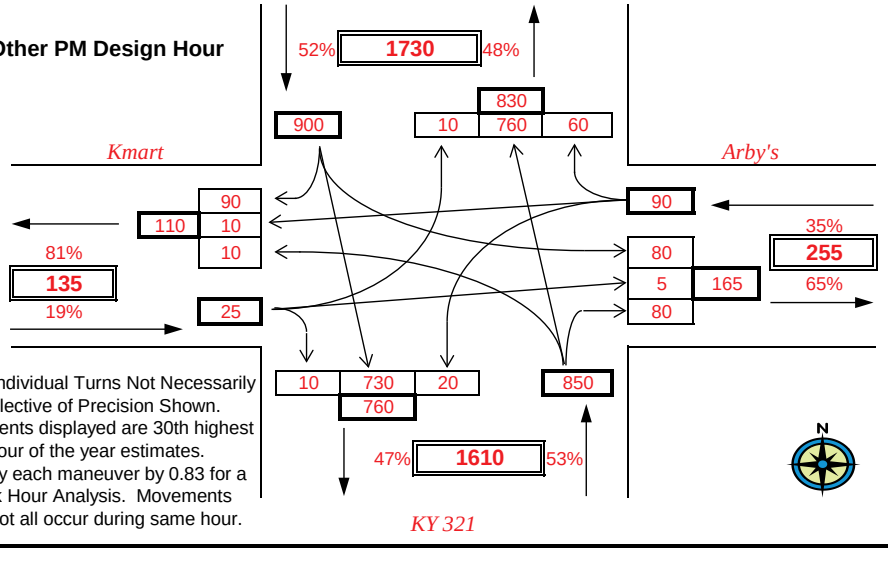
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



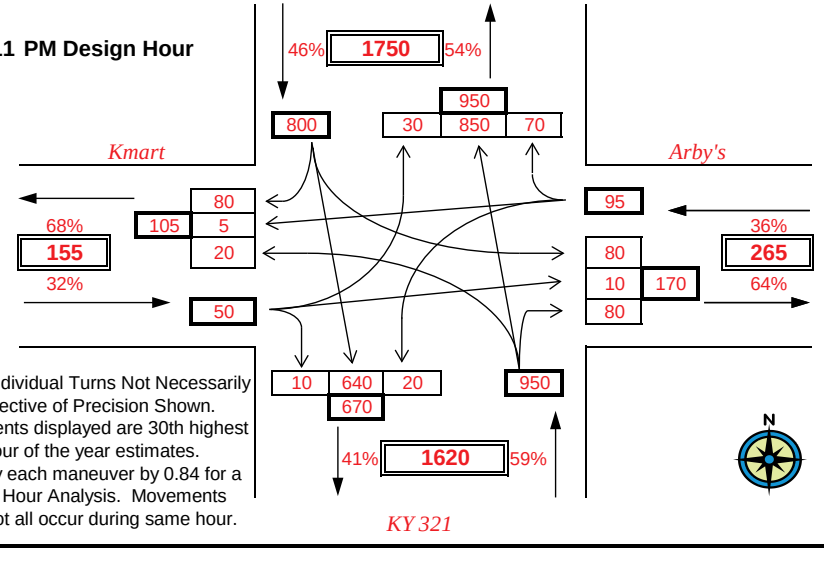
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



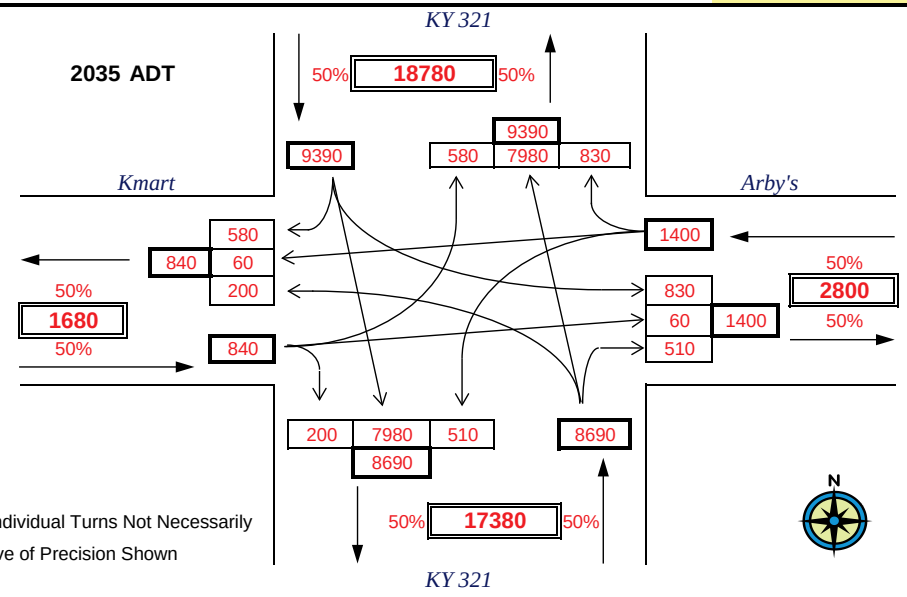
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

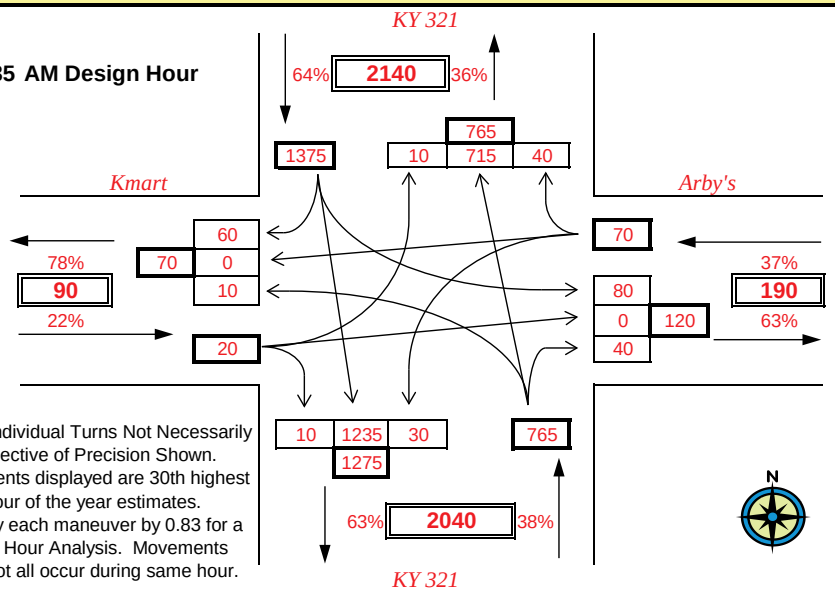
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



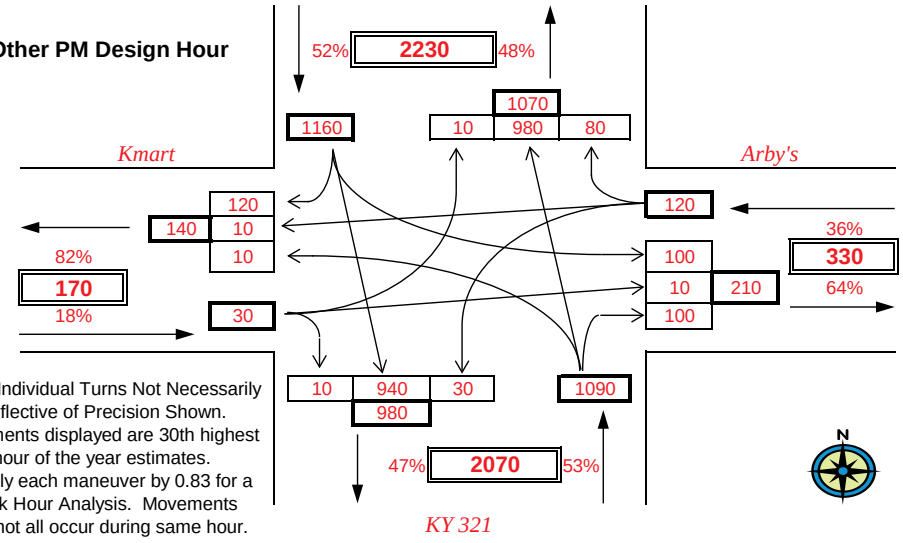
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



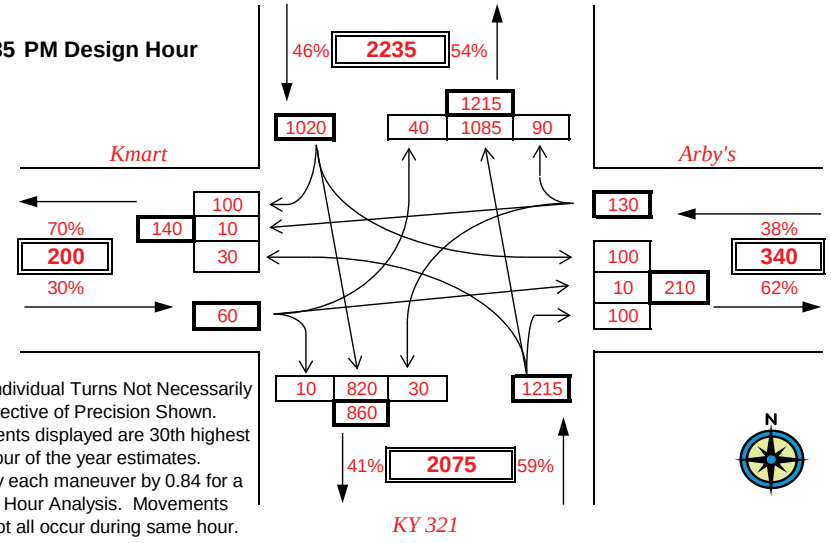
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

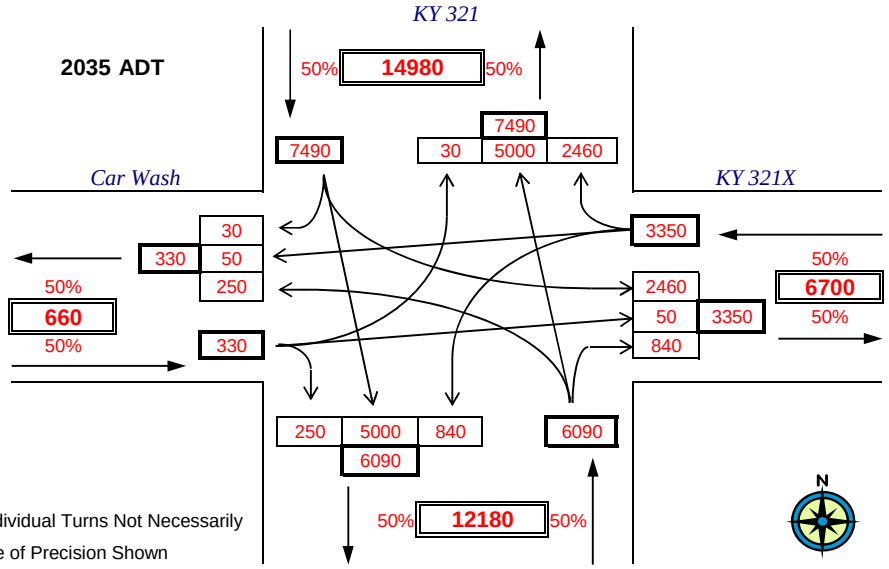
EXISTING, NO-BUILD, ALTERNATIVE 3 ALTERNATIVE 4 ALTERNATIVE 5

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T1: KY 321 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

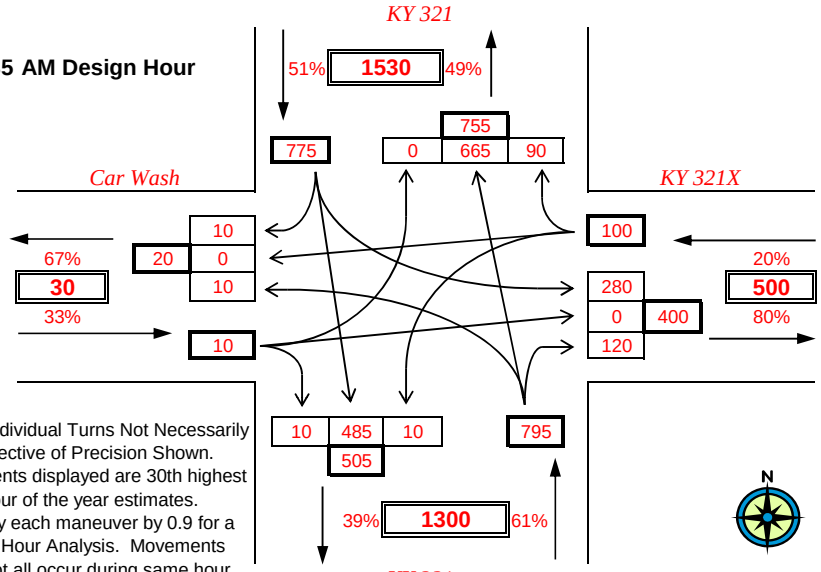
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



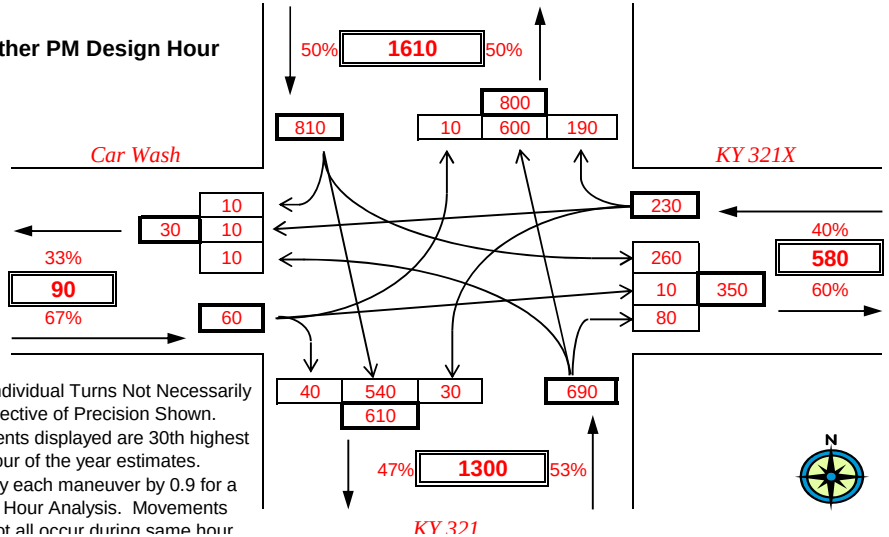
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



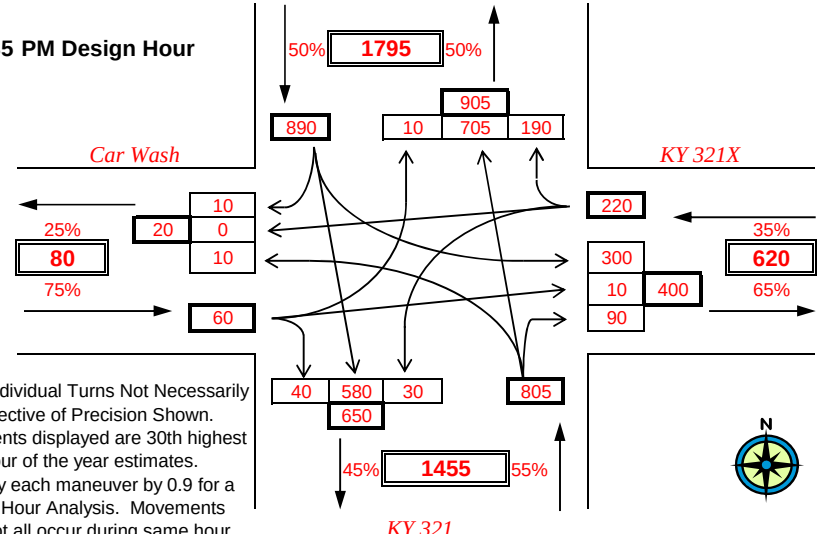
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour

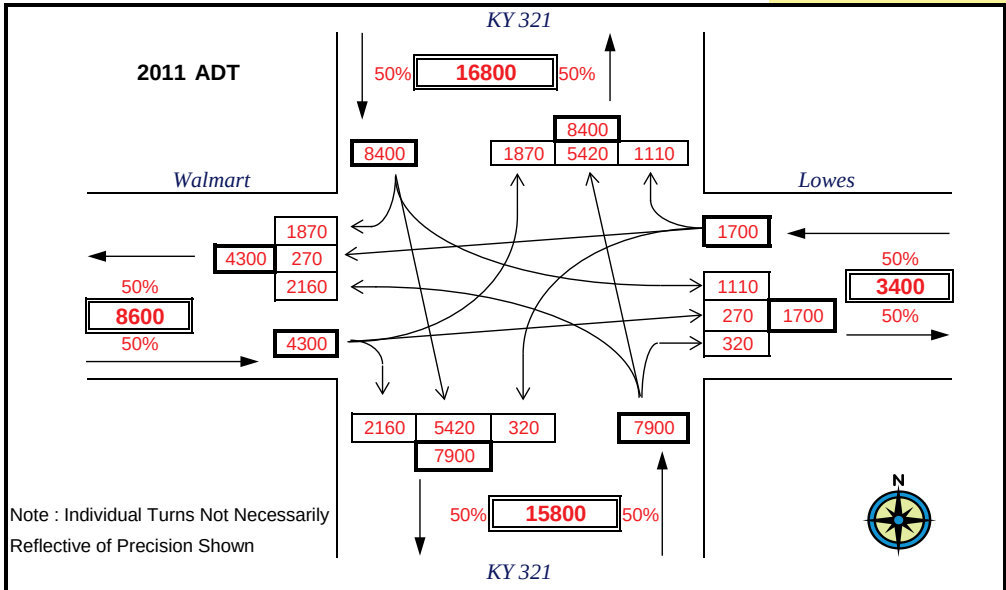


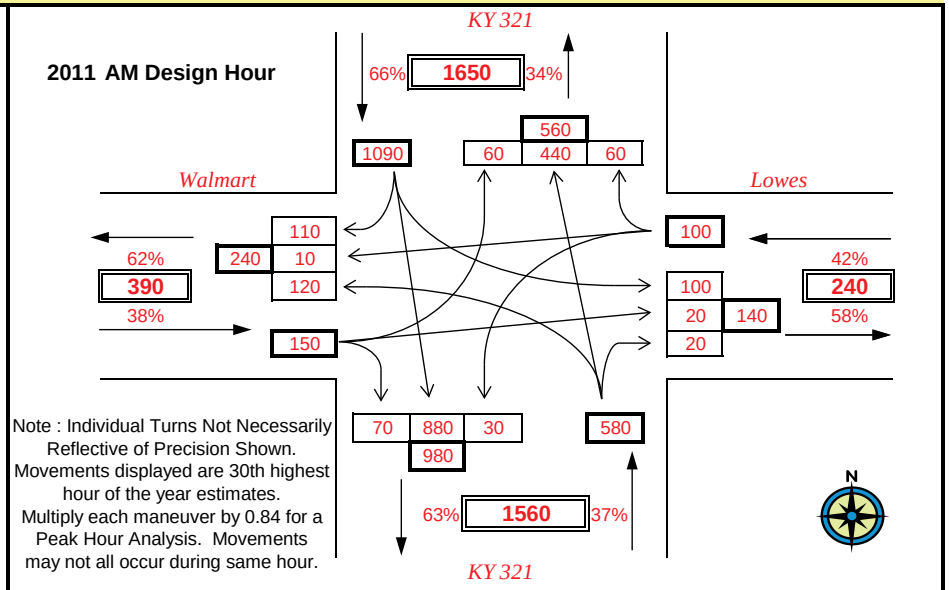
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.9 for a Peak Hour Analysis. Movements may not all occur during same hour.

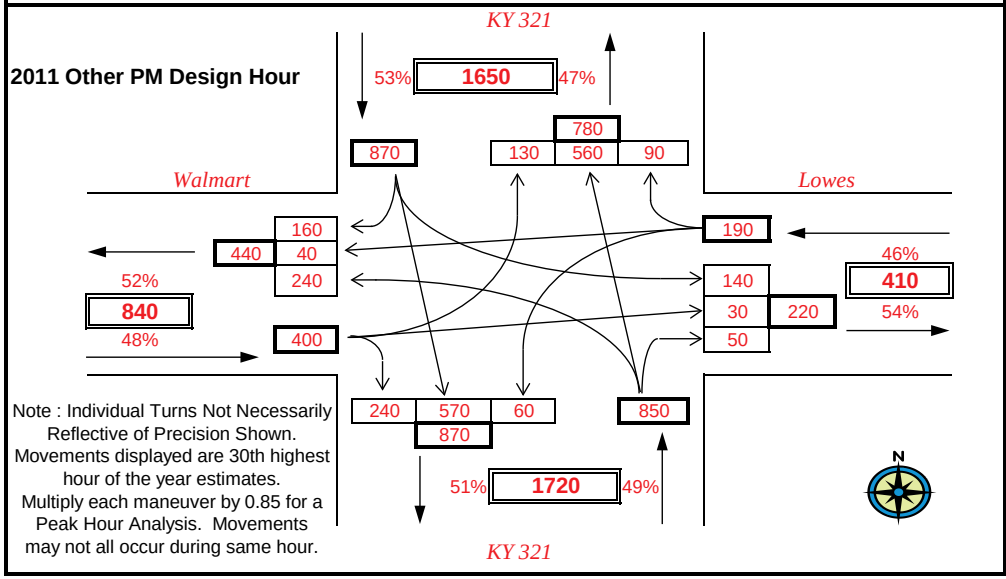
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

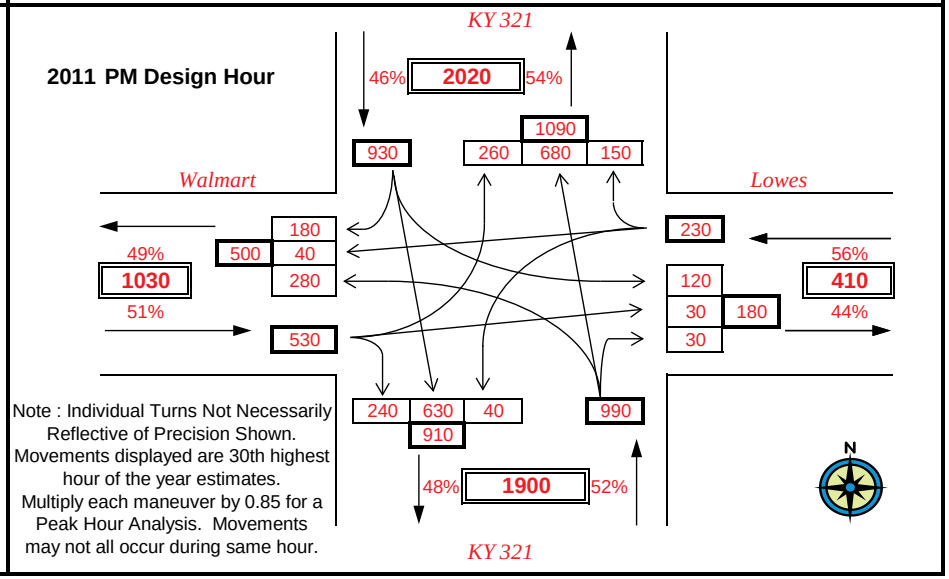
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







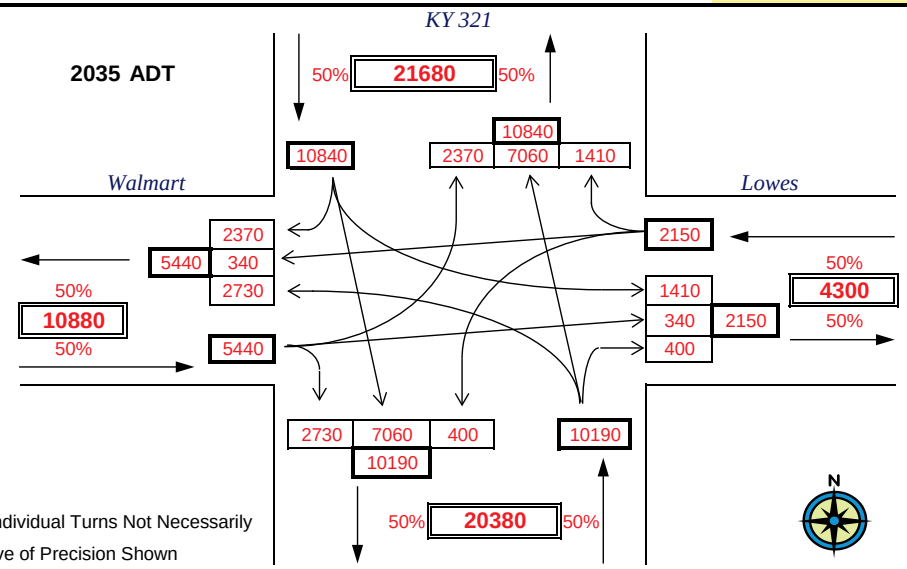


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

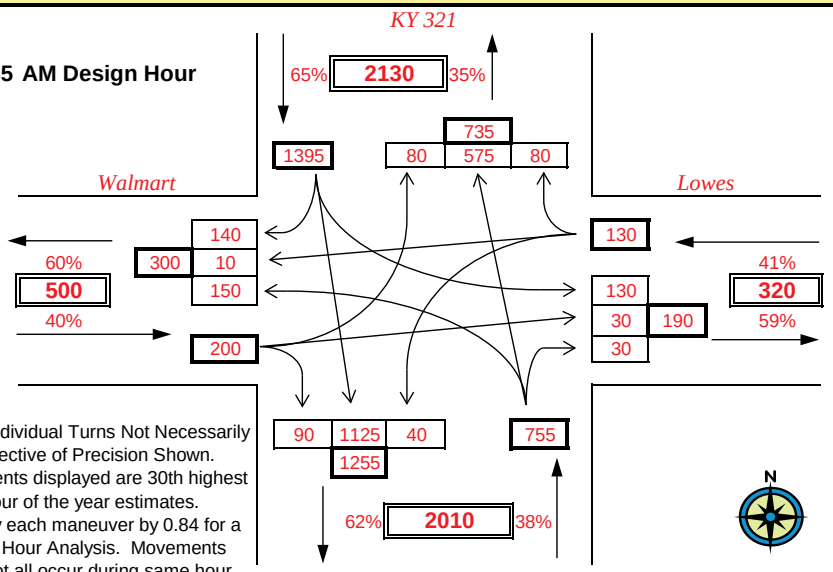
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



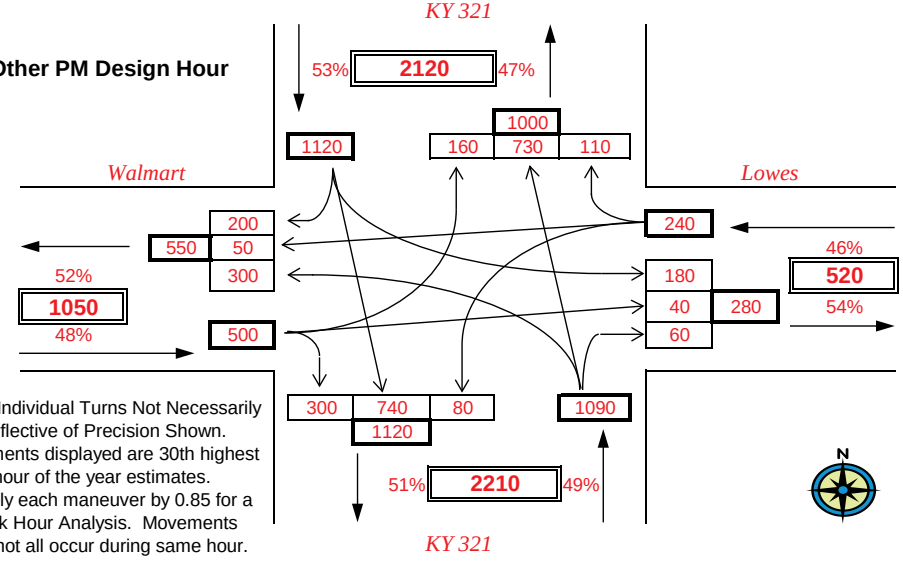
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



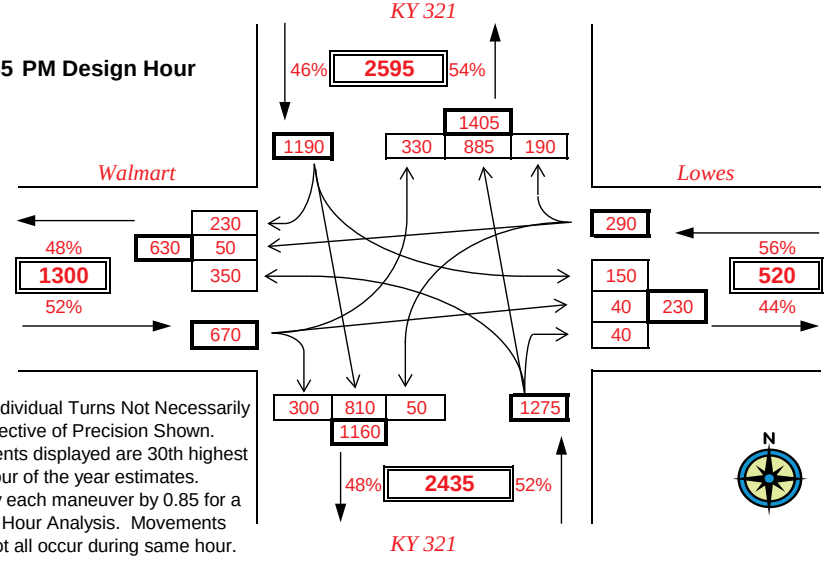
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



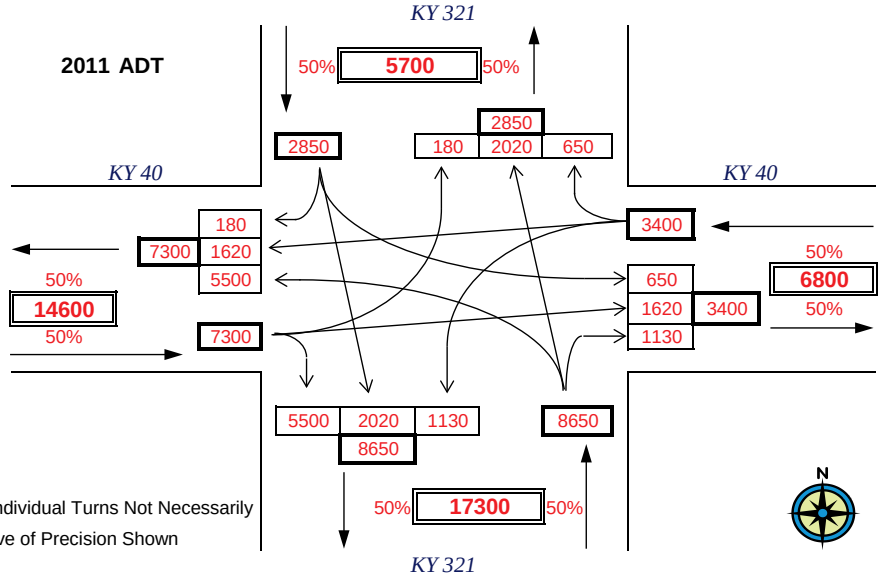
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

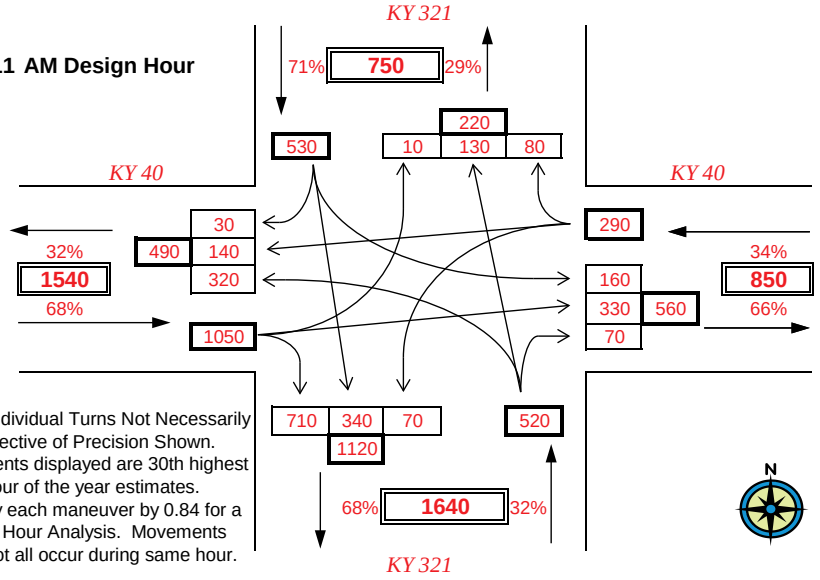
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



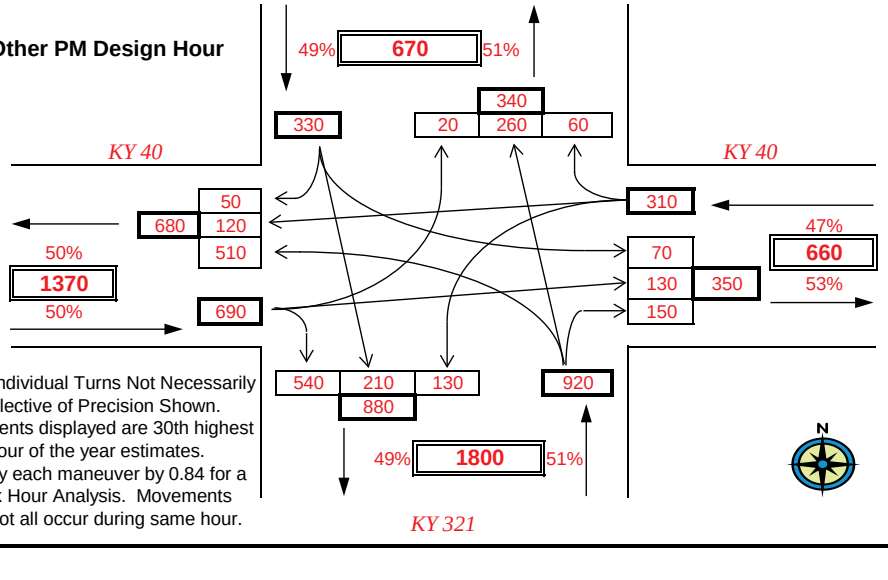
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



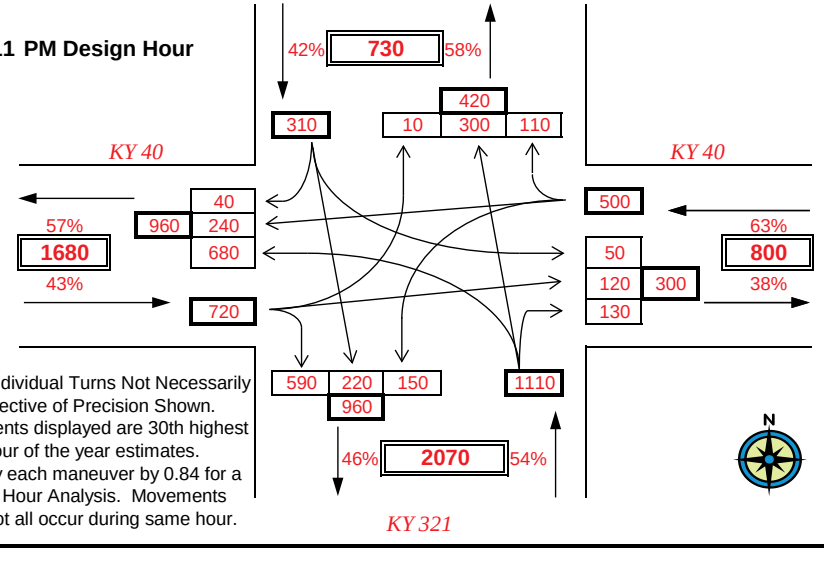
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



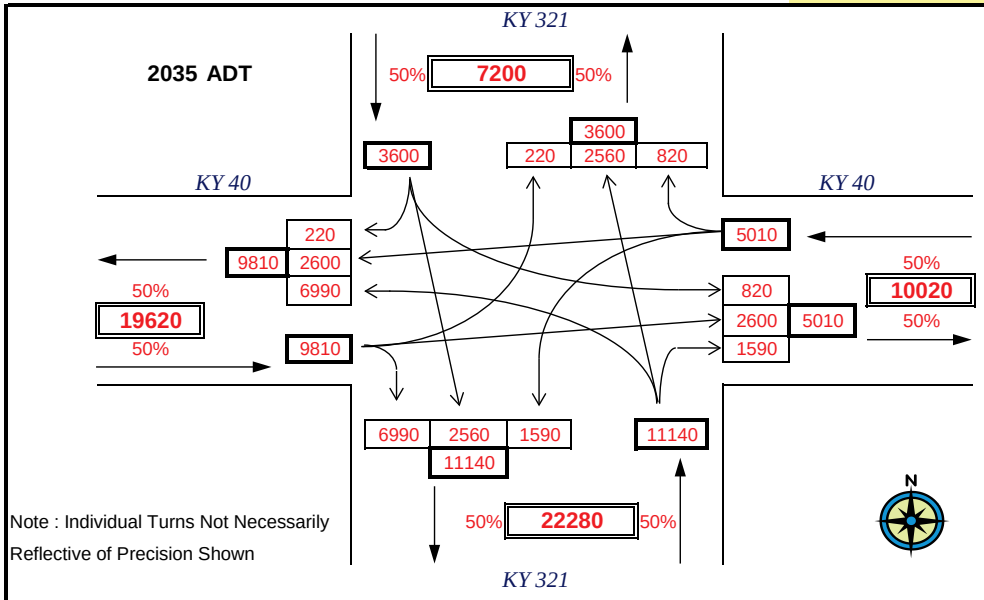
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

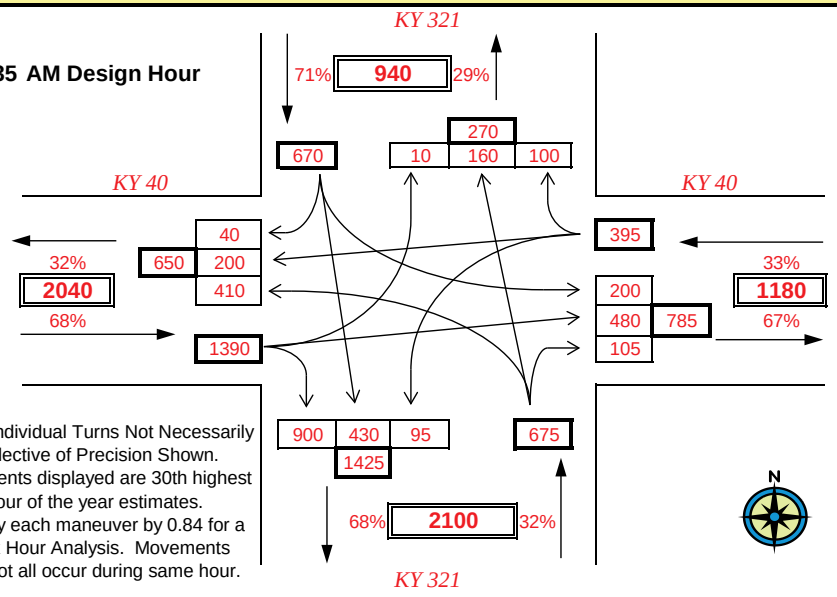
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



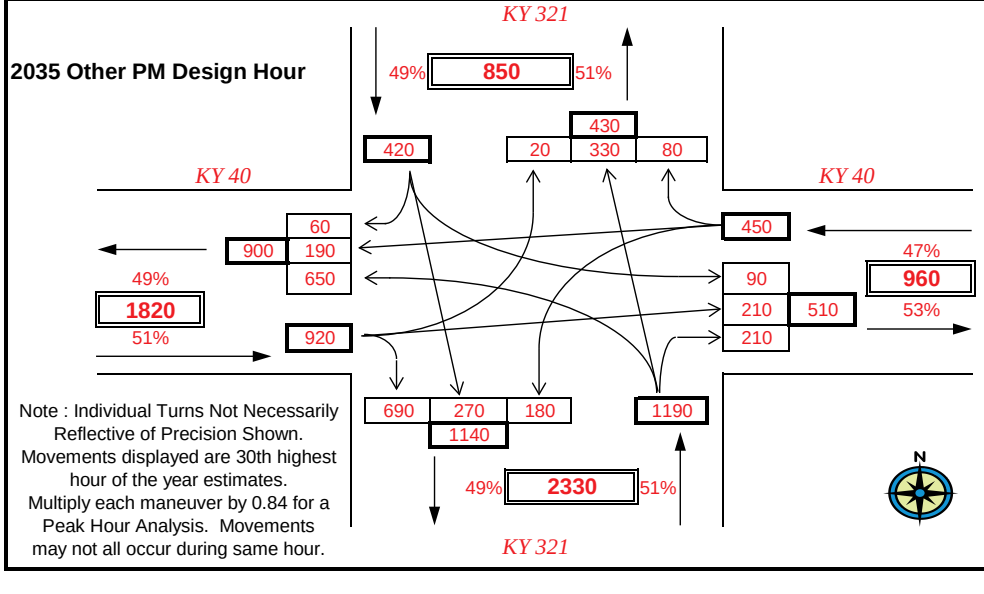
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



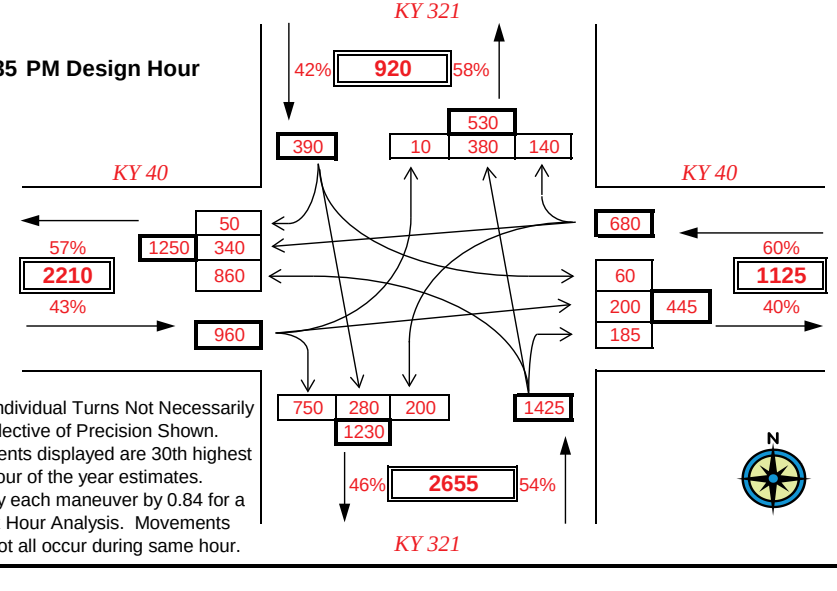
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



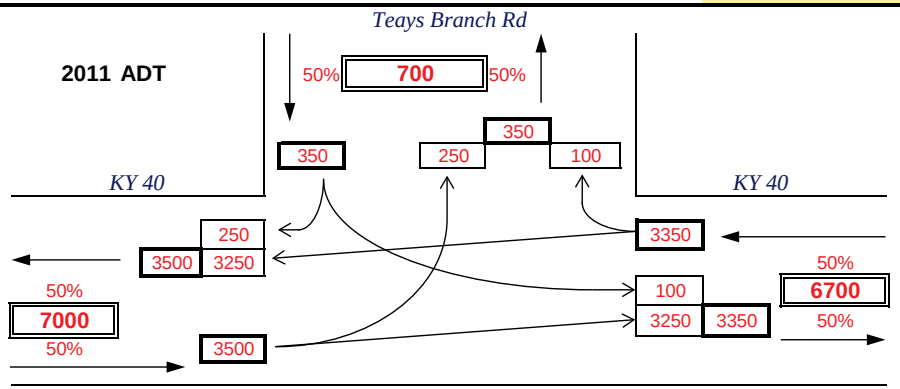
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

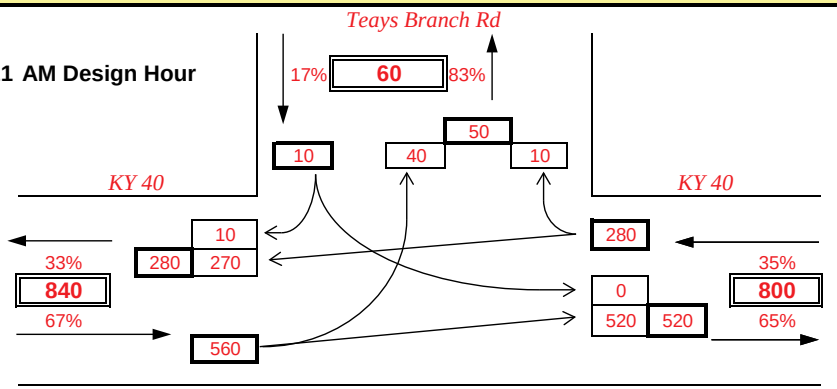
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



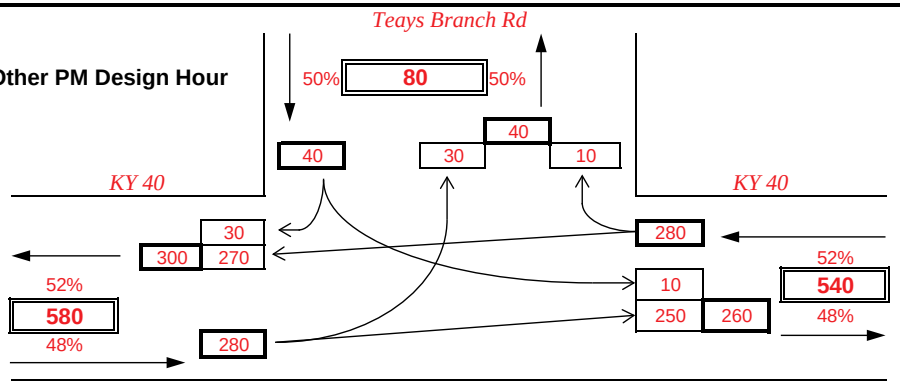
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



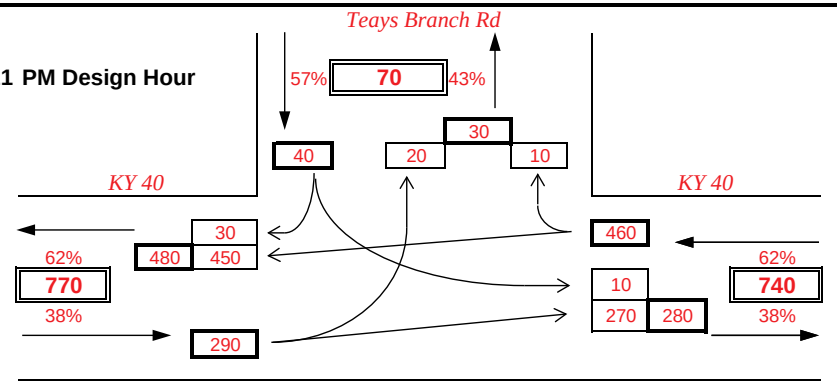
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour

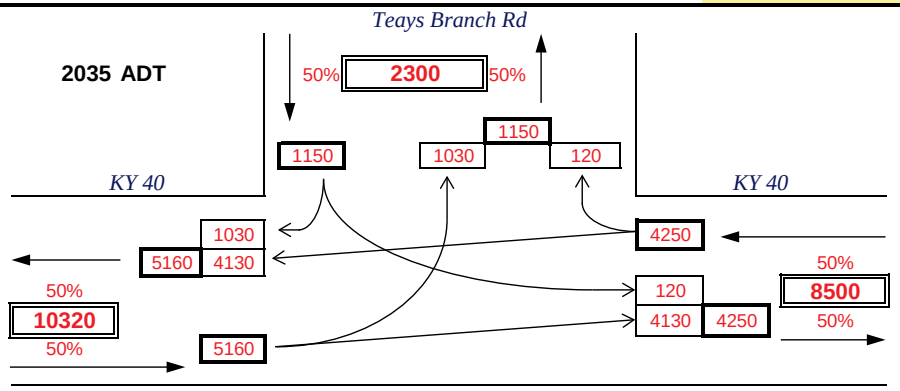


Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

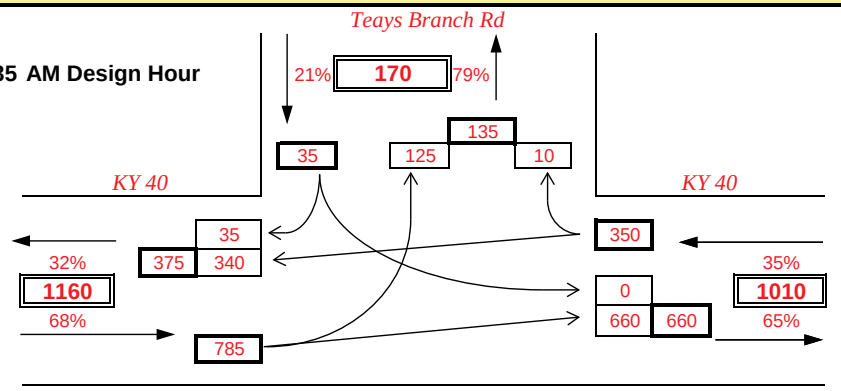
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T12: KY 40 & Teays Branch Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

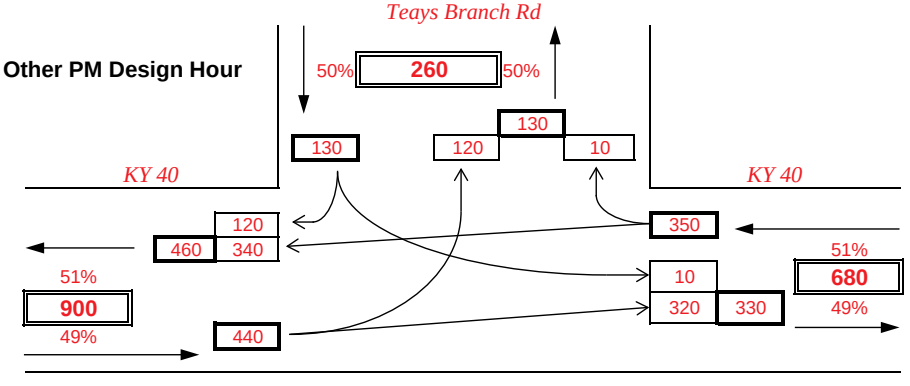
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**



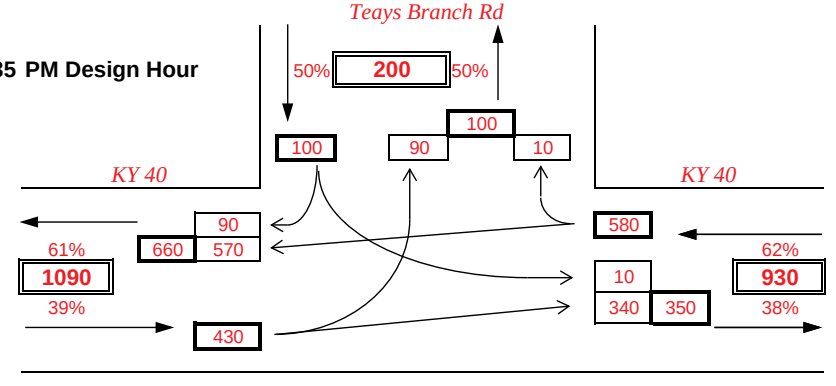
Note : Individual Turns Not Necessarily Reflective of Precision Shown



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.



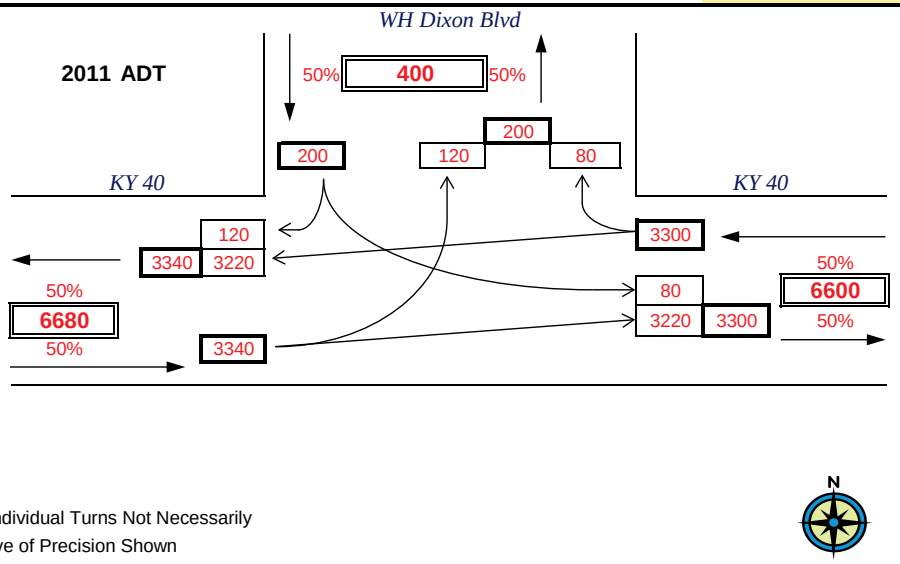
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

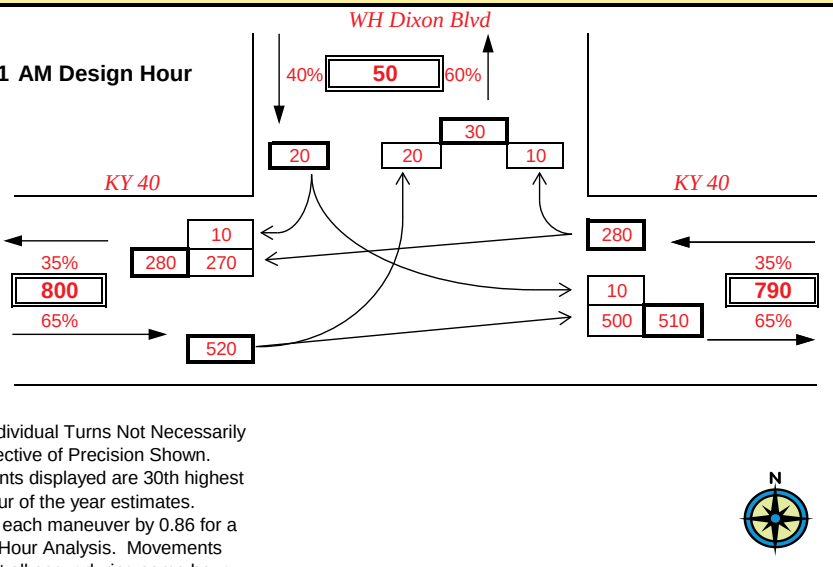
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



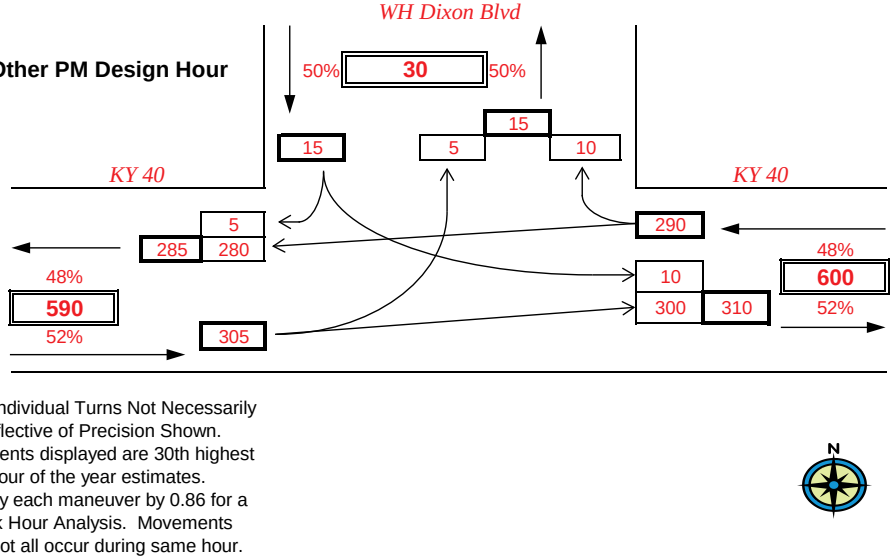
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



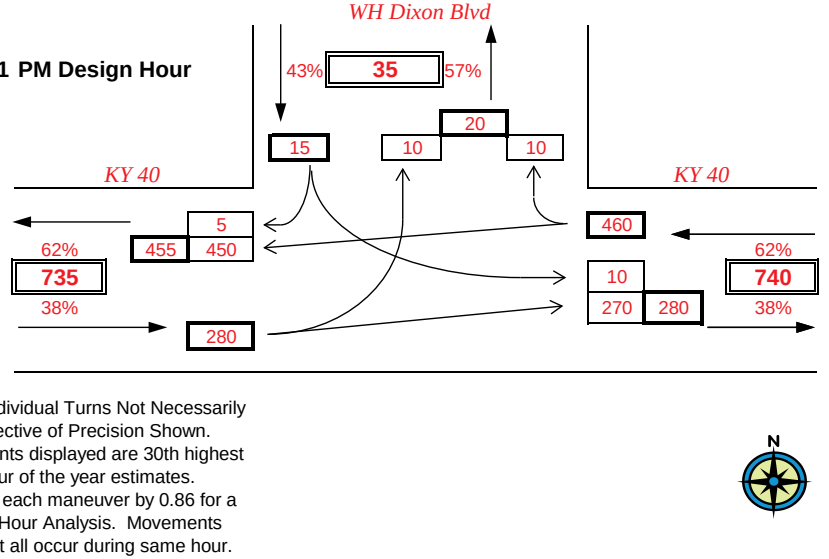
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



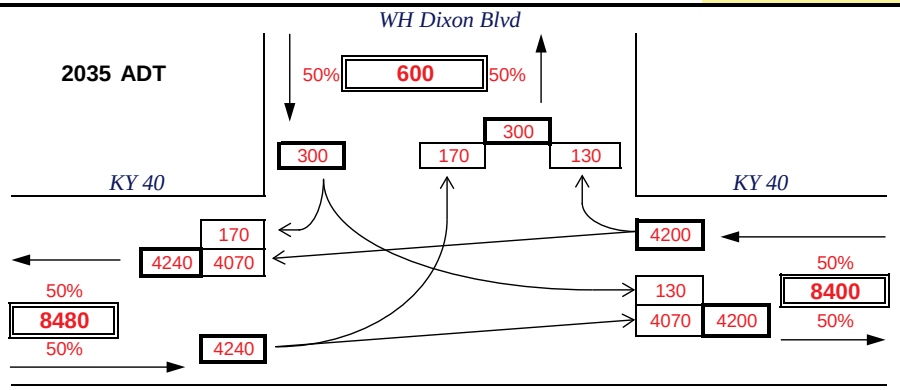
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T13: KY 40 & WH Dixon Blvd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

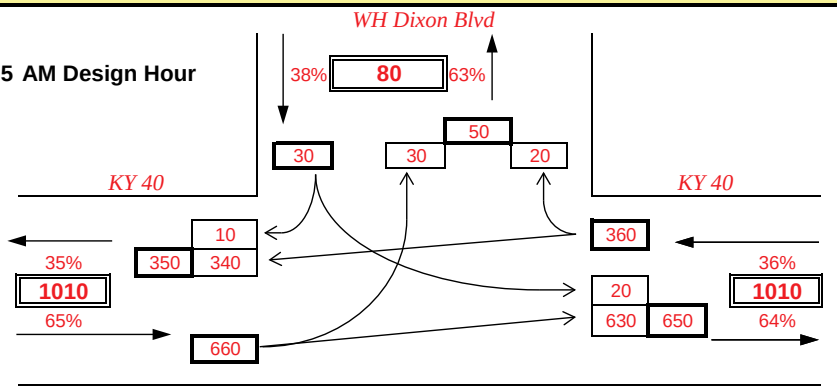
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



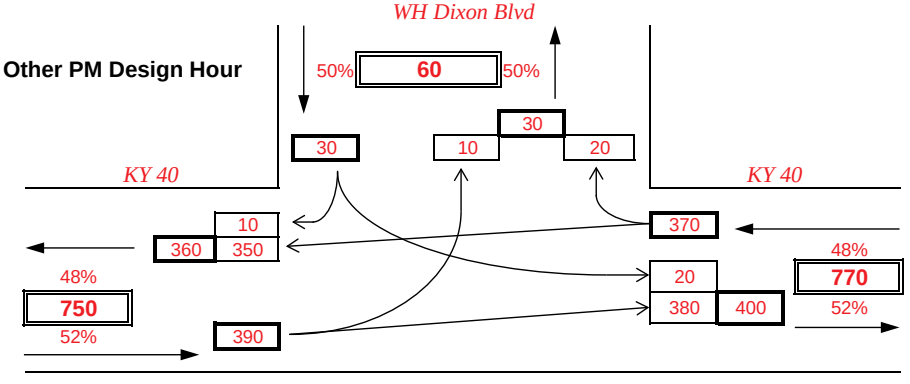
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



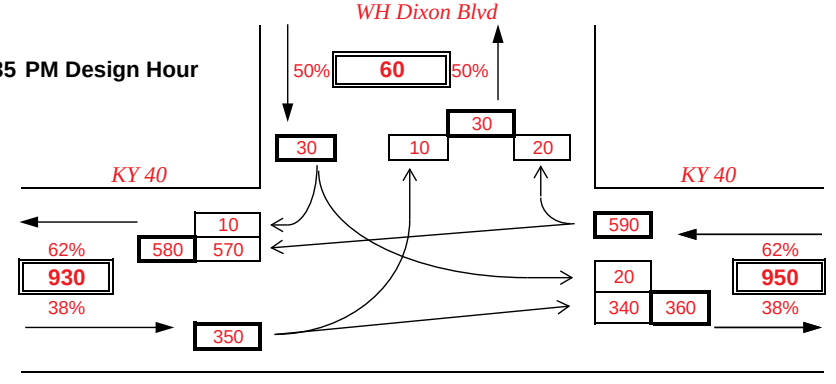
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



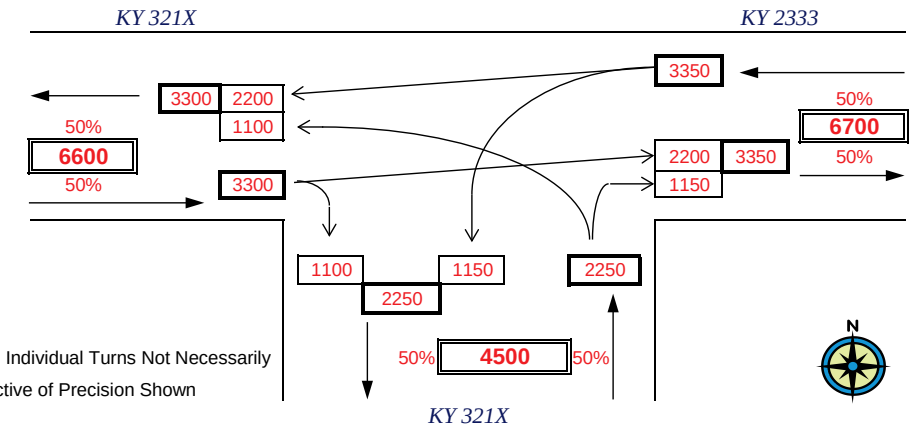
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER: 0
MARS NUMBER: 0
REQUEST DATE: 1/0/1900
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

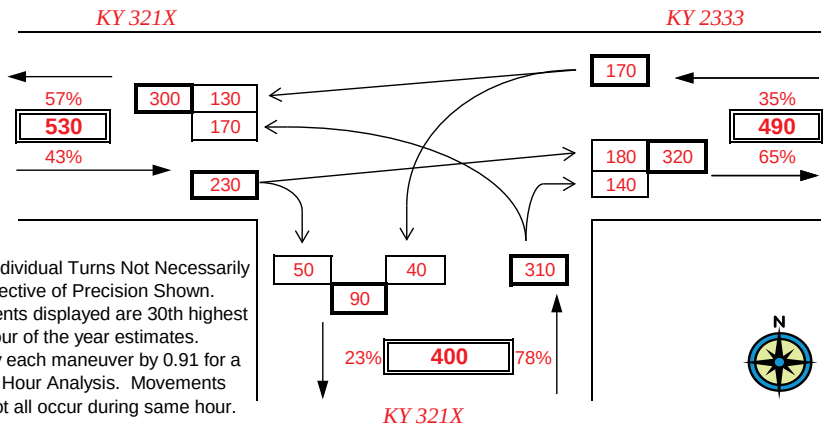
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



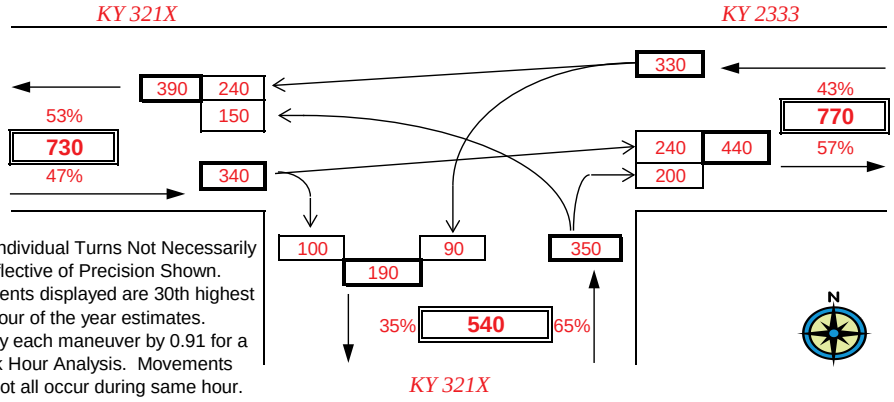
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



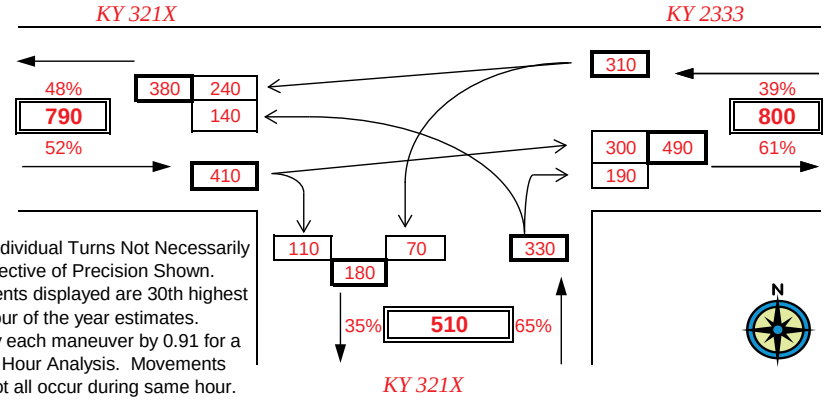
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



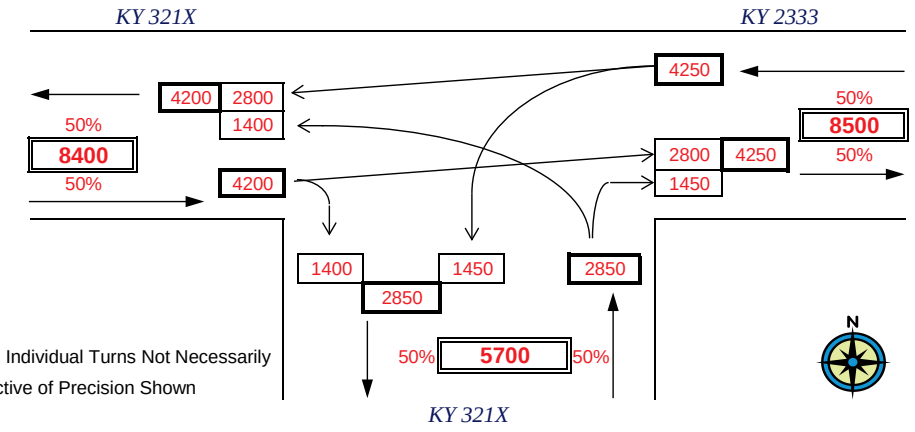
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST:
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T2: KY 2333 & KY 321X

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

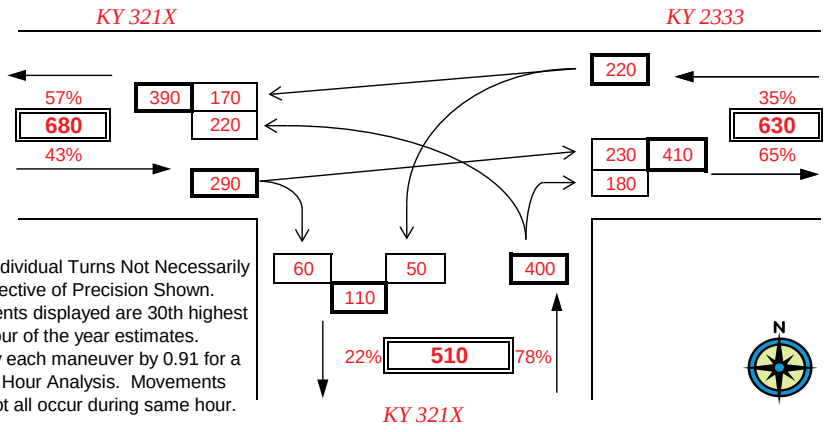
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



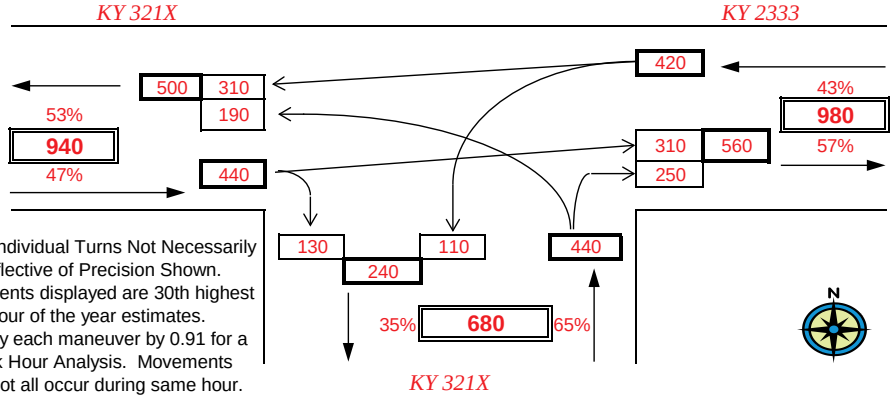
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



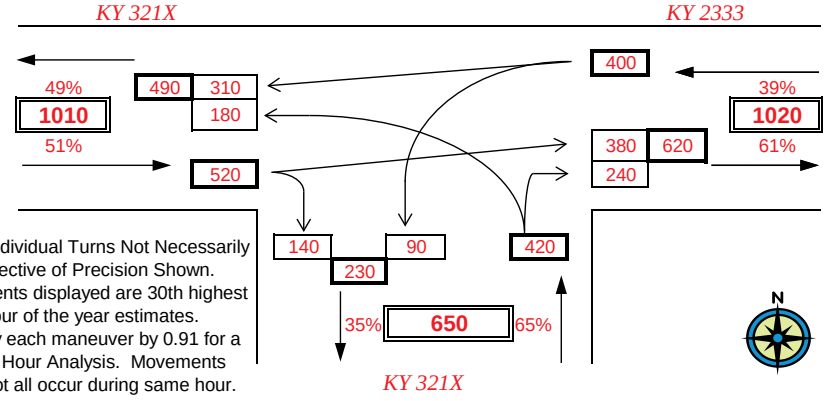
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



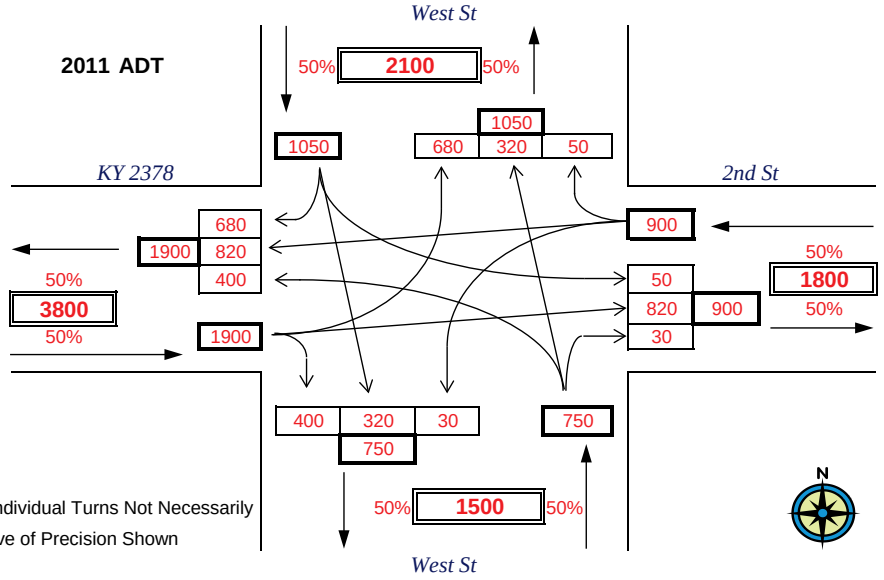
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

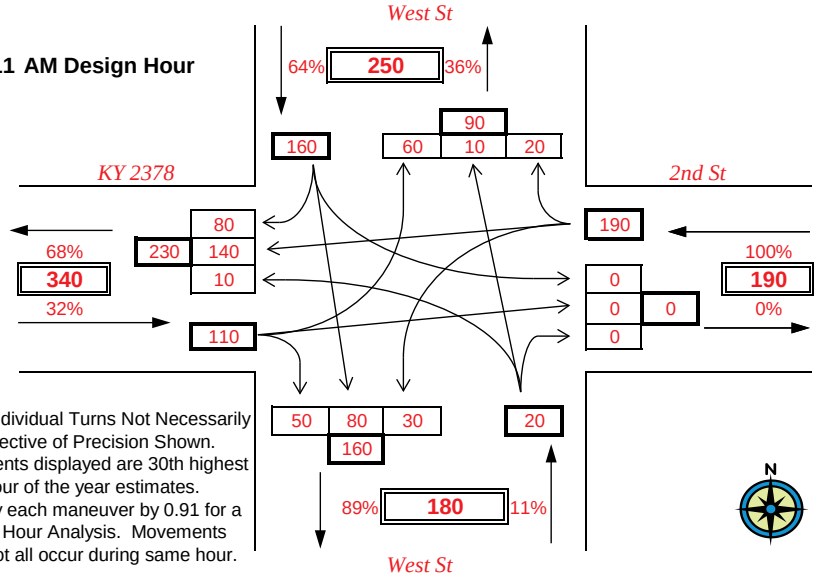
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



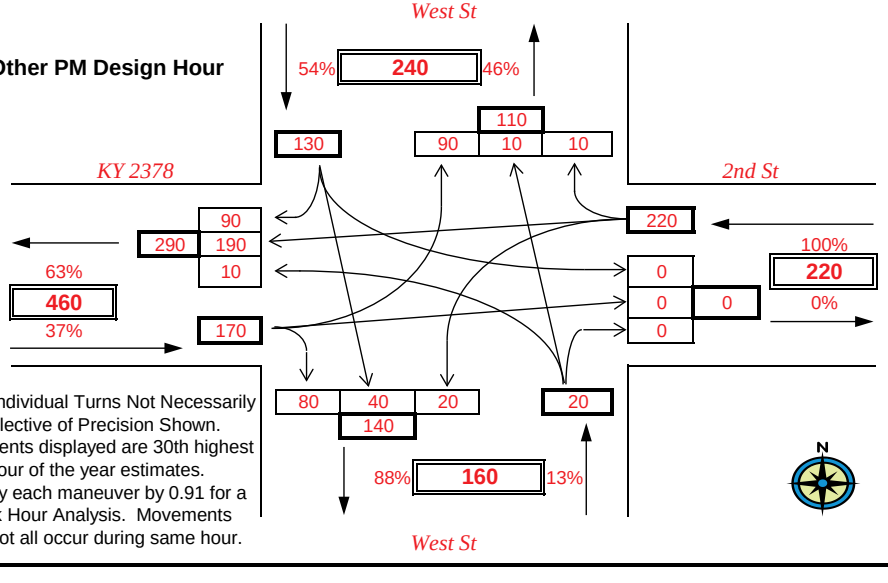
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



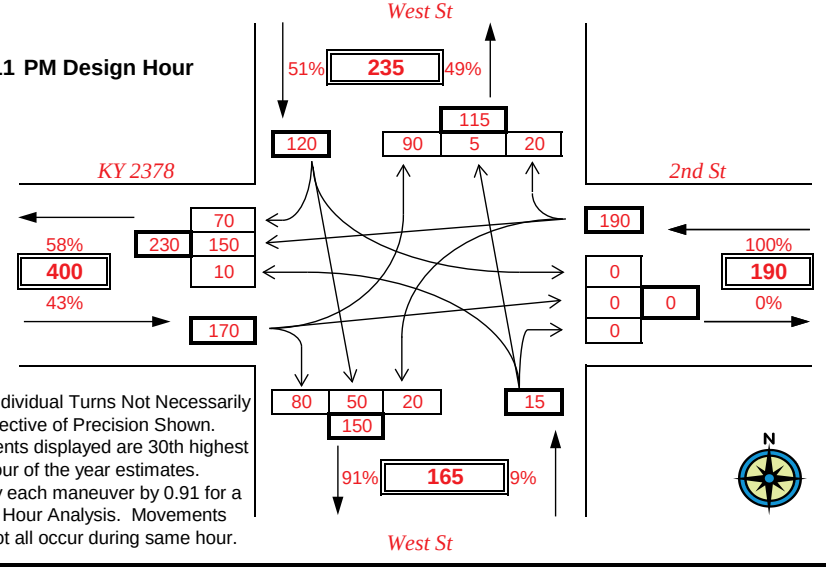
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



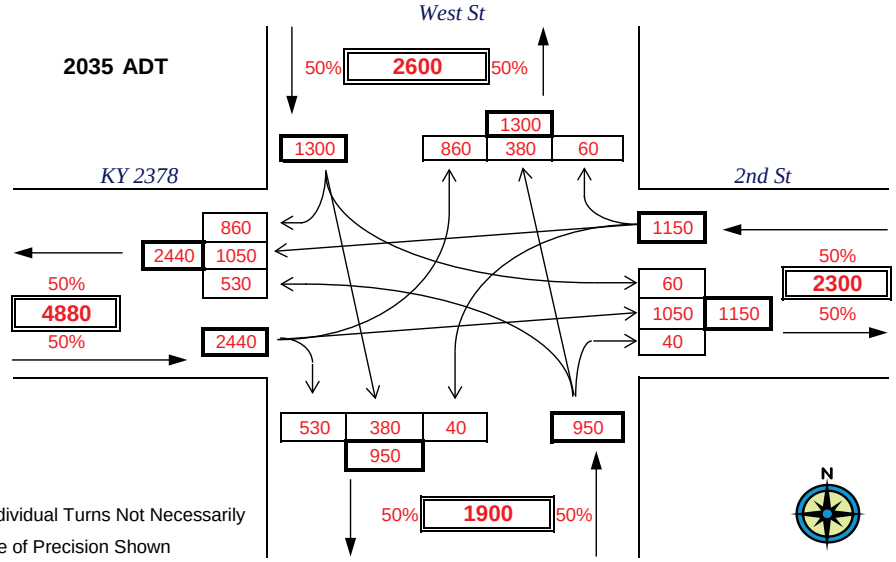
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T3: West St & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

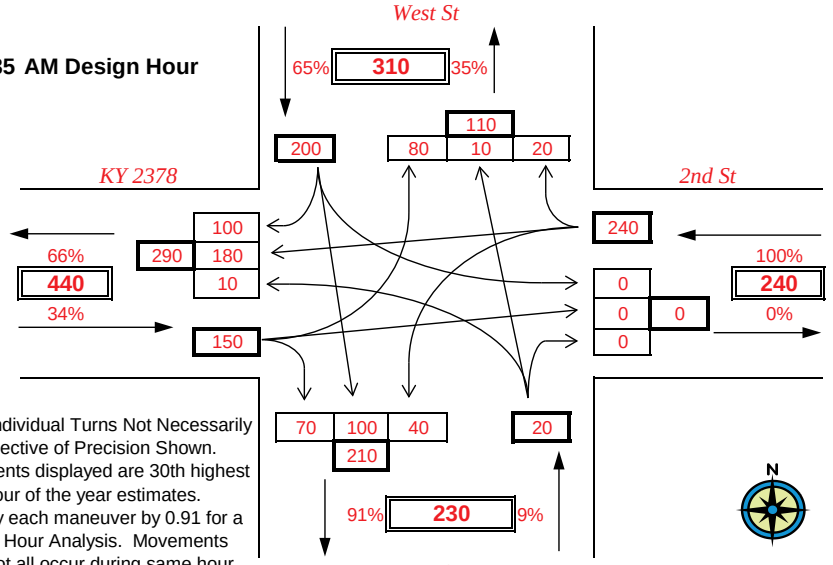
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



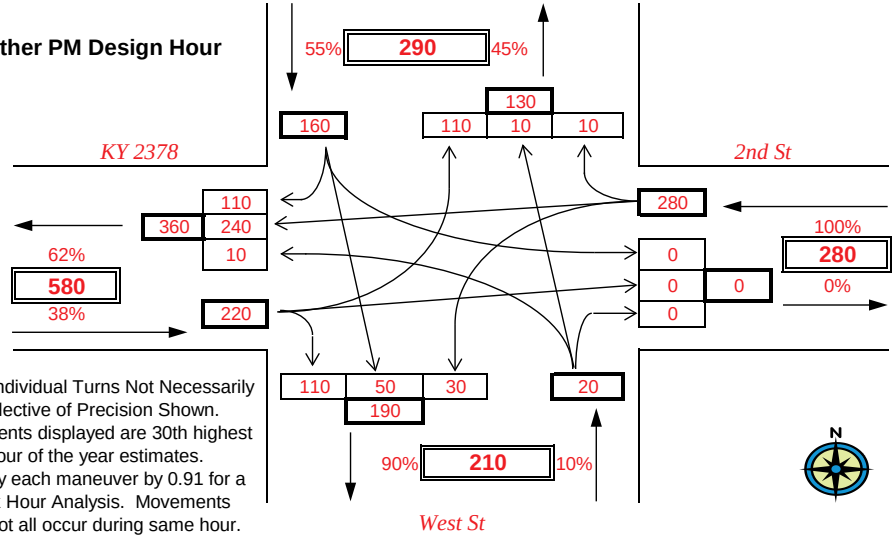
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



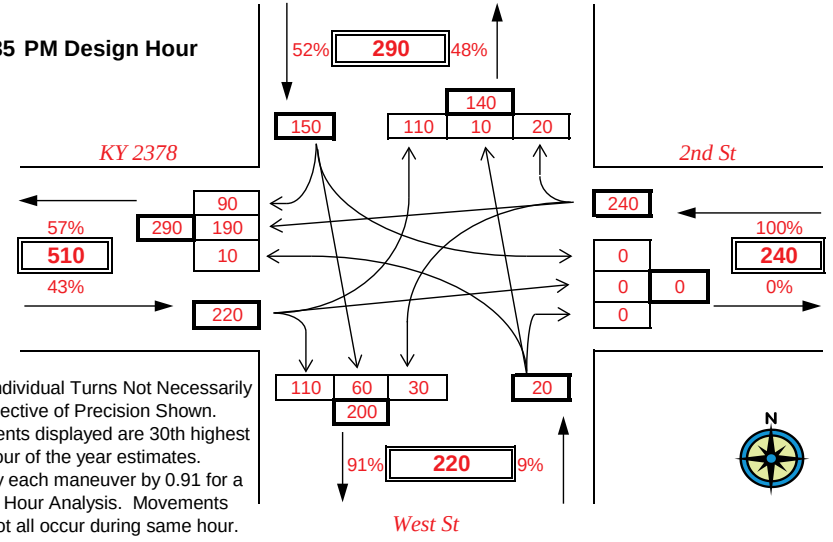
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



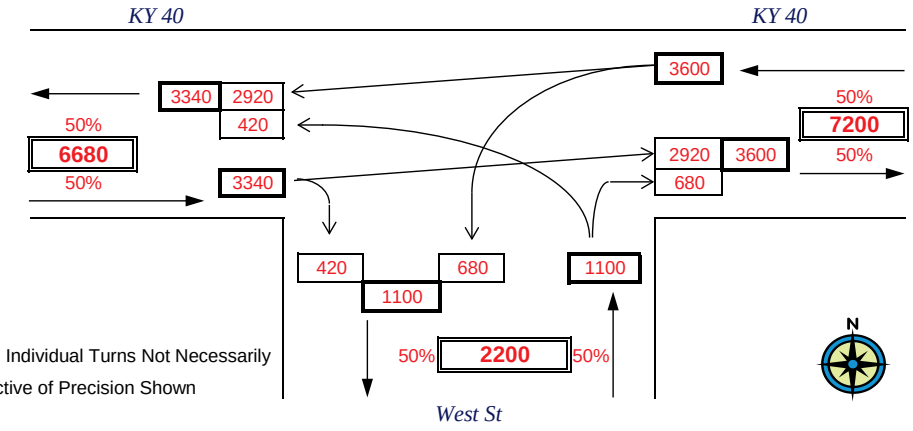
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.91 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

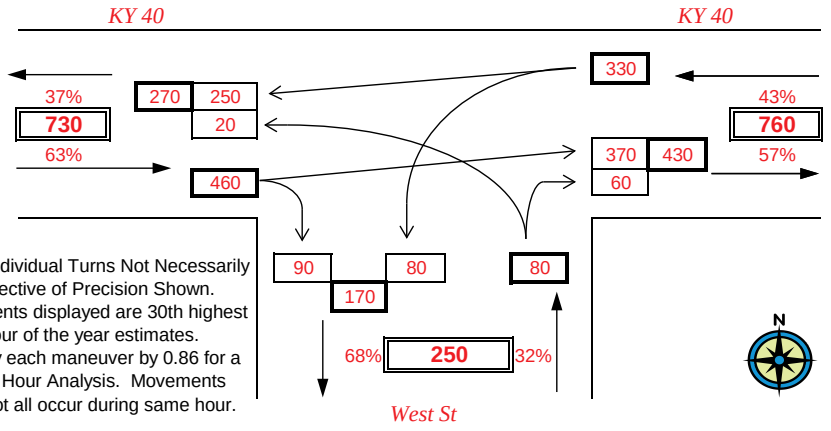
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



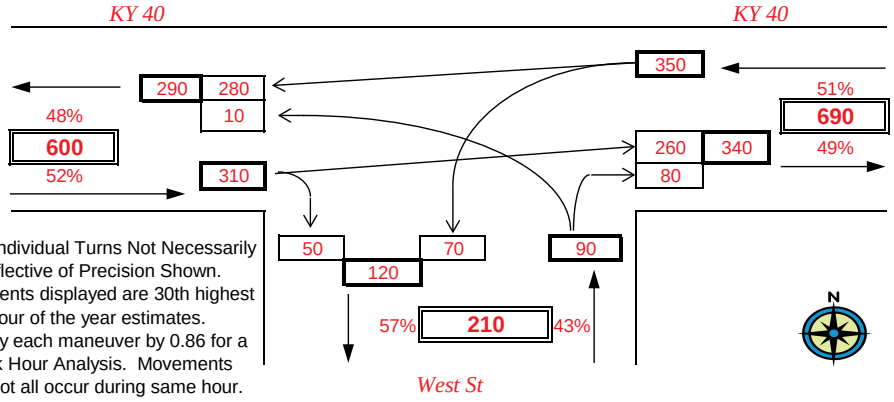
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



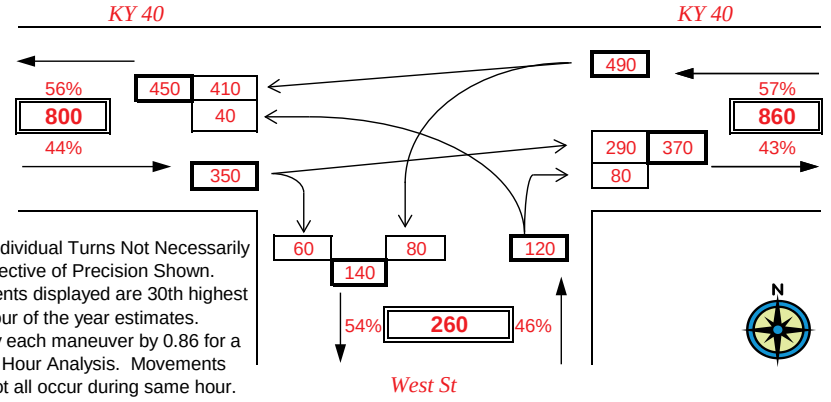
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



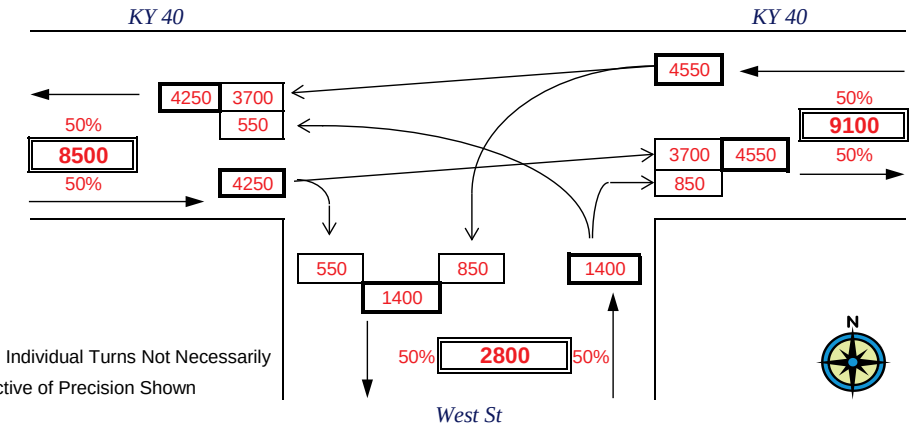
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T4: KY 40 & West St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

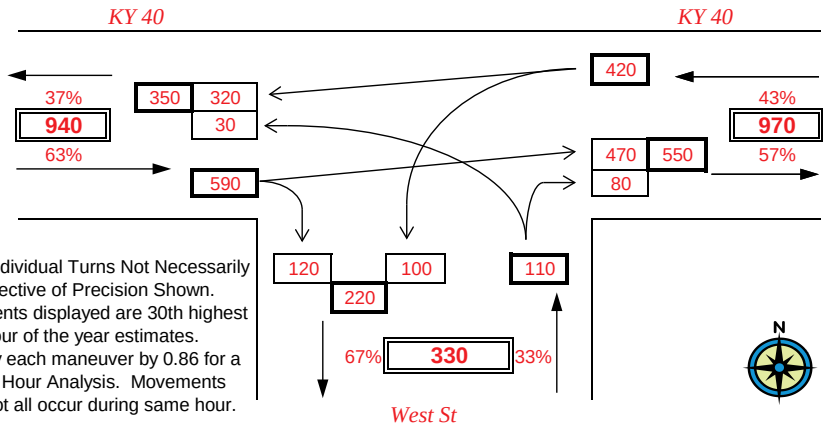
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



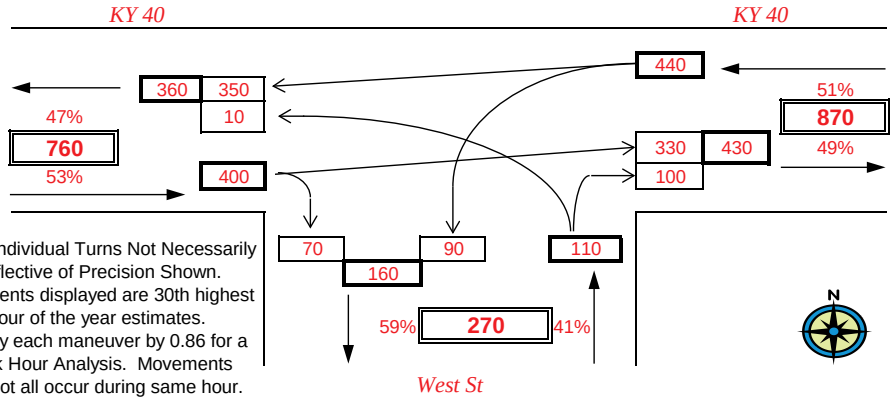
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



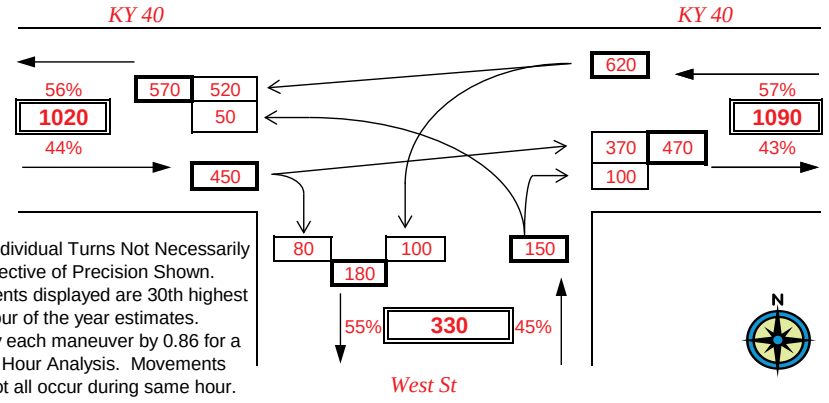
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



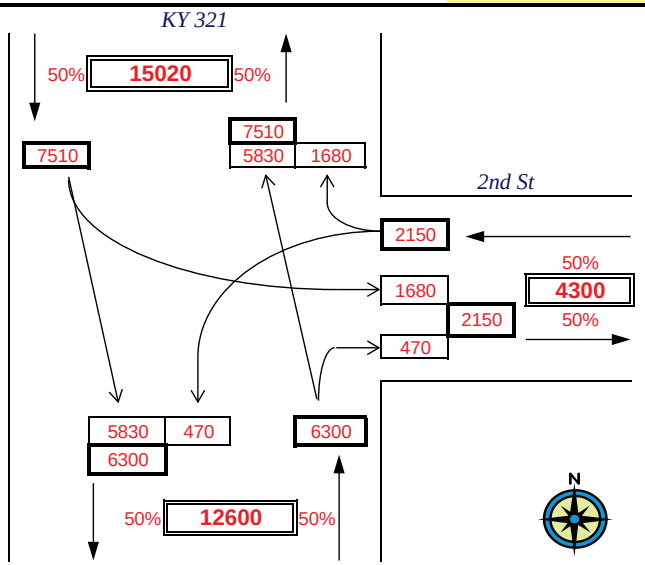
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.86 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

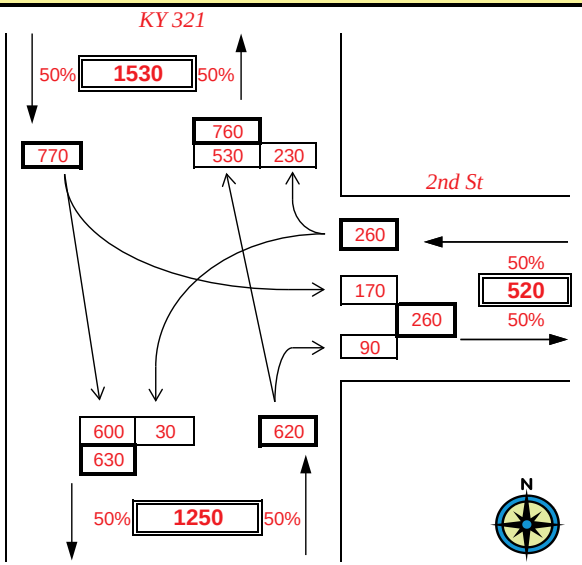
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



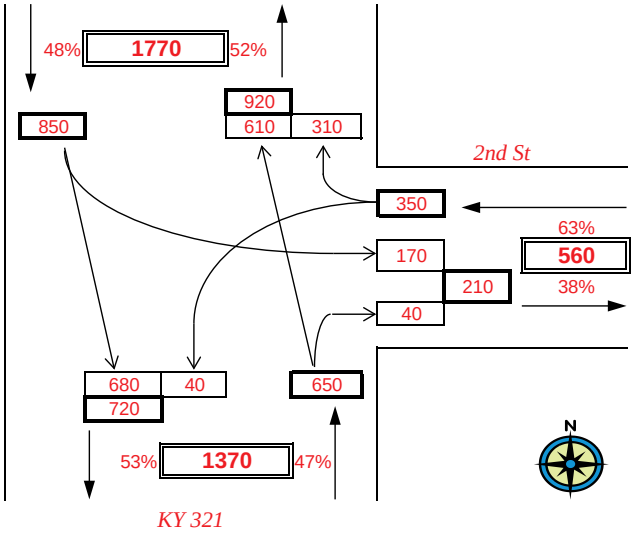
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



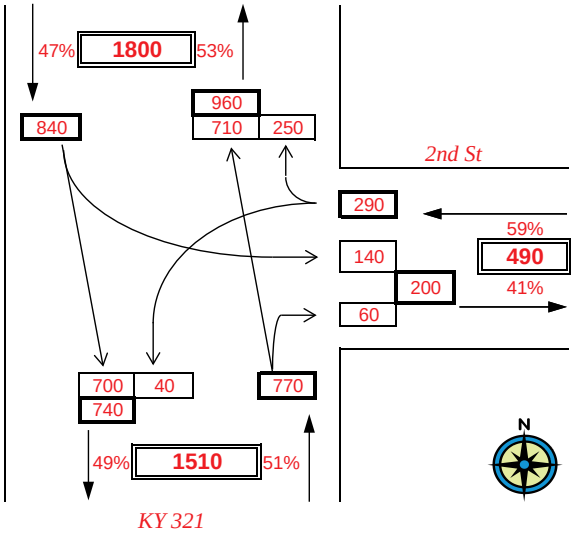
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



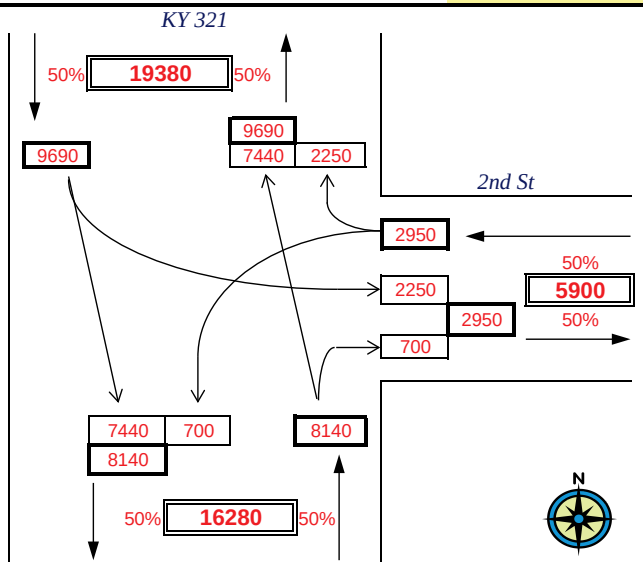
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

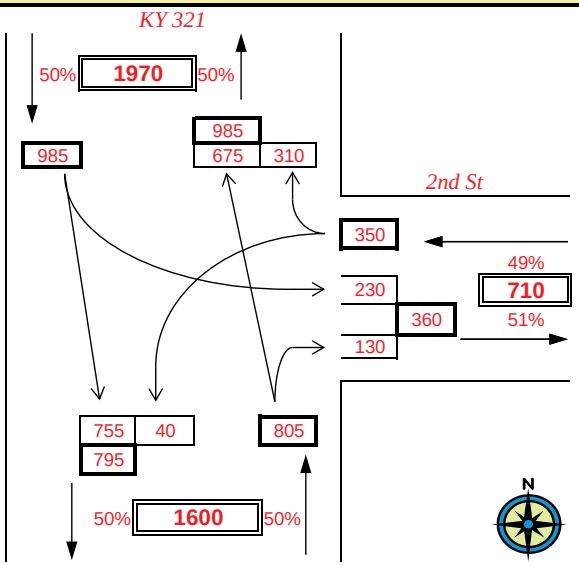
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



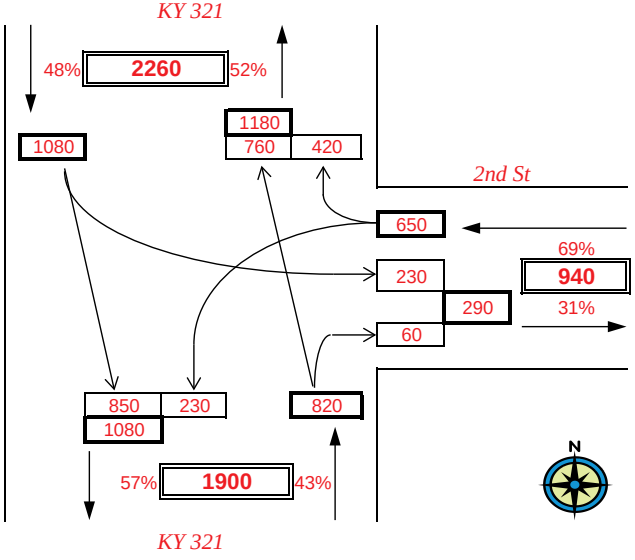
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



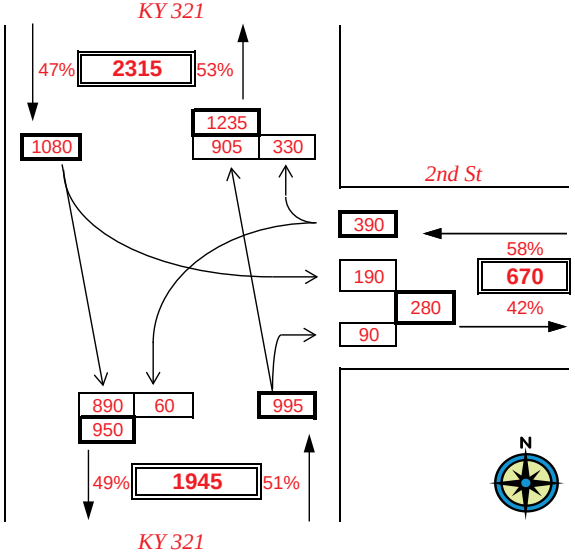
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



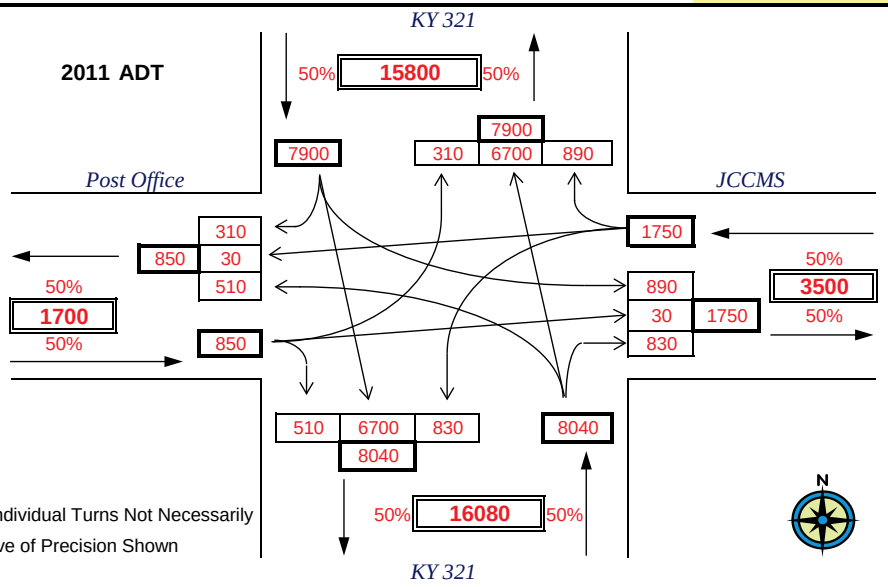
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

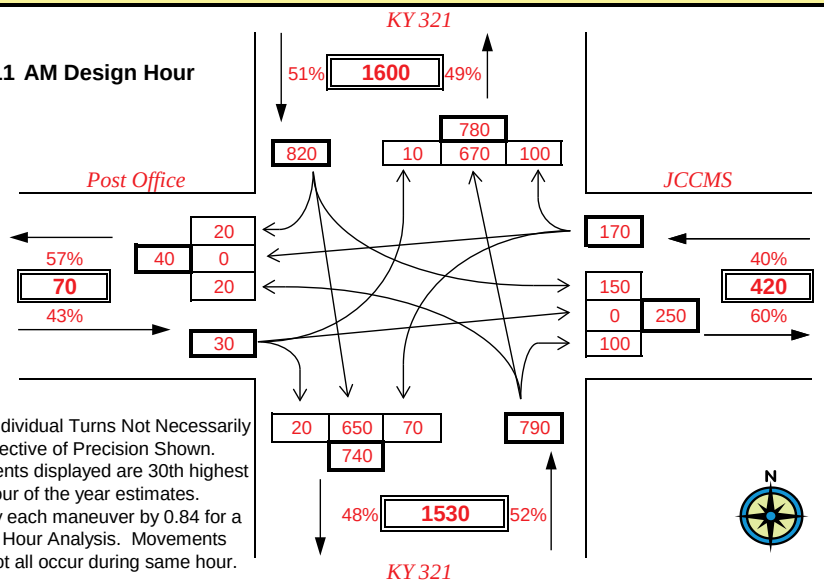
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



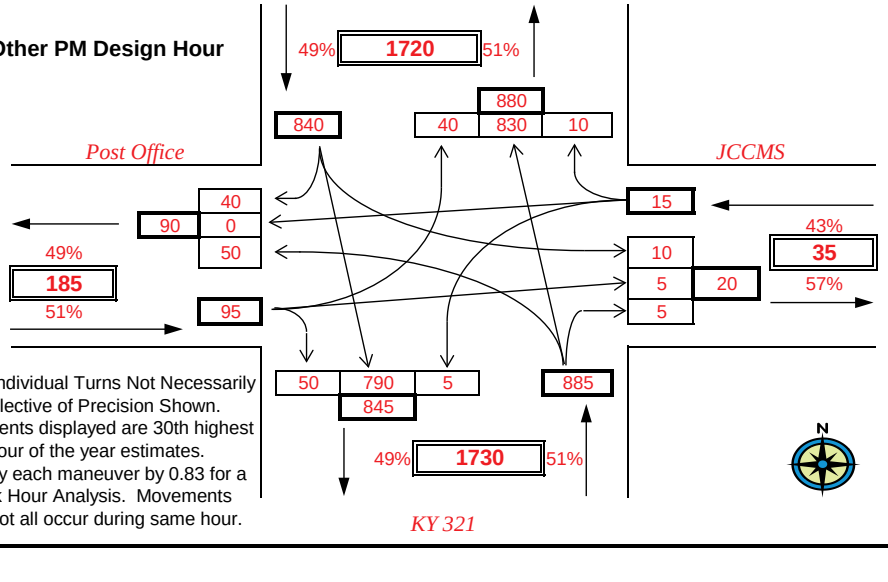
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



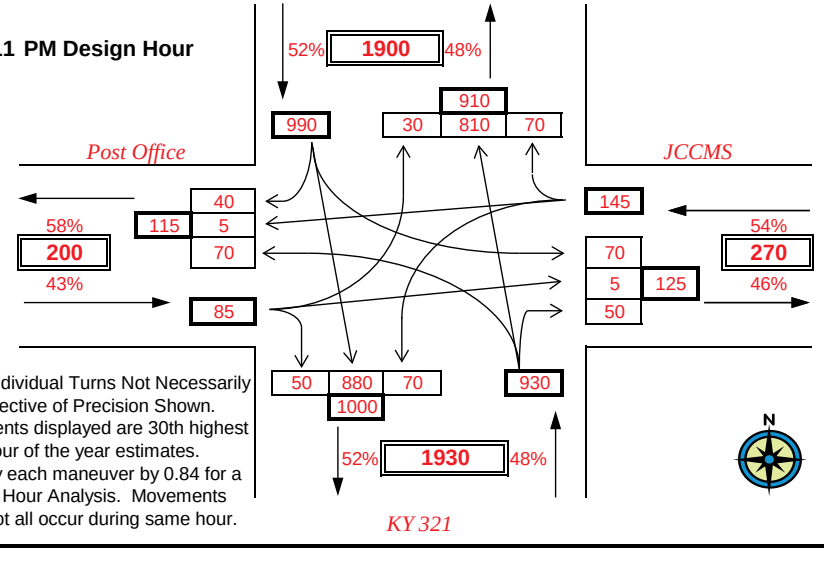
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



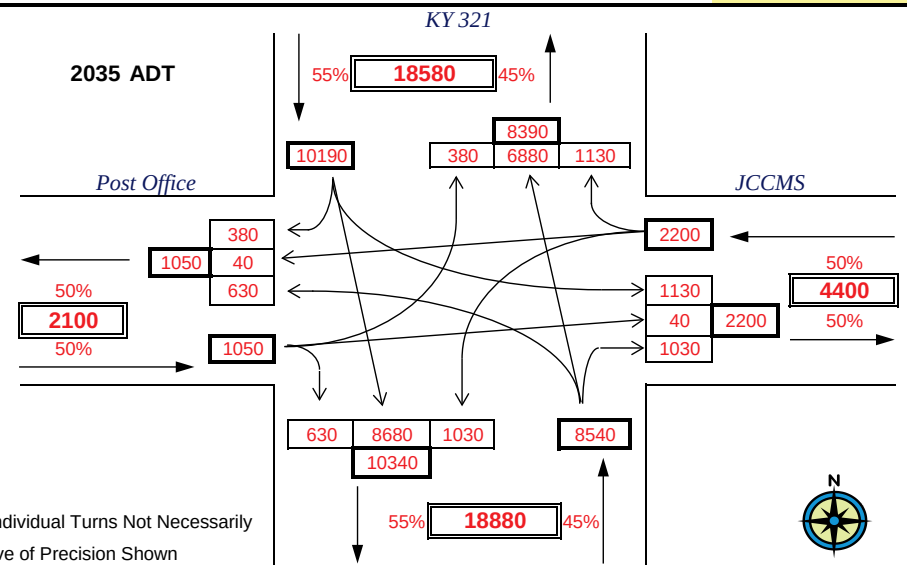
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

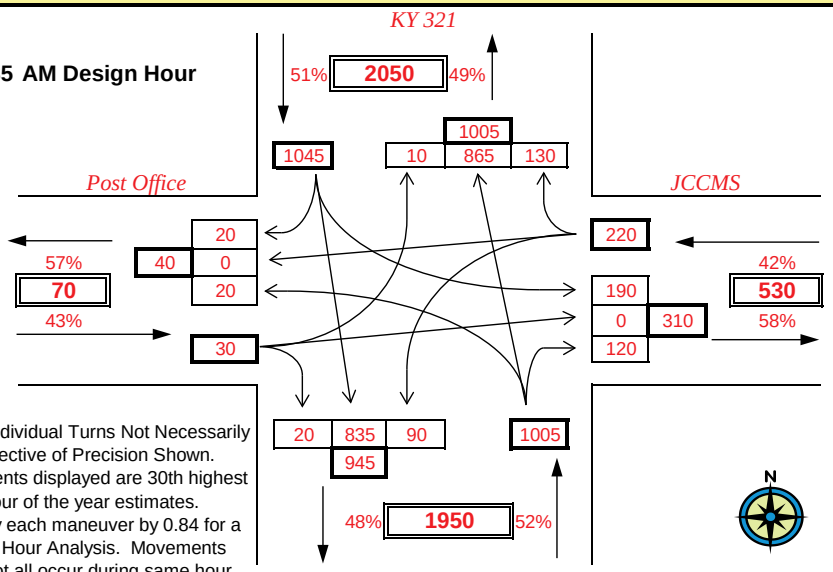
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



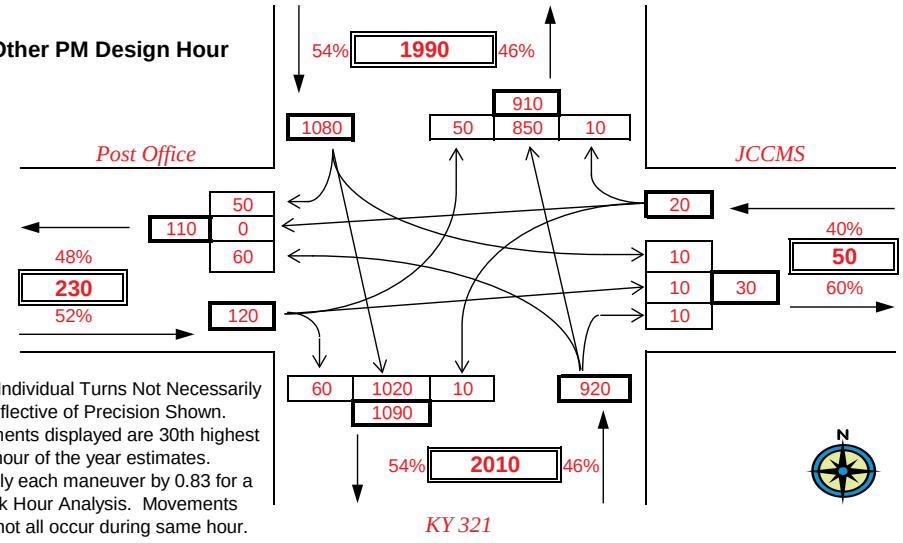
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



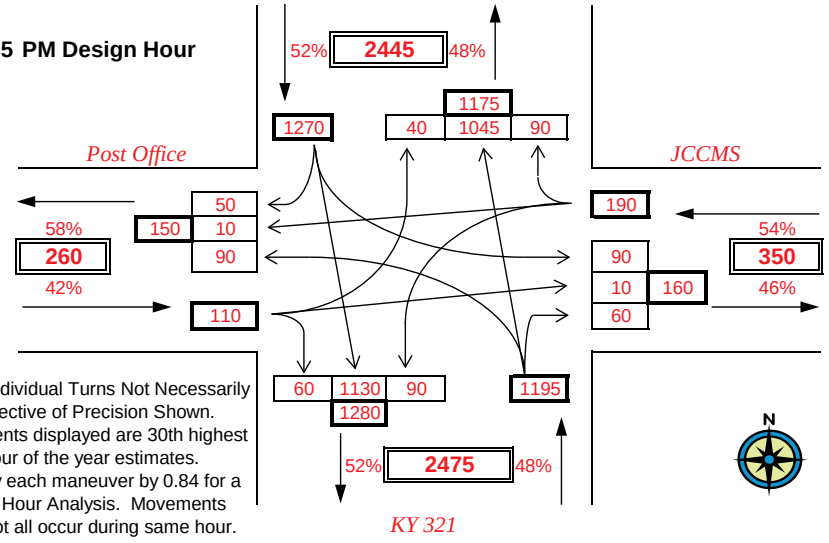
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



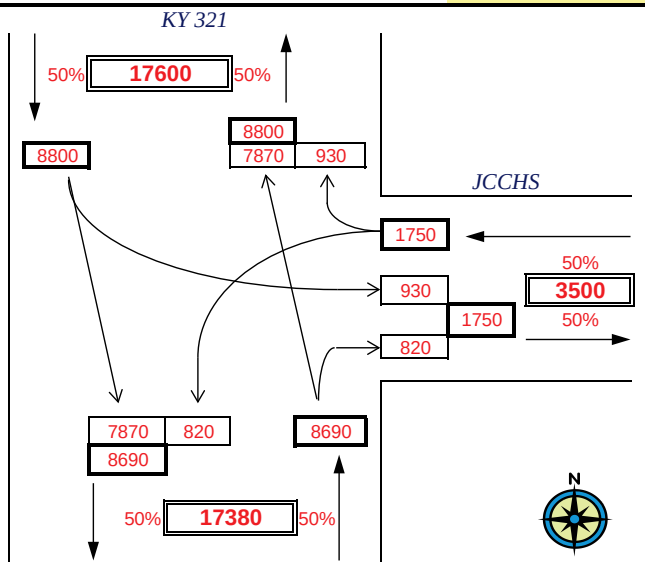
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

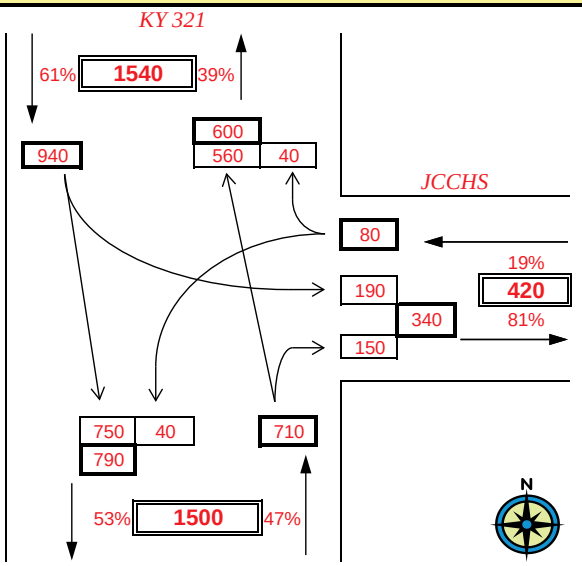
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



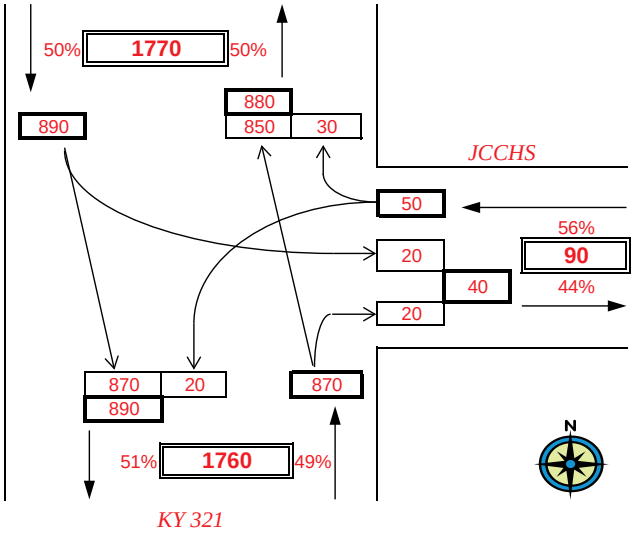
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



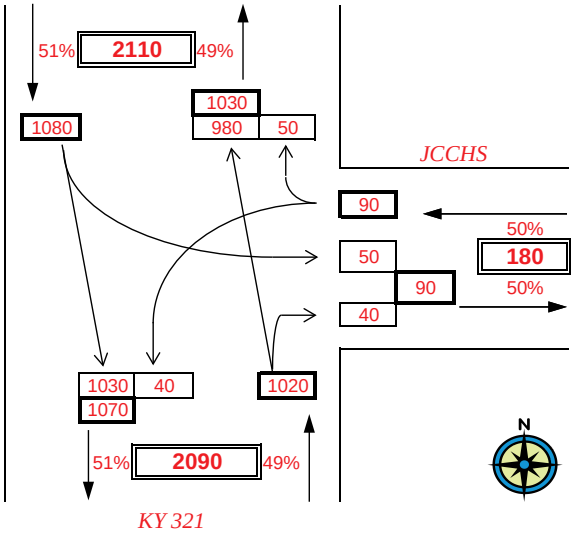
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



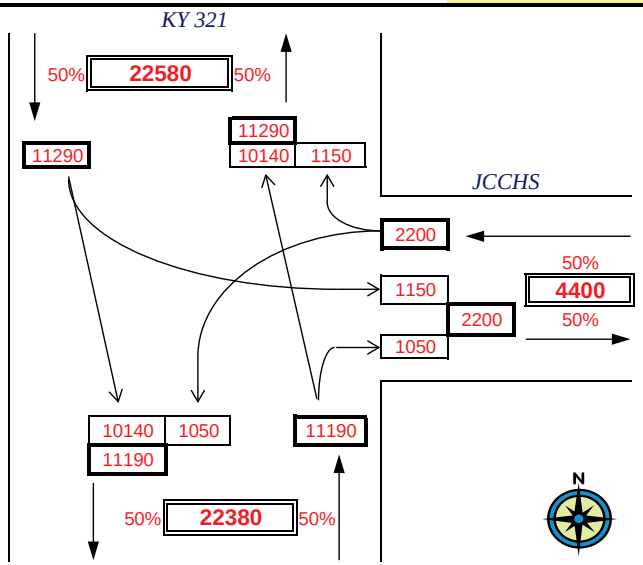
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

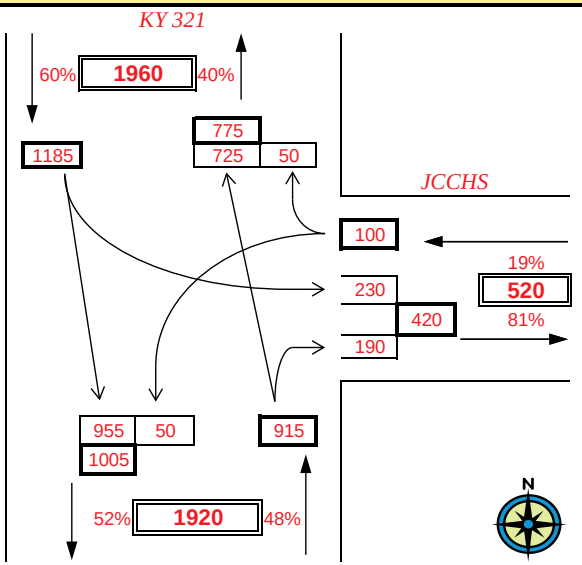
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



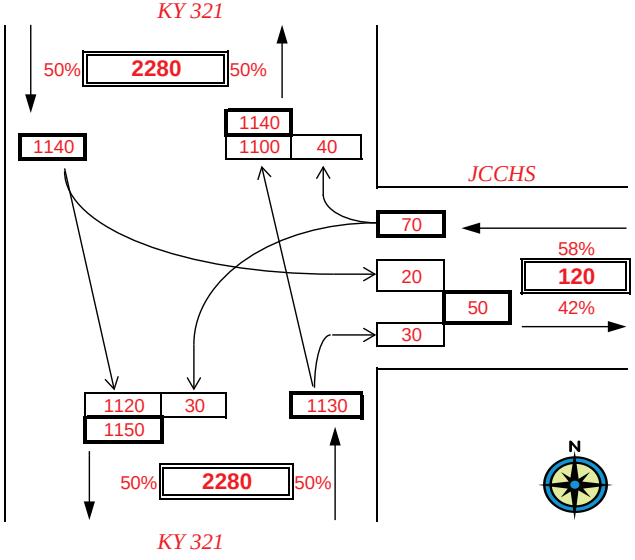
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



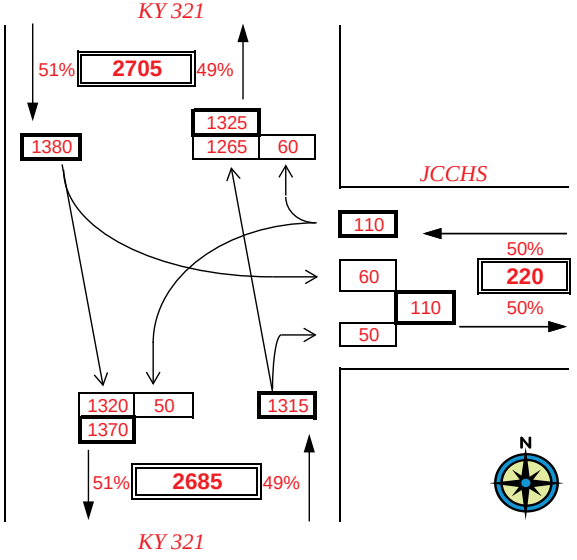
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



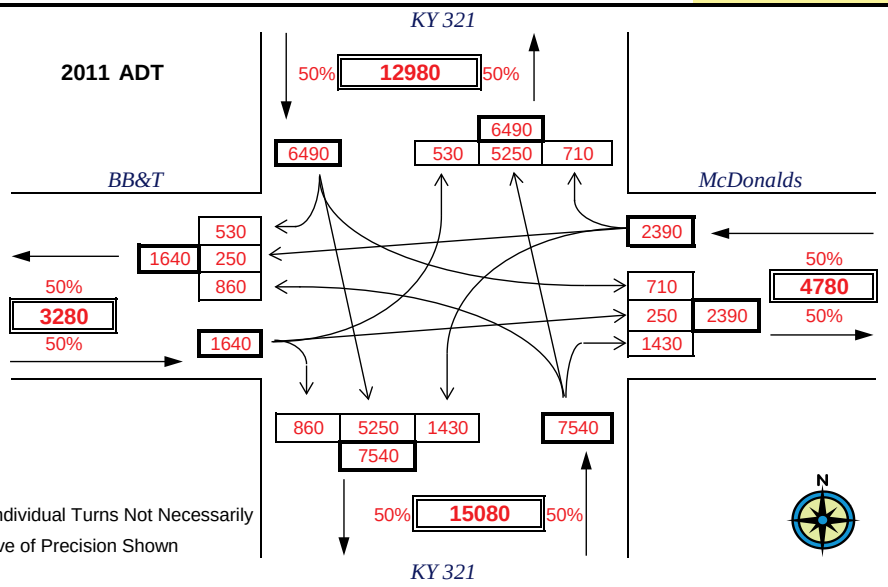
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

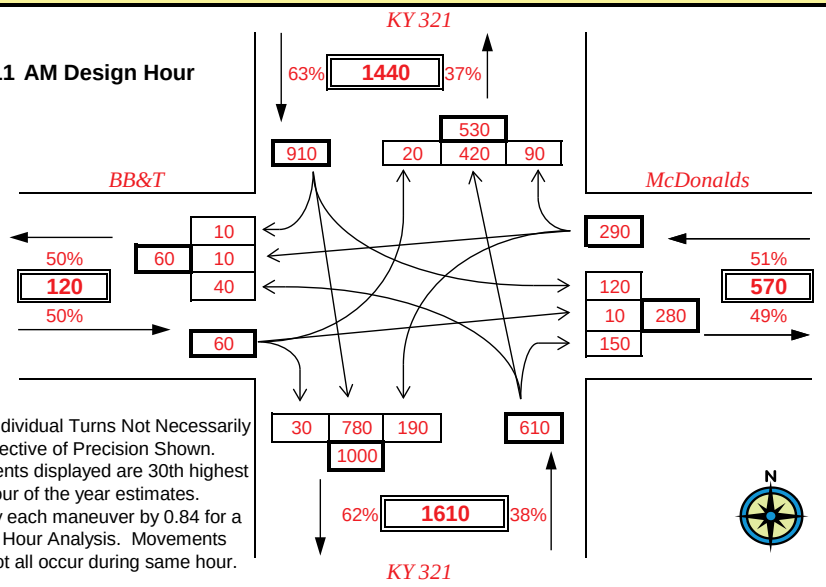
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



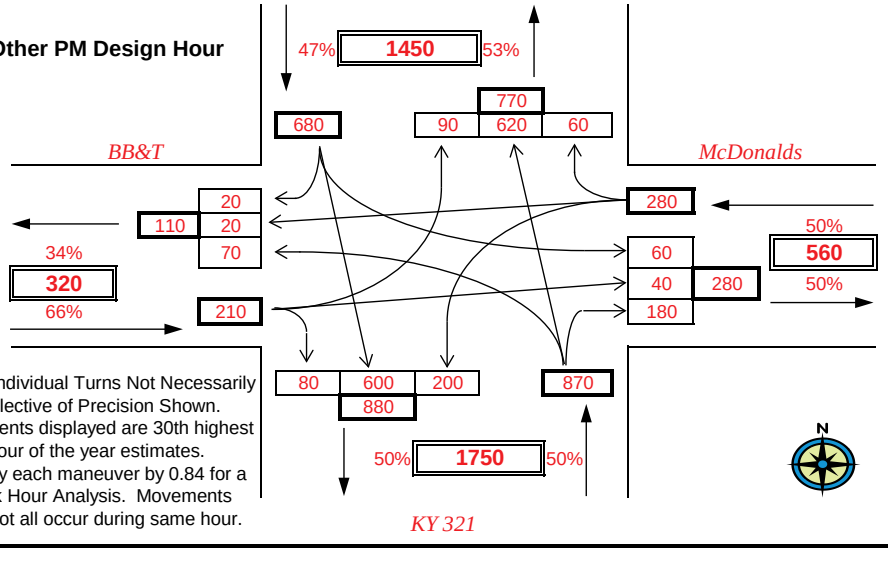
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



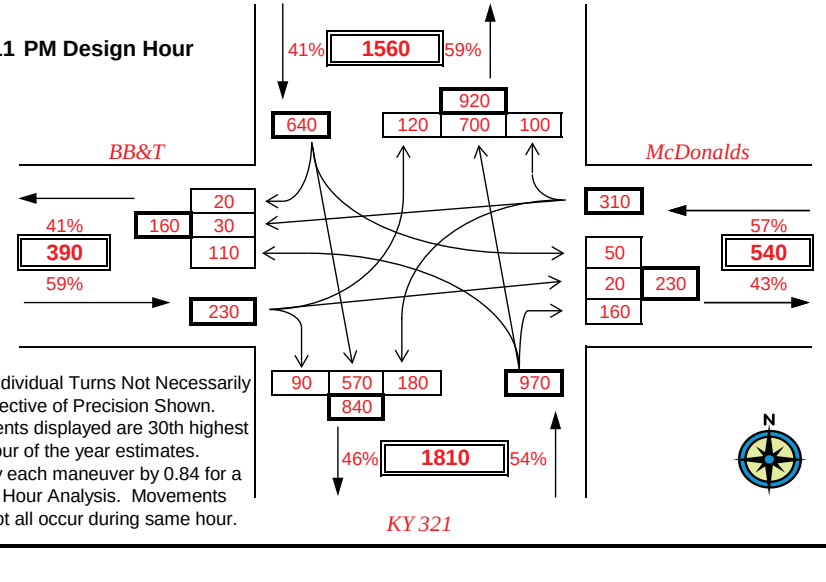
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



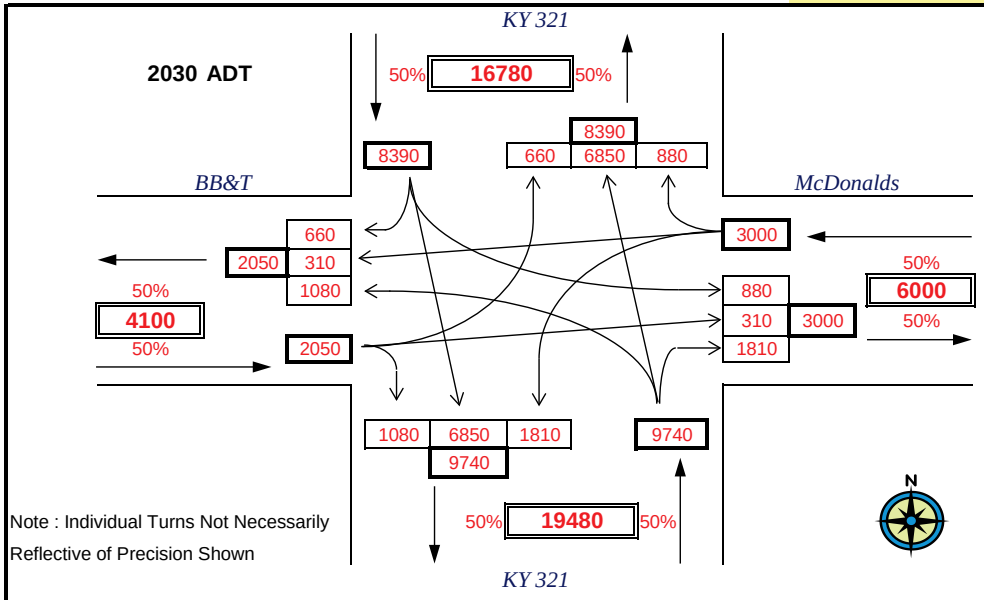
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2030 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

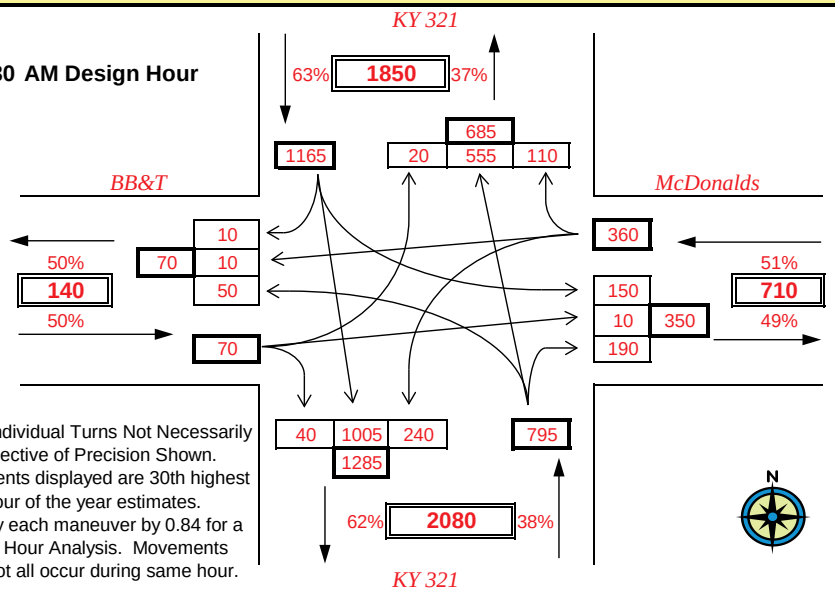
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2030 ADT



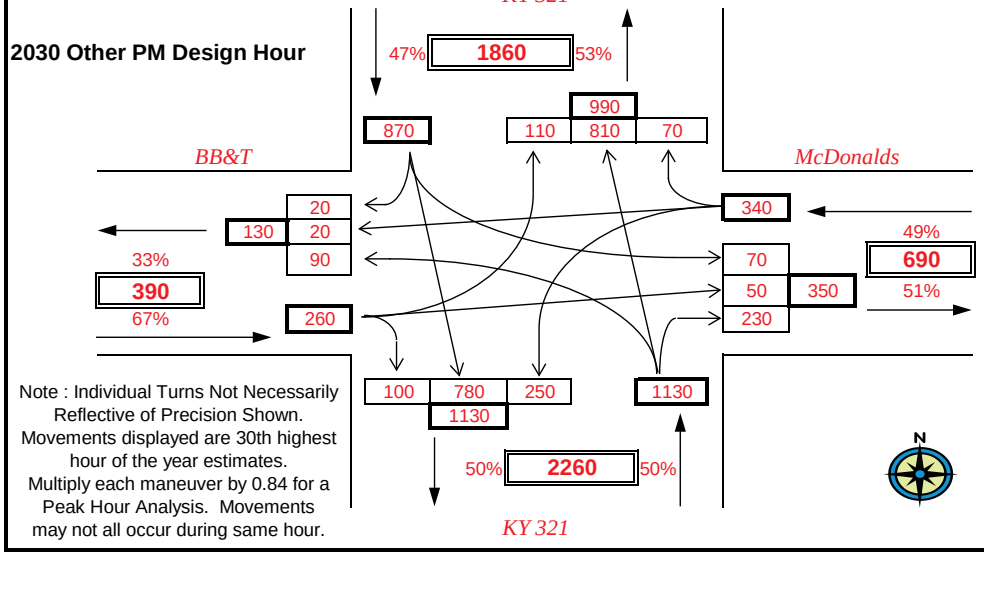
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2030 AM Design Hour



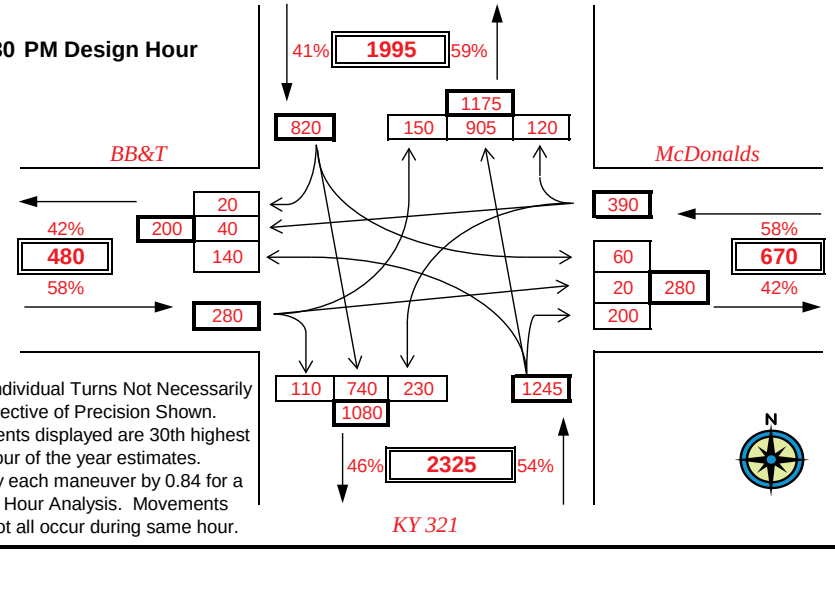
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2030 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

2030 PM Design Hour



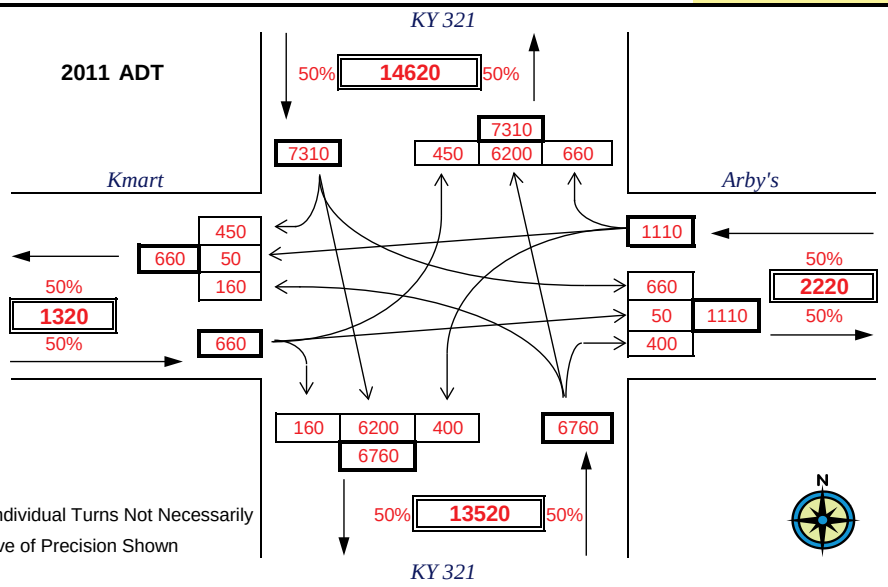
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2011 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

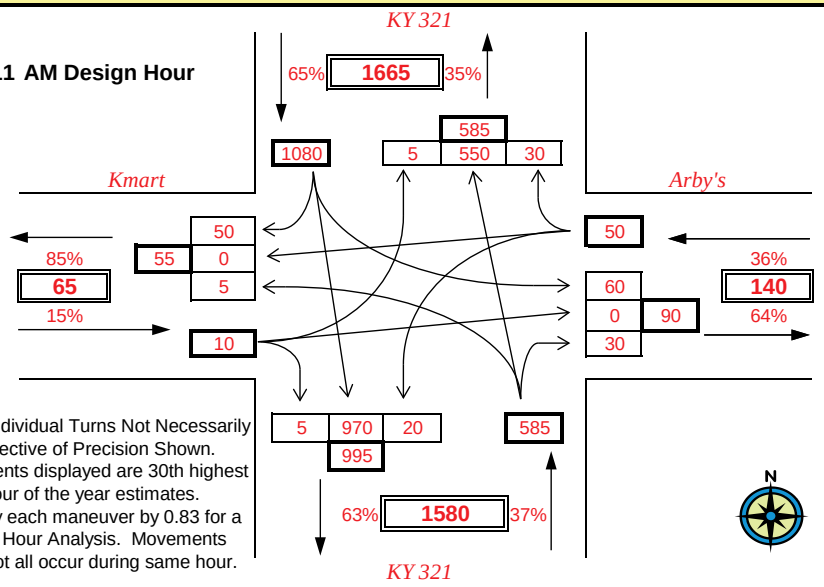
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2011 ADT



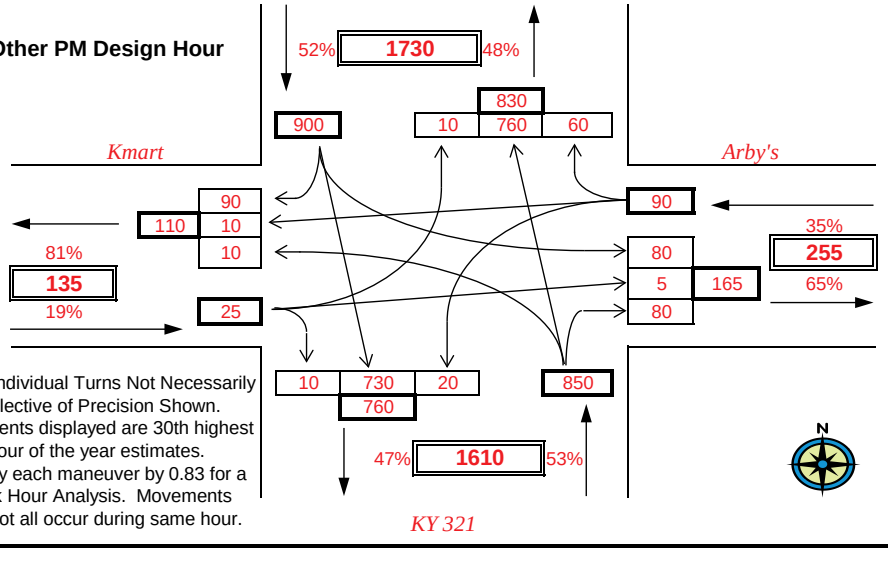
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2011 AM Design Hour



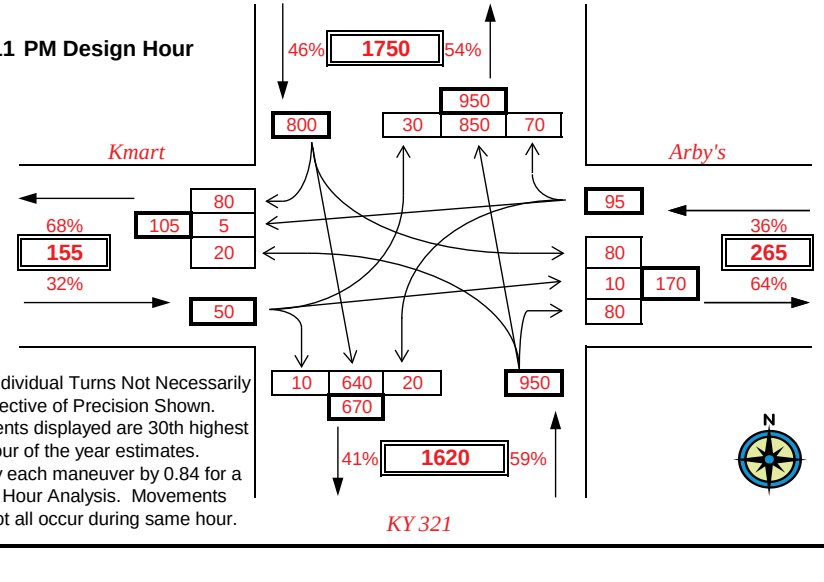
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2011 PM Design Hour



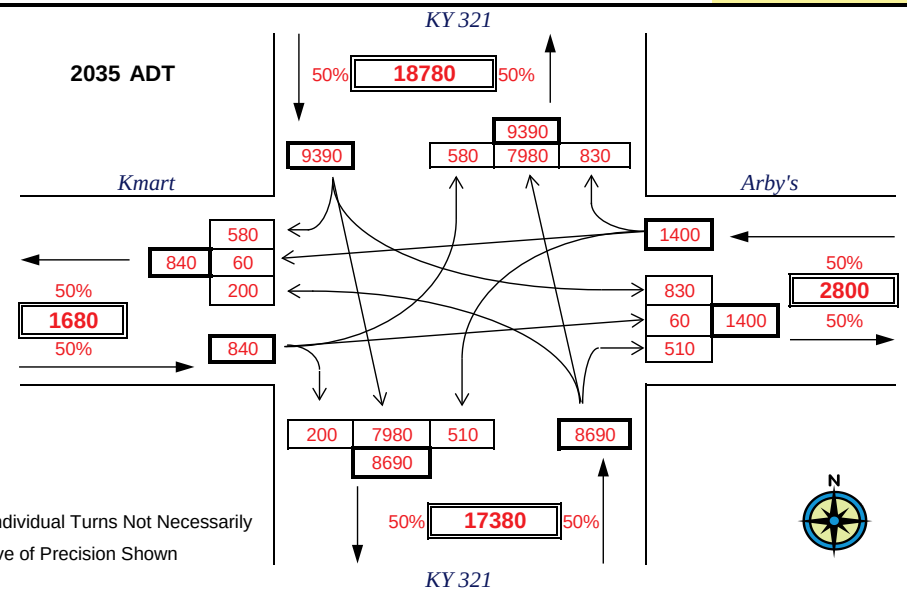
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

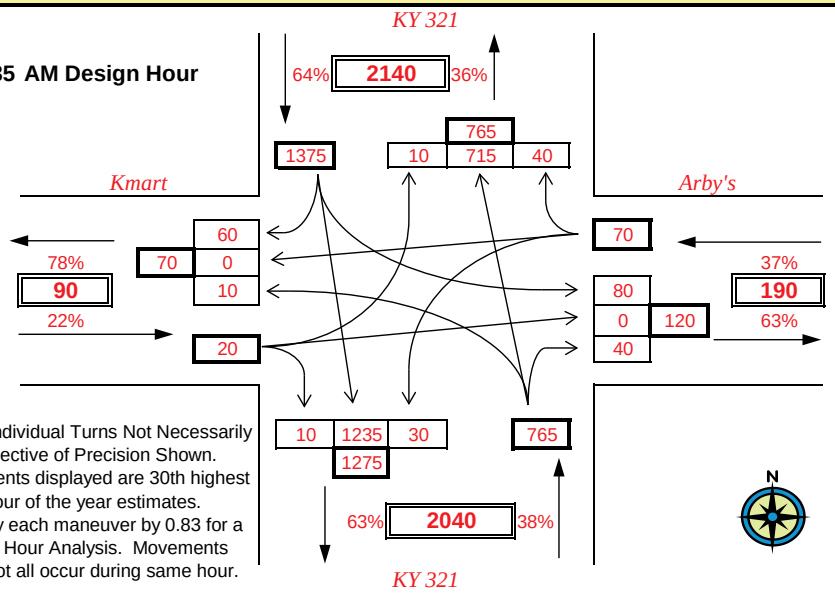
****DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



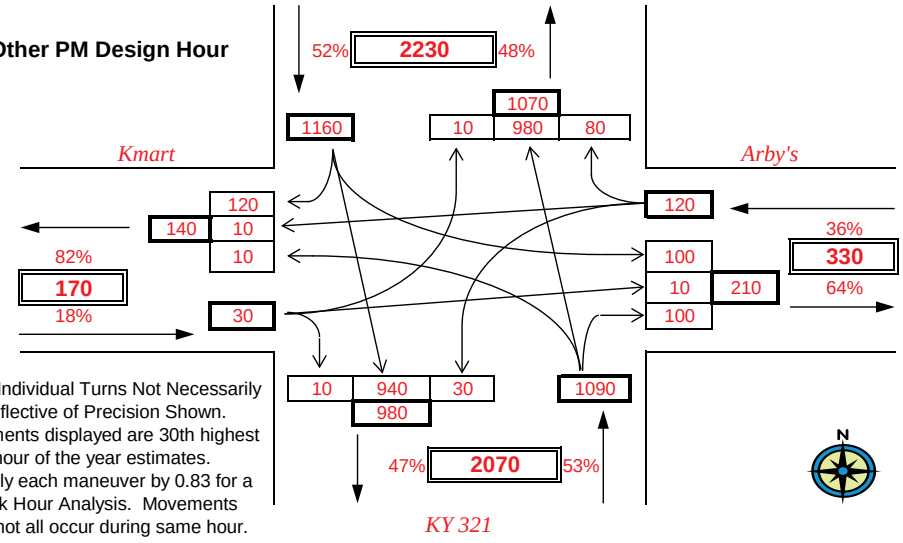
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



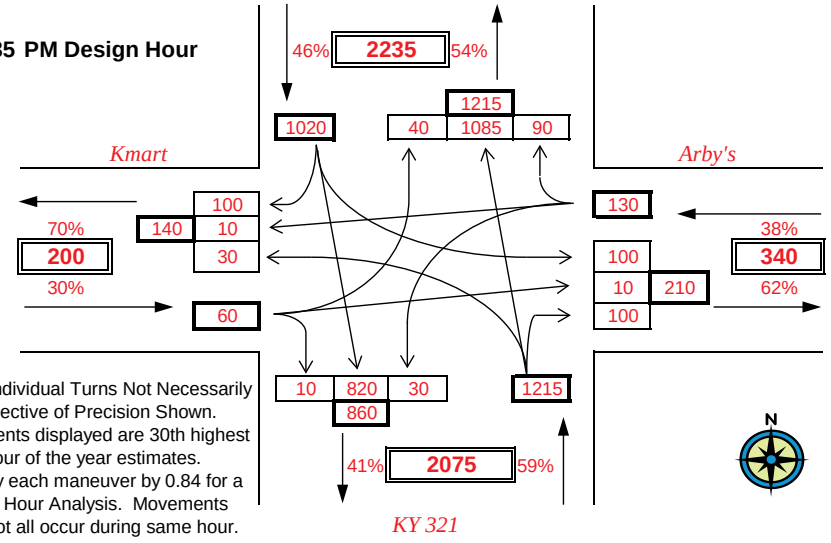
Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour.

2035 PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour.

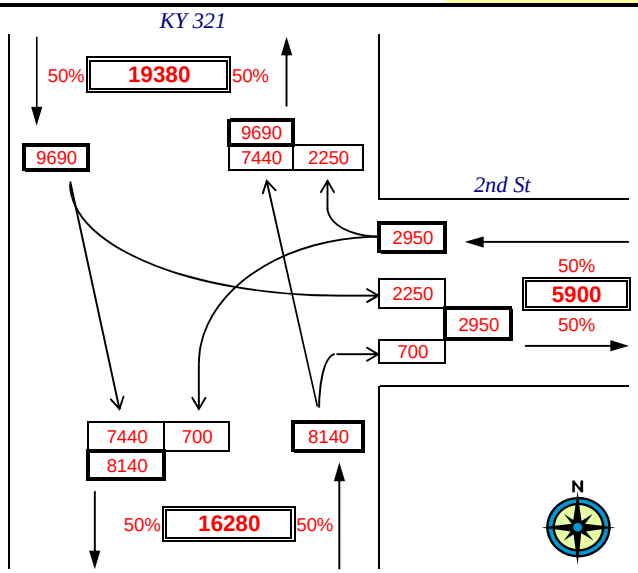
WEEKEND COUNTS

PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T5: KY 321 & 2nd St

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

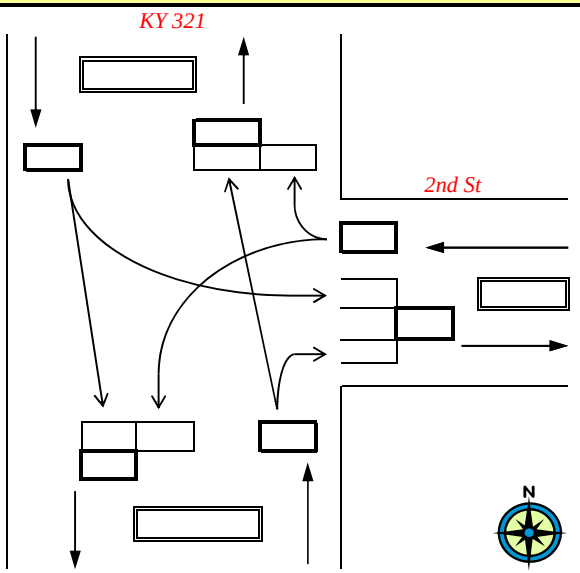
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT



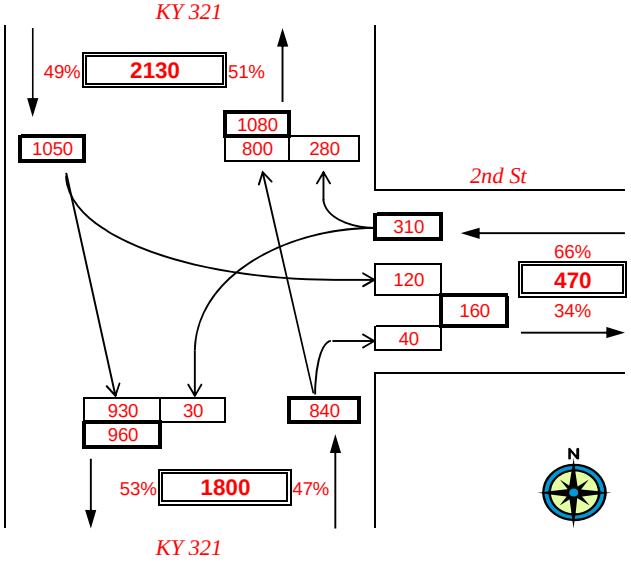
Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



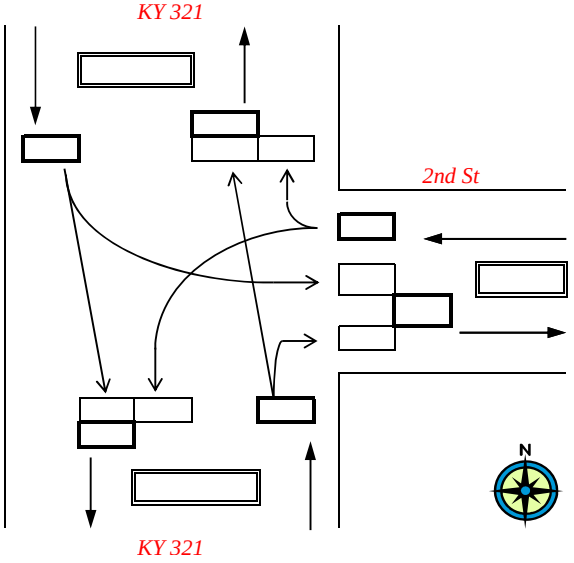
#DIV/0!

2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour

2035 PM Design Hour



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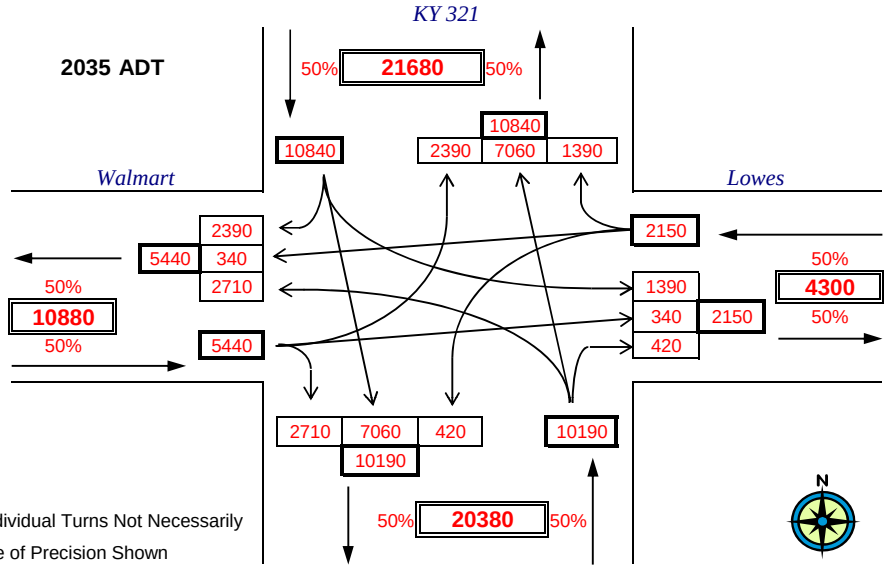
PROJECT: KY 321
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T10: KY 321 & New Walmat

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

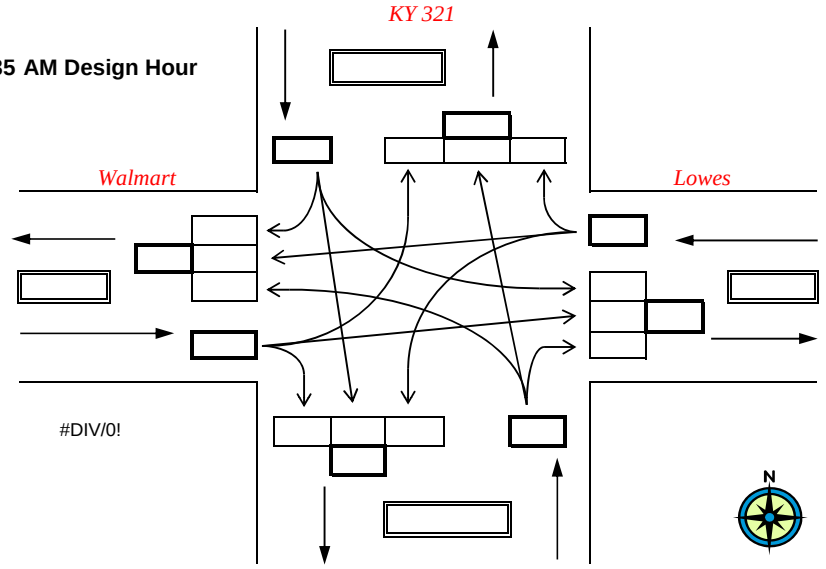
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT

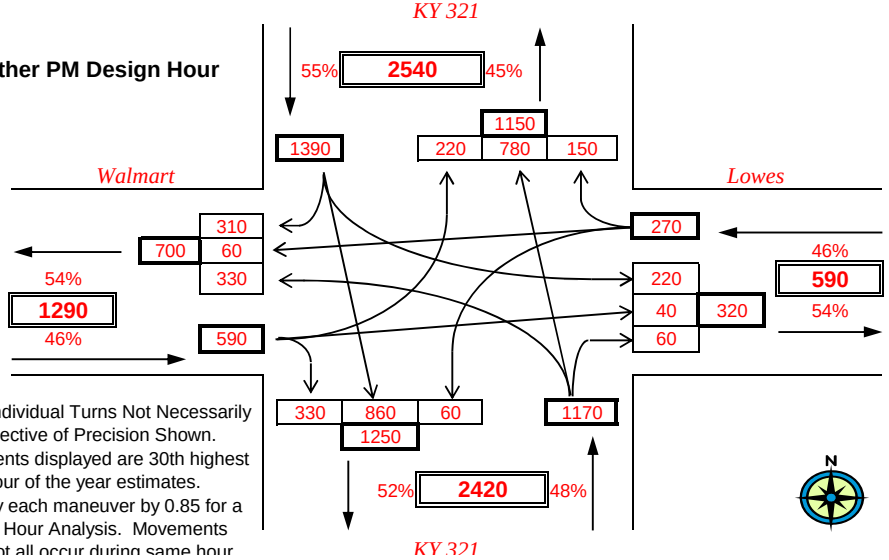


Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour

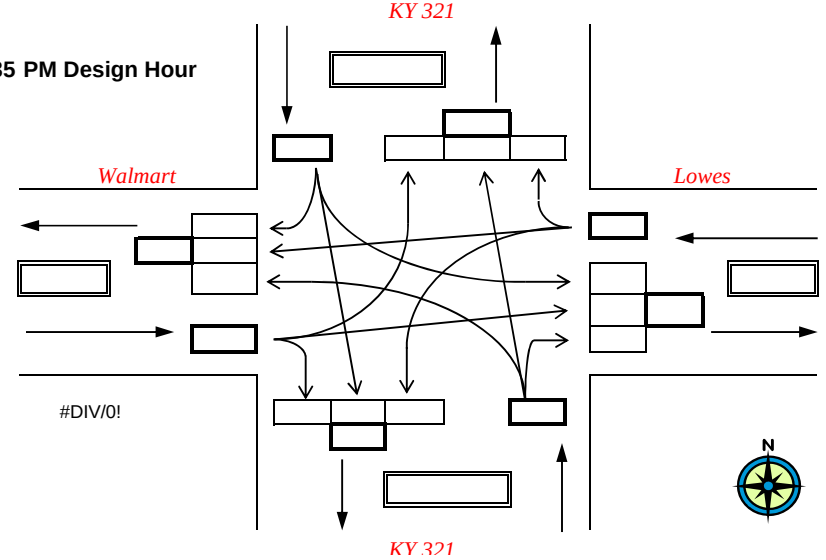


2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.85 for a Peak Hour Analysis. Movements may not all occur during same hour

2035 PM Design Hour

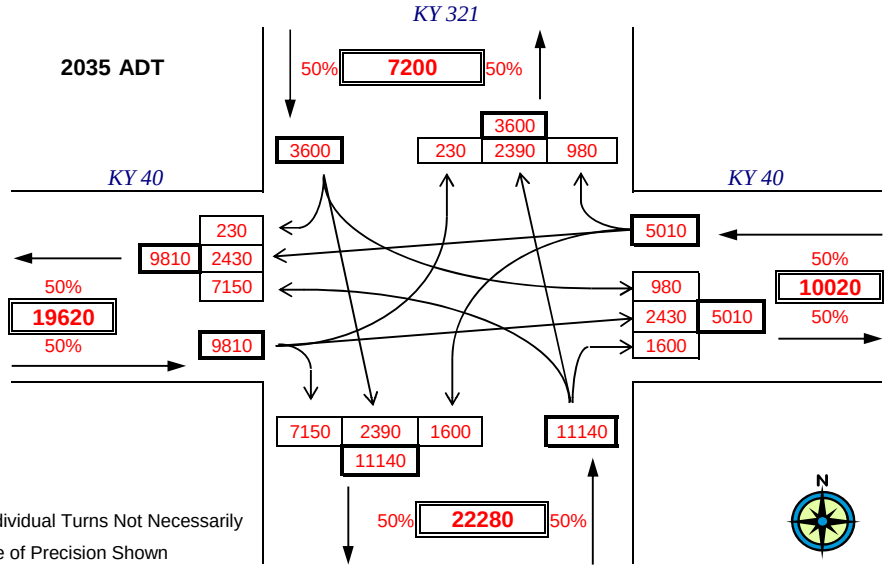


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T11: KY 321 & KY 40

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

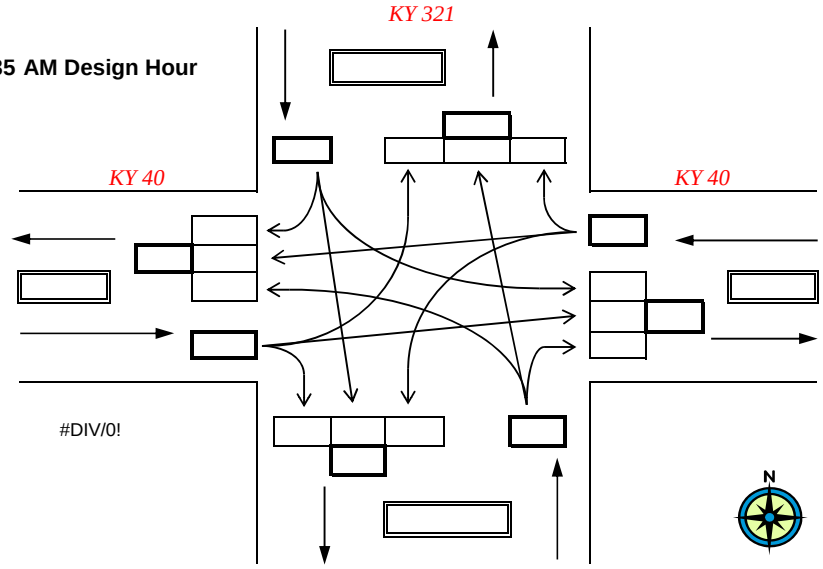
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT

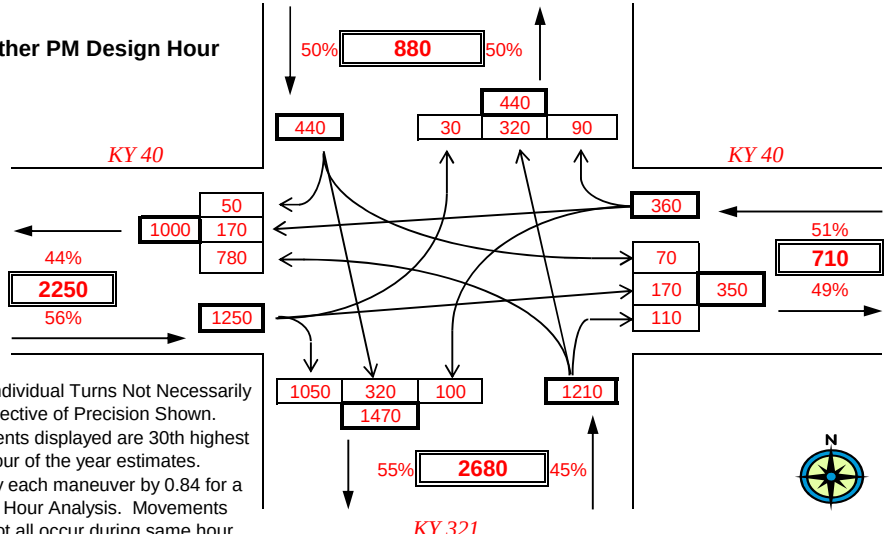


Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour

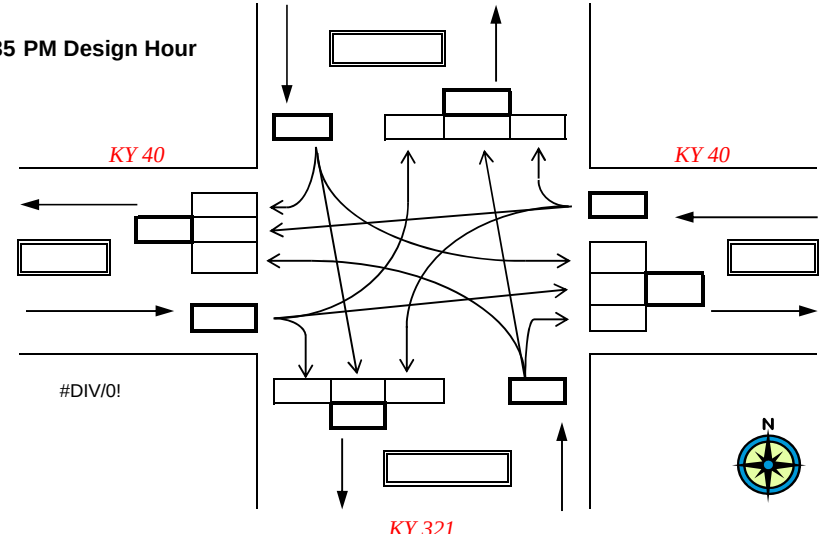


2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour

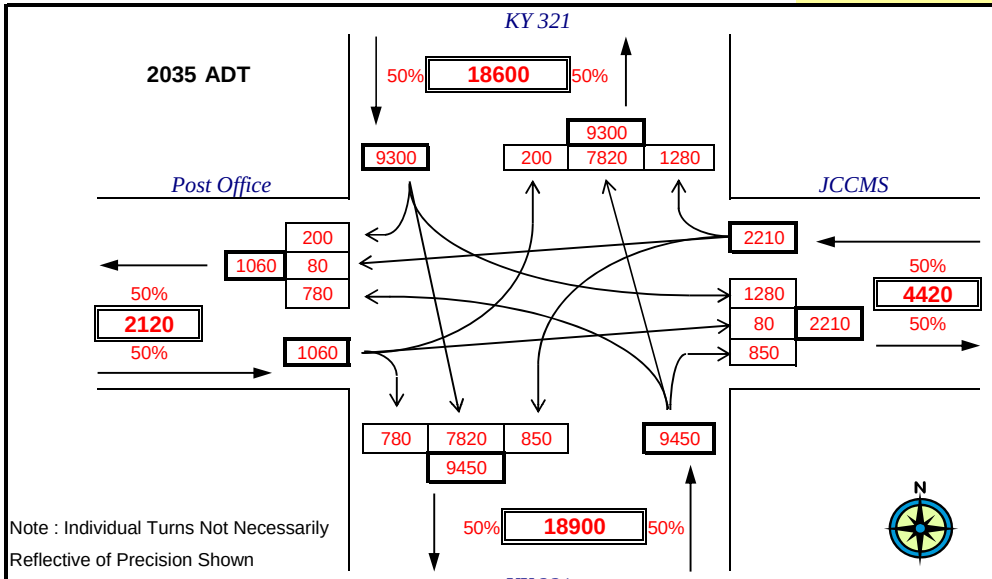
2035 PM Design Hour

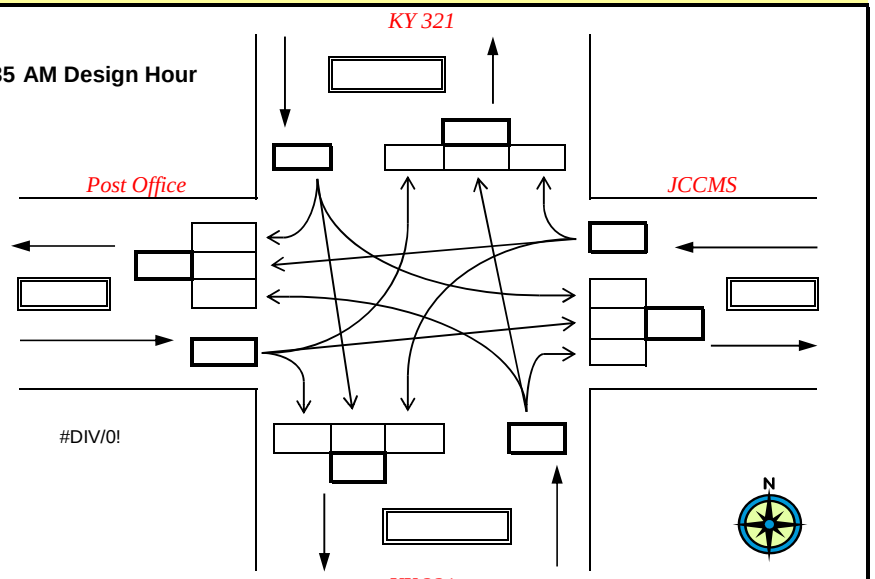


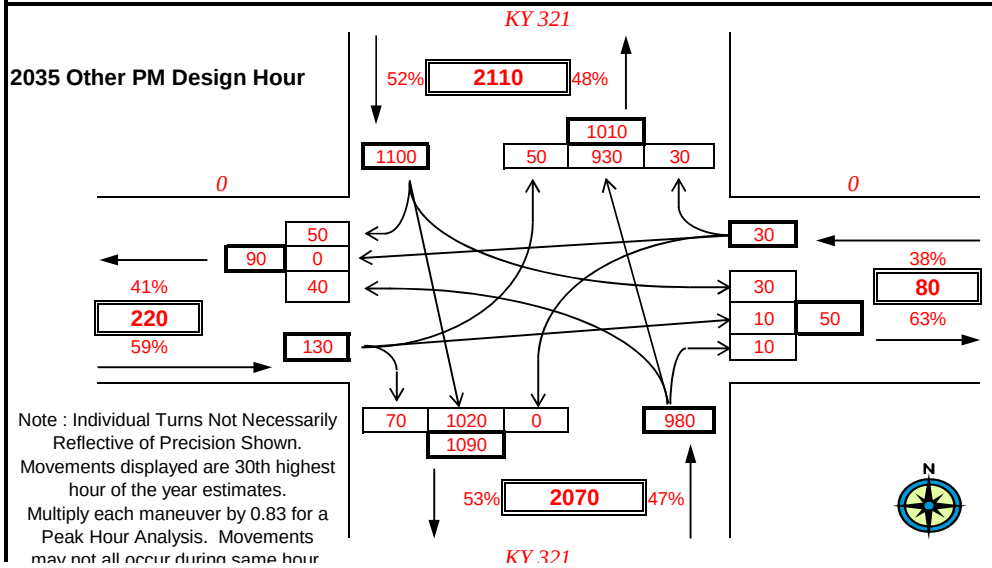
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T6: KY 321 & Post Office

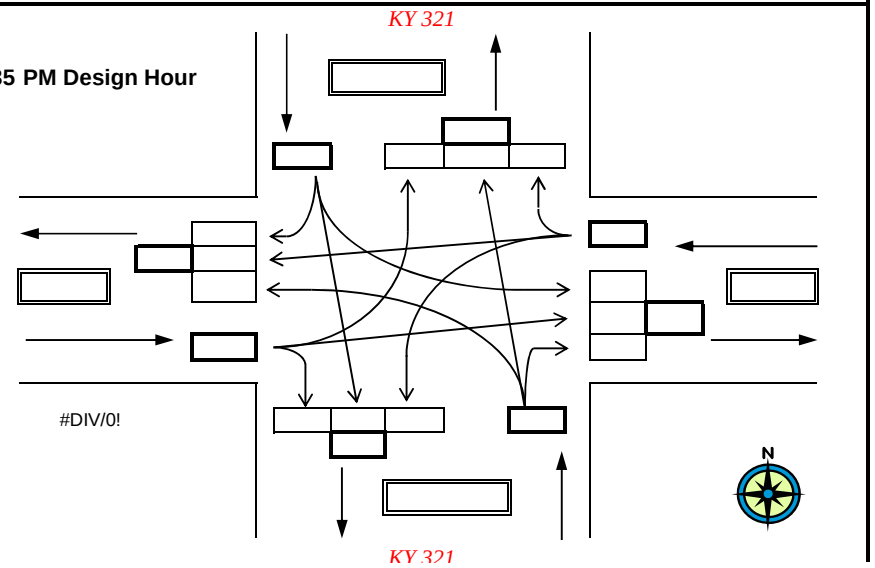
NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**







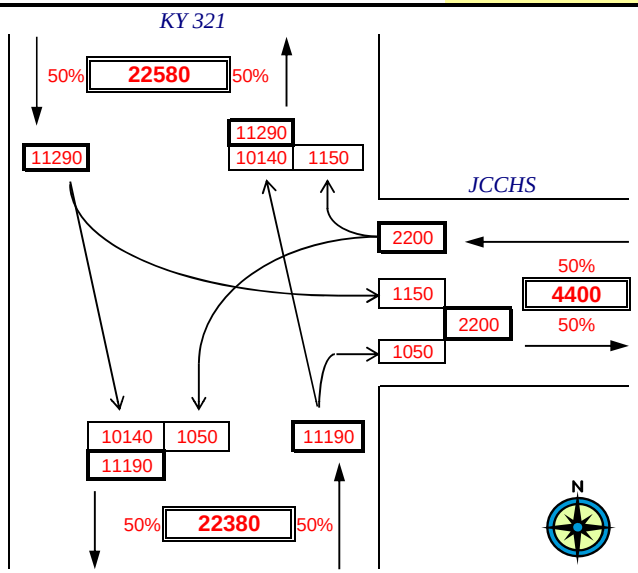


PROJECT: KY 321
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T7: KY 321 & JCCHS Entrance

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

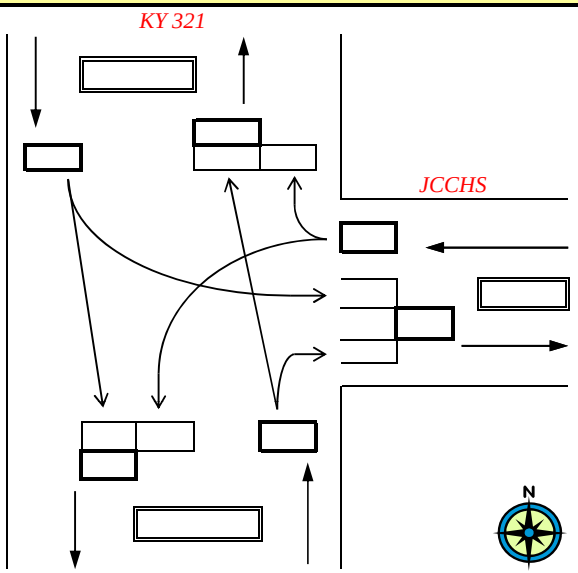
**DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS

2035 ADT



Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour



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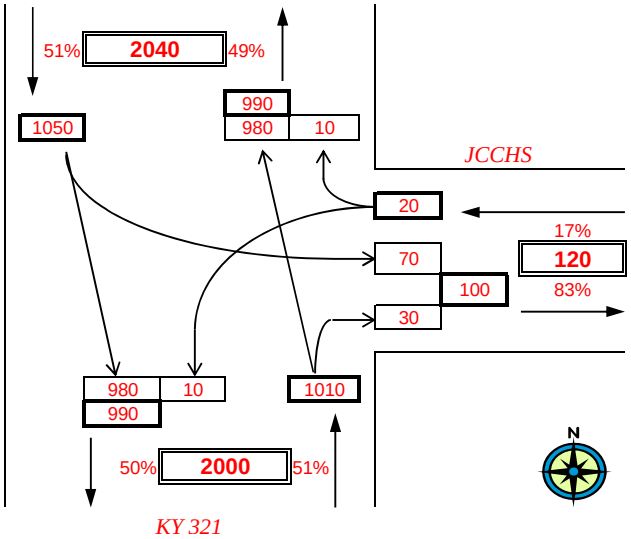
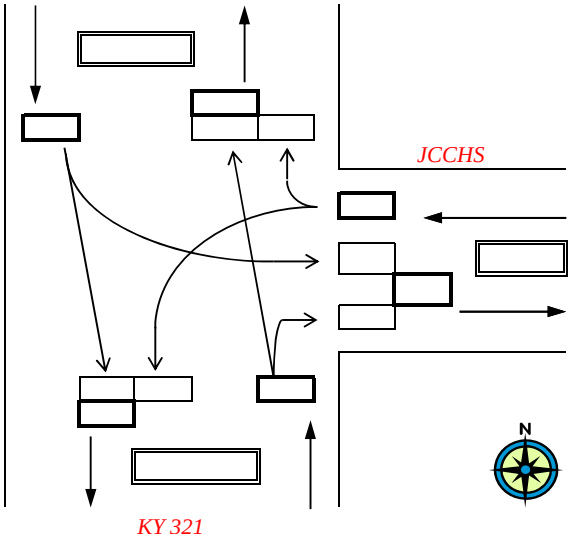
2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.83 for a Peak Hour Analysis. Movements may not all occur during same hour

2035 PM Design Hour



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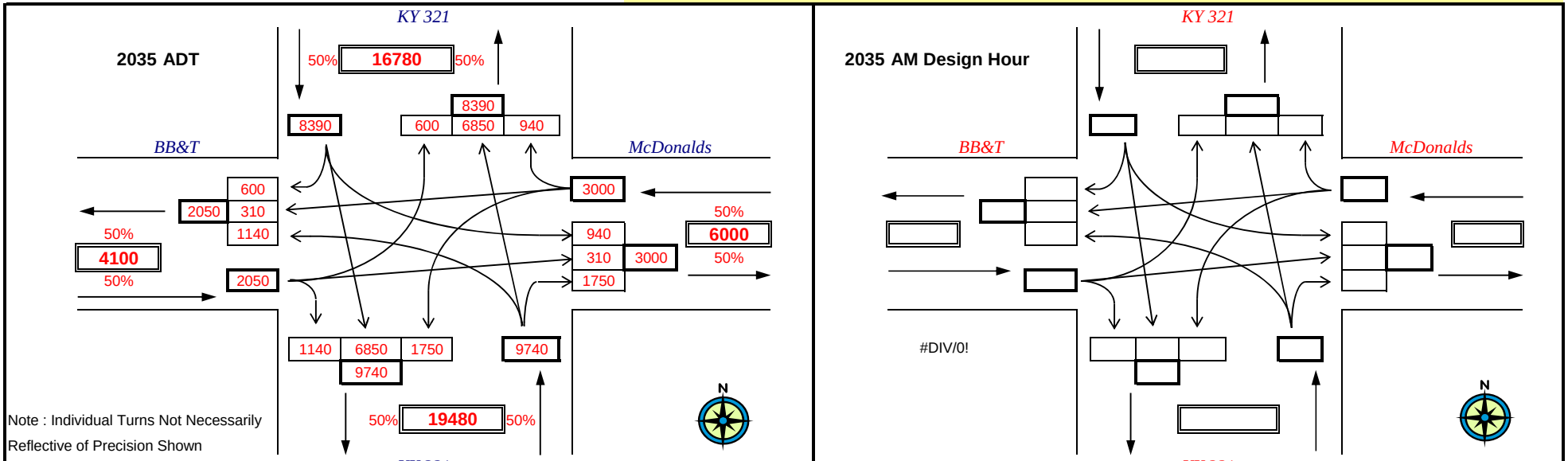
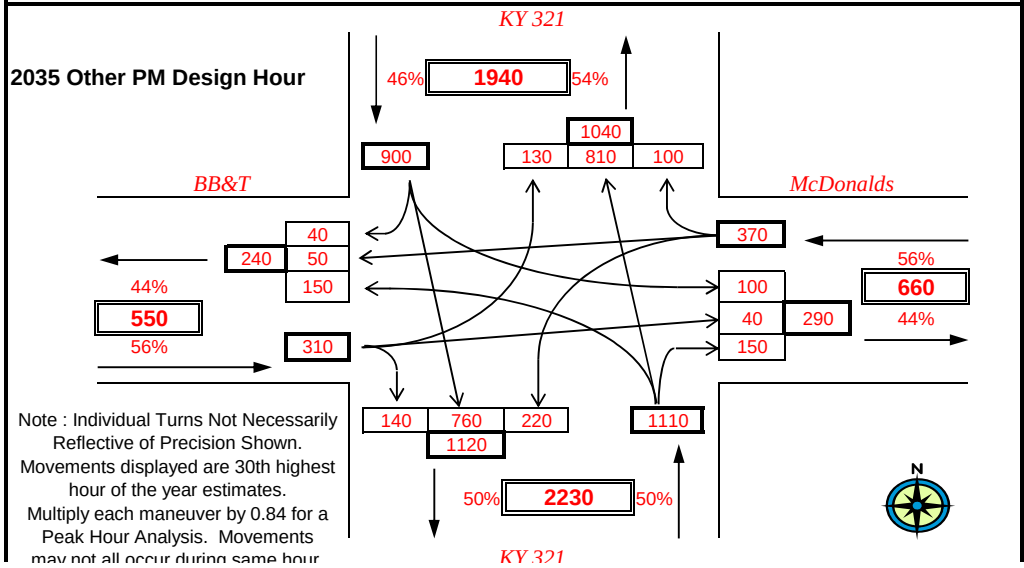
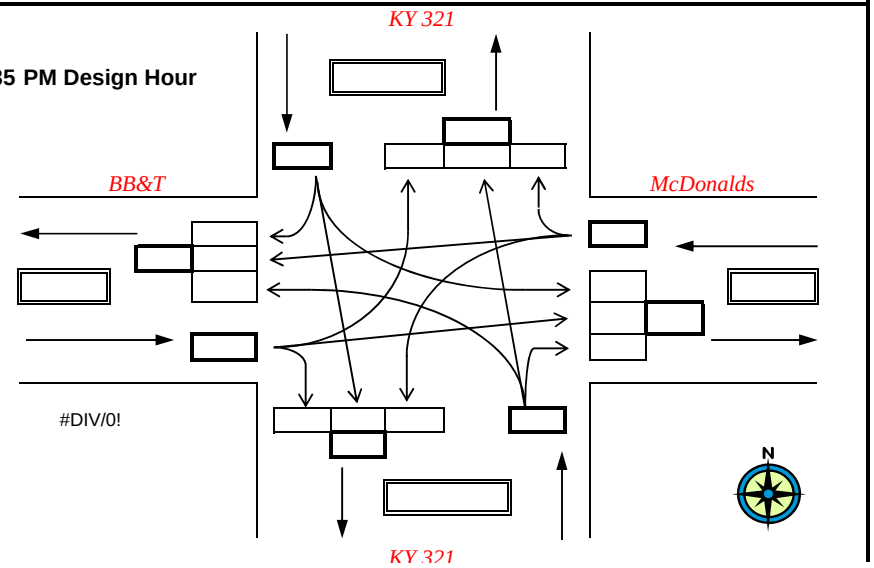
PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T8: KY 321 & McDonalds/BB&T

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**





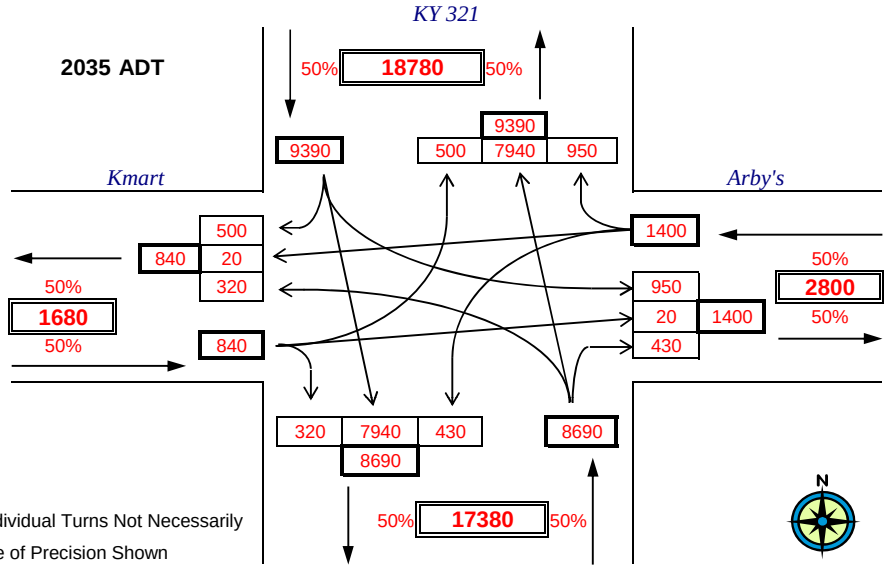


PROJECT: KY 321 Paintsville
ITEM NUMBER:
MARS NUMBER:
REQUEST DATE:
ANALYST: JJL
SCENARIO: **2035 ADT and Design Hour Volumes**
INTERSECTION: T9: KY 321 & Kmart

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2008 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

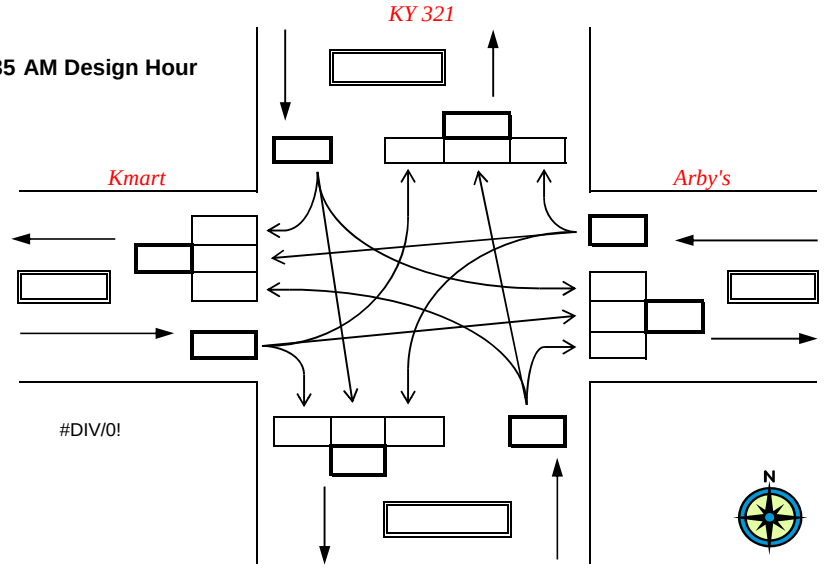
***DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS**

2035 ADT

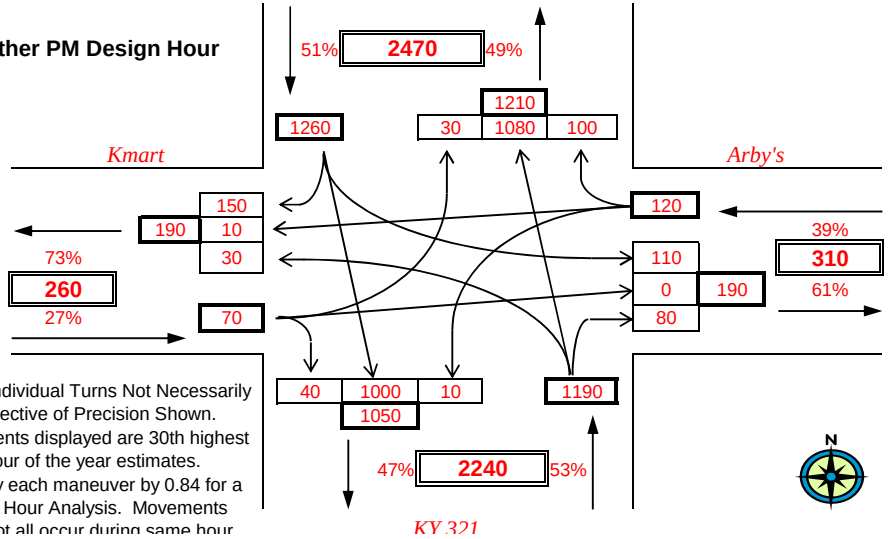


Note : Individual Turns Not Necessarily Reflective of Precision Shown

2035 AM Design Hour

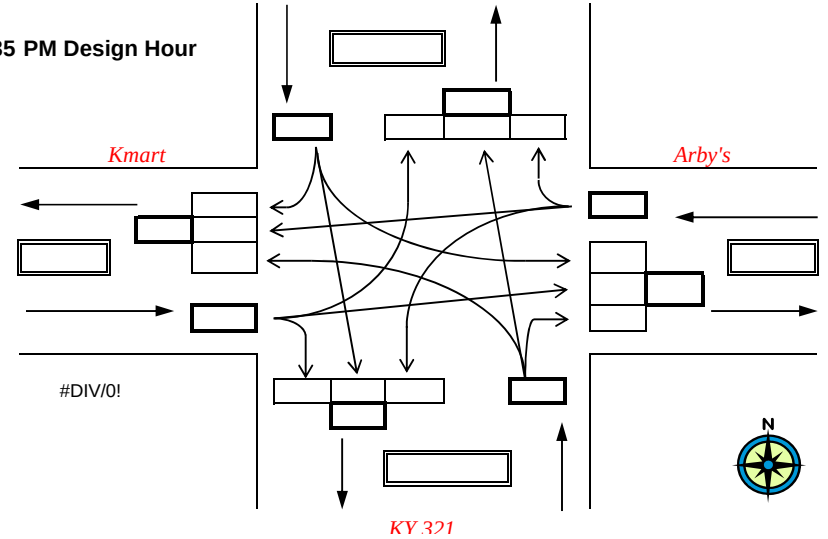


2035 Other PM Design Hour



Note : Individual Turns Not Necessarily Reflective of Precision Shown. Movements displayed are 30th highest hour of the year estimates. Multiply each maneuver by 0.84 for a Peak Hour Analysis. Movements may not all occur during same hour

2035 PM Design Hour

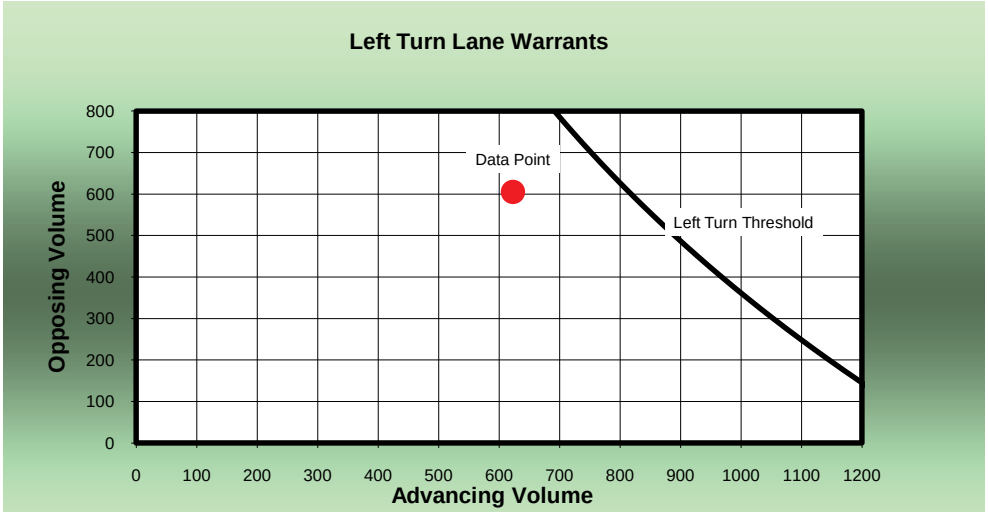


NORTHBOUND EXISTING AND NO - BUILD

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	610	No. of through lanes	1
Opposing Volume (vph)	605	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	610		

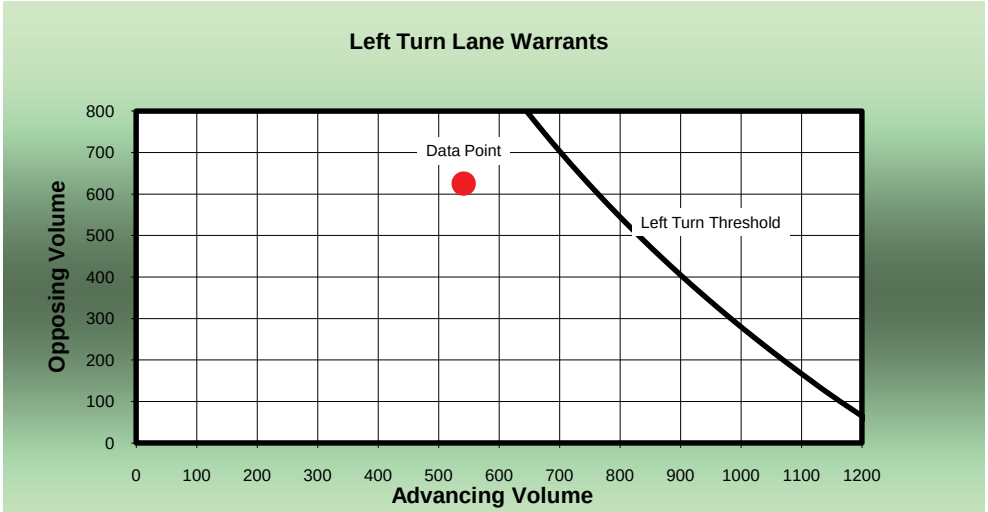
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	530	No. of through lanes	1
Opposing Volume (vph)	625	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	530		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	620	No. of through lanes	1
Opposing Volume (vph)	695	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	620		

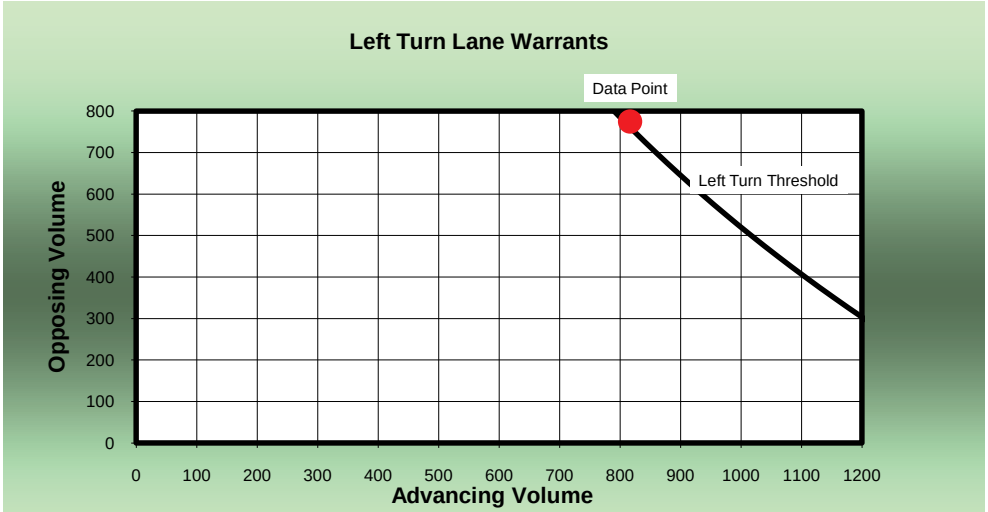
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	795	No. of through lanes	1
Opposing Volume (vph)	775	Percent Heavy Vehicles (decimal percent)	0.05



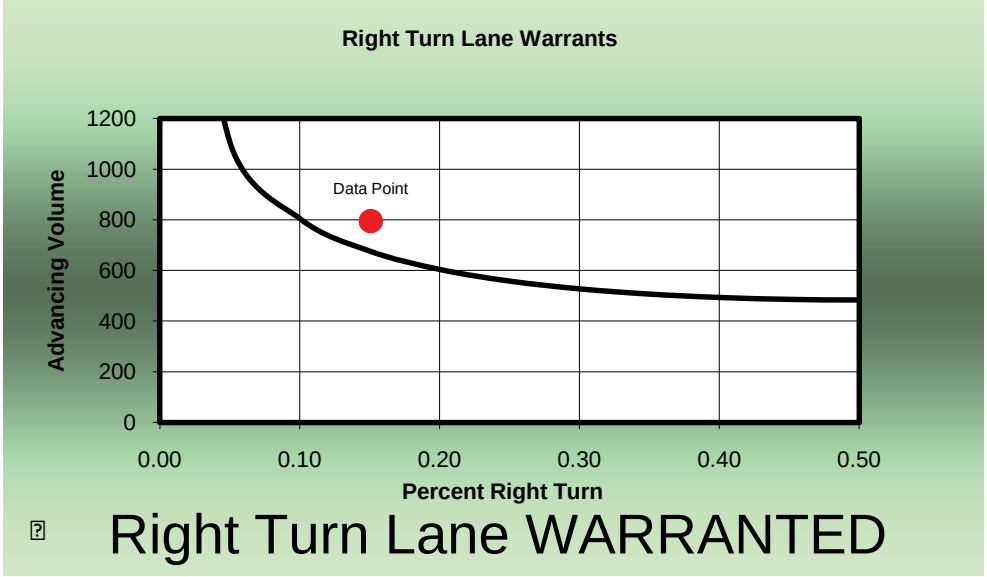
Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	795		

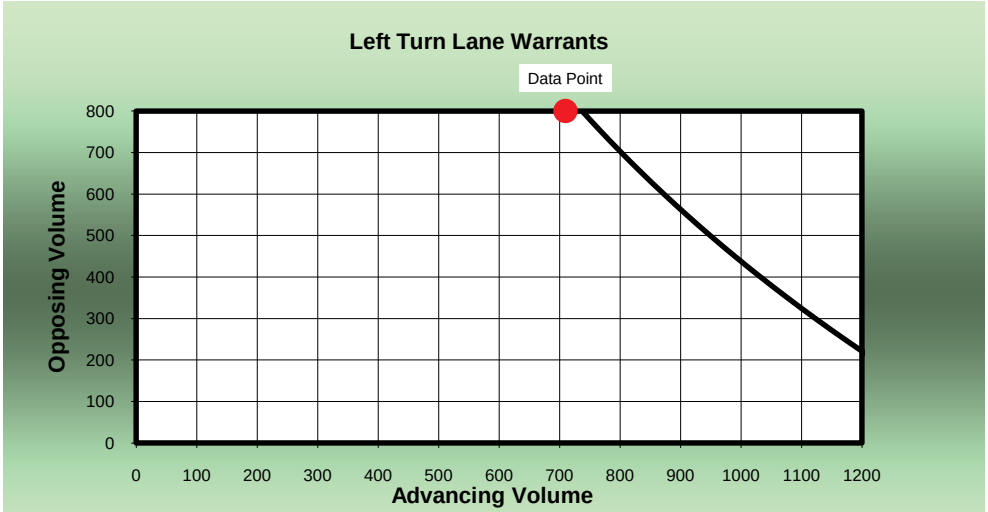


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	690	No. of through lanes	1
Opposing Volume (vph)	810	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	690		

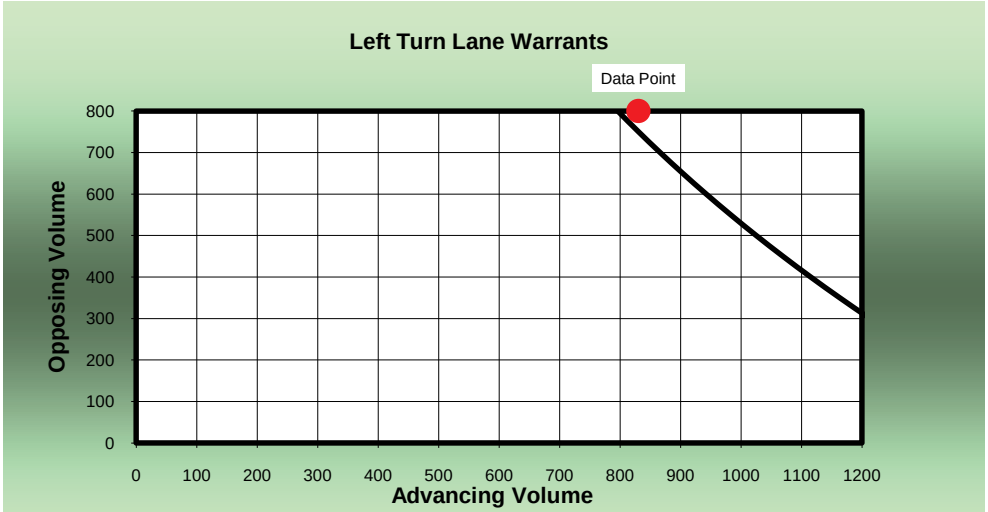
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	805	No. of through lanes	1
Opposing Volume (vph)	890	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	805		

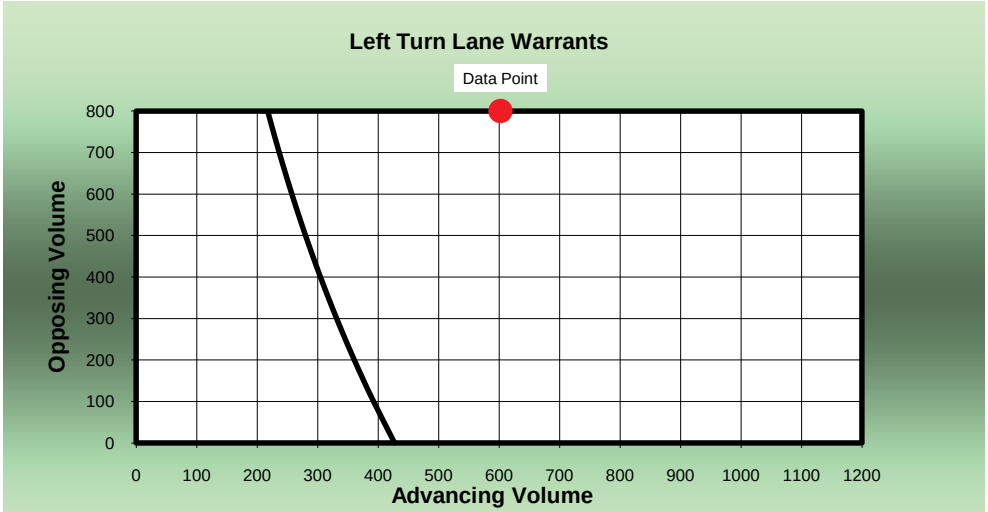
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	580	No. of through lanes	1
Opposing Volume (vph)	1090	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	580		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	240	Speed Limit (mph)	45
Advancing Volume (vph)	850	No. of through lanes	1
Opposing Volume (vph)	870	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	850		

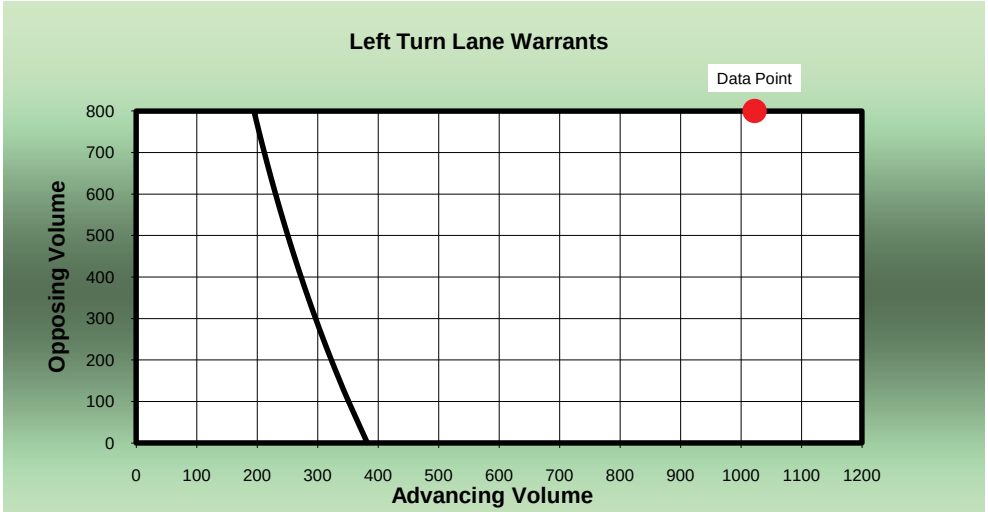
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	280	Speed Limit (mph)	45
Advancing Volume (vph)	990	No. of through lanes	1
Opposing Volume (vph)	930	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	990		

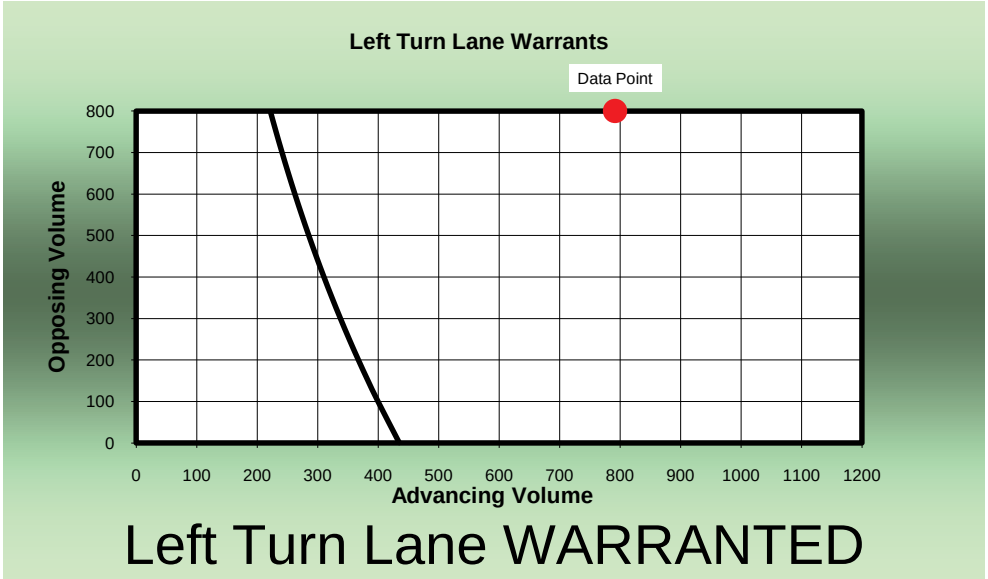
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	755	No. of through lanes	1
Opposing Volume (vph)	1395	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	755		

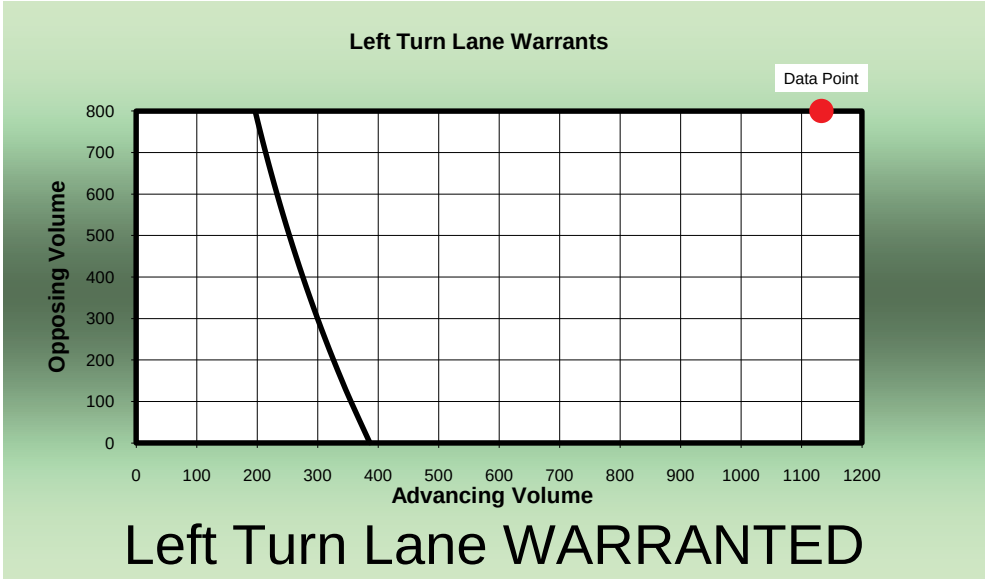
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	300	Speed Limit (mph)	45
Advancing Volume (vph)	1090	No. of through lanes	1
Opposing Volume (vph)	1120	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	1090		

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	350	Speed Limit (mph)	45
Advancing Volume (vph)	1275	No. of through lanes	1
Opposing Volume (vph)	1190	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	1275		

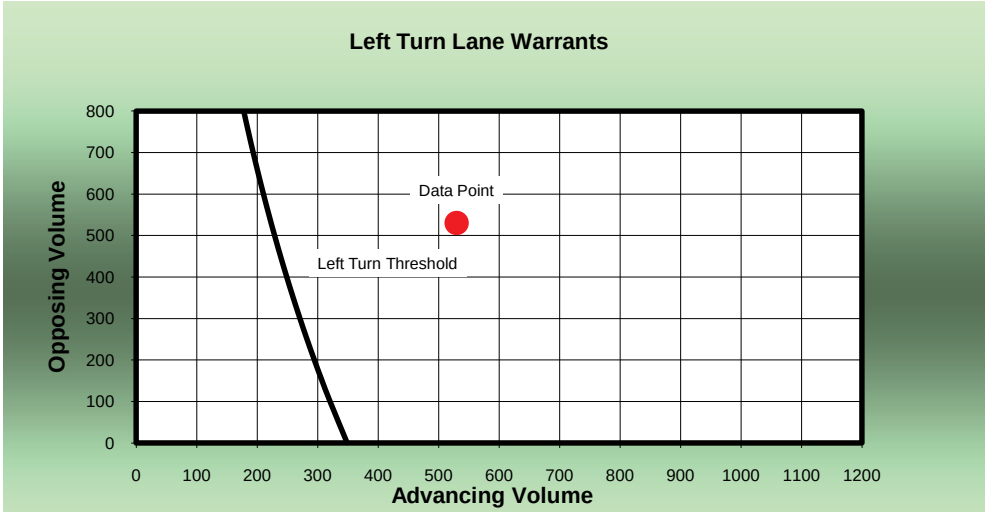
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	320	Speed Limit (mph)	45
Advancing Volume (vph)	520	No. of through lanes	1
Opposing Volume (vph)	530	Percent Heavy Vehicles (decimal percent)	0.05



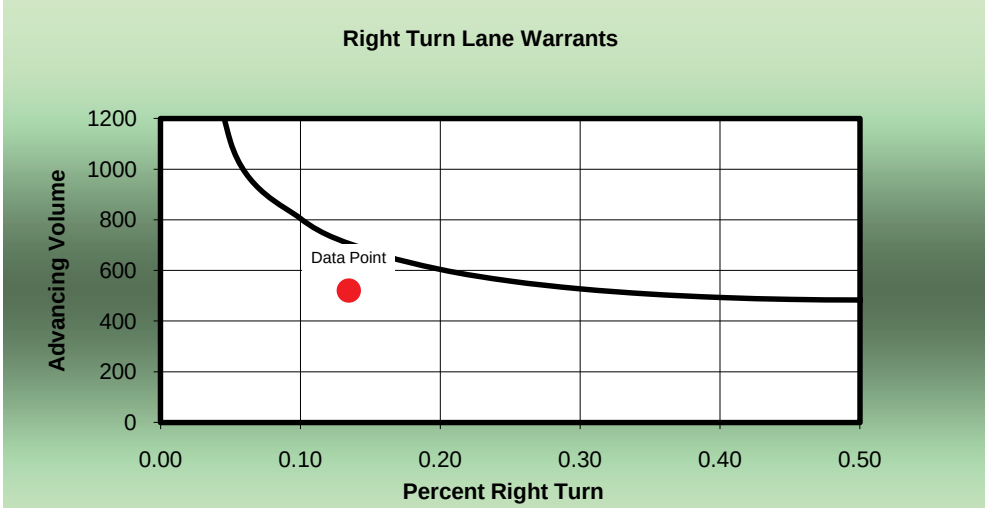
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	520		



Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	510	Speed Limit (mph)	45
Advancing Volume (vph)	920	No. of through lanes	1
Opposing Volume (vph)	330	Percent Heavy Vehicles (decimal percent)	0.05

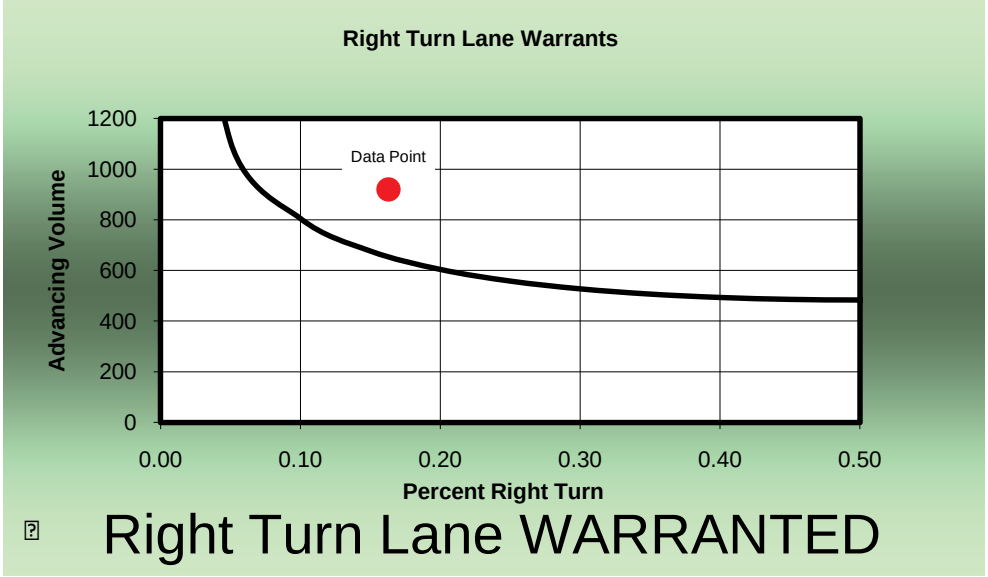
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	920		



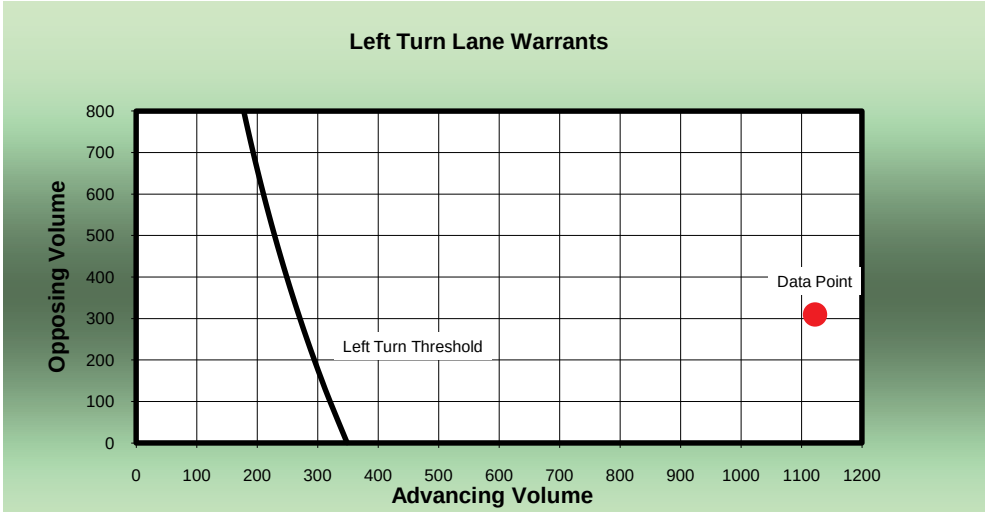
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	680	Speed Limit (mph)	45
Advancing Volume (vph)	1110	No. of through lanes	1
Opposing Volume (vph)	310	Percent Heavy Vehicles (decimal percent)	0.05



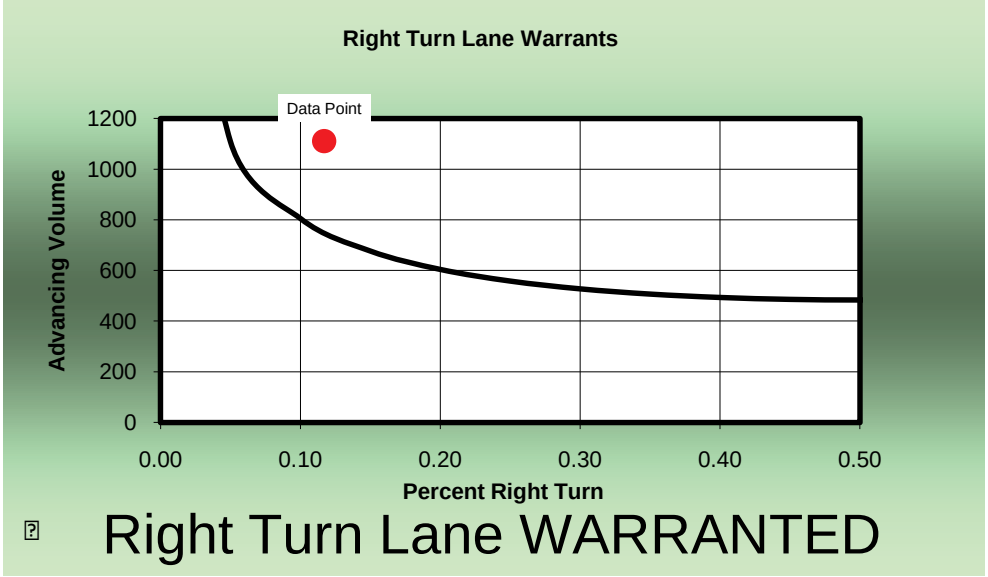
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	130	Speed Limit (mph)	45
Advancing Volume (vph)	1110		



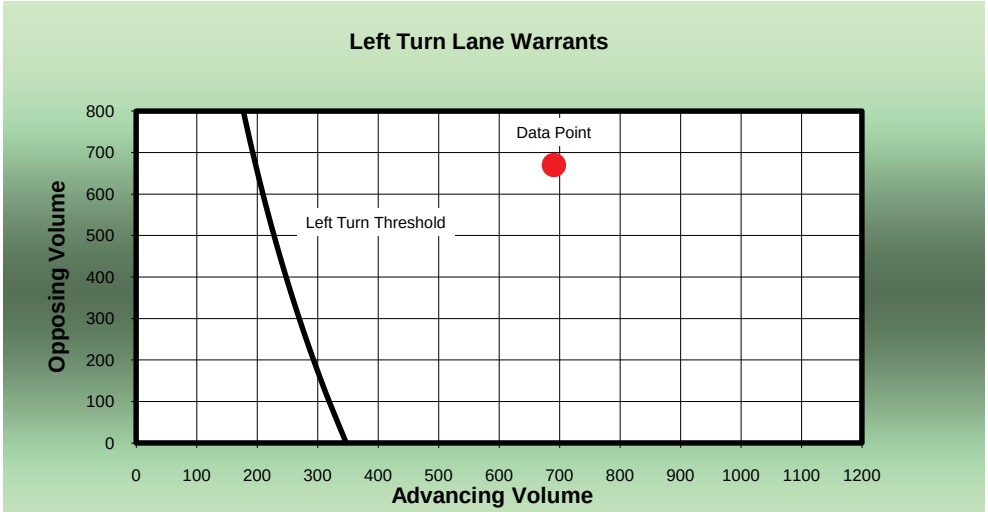
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	410	Speed Limit (mph)	45
Advancing Volume (vph)	675	No. of through lanes	1
Opposing Volume (vph)	670	Percent Heavy Vehicles (decimal percent)	0.05



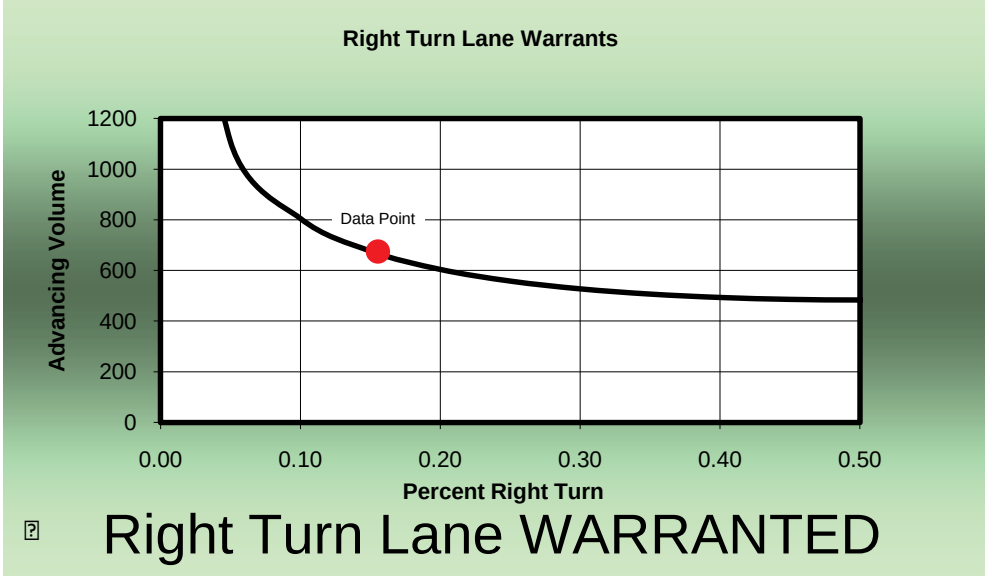
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	105	Speed Limit (mph)	45
Advancing Volume (vph)	675		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	650	Speed Limit (mph)	45
Advancing Volume (vph)	1190	No. of through lanes	1
Opposing Volume (vph)	420	Percent Heavy Vehicles (decimal percent)	0.05

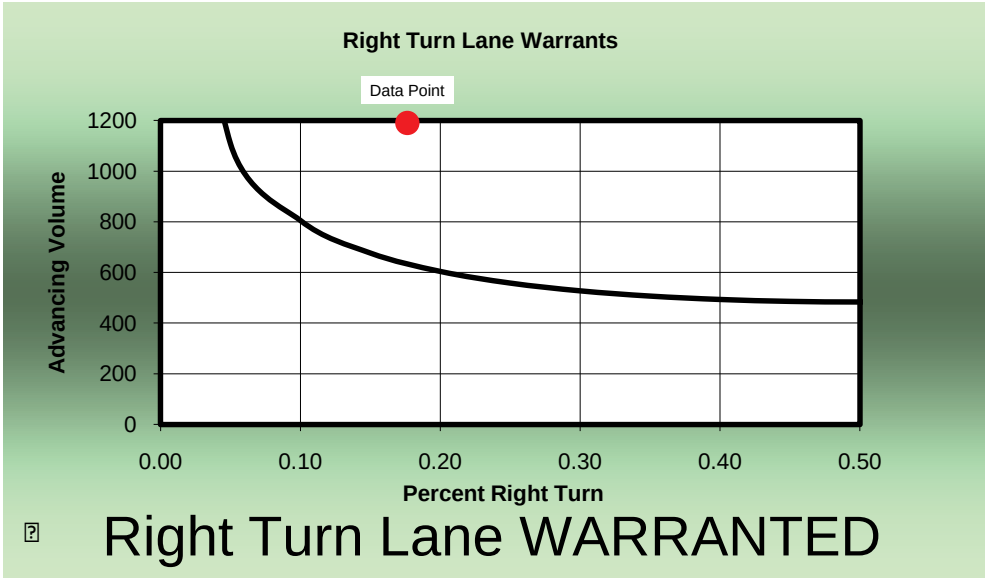
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	210	Speed Limit (mph)	45
Advancing Volume (vph)	1190		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	860	Speed Limit (mph)	45
Advancing Volume (vph)	1425	No. of through lanes	1
Opposing Volume (vph)	390	Percent Heavy Vehicles (decimal percent)	0.05

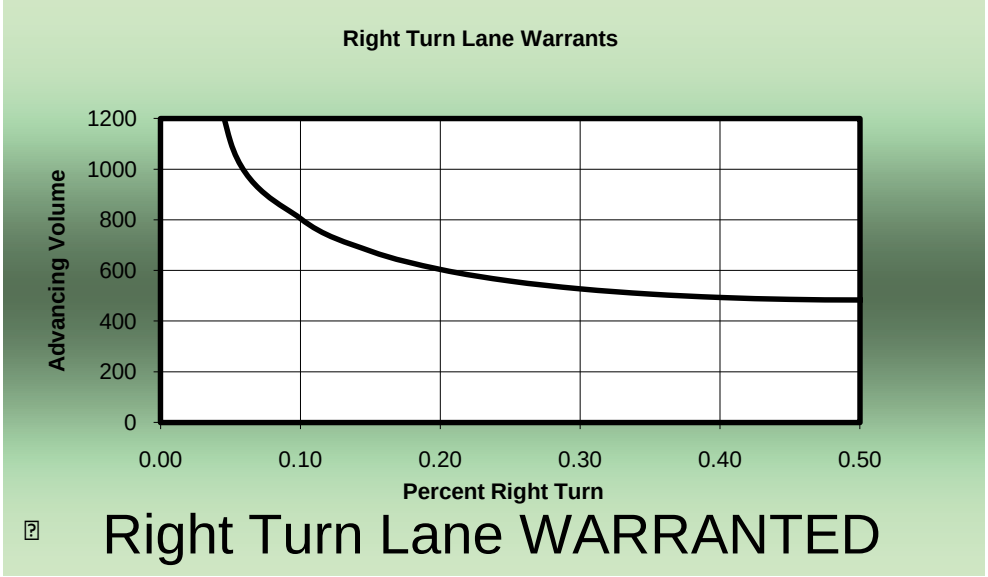
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	185	Speed Limit (mph)	45
Advancing Volume (vph)	1425		

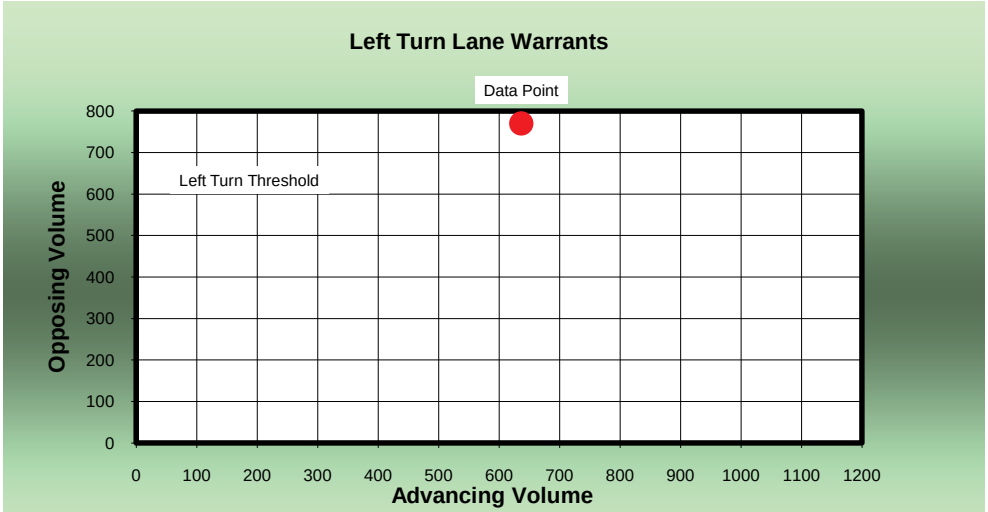


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	620	No. of through lanes	1
Opposing Volume (vph)	770	Percent Heavy Vehicles (decimal percent)	0.05



#DIV/0!

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	620		

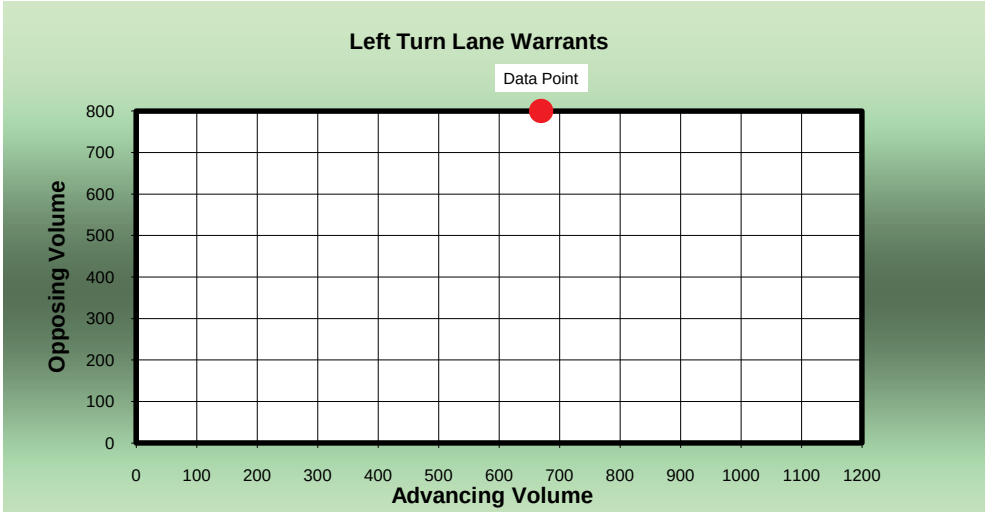
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	650	No. of through lanes	1
Opposing Volume (vph)	850	Percent Heavy Vehicles (decimal percent)	0.05



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Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	650		

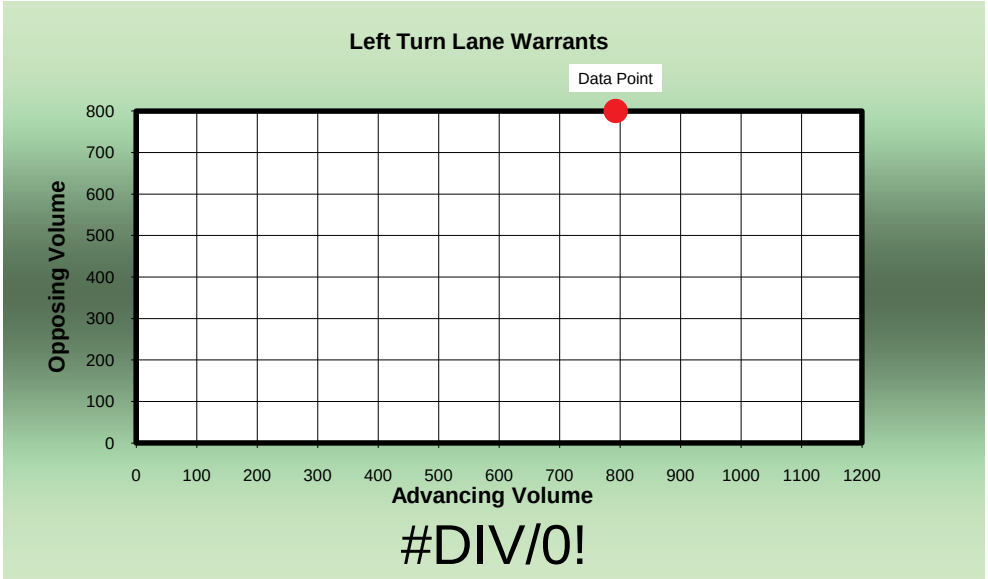
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	770	No. of through lanes	1
Opposing Volume (vph)	840	Percent Heavy Vehicles (decimal percent)	0.05



#DIV/0!

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	770		

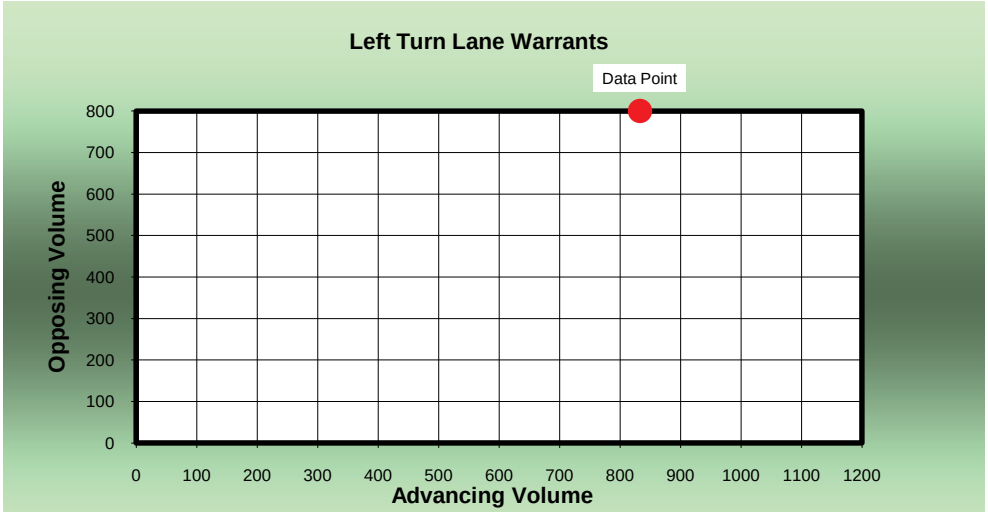
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	805	No. of through lanes	1
Opposing Volume (vph)	985	Percent Heavy Vehicles (decimal percent)	0.05



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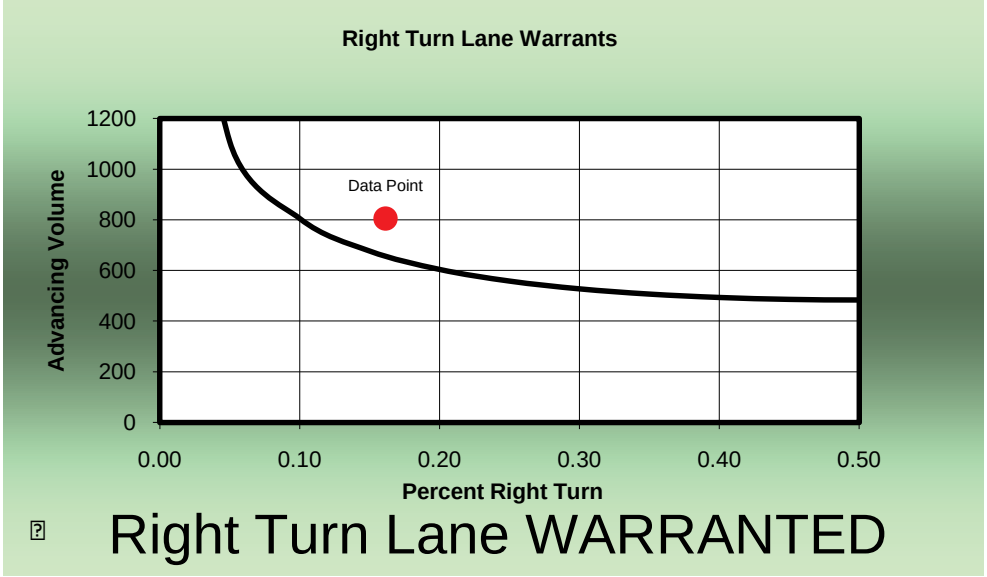
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	130	Speed Limit (mph)	45
Advancing Volume (vph)	805		



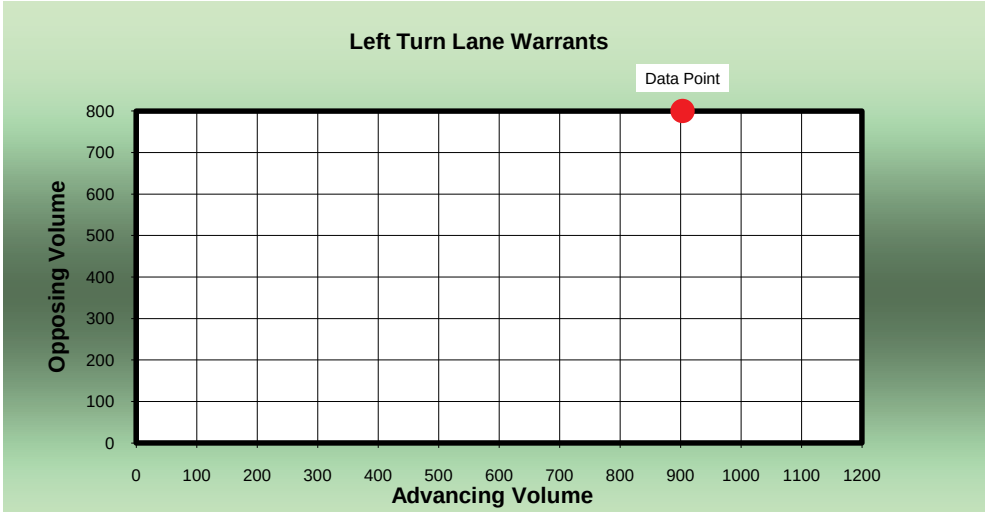
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	870	No. of through lanes	1
Opposing Volume (vph)	1100	Percent Heavy Vehicles (decimal percent)	0.05



#DIV/0!

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	840		

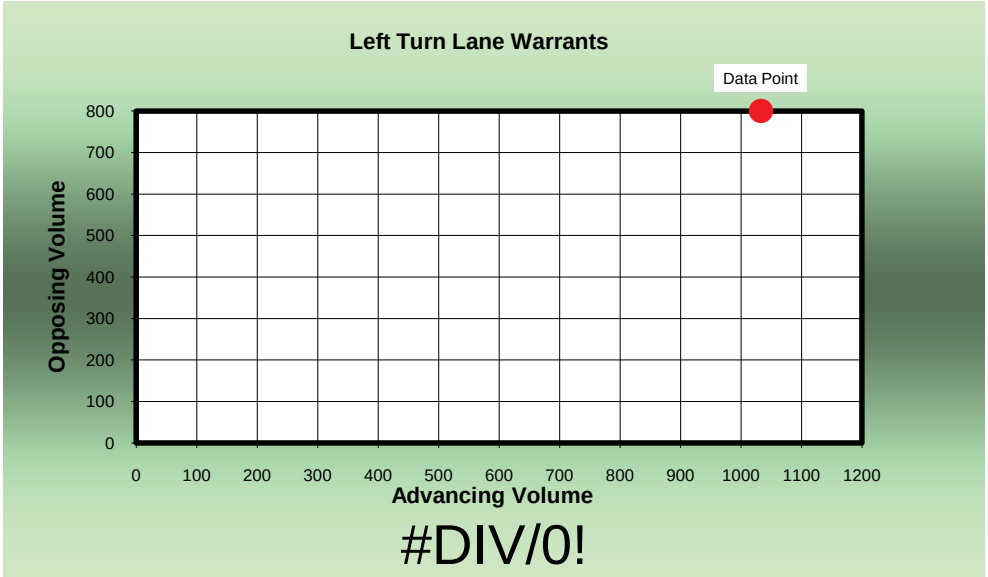
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	995	No. of through lanes	1
Opposing Volume (vph)	1080	Percent Heavy Vehicles (decimal percent)	0.05



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Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	995		

Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	790	No. of through lanes	1
Opposing Volume (vph)	820	Percent Heavy Vehicles (decimal percent)	0.05

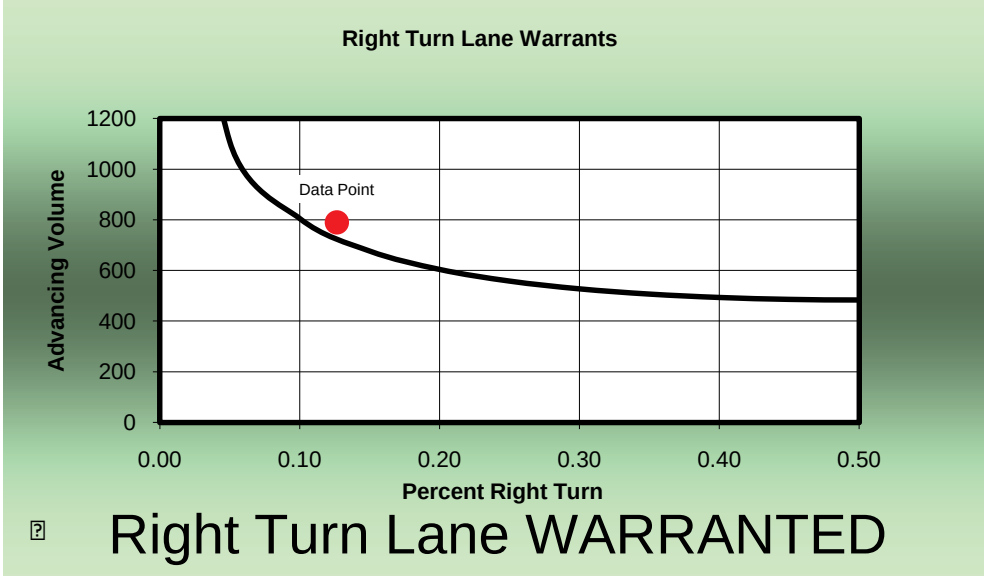
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	790		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	885	No. of through lanes	1
Opposing Volume (vph)	840	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	5	Speed Limit (mph)	45
Advancing Volume (vph)	885		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	930	No. of through lanes	1
Opposing Volume (vph)	990	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	930		

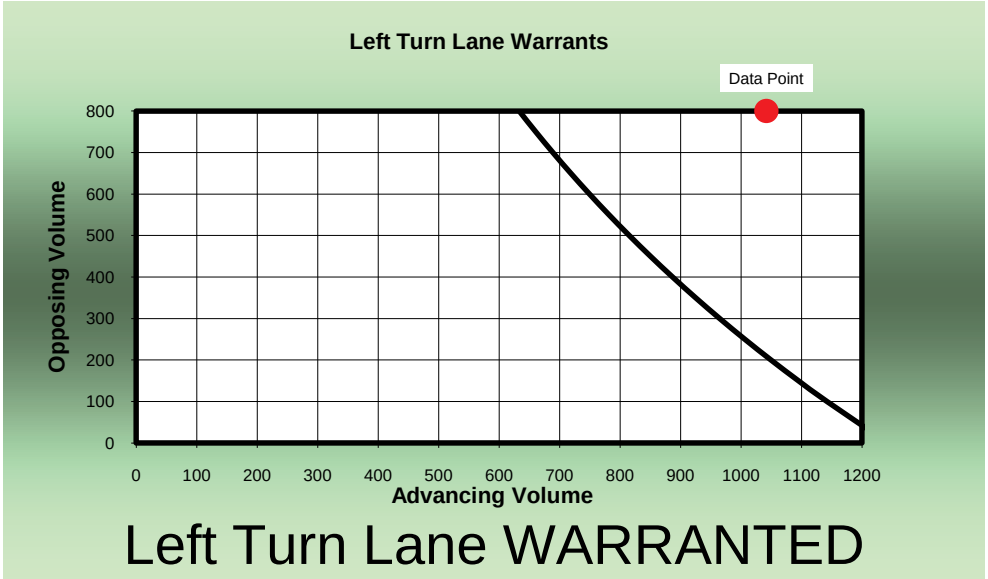
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	1005	No. of through lanes	1
Opposing Volume (vph)	1045	Percent Heavy Vehicles (decimal percent)	0.05



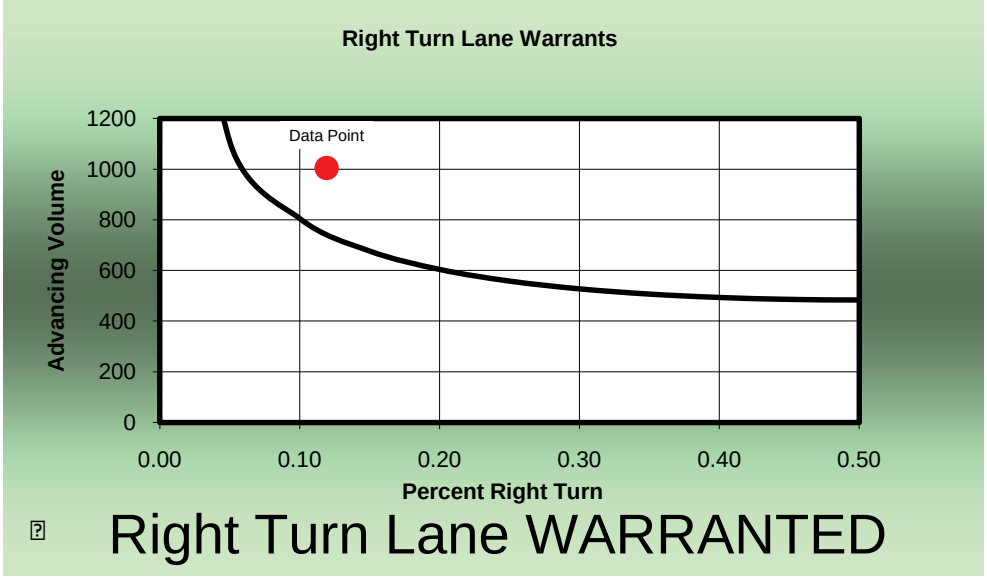
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	1005		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	920	No. of through lanes	1
Opposing Volume (vph)	1080	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	920		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

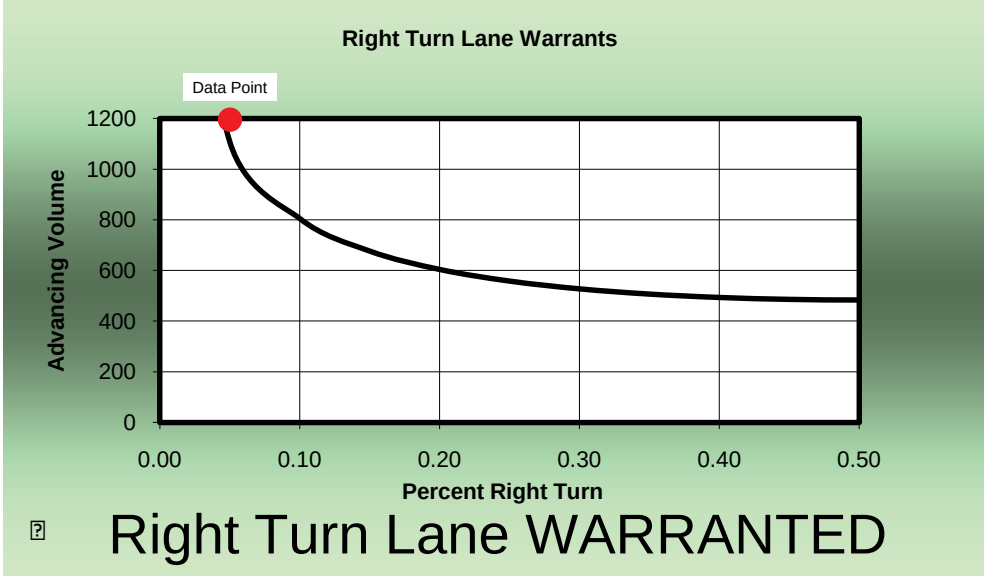
Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	1195	No. of through lanes	1
Opposing Volume (vph)	1270	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	1195		



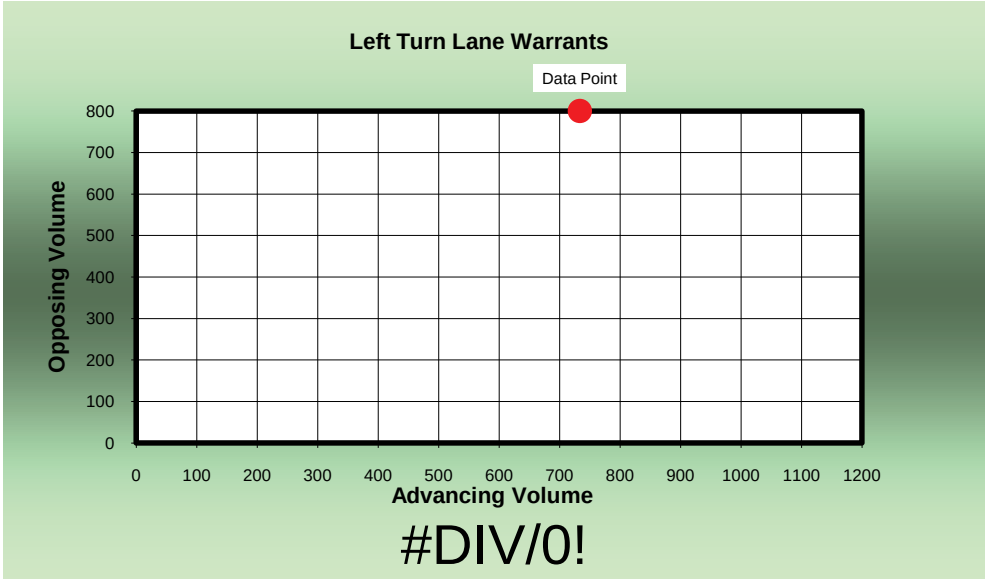
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	710	No. of through lanes	1
Opposing Volume (vph)	940	Percent Heavy Vehicles (decimal percent)	0.05



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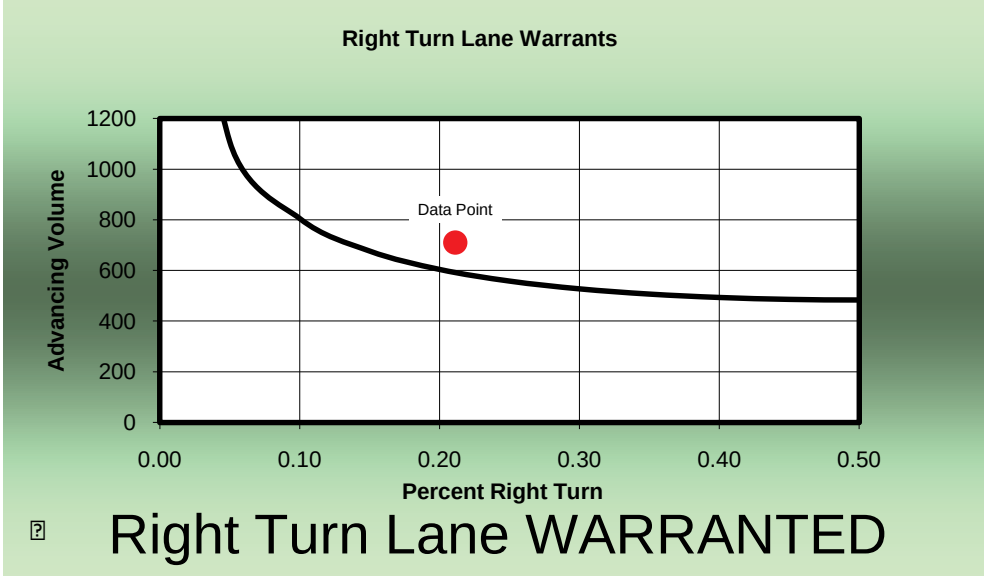
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	710		



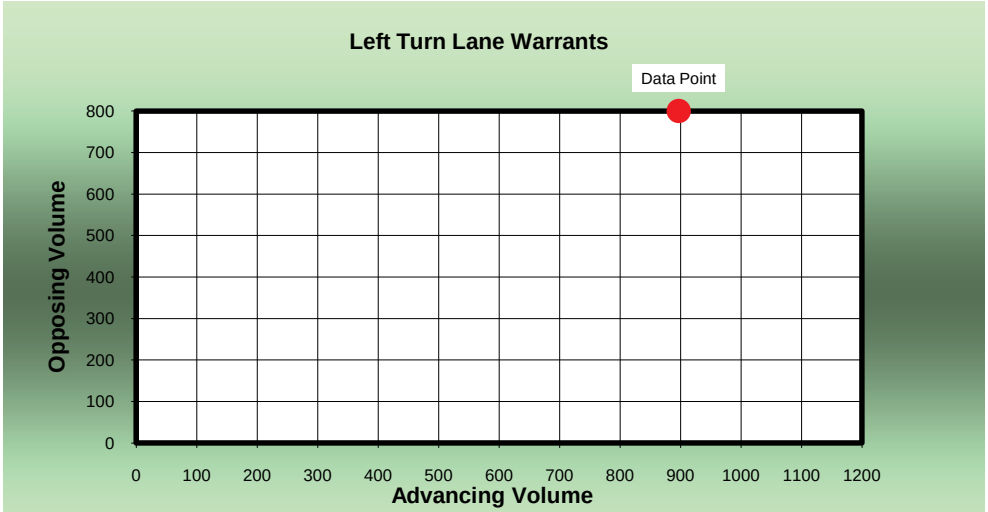
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	870	No. of through lanes	1
Opposing Volume (vph)	890	Percent Heavy Vehicles (decimal percent)	0.05



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Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	870		

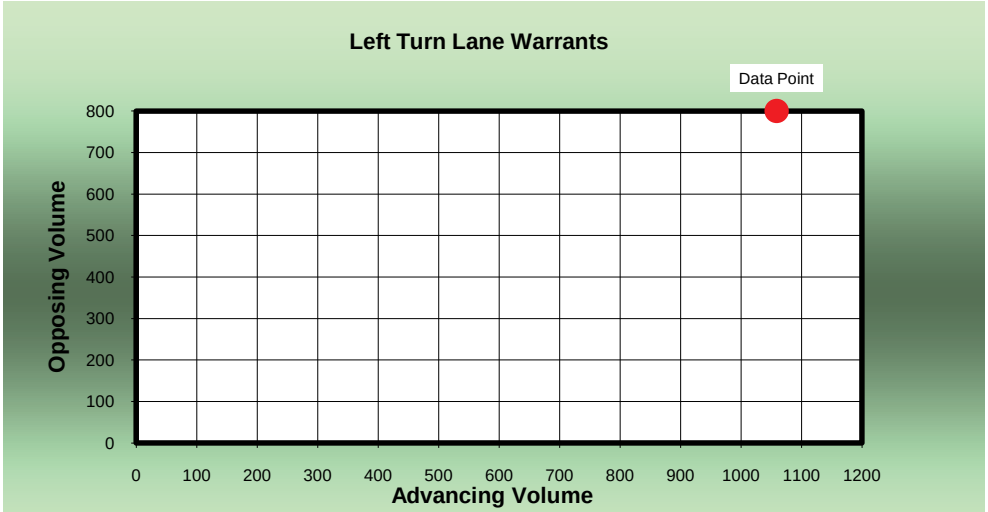
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1020	No. of through lanes	1
Opposing Volume (vph)	1080	Percent Heavy Vehicles (decimal percent)	0.05



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Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	1020		

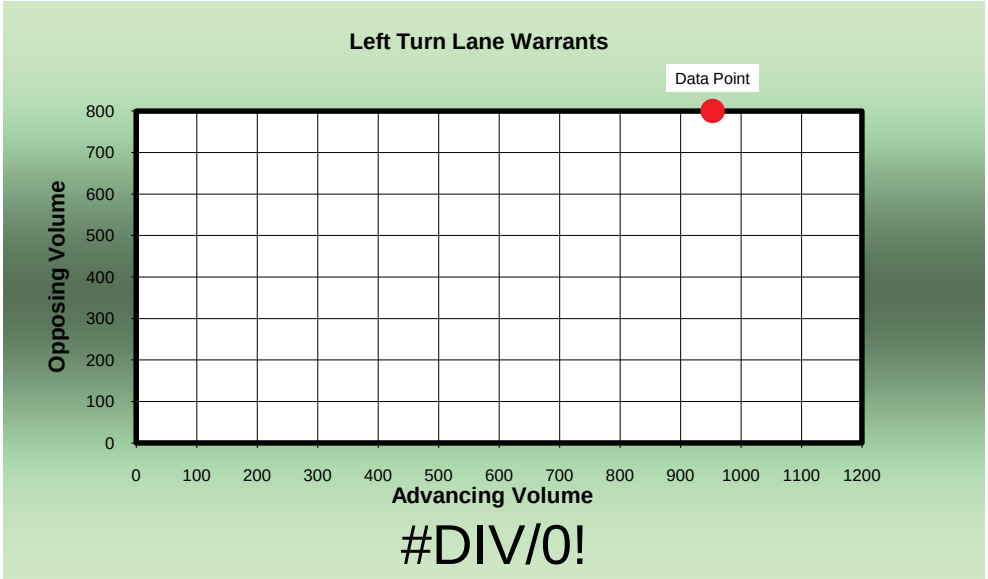
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	915	No. of through lanes	1
Opposing Volume (vph)	1185	Percent Heavy Vehicles (decimal percent)	0.05



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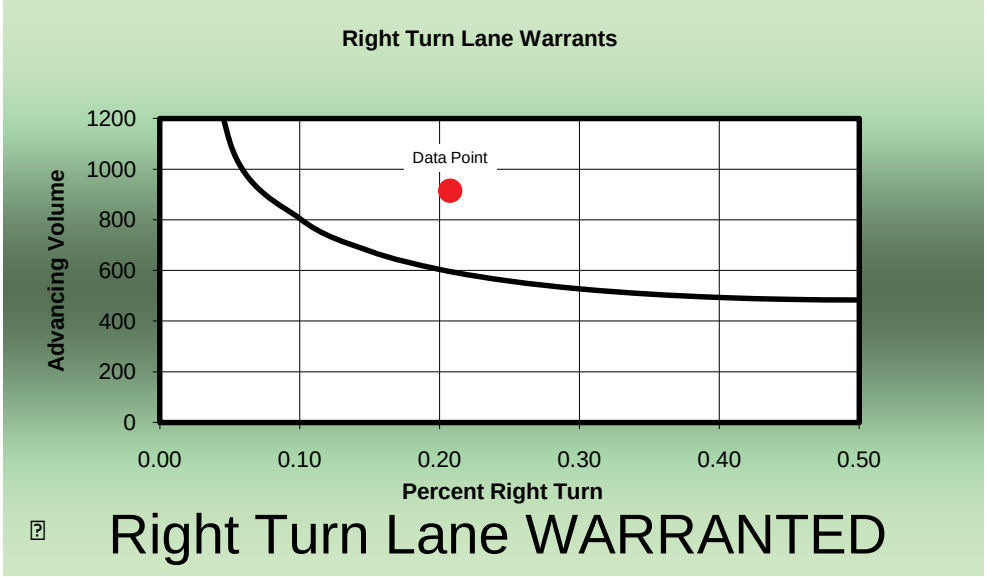
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	915		

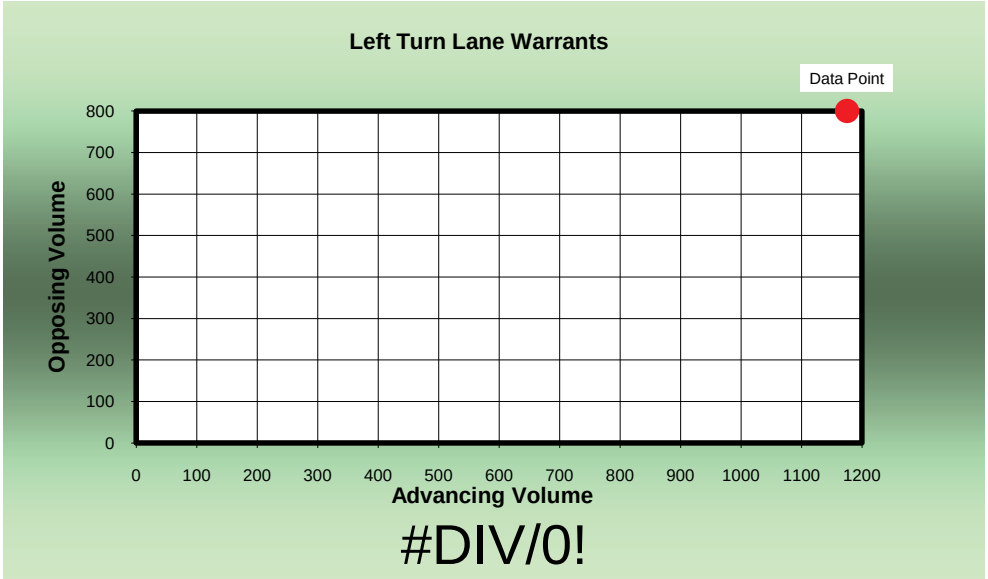


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1130	No. of through lanes	1
Opposing Volume (vph)	1140	Percent Heavy Vehicles (decimal percent)	0.05



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Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	1130		

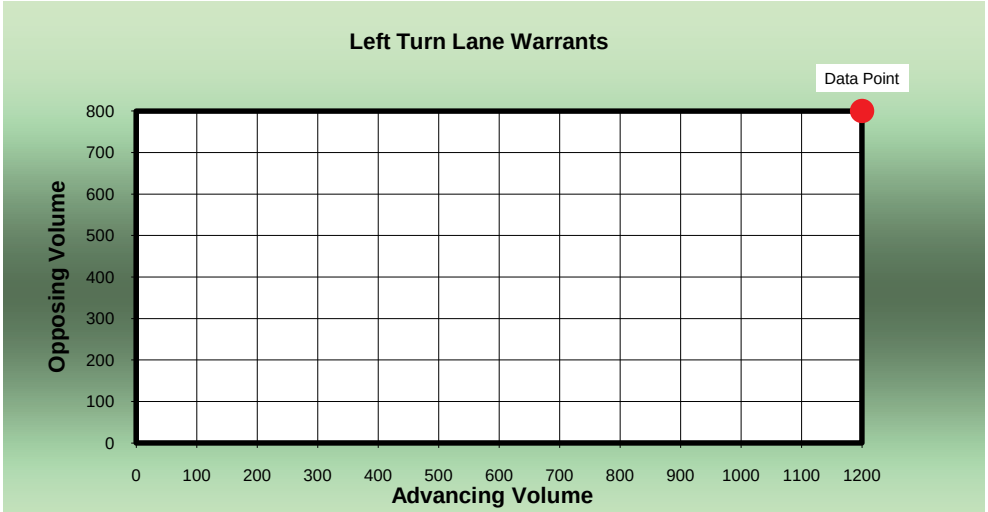
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1315	No. of through lanes	1
Opposing Volume (vph)	1380	Percent Heavy Vehicles (decimal percent)	0.05



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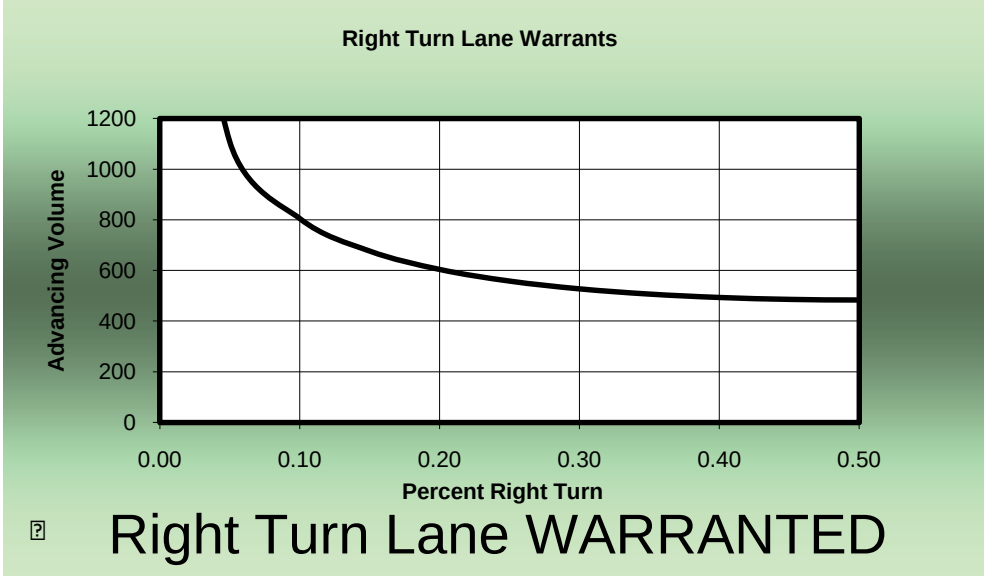
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	1315		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	610	No. of through lanes	1
Opposing Volume (vph)	910	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	610		

Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	870	No. of through lanes	1
Opposing Volume (vph)	680	Percent Heavy Vehicles (decimal percent)	0.05

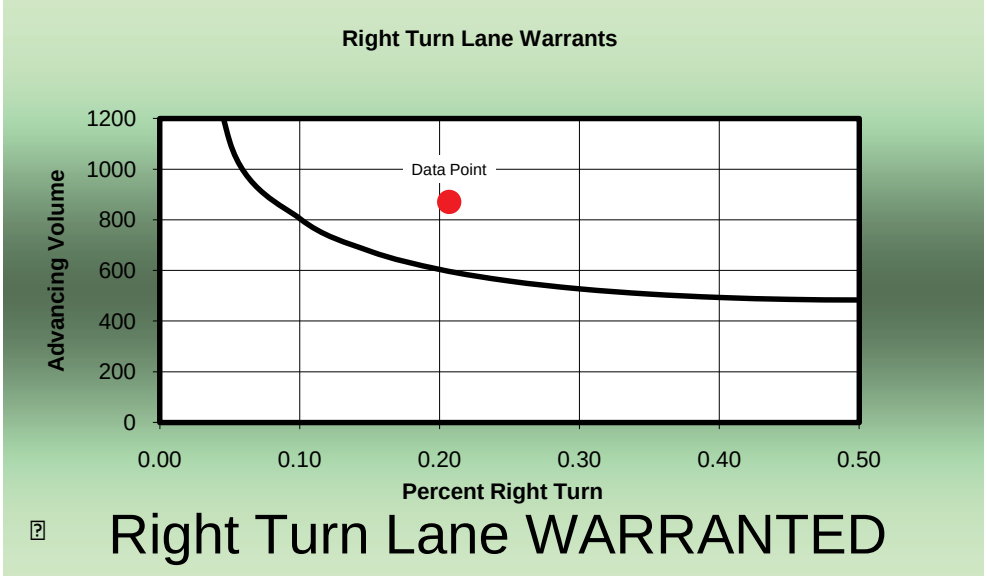
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	180	Speed Limit (mph)	45
Advancing Volume (vph)	870		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	110	Speed Limit (mph)	45
Advancing Volume (vph)	970	No. of through lanes	1
Opposing Volume (vph)	640	Percent Heavy Vehicles (decimal percent)	0.05

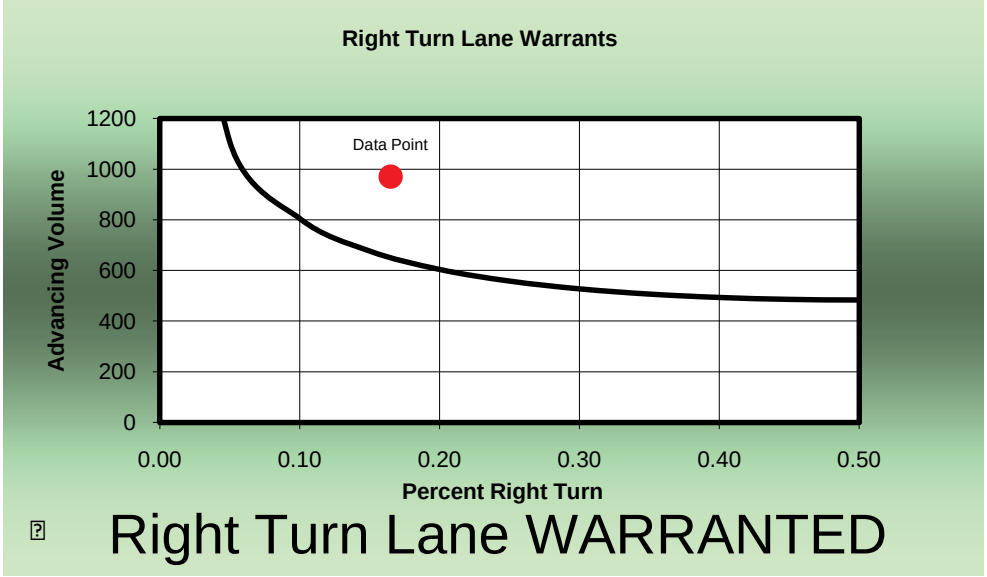
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	160	Speed Limit (mph)	45
Advancing Volume (vph)	970		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	795	No. of through lanes	1
Opposing Volume (vph)	1165	Percent Heavy Vehicles (decimal percent)	0.05

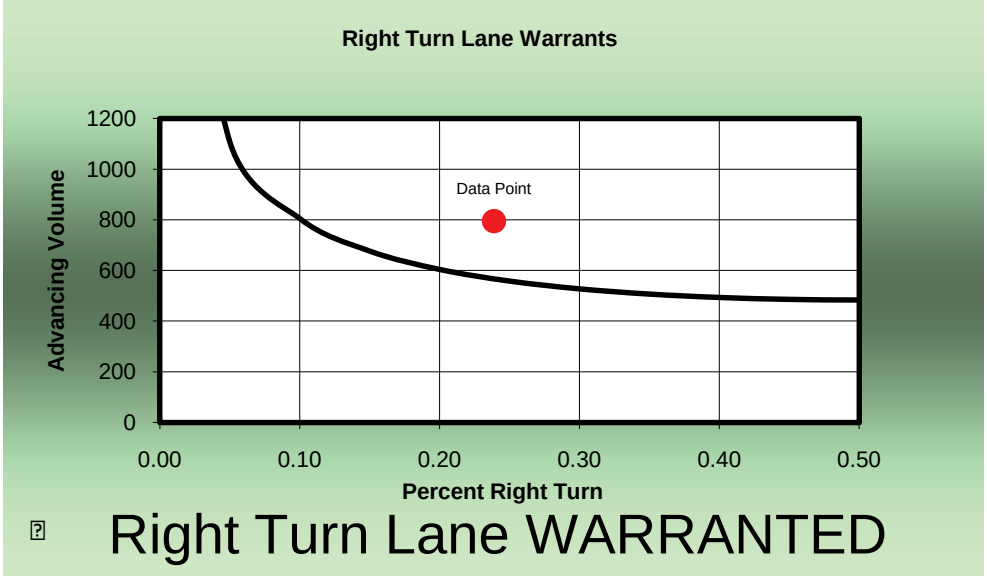
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	795		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

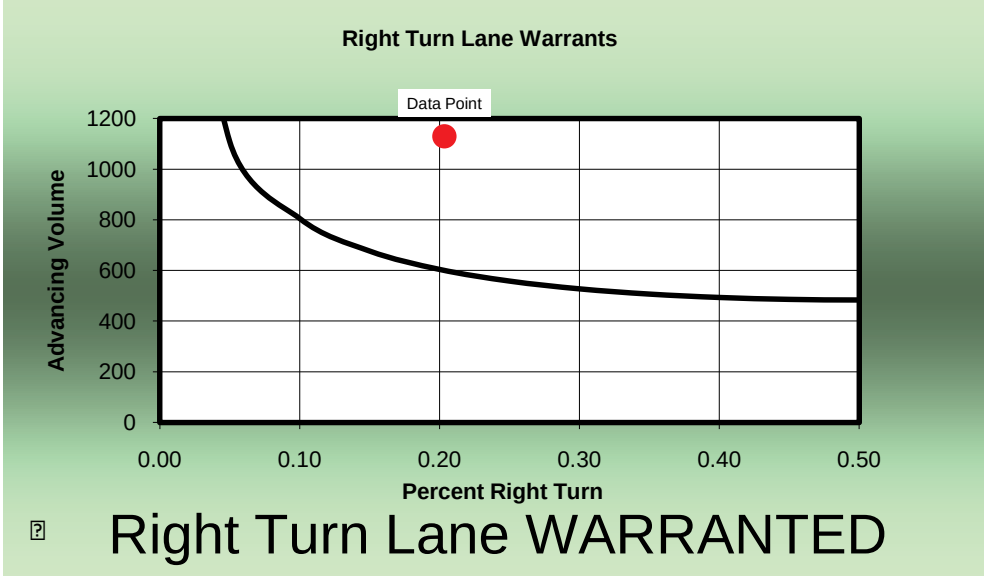
Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	1130	No. of through lanes	1
Opposing Volume (vph)	870	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	1130		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

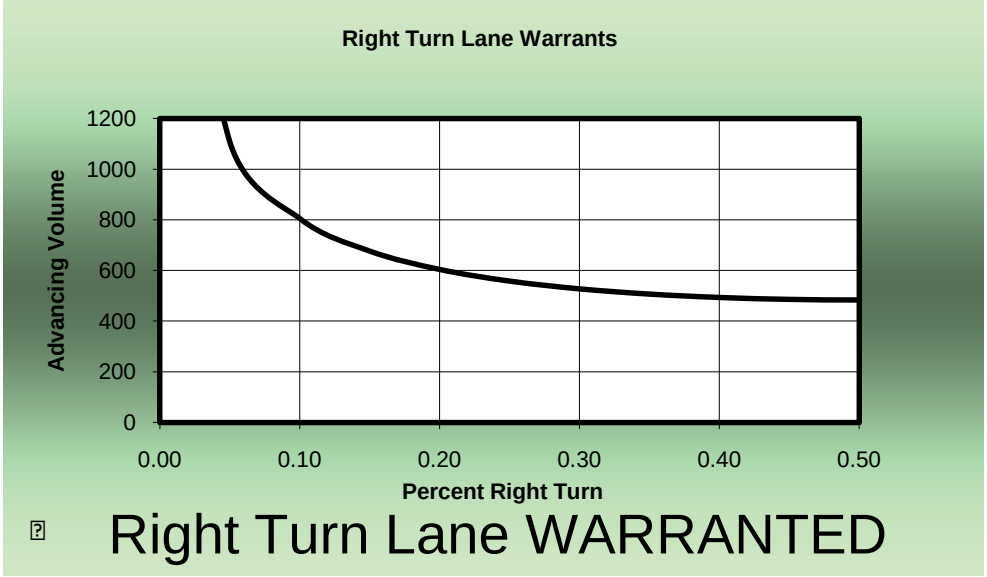
Left Turn Volume (vph)	140	Speed Limit (mph)	45
Advancing Volume (vph)	1245	No. of through lanes	1
Opposing Volume (vph)	820	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	200	Speed Limit (mph)	45
Advancing Volume (vph)	1245		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	5	Speed Limit (mph)	45
Advancing Volume (vph)	585	No. of through lanes	1
Opposing Volume (vph)	1080	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	585		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	850	No. of through lanes	1
Opposing Volume (vph)	900	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	850		

Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	950	No. of through lanes	1
Opposing Volume (vph)	800	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	950		

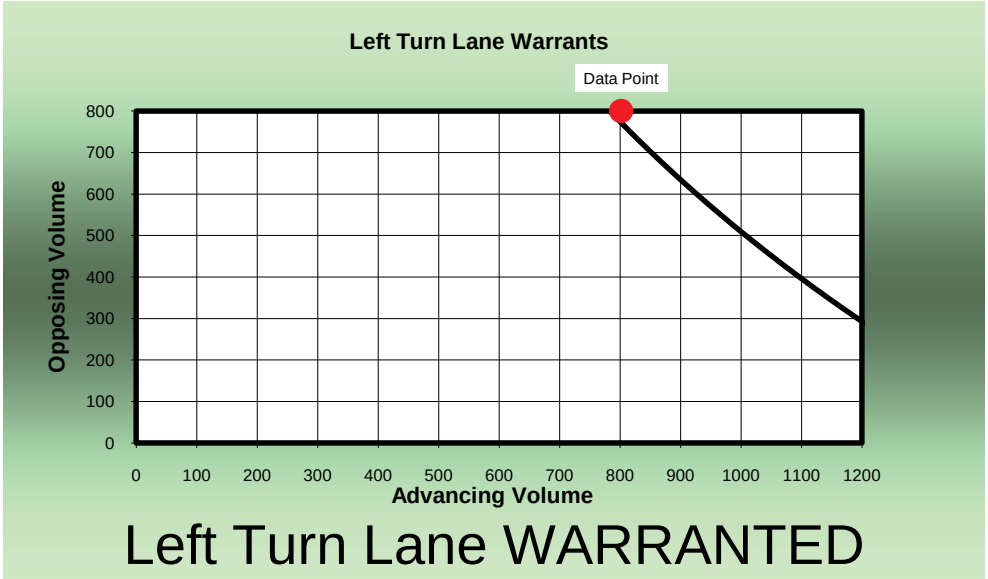
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	765	No. of through lanes	1
Opposing Volume (vph)	1375	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	765		

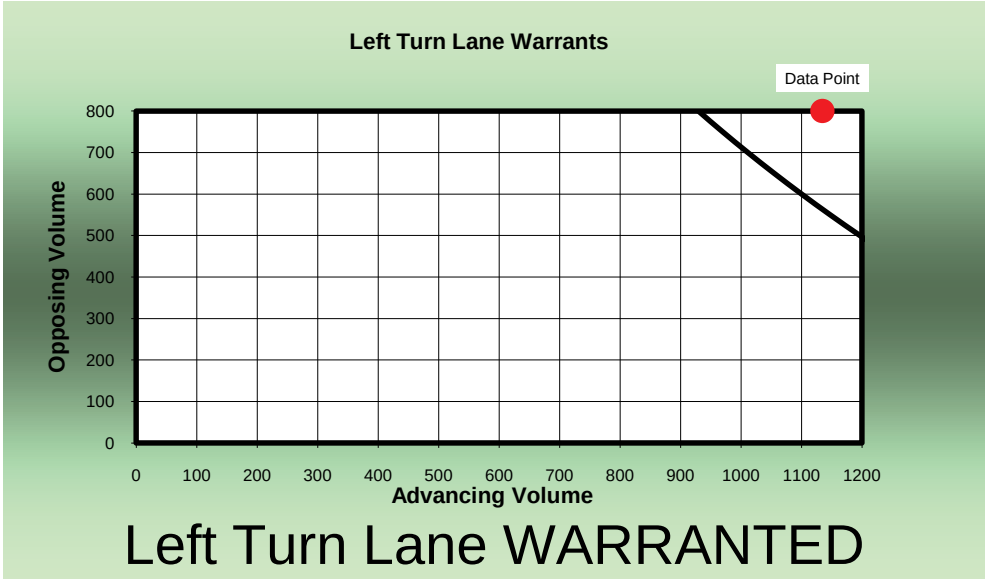
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	1090	No. of through lanes	1
Opposing Volume (vph)	1160	Percent Heavy Vehicles (decimal percent)	0.05



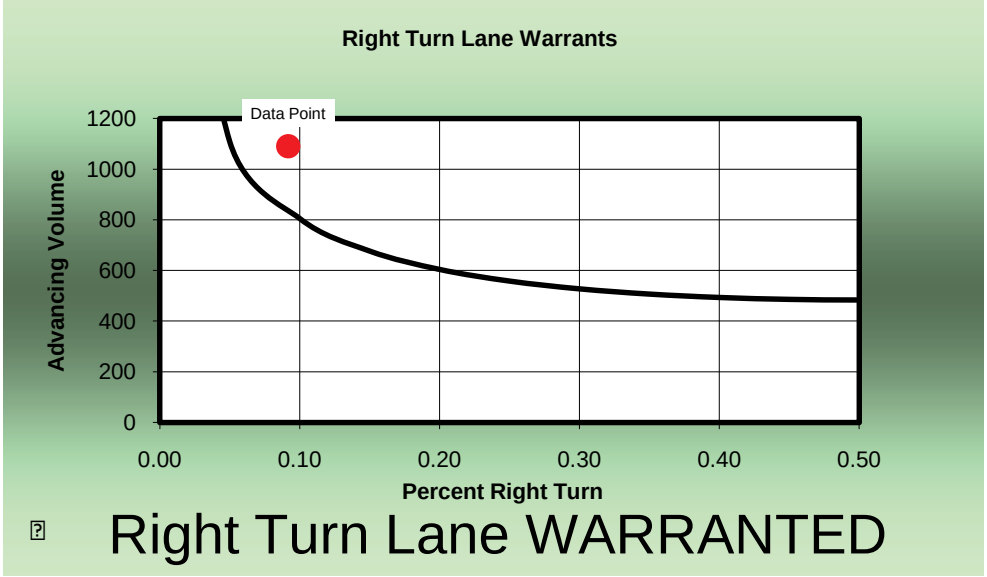
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1090		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	1215	No. of through lanes	1
Opposing Volume (vph)	1020	Percent Heavy Vehicles (decimal percent)	0.05

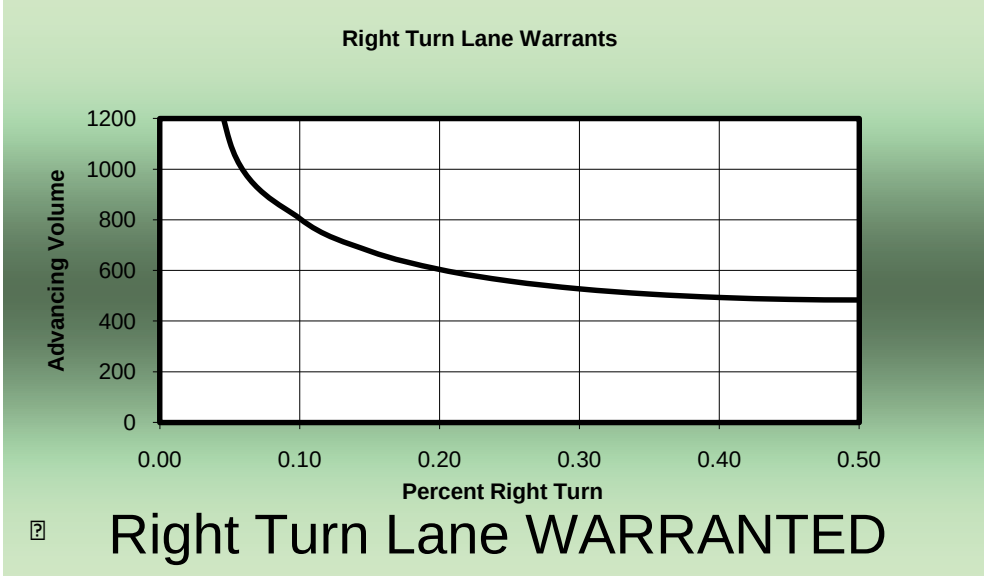
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1215		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

SOUTHBOUND EXISTING AND NO - BUILD

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	220	Speed Limit (mph)	45
Advancing Volume (vph)	605	No. of through lanes	1
Opposing Volume (vph)	610	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	5	Speed Limit (mph)	45
Advancing Volume (vph)	605		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	210	Speed Limit (mph)	45
Advancing Volume (vph)	625	No. of through lanes	1
Opposing Volume (vph)	530	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	5	Speed Limit (mph)	45
Advancing Volume (vph)	625		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	240	Speed Limit (mph)	45
Advancing Volume (vph)	695	No. of through lanes	1
Opposing Volume (vph)	620	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	5	Speed Limit (mph)	45
Advancing Volume (vph)	695		

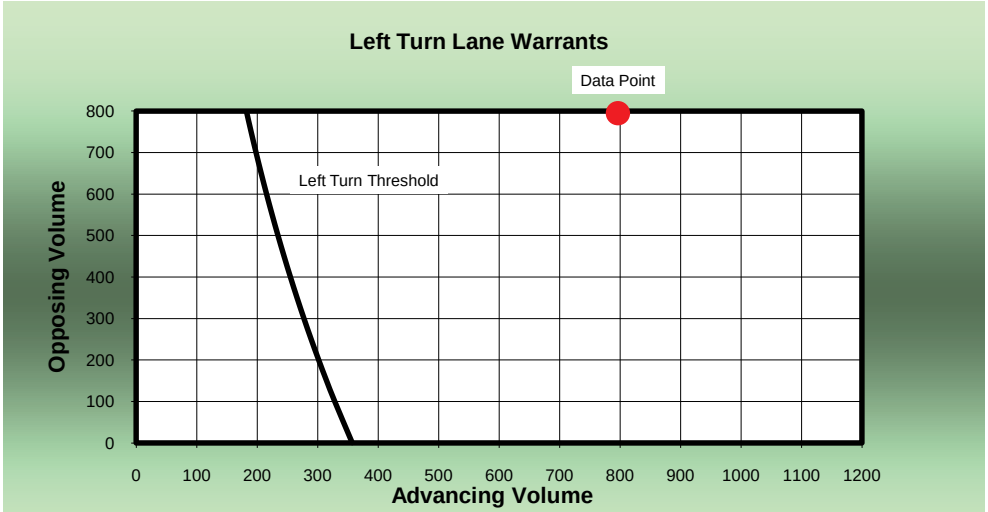
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	280	Speed Limit (mph)	45
Advancing Volume (vph)	775	No. of through lanes	1
Opposing Volume (vph)	795	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	775		

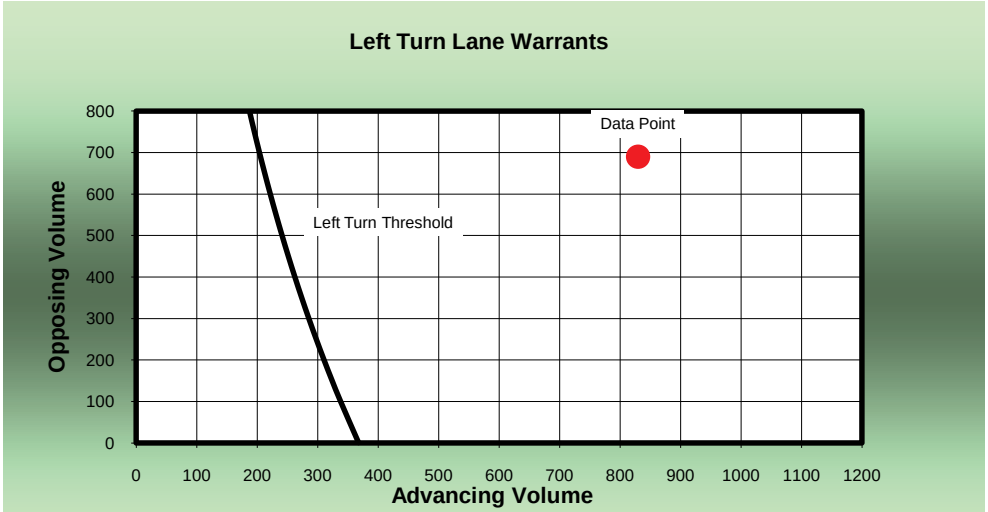
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	260	Speed Limit (mph)	45
Advancing Volume (vph)	810	No. of through lanes	1
Opposing Volume (vph)	690	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	810		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	300	Speed Limit (mph)	45
Advancing Volume (vph)	890	No. of through lanes	1
Opposing Volume (vph)	805	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	890		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1090	No. of through lanes	1
Opposing Volume (vph)	580	Percent Heavy Vehicles (decimal percent)	0.05

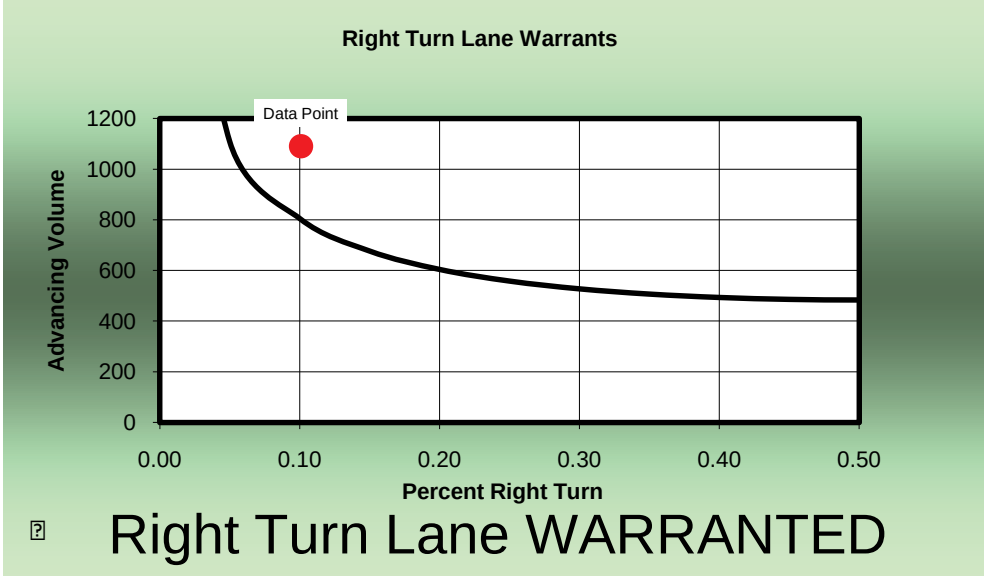
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	110	Speed Limit (mph)	45
Advancing Volume (vph)	1090		

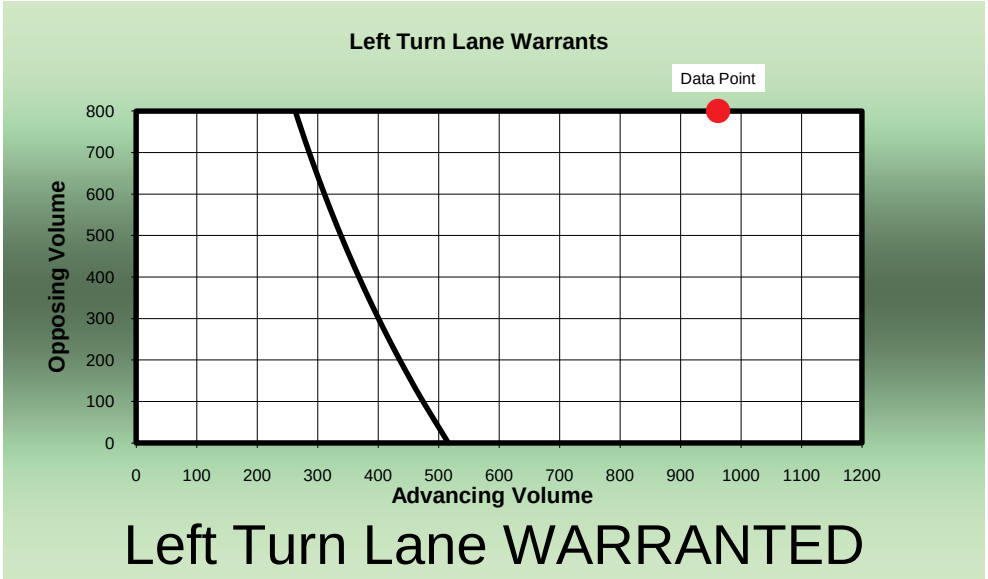


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	930	No. of through lanes	1
Opposing Volume (vph)	990	Percent Heavy Vehicles (decimal percent)	0.05



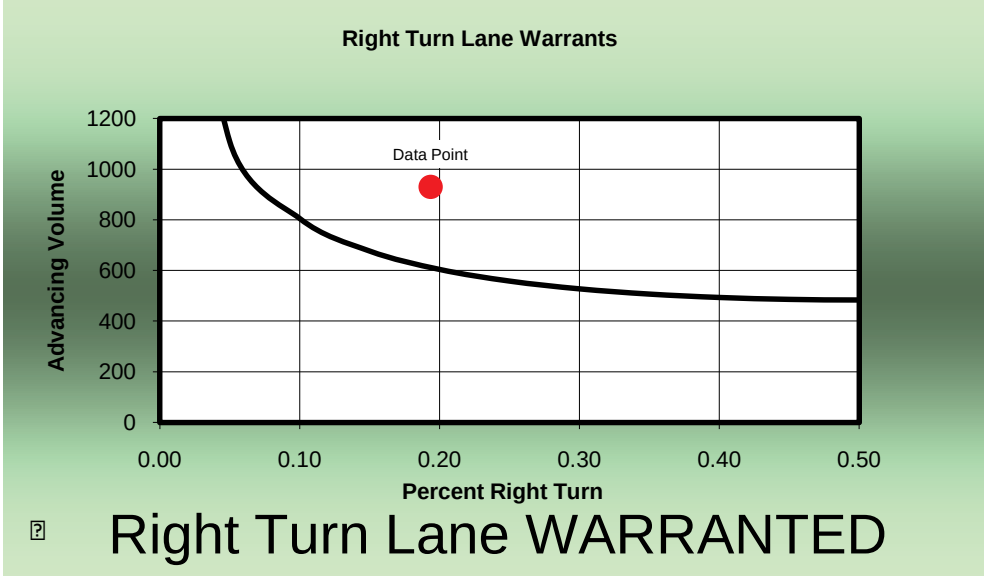
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	180	Speed Limit (mph)	45
Advancing Volume (vph)	930		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	140	Speed Limit (mph)	45
Advancing Volume (vph)	870	No. of through lanes	1
Opposing Volume (vph)	850	Percent Heavy Vehicles (decimal percent)	0.05

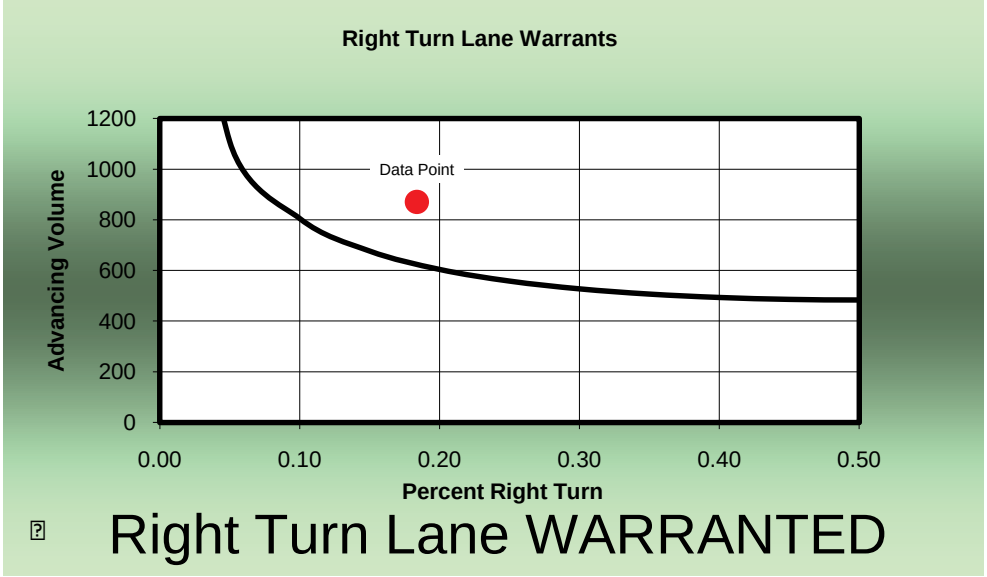
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	160	Speed Limit (mph)	45
Advancing Volume (vph)	870		



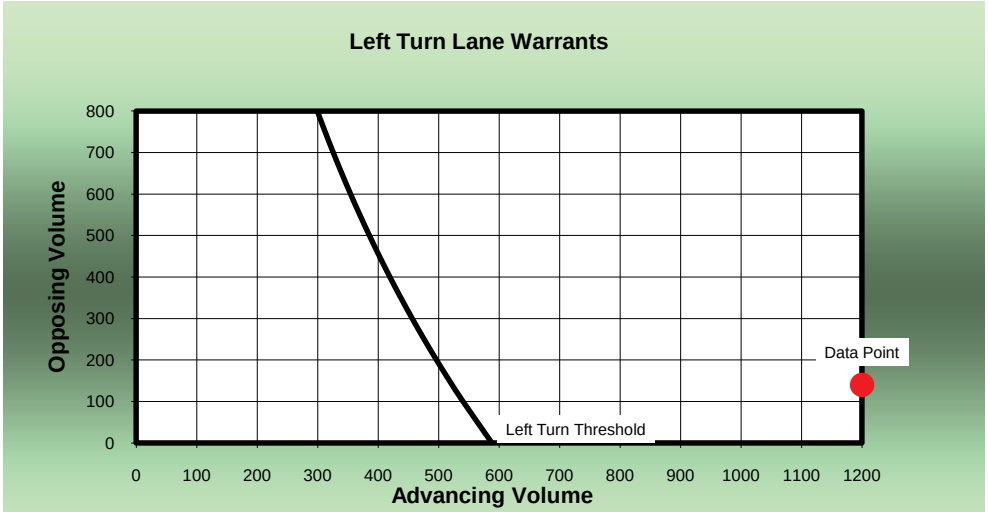
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	130	Speed Limit (mph)	45
Advancing Volume (vph)	1395	No. of through lanes	1
Opposing Volume (vph)	140	Percent Heavy Vehicles (decimal percent)	0.05



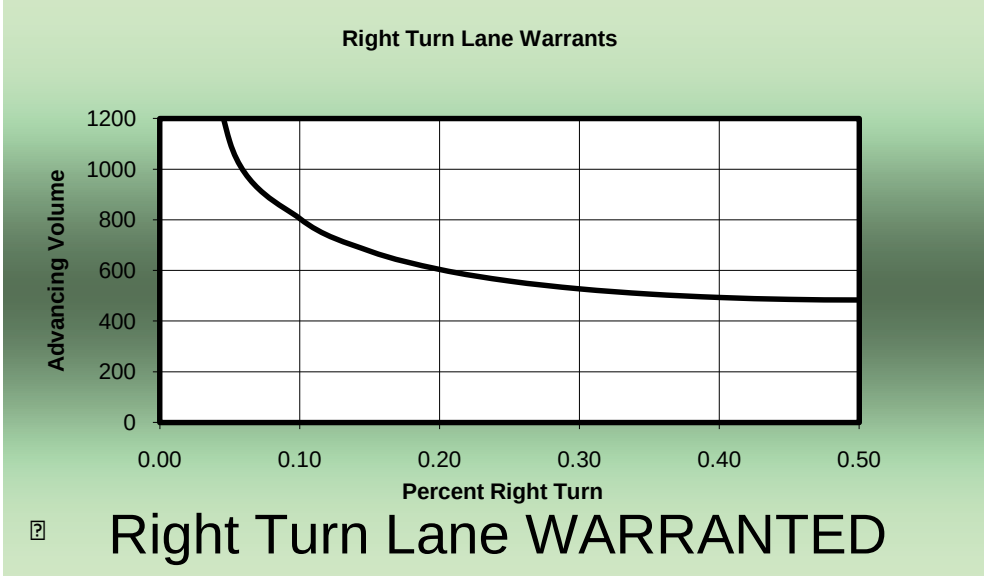
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	140	Speed Limit (mph)	45
Advancing Volume (vph)	1395		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

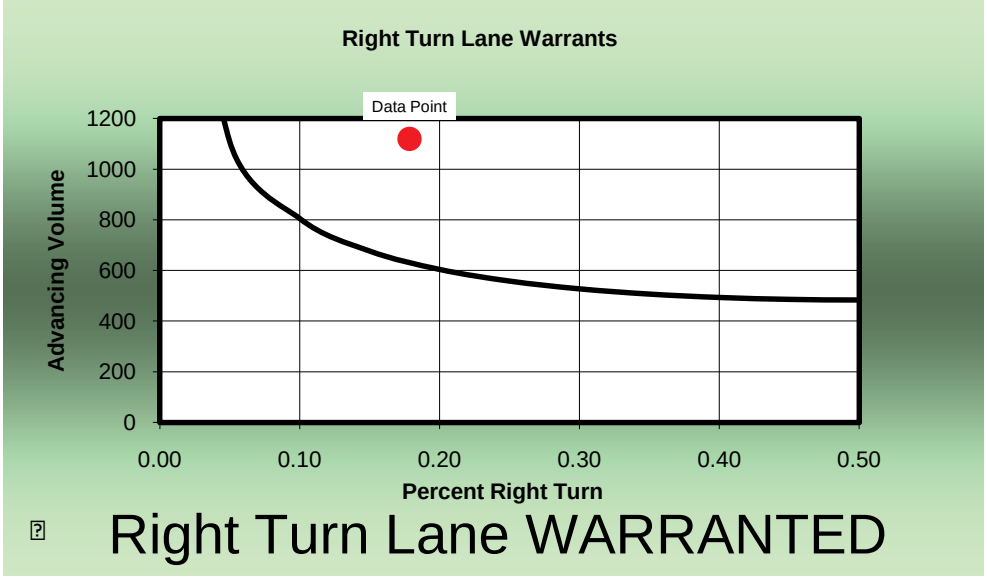
Left Turn Volume (vph)	180	Speed Limit (mph)	45
Advancing Volume (vph)	1120	No. of through lanes	1
Opposing Volume (vph)	1090	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	200	Speed Limit (mph)	45
Advancing Volume (vph)	1120		



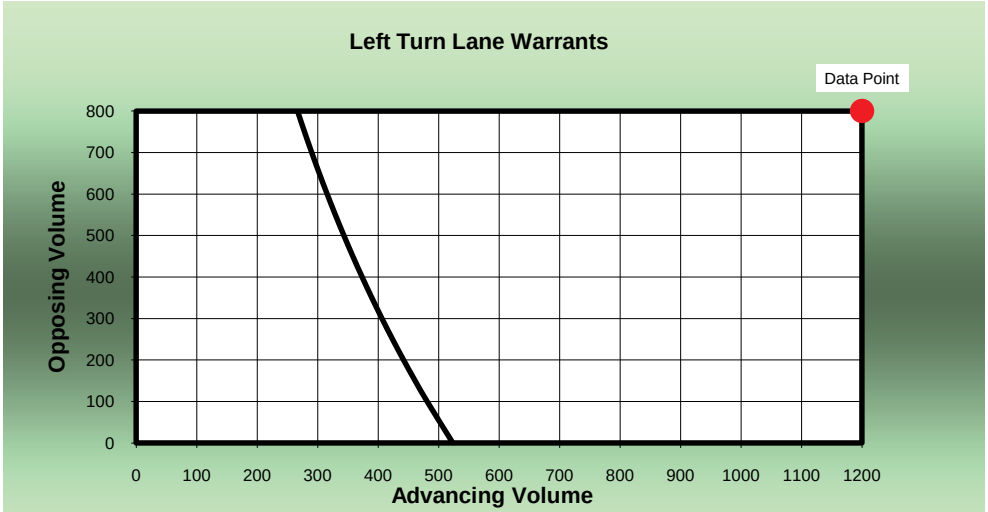
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	1190	No. of through lanes	1
Opposing Volume (vph)	1275	Percent Heavy Vehicles (decimal percent)	0.05



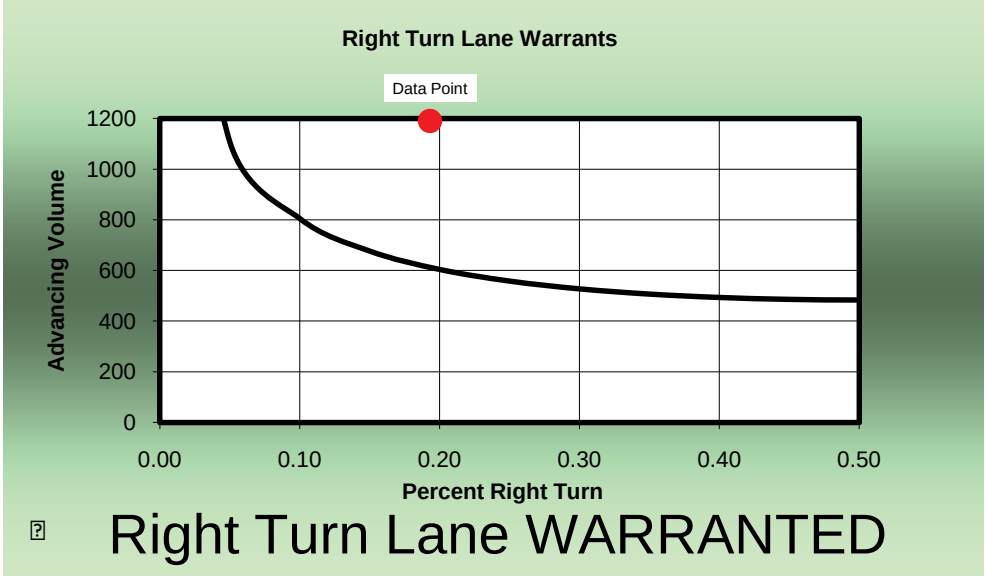
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	1190		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	160	Speed Limit (mph)	45
Advancing Volume (vph)	530	No. of through lanes	1
Opposing Volume (vph)	1120	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	530		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	330	No. of through lanes	1
Opposing Volume (vph)	920	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	330		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	310	No. of through lanes	1
Opposing Volume (vph)	1110	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	310		

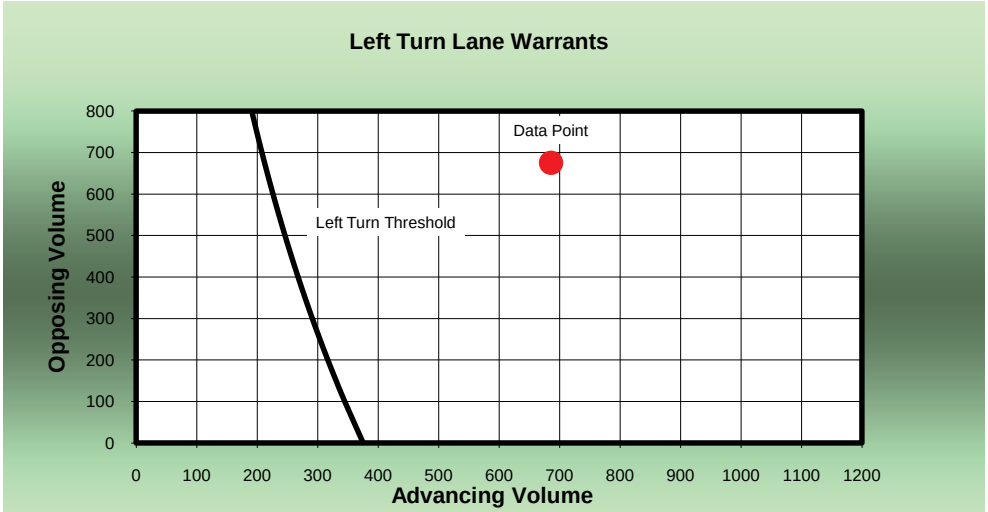
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	200	Speed Limit (mph)	45
Advancing Volume (vph)	670	No. of through lanes	1
Opposing Volume (vph)	675	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	670		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	420	No. of through lanes	1
Opposing Volume (vph)	1190	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	420		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	390	No. of through lanes	1
Opposing Volume (vph)	1425	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	390		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	170	Speed Limit (mph)	45
Advancing Volume (vph)	770	No. of through lanes	1
Opposing Volume (vph)	620	Percent Heavy Vehicles (decimal percent)	0.05

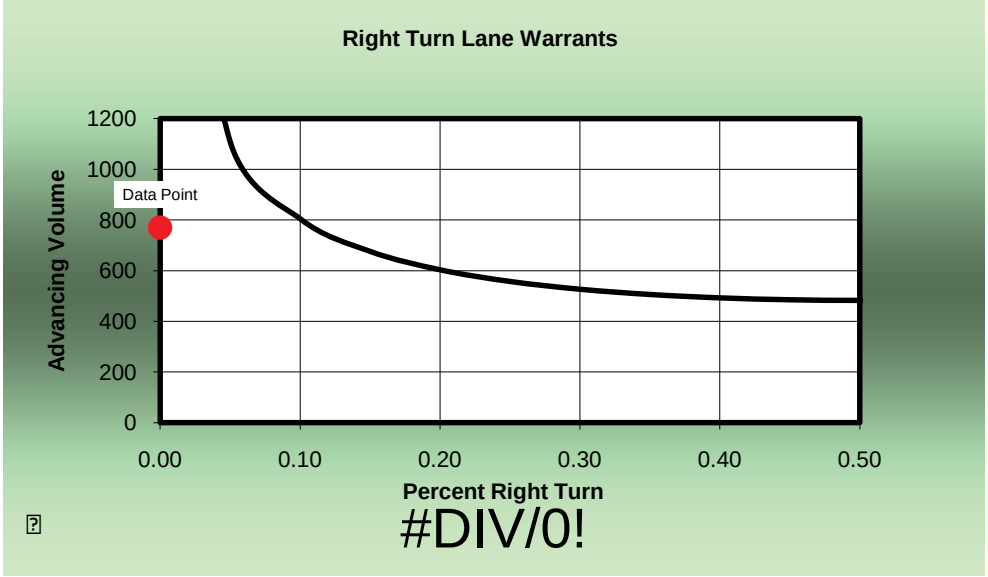
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	770		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	170	Speed Limit (mph)	45
Advancing Volume (vph)	850	No. of through lanes	1
Opposing Volume (vph)	650	Percent Heavy Vehicles (decimal percent)	0.05

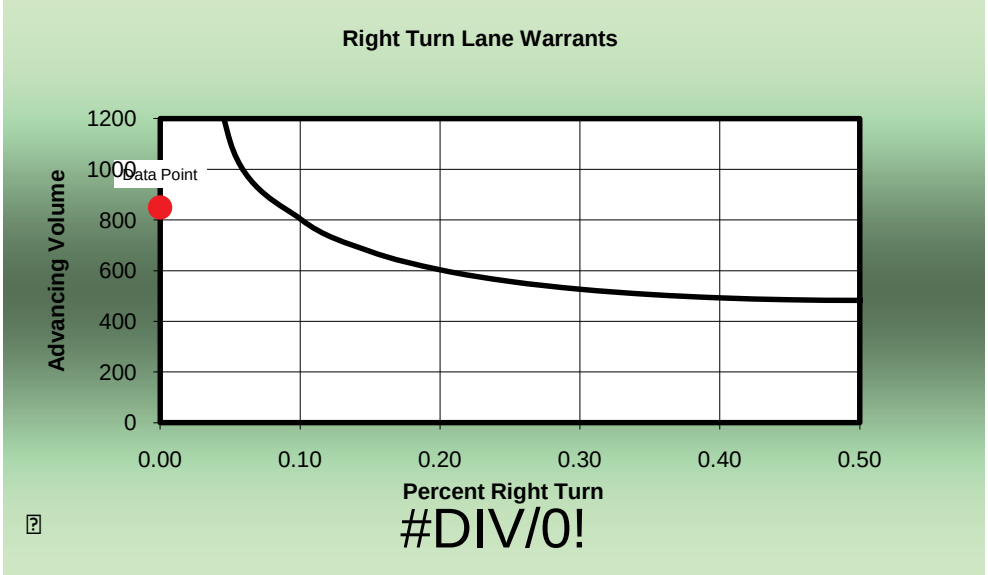
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	850		

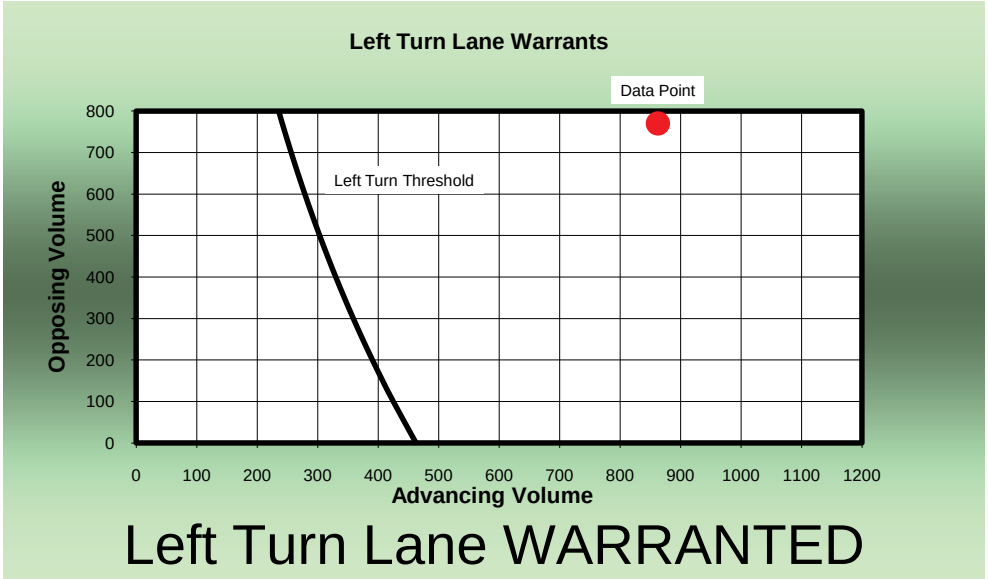


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	140	Speed Limit (mph)	45
Advancing Volume (vph)	840	No. of through lanes	1
Opposing Volume (vph)	770	Percent Heavy Vehicles (decimal percent)	0.05



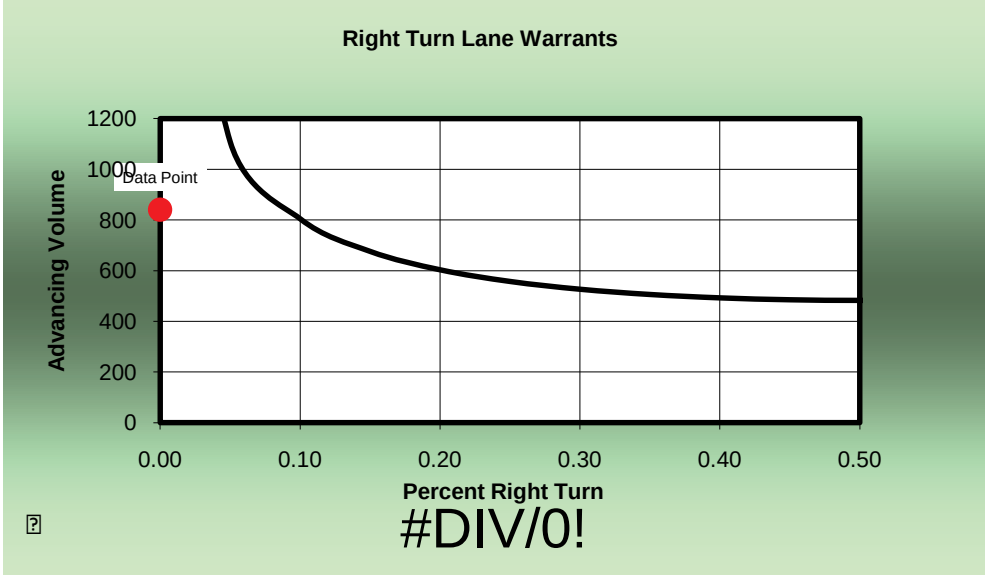
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	840		

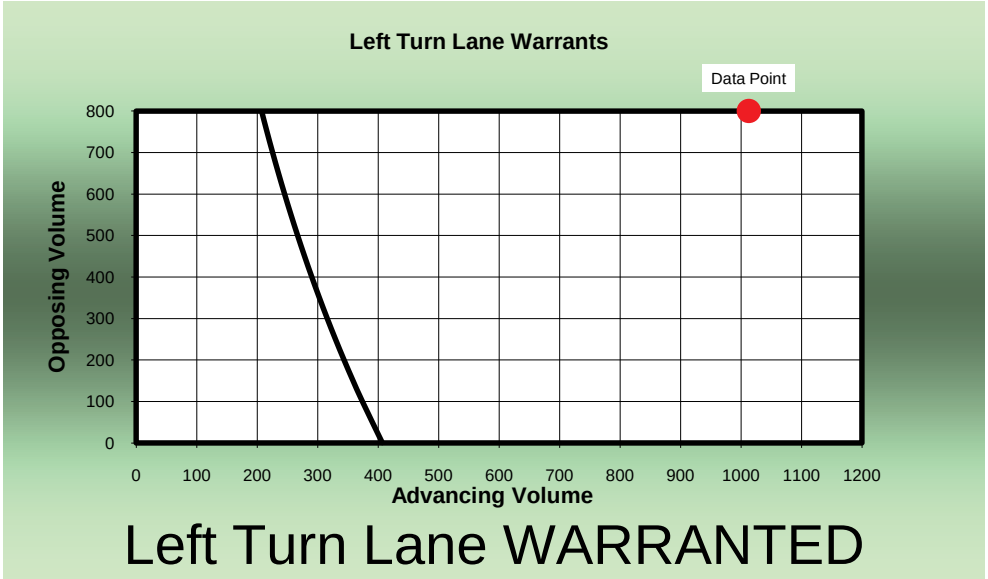


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	985	No. of through lanes	1
Opposing Volume (vph)	805	Percent Heavy Vehicles (decimal percent)	0.05



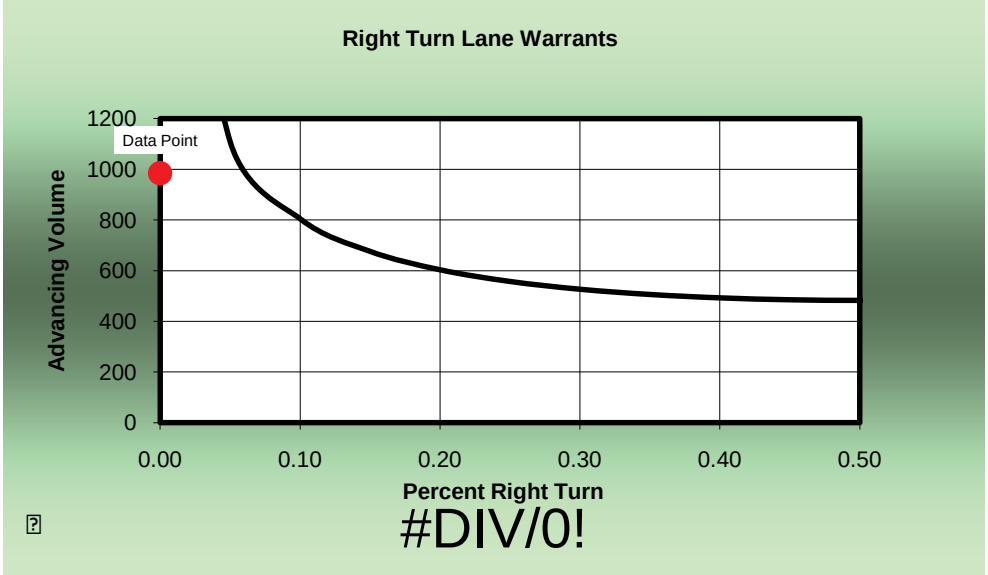
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	985		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	1100	No. of through lanes	1
Opposing Volume (vph)	840	Percent Heavy Vehicles (decimal percent)	0.05

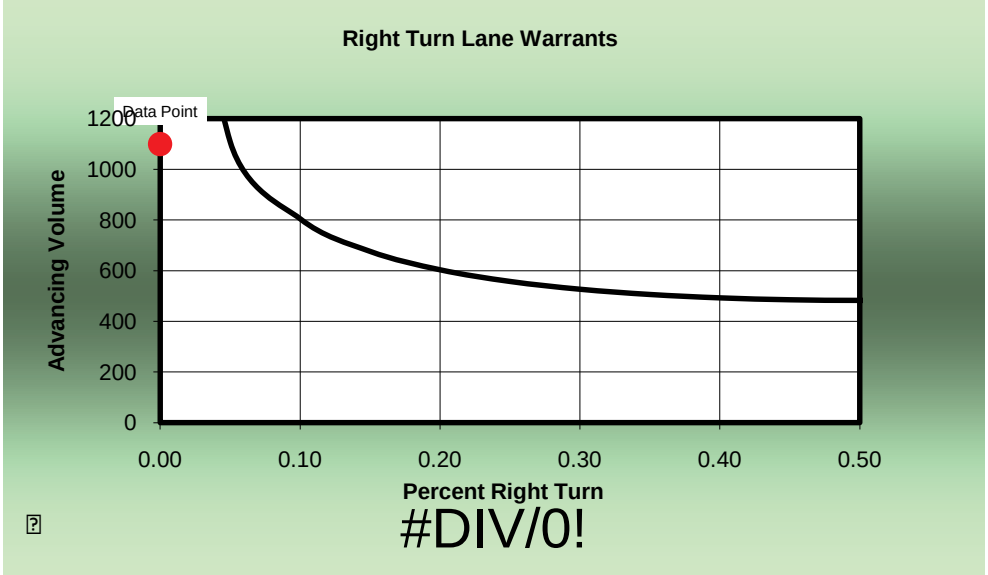
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1100		

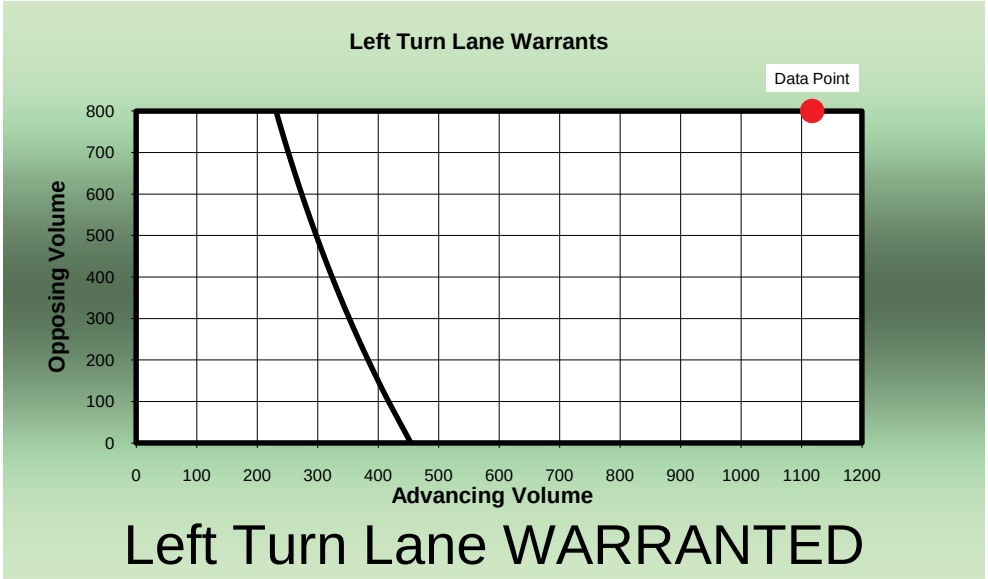


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	1080	No. of through lanes	1
Opposing Volume (vph)	995	Percent Heavy Vehicles (decimal percent)	0.05



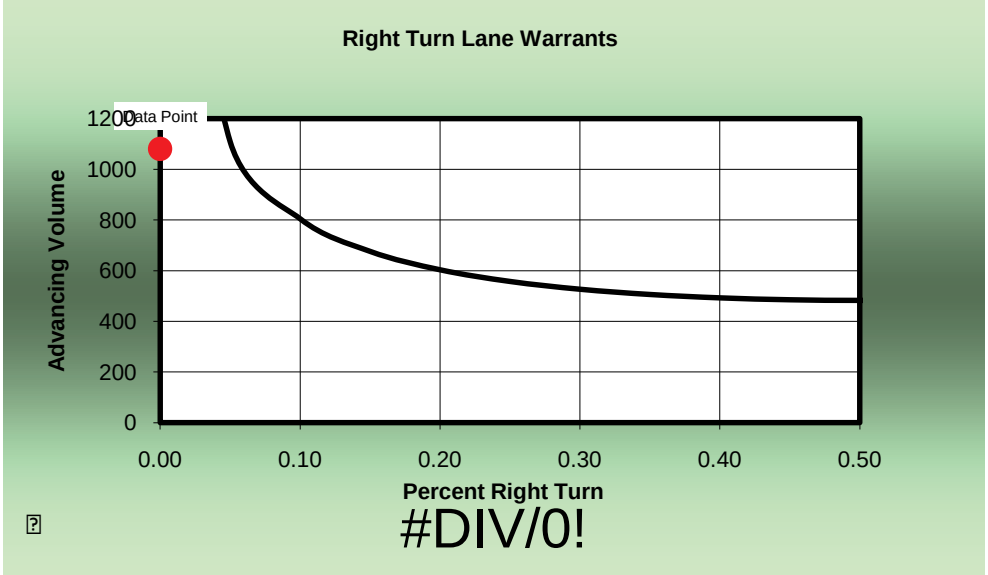
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1080		

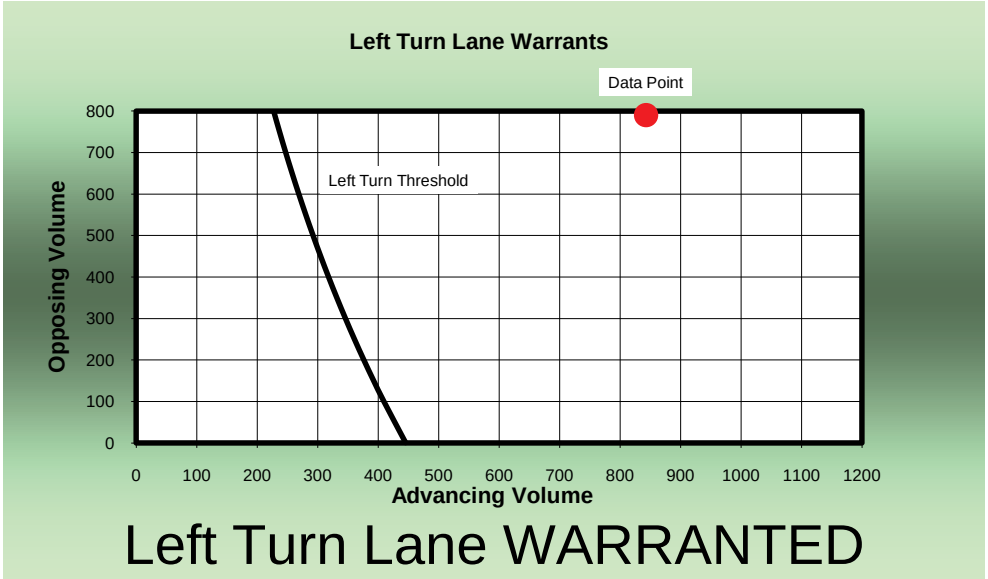


Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	820	No. of through lanes	1
Opposing Volume (vph)	790	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	820		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	840	No. of through lanes	1
Opposing Volume (vph)	885	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	840		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	990	No. of through lanes	1
Opposing Volume (vph)	930	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	40	Speed Limit (mph)	45
Advancing Volume (vph)	990		

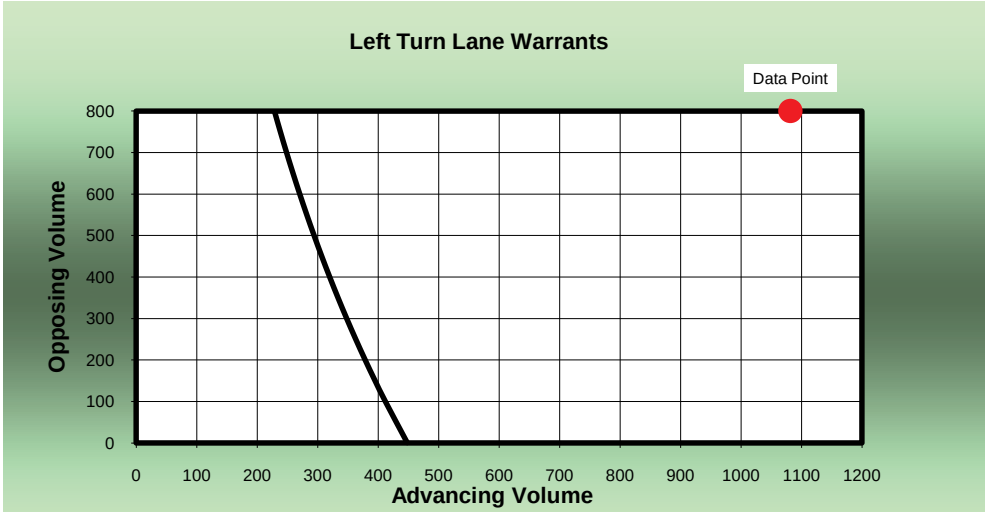
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	1045	No. of through lanes	1
Opposing Volume (vph)	1005	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	1045		

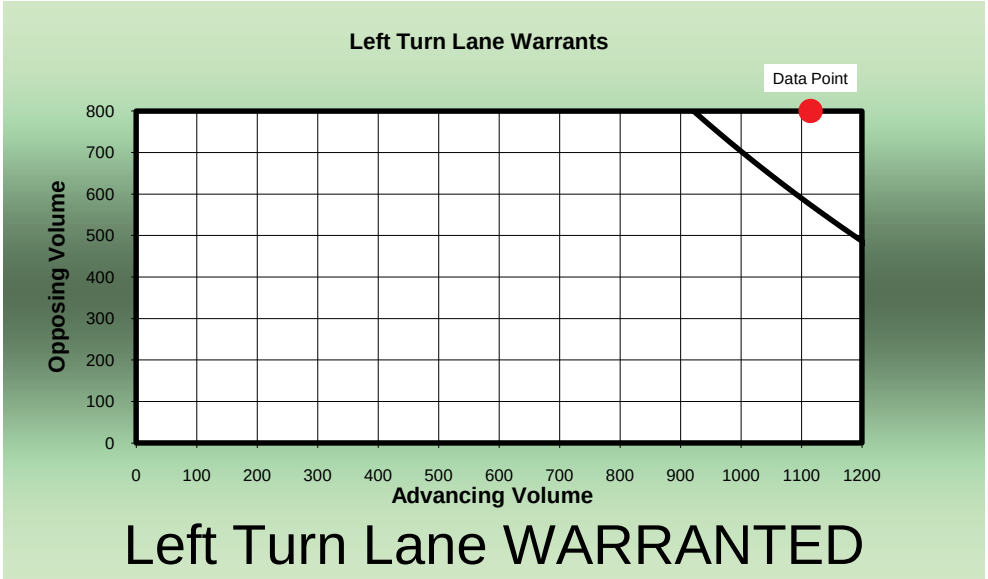
Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	1080	No. of through lanes	1
Opposing Volume (vph)	920	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	1080		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

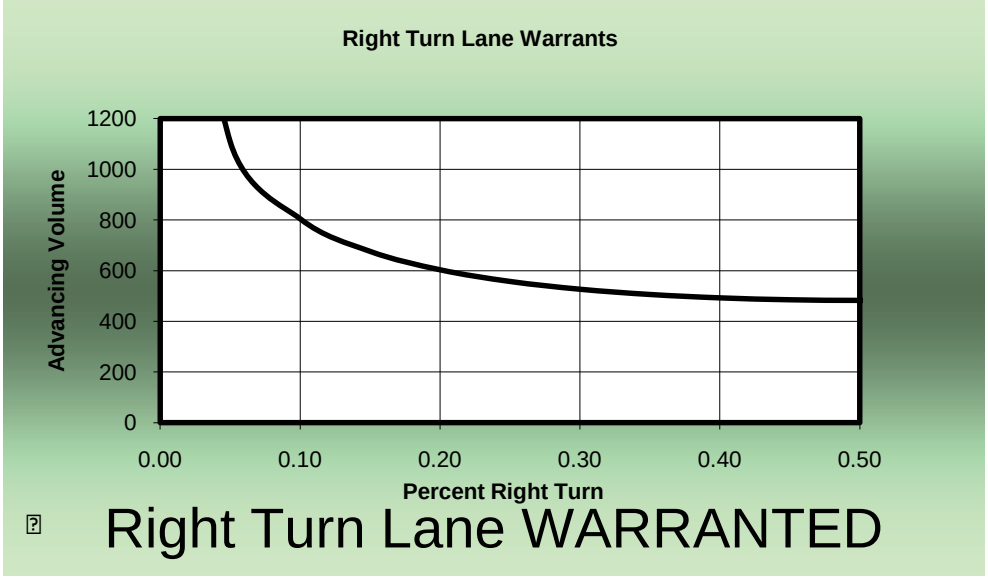
Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	1270	No. of through lanes	1
Opposing Volume (vph)	1195	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	1270		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	940	No. of through lanes	1
Opposing Volume (vph)	710	Percent Heavy Vehicles (decimal percent)	0.05

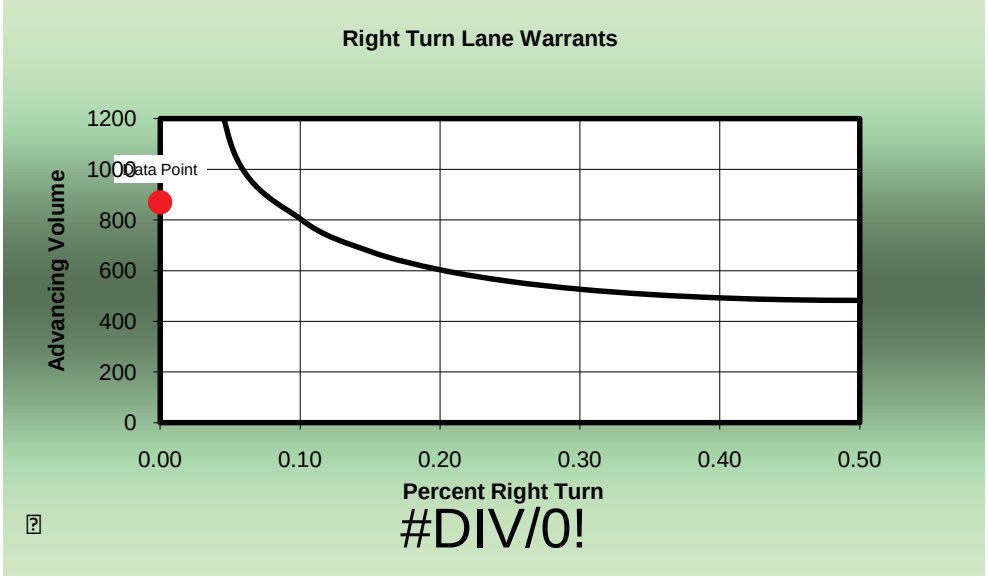
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	870		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	890	No. of through lanes	1
Opposing Volume (vph)	870	Percent Heavy Vehicles (decimal percent)	0.05

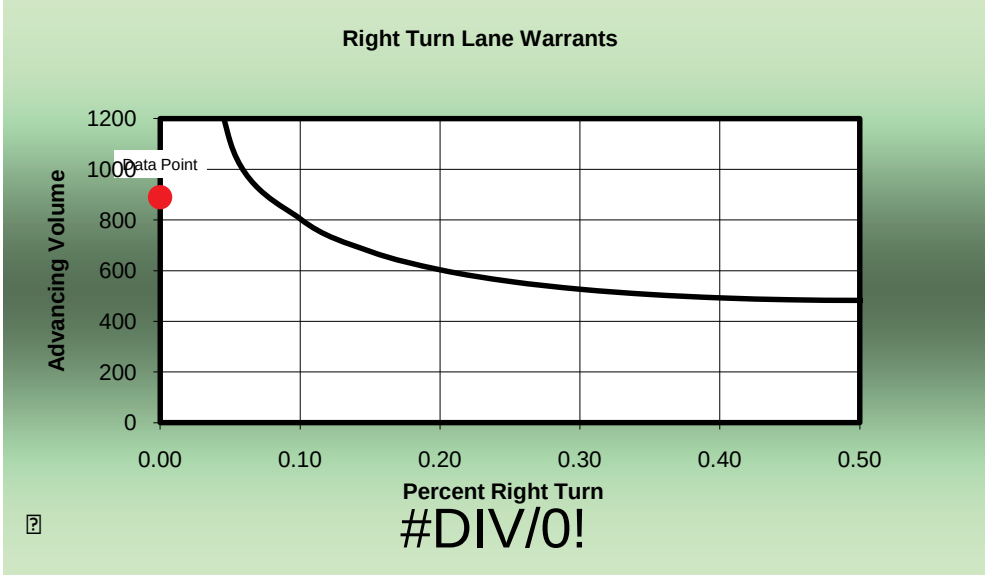
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	890		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	1080	No. of through lanes	1
Opposing Volume (vph)	1020	Percent Heavy Vehicles (decimal percent)	0.05

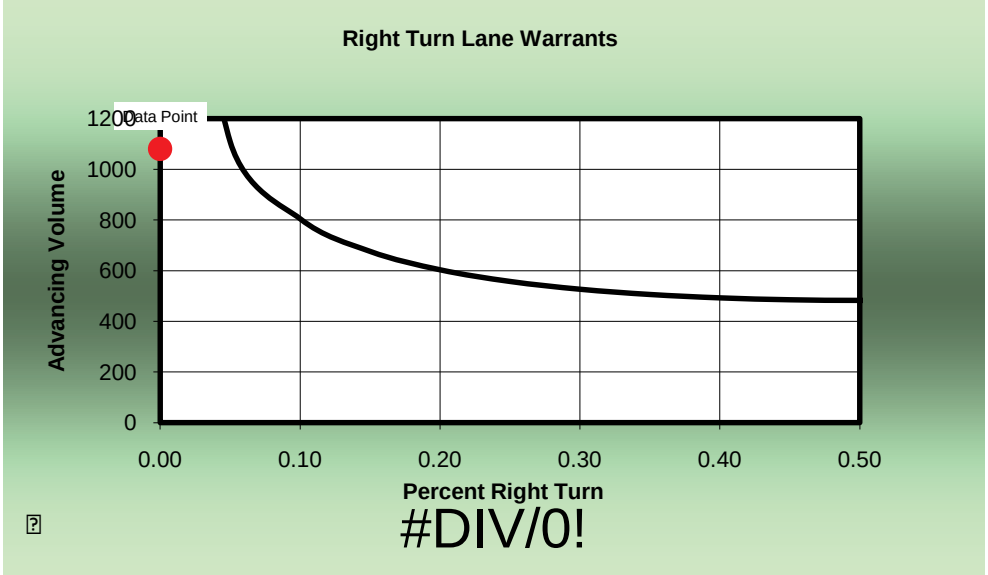
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1080		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	1185	No. of through lanes	1
Opposing Volume (vph)	915	Percent Heavy Vehicles (decimal percent)	0.05

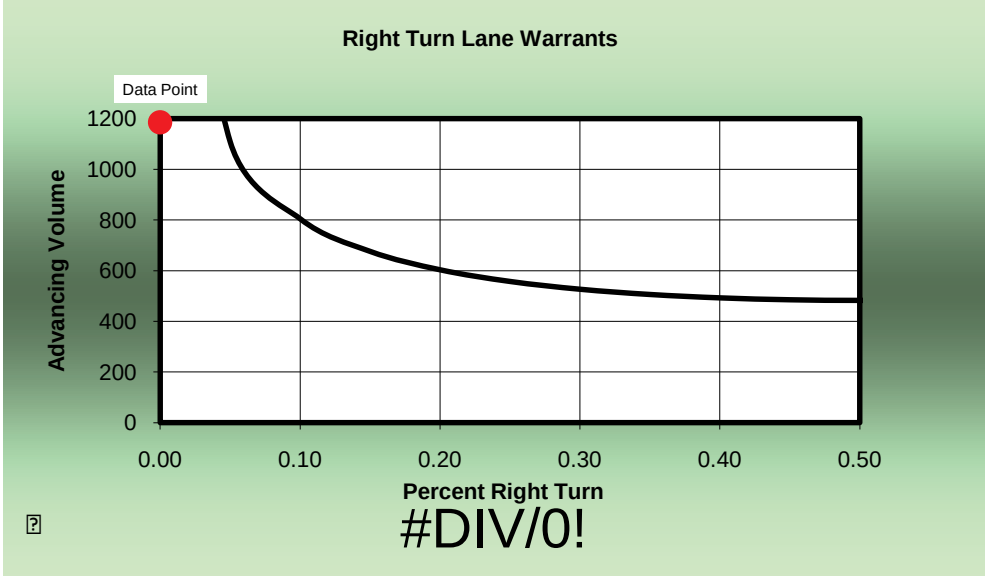
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1185		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

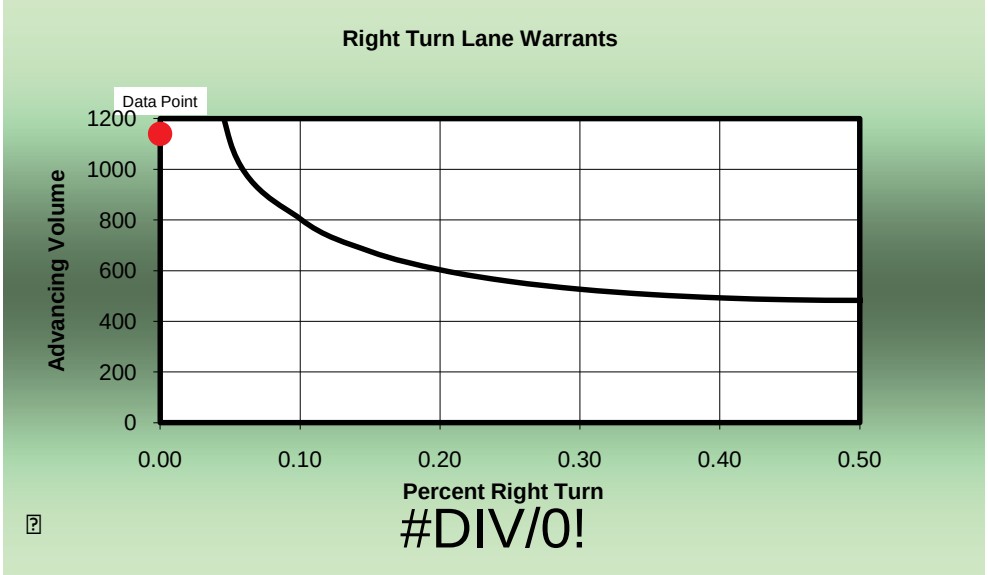
Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	1140	No. of through lanes	1
Opposing Volume (vph)	1130	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1140		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	1380	No. of through lanes	1
Opposing Volume (vph)	1315	Percent Heavy Vehicles (decimal percent)	0.05

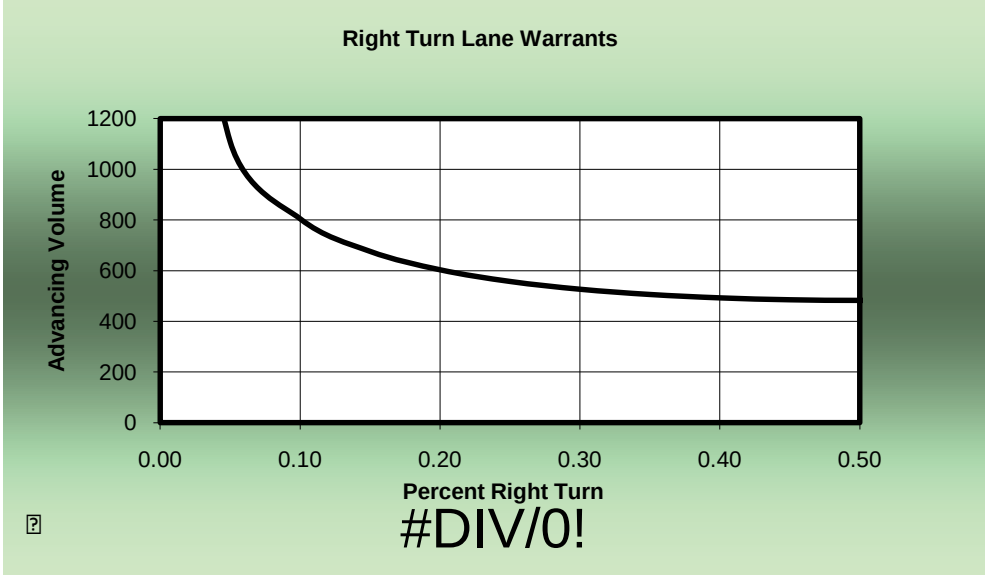
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	1380		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	910	No. of through lanes	1
Opposing Volume (vph)	610	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	910		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	680	No. of through lanes	1
Opposing Volume (vph)	870	Percent Heavy Vehicles (decimal percent)	0.05

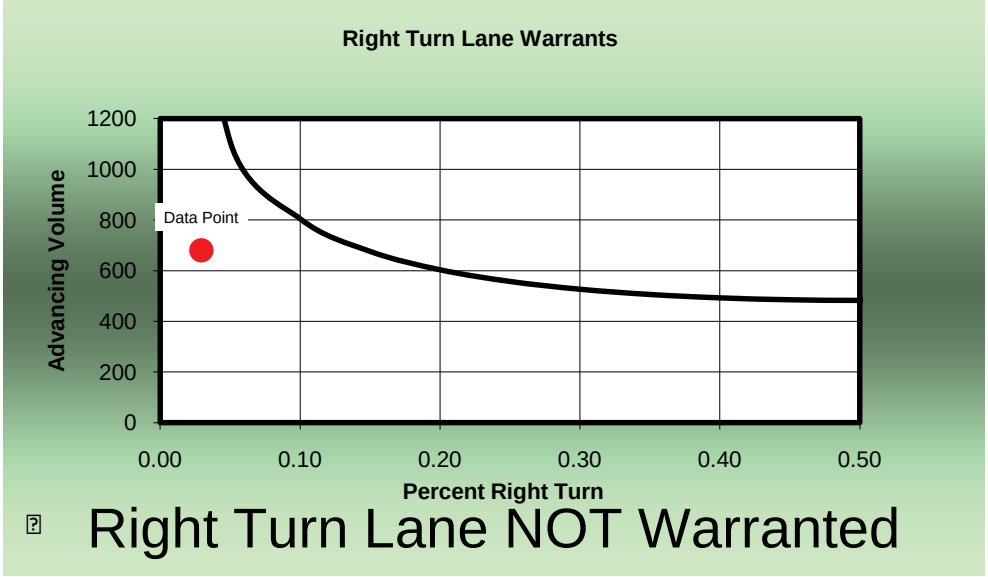
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	680		



Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	640	No. of through lanes	1
Opposing Volume (vph)	970	Percent Heavy Vehicles (decimal percent)	0.05

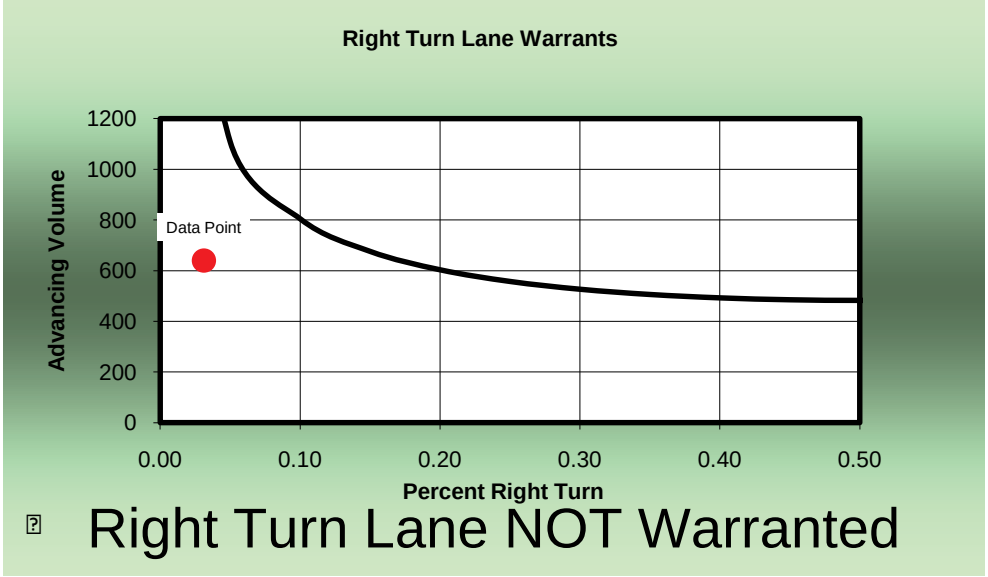
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	640		



Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	1165	No. of through lanes	1
Opposing Volume (vph)	795	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	1165		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	870	No. of through lanes	1
Opposing Volume (vph)	1130	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	870		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	820	No. of through lanes	1
Opposing Volume (vph)	1245	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	820		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	1080	No. of through lanes	1
Opposing Volume (vph)	585	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	1080		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	800	No. of through lanes	1
Opposing Volume (vph)	950	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	800		

Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

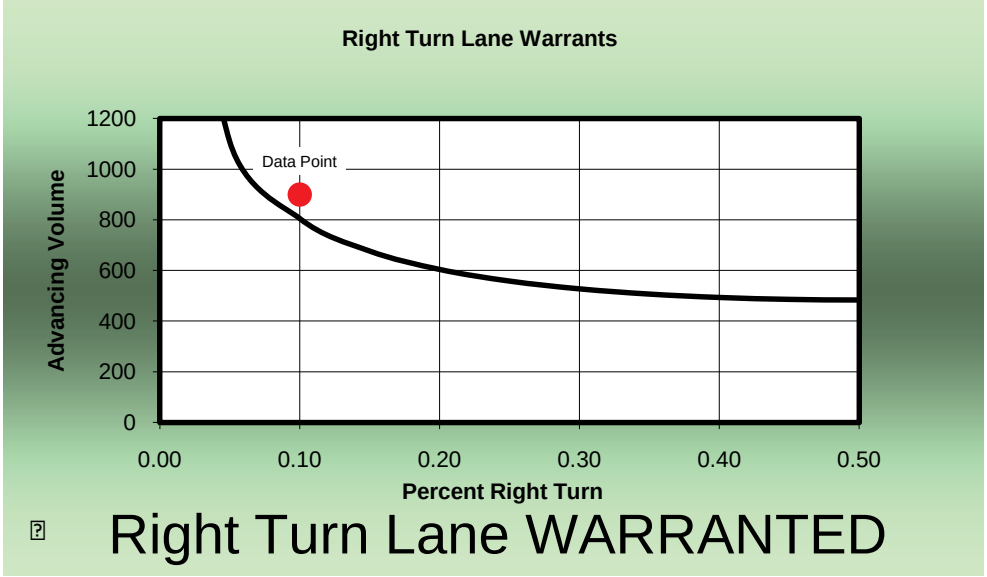
Left Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	900	No. of through lanes	1
Opposing Volume (vph)	850	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	900		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	1375	No. of through lanes	1
Opposing Volume (vph)	765	Percent Heavy Vehicles (decimal percent)	0.05

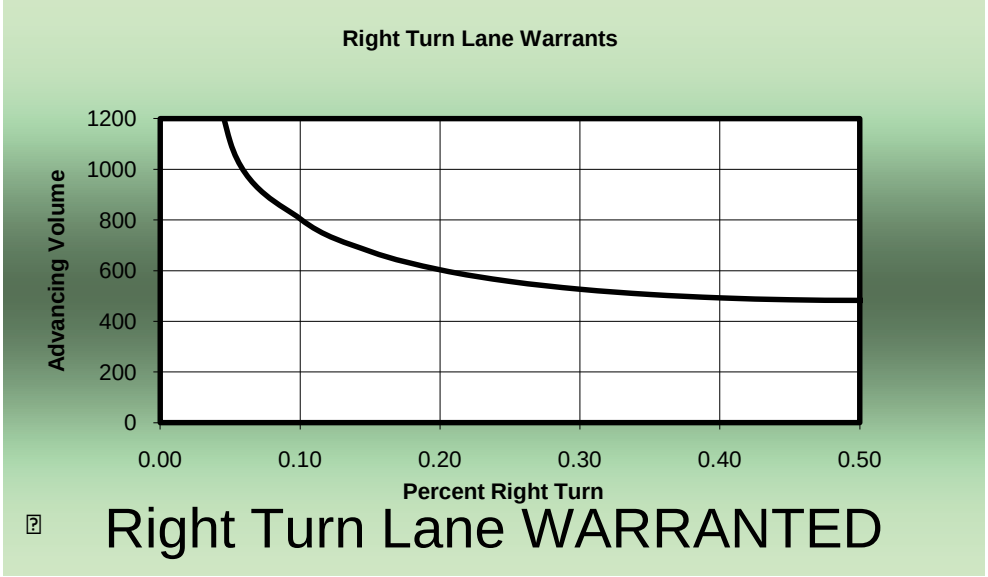
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	1375		



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1160	No. of through lanes	1
Opposing Volume (vph)	1090	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	1160		

Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

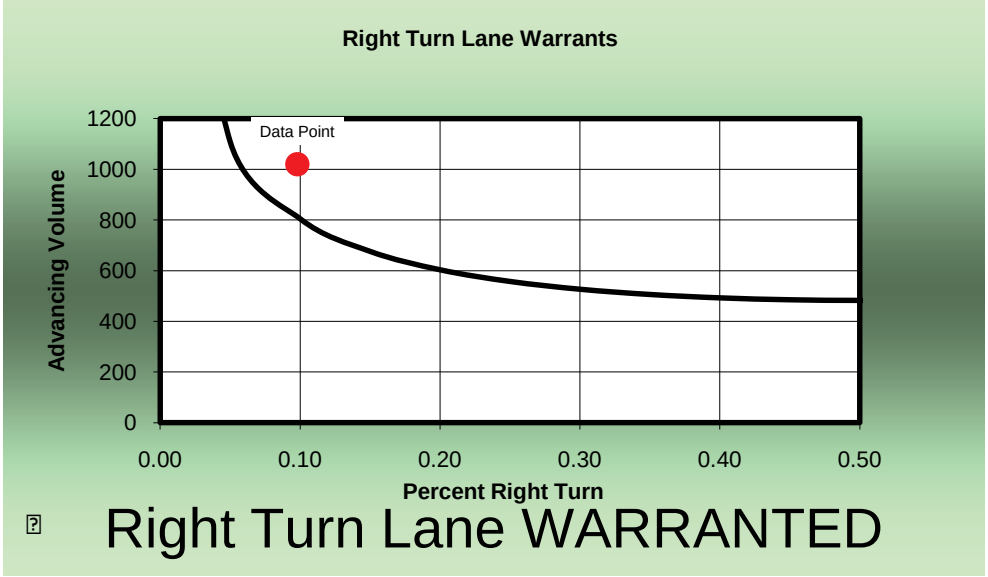
Left Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1020	No. of through lanes	1
Opposing Volume (vph)	1215	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1020		



Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

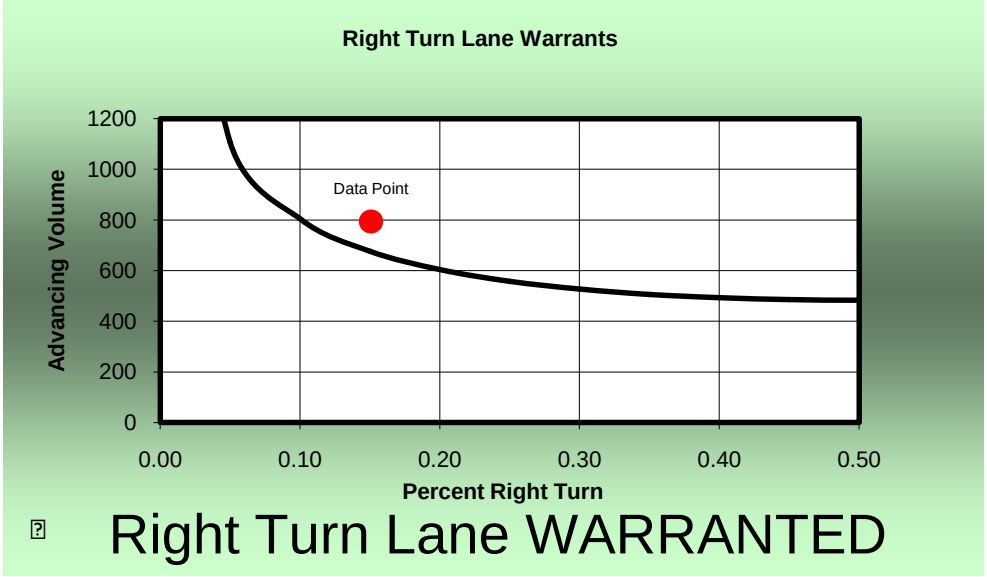
TURN LANE WARRANTS

NORTHBOUND ALTERNATIVES 4 AND 5

Right Turn Lane Warrants

Input Fields

Right Turn Volume (vph)	120	Speed Limit (mph)	45
Advancing Volume (vph)	795		



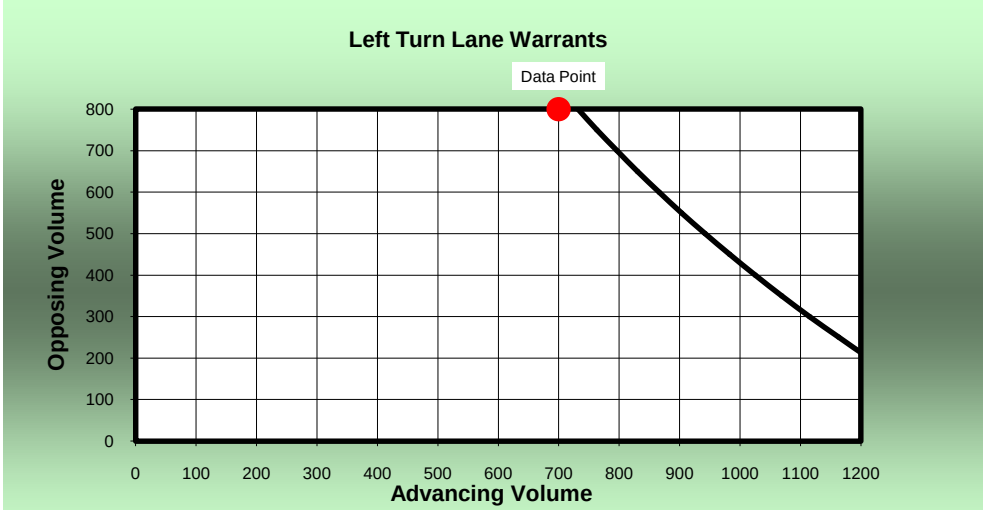
Right Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	690	No. of through lanes	2
Opposing Volume (vph)	810	Percent Heavy Vehicles (decimal percent)	0.05



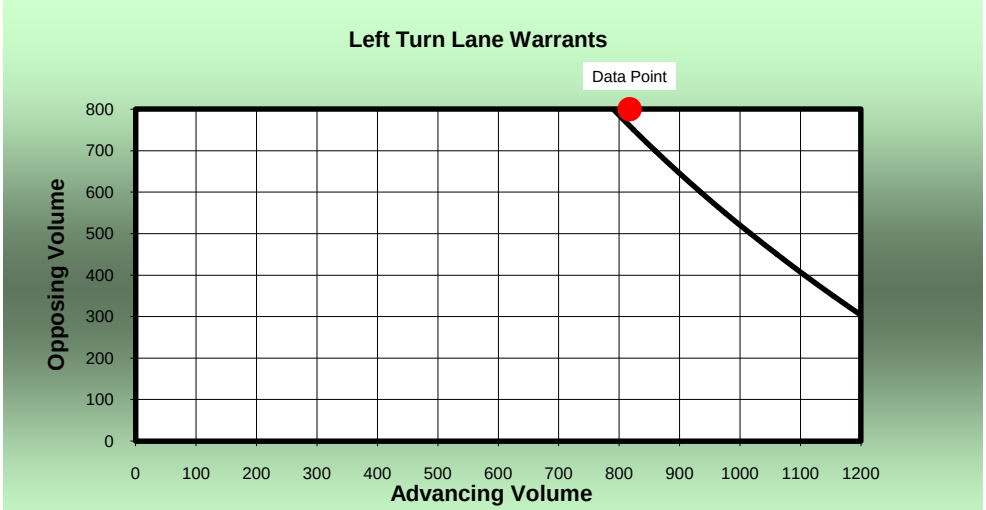
Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	805	No. of through lanes	2
Opposing Volume (vph)	890	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	755	No. of through lanes	2
Opposing Volume (vph)	1395	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	300	Speed Limit (mph)	45
Advancing Volume (vph)	1090	No. of through lanes	2
Opposing Volume (vph)	1120	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

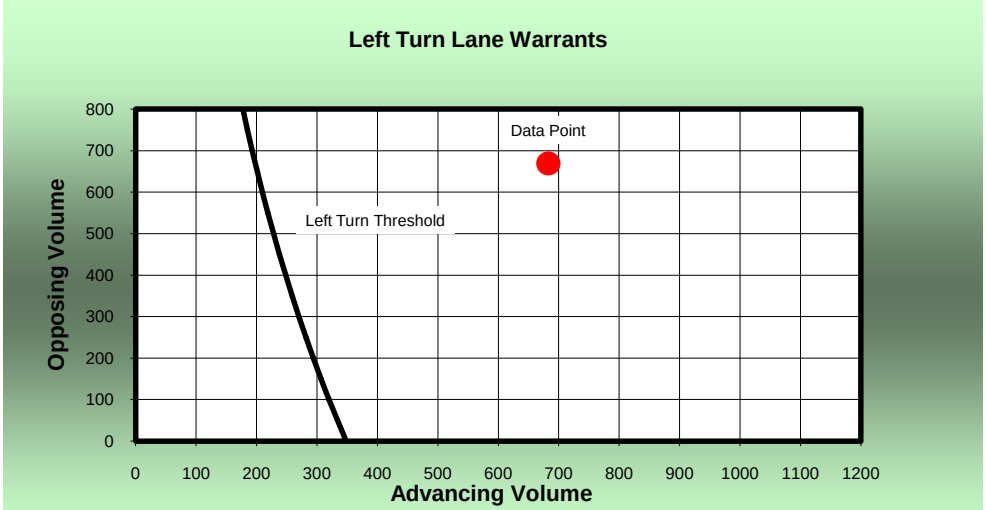
Left Turn Volume (vph)	350	Speed Limit (mph)	45
Advancing Volume (vph)	1275	No. of through lanes	2
Opposing Volume (vph)	1190	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	410	Speed Limit (mph)	45
Advancing Volume (vph)	675	No. of through lanes	2
Opposing Volume (vph)	670	Percent Heavy Vehicles (decimal percent)	0.05



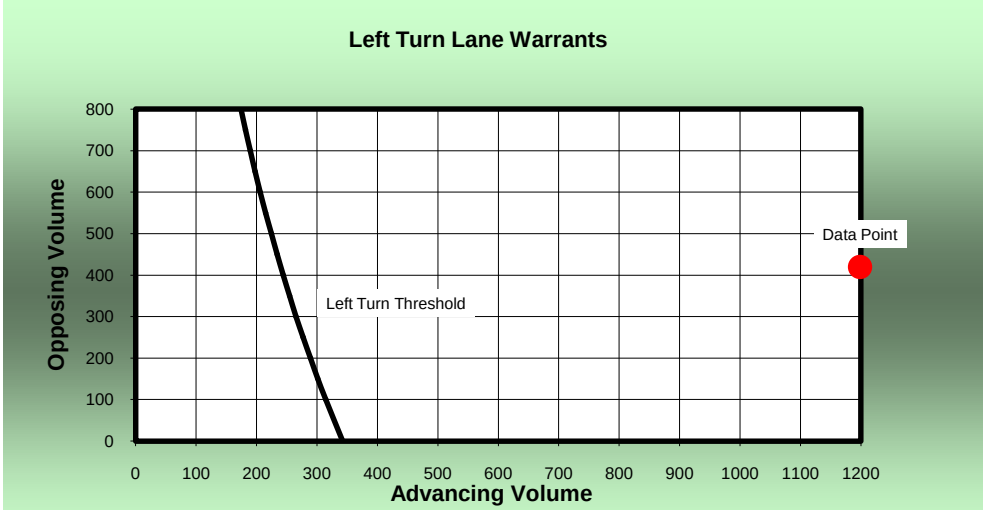
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	650	Speed Limit (mph)	45
Advancing Volume (vph)	1190	No. of through lanes	2
Opposing Volume (vph)	420	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	860	Speed Limit (mph)	45
Advancing Volume (vph)	1425	No. of through lanes	2
Opposing Volume (vph)	390	Percent Heavy Vehicles (decimal percent)	0.05

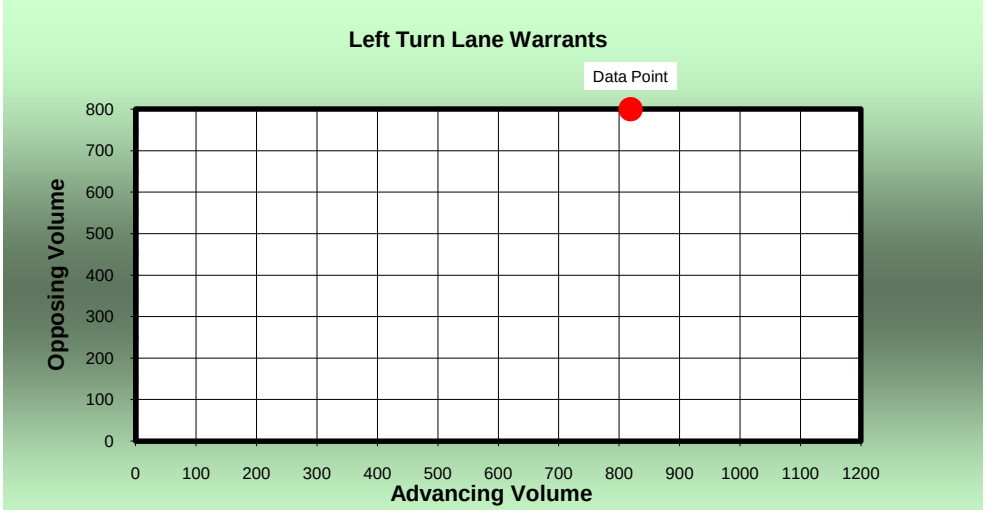
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	0	Speed Limit (mph)	45
Advancing Volume (vph)	805	No. of through lanes	2
Opposing Volume (vph)	985	Percent Heavy Vehicles (decimal percent)	0.05



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Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	1005	No. of through lanes	2
Opposing Volume (vph)	1045	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	920	No. of through lanes	2
Opposing Volume (vph)	1080	Percent Heavy Vehicles (decimal percent)	0.05

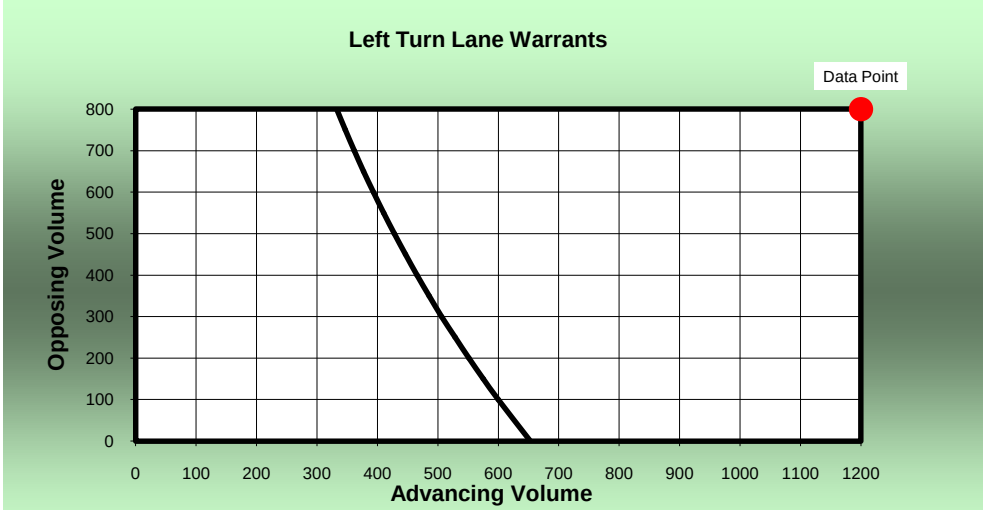
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	1195	No. of through lanes	2
Opposing Volume (vph)	1270	Percent Heavy Vehicles (decimal percent)	0.05



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	50	Speed Limit (mph)	45
Advancing Volume (vph)	795	No. of through lanes	2
Opposing Volume (vph)	1165	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	1130	No. of through lanes	2
Opposing Volume (vph)	870	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

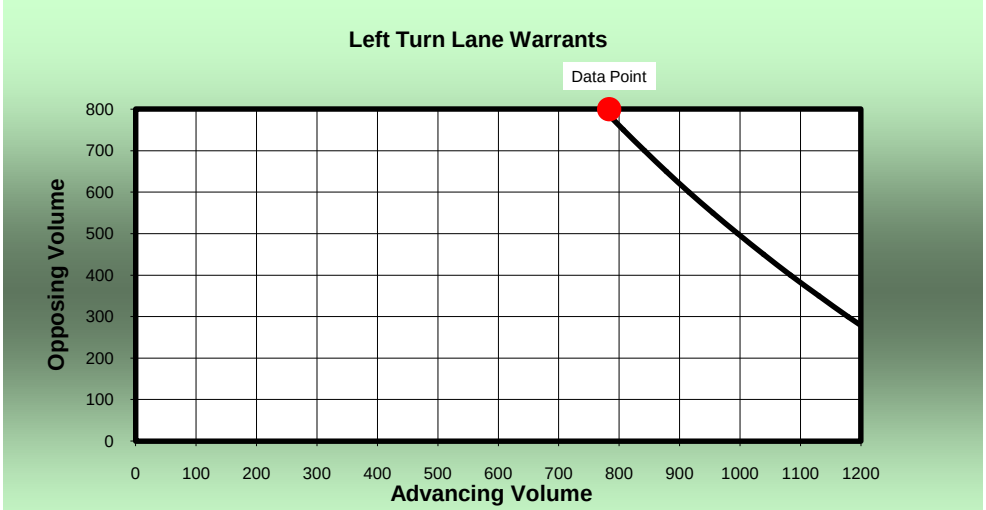
Left Turn Volume (vph)	140	Speed Limit (mph)	45
Advancing Volume (vph)	1245	No. of through lanes	2
Opposing Volume (vph)	820	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	765	No. of through lanes	2
Opposing Volume (vph)	1375	Percent Heavy Vehicles (decimal percent)	0.05



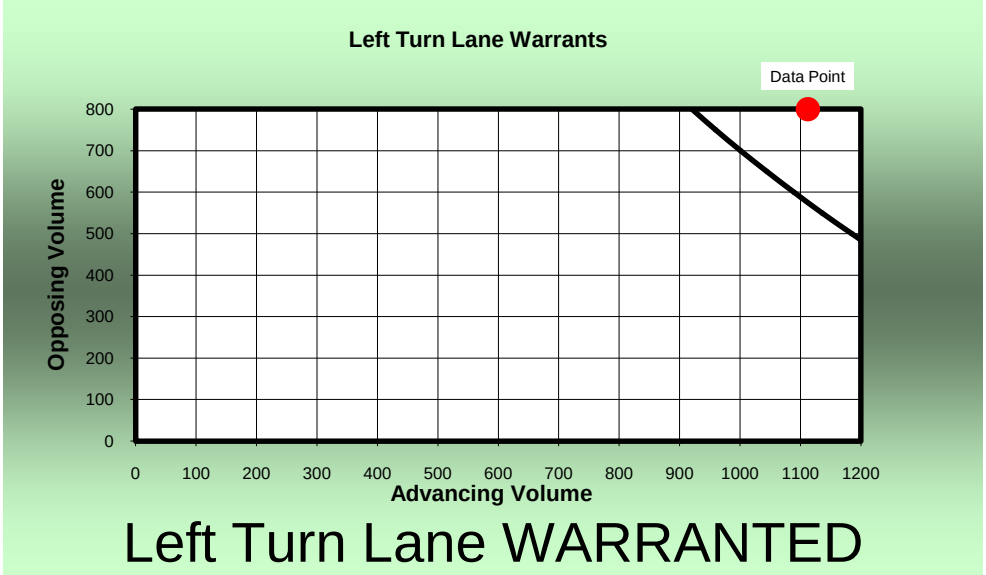
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	1090	No. of through lanes	2
Opposing Volume (vph)	1160	Percent Heavy Vehicles (decimal percent)	0.05



Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	30	Speed Limit (mph)	45
Advancing Volume (vph)	1215	No. of through lanes	2
Opposing Volume (vph)	1020	Percent Heavy Vehicles (decimal percent)	0.05

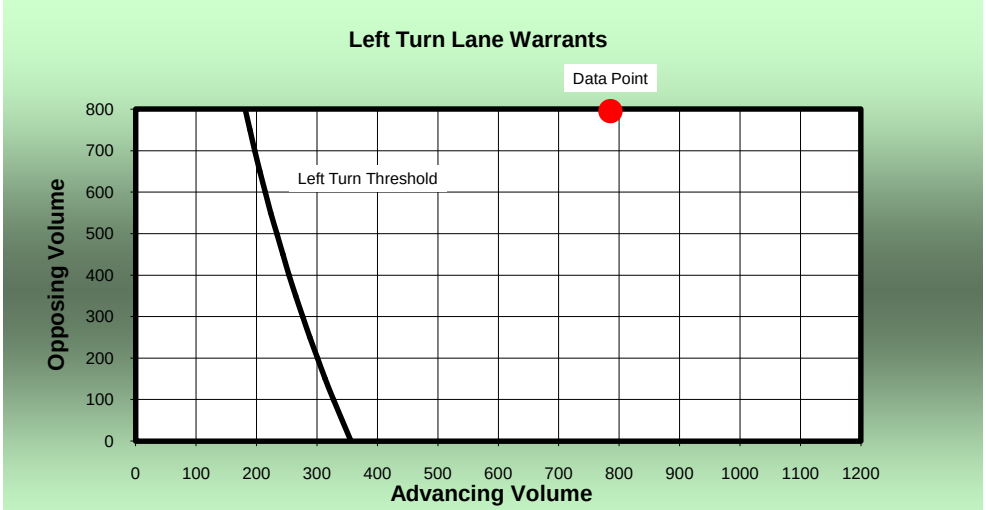
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

SOUTHBOUND
ALTERNATIVES 4 AND 5

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	280	Speed Limit (mph)	45
Advancing Volume (vph)	775	No. of through lanes	2
Opposing Volume (vph)	795	Percent Heavy Vehicles (decimal percent)	0.05



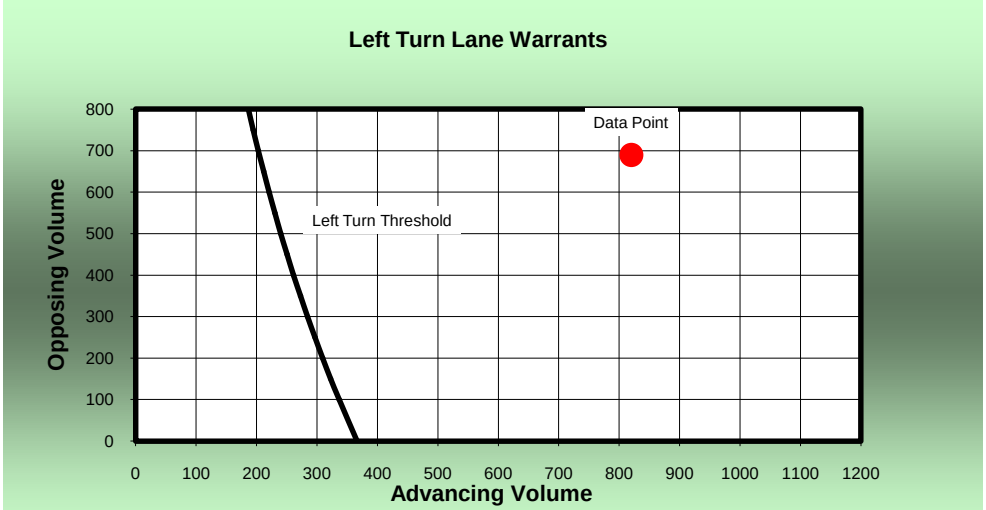
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	260	Speed Limit (mph)	45
Advancing Volume (vph)	810	No. of through lanes	2
Opposing Volume (vph)	690	Percent Heavy Vehicles (decimal percent)	0.05



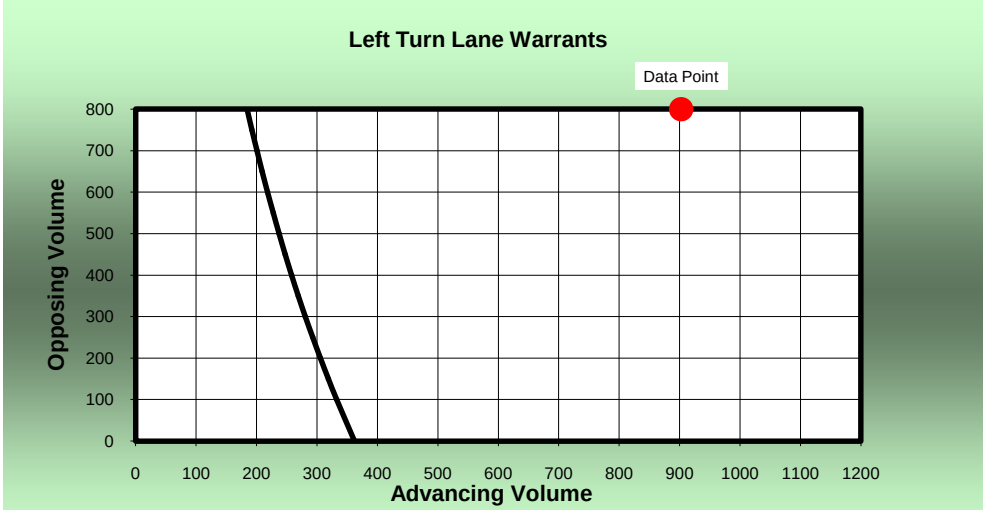
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	300	Speed Limit (mph)	45
Advancing Volume (vph)	890	No. of through lanes	2
Opposing Volume (vph)	805	Percent Heavy Vehicles (decimal percent)	0.05



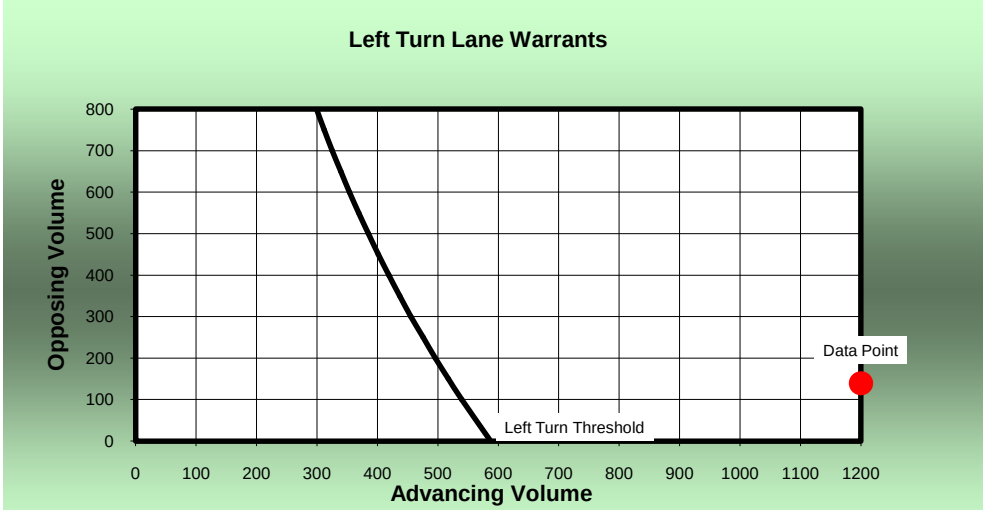
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	130	Speed Limit (mph)	45
Advancing Volume (vph)	1395	No. of through lanes	2
Opposing Volume (vph)	140	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	180	Speed Limit (mph)	45
Advancing Volume (vph)	1120	No. of through lanes	2
Opposing Volume (vph)	1090	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

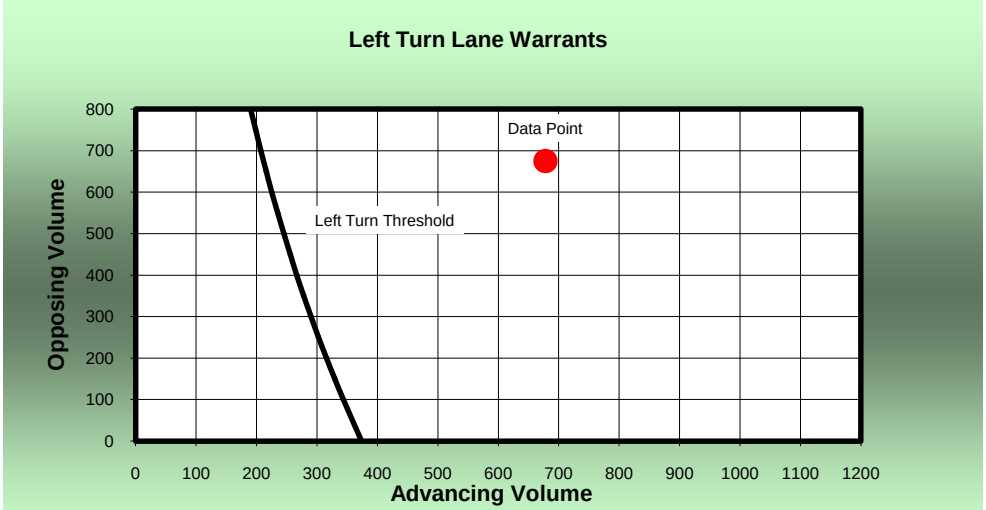
Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	1190	No. of through lanes	2
Opposing Volume (vph)	1275	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	200	Speed Limit (mph)	45
Advancing Volume (vph)	670	No. of through lanes	2
Opposing Volume (vph)	675	Percent Heavy Vehicles (decimal percent)	0.05



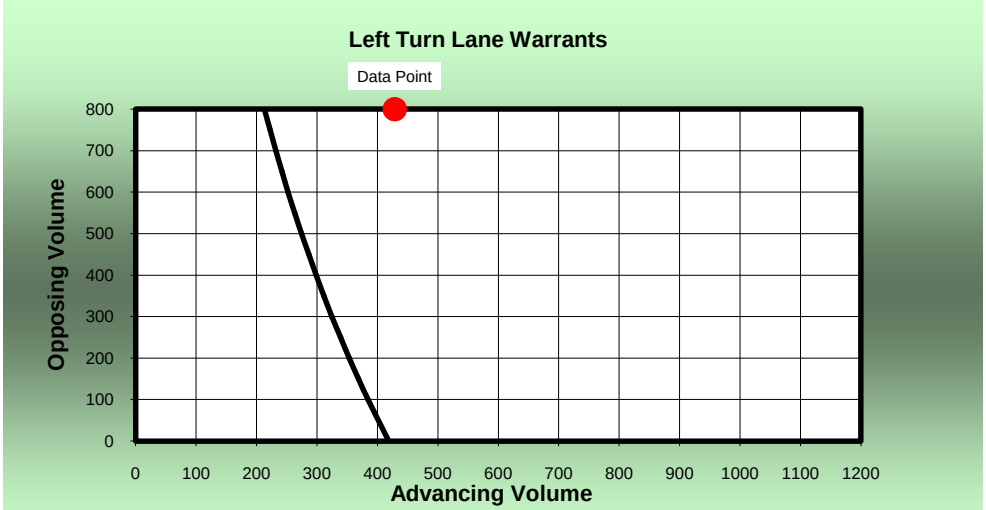
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	420	No. of through lanes	2
Opposing Volume (vph)	1190	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	390	No. of through lanes	2
Opposing Volume (vph)	1425	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	985	No. of through lanes	2
Opposing Volume (vph)	805	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	1100	No. of through lanes	2
Opposing Volume (vph)	840	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	1080	No. of through lanes	2
Opposing Volume (vph)	995	Percent Heavy Vehicles (decimal percent)	0.05

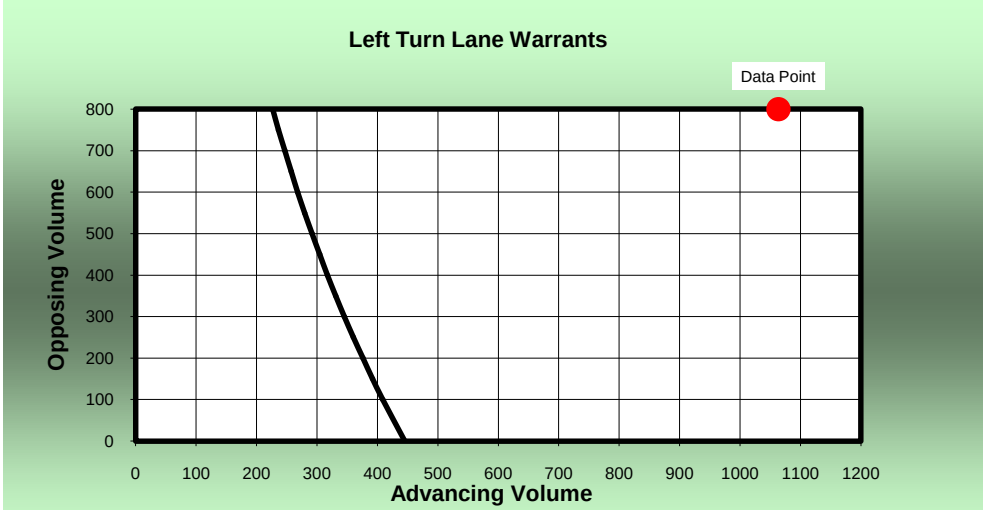
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	190	Speed Limit (mph)	45
Advancing Volume (vph)	1045	No. of through lanes	2
Opposing Volume (vph)	1005	Percent Heavy Vehicles (decimal percent)	0.05



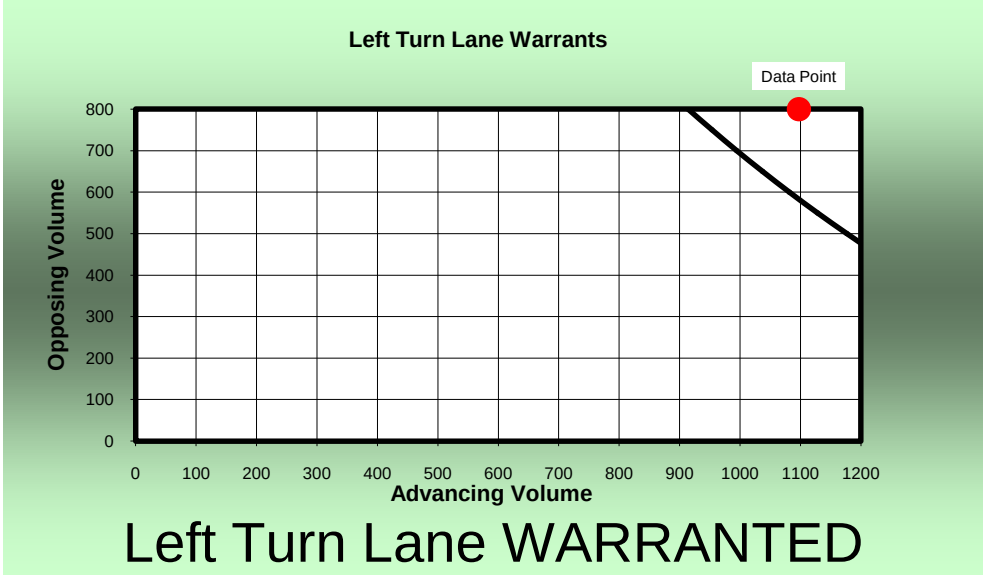
Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	10	Speed Limit (mph)	45
Advancing Volume (vph)	1080	No. of through lanes	2
Opposing Volume (vph)	920	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	90	Speed Limit (mph)	45
Advancing Volume (vph)	1270	No. of through lanes	2
Opposing Volume (vph)	1195	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	230	Speed Limit (mph)	45
Advancing Volume (vph)	1185	No. of through lanes	2
Opposing Volume (vph)	915	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	20	Speed Limit (mph)	45
Advancing Volume (vph)	1140	No. of through lanes	2
Opposing Volume (vph)	1130	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

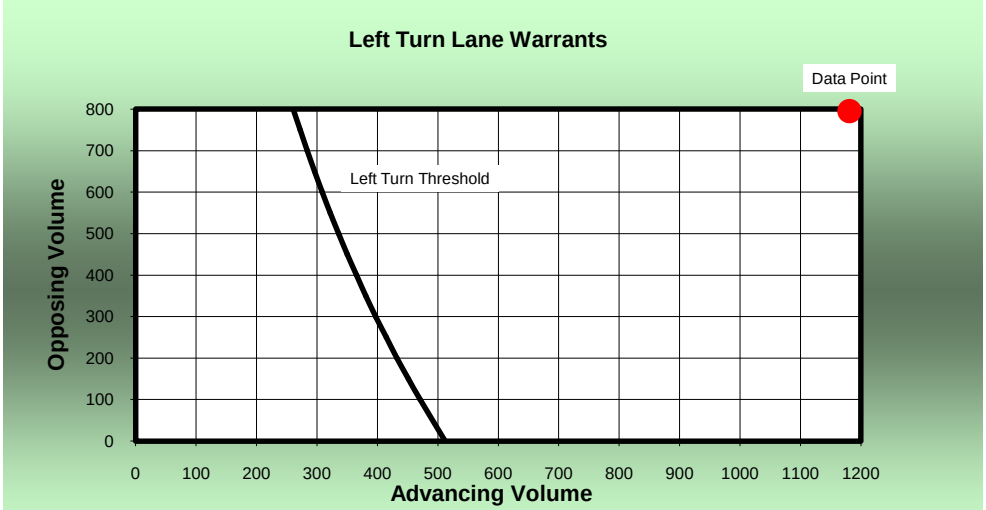
Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	1380	No. of through lanes	2
Opposing Volume (vph)	1315	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	150	Speed Limit (mph)	45
Advancing Volume (vph)	1165	No. of through lanes	2
Opposing Volume (vph)	795	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	70	Speed Limit (mph)	45
Advancing Volume (vph)	870	No. of through lanes	2
Opposing Volume (vph)	1130	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	60	Speed Limit (mph)	45
Advancing Volume (vph)	820	No. of through lanes	2
Opposing Volume (vph)	1245	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	80	Speed Limit (mph)	45
Advancing Volume (vph)	1375	No. of through lanes	2
Opposing Volume (vph)	765	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1160	No. of through lanes	2
Opposing Volume (vph)	1090	Percent Heavy Vehicles (decimal percent)	0.05

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Left Turn Lane Warrants

Input Fields

Left Turn Volume (vph)	100	Speed Limit (mph)	45
Advancing Volume (vph)	1020	No. of through lanes	2
Opposing Volume (vph)	1215	Percent Heavy Vehicles (decimal percent)	0.05

Left Turn Lane WARRANTED

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

APPENDIX F

Wendy's Avg 3,500 sf :

AM in 44 out 42 — Pass-By: 86

PM in 30 out 28 — Pass-By: 59

Marathon Avg 10 fueling Positions

AM in 22 out 22 — Pass-By 57

PM in 29 out 29 — Pass-By 75

National City Bank 3,500 sf

AM in 13 out 10 — Pass-By 20

PM in 24 out 24 — Pass-By 42

Shoney's 6,000 sf

AM in @ 20 out @ 19 — pass-by 30

PM in 22 out 16 — pass-by 29

Proposed Restaurant 6,000sf AM: in 20 Pass-by 30
out 19

PM in 22 Pass-by 29
out 16

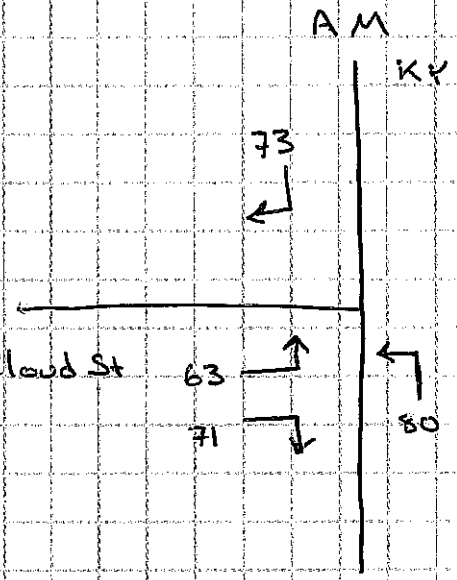
Proposed Hotel 100 rooms AM: in 34
out 22

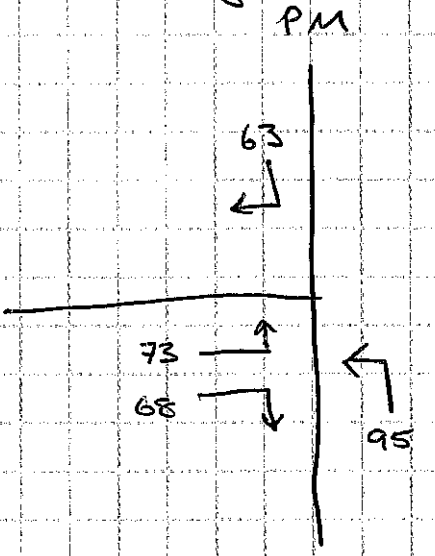
PM in 31
out 28

	AM			PM		
	In	Out	Pass-by	In	Out	Pass-by
Wendey's	44	42	86	30	28	59
Marathon	22	22	57	29	29	75
National City	13	10	20	24	24	42
Shoneys	20	19	30	22	16	29
Proposed Restaurant	20	19	30	22	16	29
Proposed Hotel	34	22	0	31	28	
	153	134	223	158	141	234

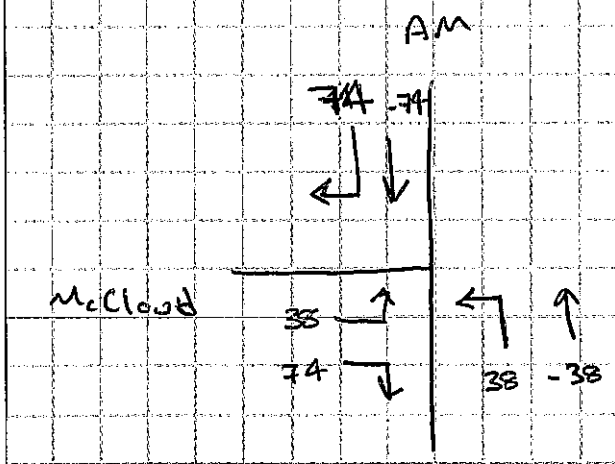
Primary Trips *

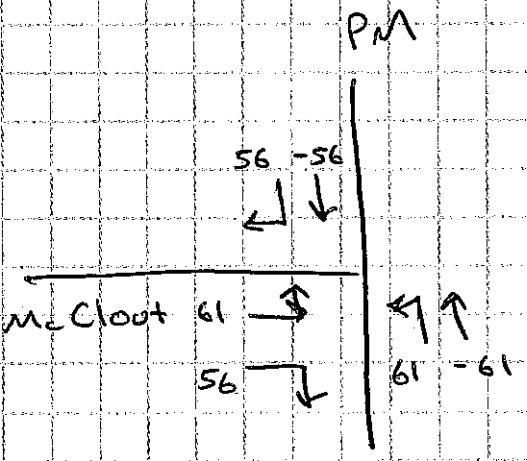
*based on traffic distributions entering and leaving walmart



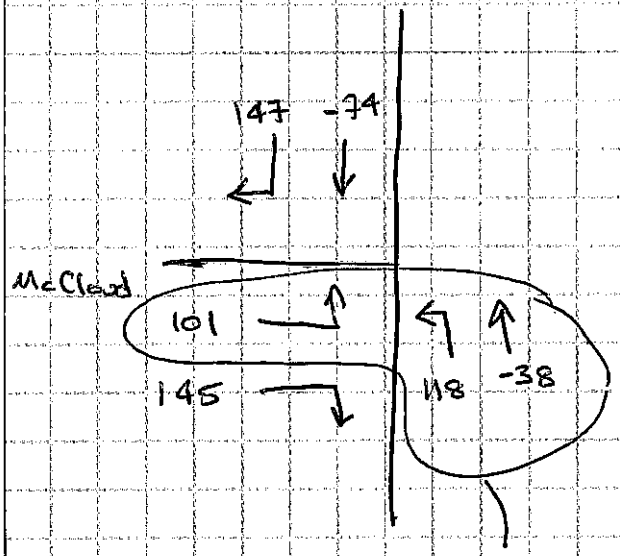


Pass-By Trips

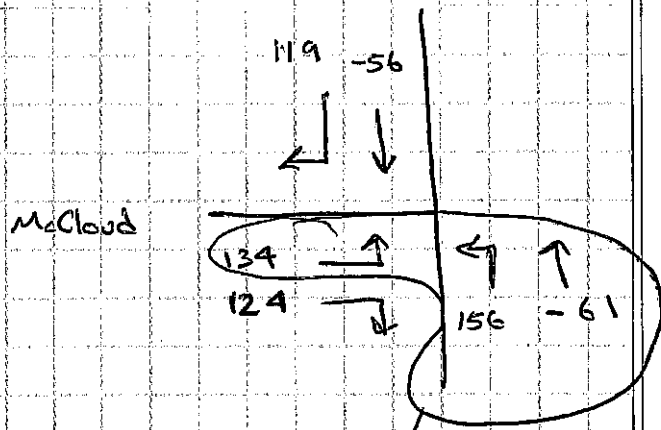




Total AM McCloud Trips

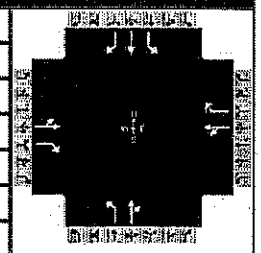


Total PM McCloud Trips



Moved to Walmart intersection

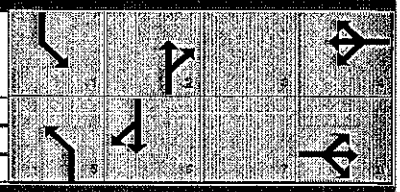
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	AM KY 321 & New Walmart (McCloud).xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	181	30	90	40	10	80	268	537	30	130	1125	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	15.0	5.8	64.8	55.7	0.0	0.0	
Yellow	4.3	0.0	4.3	5.0	0.0	0.0	
Red	1.8	0.0	1.8	1.5	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	62.2	62.2	62.2	62.2	26.9	76.7	21.1	70.9
Change Period, (Y+Rc), s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway (MAH), s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s	57.7	57.7	57.7	57.7	22.8		14.9	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.19	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	234	0	100	56	0	89	298	0	630	144	1250	156
Adjusted Saturation Flow Rate (s), veh/h/ln	0	0	1579	17	0	1579	1774	0	1845	1774	1863	1579
Queue Service time (g_s), s	0.0	0.0	7.1	0.0	0.0	6.2	20.8	0.0	41.8	12.9	64.6	10.4
Cycle Queue Clearance Time (g_c), s	55.7	0.0	7.1	55.7	0.0	6.2	20.8	0.0	41.8	12.9	64.6	10.4
Capacity (c), veh/h	42		550	46		550	231		812	166	752	637
Volume-to-Capacity Ratio (X)	5.604	0.000	0.182	1.199	0.000	0.162	1.291	0.000	0.776	0.868	1.662	0.244
Available Capacity (c_a), veh/h	42		550	46		550	231		812	231	752	637
Back of Queue (Q), veh/ln	98.6		2.8	8.6		2.5	43.1		16.2	6.4	275.2	4.0
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (RQ)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (d_1), s/veh	80.0		36.3	73.0		36.0	69.6		27.7	71.5	36.9	31.6
Incremental Delay (d_2), s/veh	8340.0	0.0	0.2	519.5	0.0	0.2	527.0	0.0	0.7	13.1	1194.6	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	8420.0		36.5	592.6		36.2	596.6		28.4	84.6	1231.5	32.0
Level of Service (LOS)	F		D	F		D	F		C	F	F	C
Approach Delay, s/veh / LOS	5913.3	F		250.2	F		210.7	F		1004.3	F	
Intersection Delay s/veh / LOS	1273.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	0.7	A	2.0	B	3.0	C

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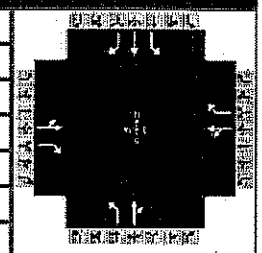
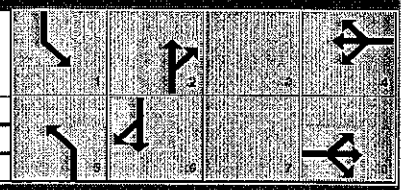
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	PM KY 321 & New Walmart (McCloud).xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	464	40	300	50	50	190	506	824	40	150	810	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	15.3	9.4	44.8	45.7	0.0	0.0	
Yellow	4.3	4.3	4.3	5.0	0.0	0.0	
Red	1.8	1.8	1.8	1.5	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, $(Y+R_c)$, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s	47.7	47.7	47.7	47.7	32.8		14.9	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	560	0	333	111	0	211	562	0	960	167	900	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1847	1774	1863	1579
Queue Service time (g_s), s	0.0	0.0	25.2	0.0	0.0	14.6	30.8	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time (g_c), s	45.7	0.0	25.2	45.7	0.0	14.6	30.8	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		793	194	593	503
Volume-to-Capacity Ratio *(X)*	11.336	0.000	0.647	1.705	0.000	0.410	1.441	0.000	1.211	0.858	1.517	0.508
Available Capacity (c_a), veh/h	49		515	65		515	390		793	390	593	503
Back of Queue *(Q)*, veh/ln	257.6		10.2	26.4		5.7	99.5		106.2	6.0	172.2	7.2
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (d_1), s/veh	70.0		40.3	51.8		36.7	54.6		30.4	61.3	40.3	38.8
Incremental Delay (d_2), s/veh	18644.8	0.0	3.0	1331.9	0.0	0.6	794.3	0.0	381.2	5.6	934.1	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	18714.8		43.3	1383.6		37.3	848.9		411.6	66.8	974.4	40.5
Level of Service (LOS)	F		D	F		D	F		F	E	F	D
Approach Delay, s/veh / LOS	11747.8	F		501.5	F		573.1	F		679.5	F	
Intersection Delay s/veh / LOS	3060.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	2.0	A	1.0	A	3.0	C	2.7	B

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APPENDIX G

HCS SUMMARY

PRELIMINARY INTERSECTION CONGESTION REDUCTION SUMMARY

 # OF INTERSECTION LEGS WITH IMPROVED DELAY OR V/C (VOLUME TO CAPACITY RATIO) IN BOTH AM AND PM PEAKS

INTERSECTIONS	ALTERNATIVE 4C RIGHT TURN LANES		ALTERNATIVE 4D with continuous right and turn lane		ALTERNATIVE 1B		ALT 1C		ALTERNATIVE 2+3		ALT 2A-1		ALTERNATIVE 4		ALT 4D WITH KMART FIRST ENTRANCE CLOSED		ALTERNATIVE 5		ALTERNATIVE 6		ALTERNATIVE 7		ALTERNATIVE 8	
	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD	KY 321	X ROAD
KY 321 @ KY 40	0	0	0	0	6	0	4	0	1	1	5	1	0	0	0	0	0	0	4	0	4	0	3	1
KY 321/WalMart/Lowes	3	0	1	0	4	1	1	0	1	0	1	0	6	0	0	1	6	0	2	0	1	0	4	0
KY 321 @ Arbys/Kmart	0	4	0	4	4	5	5	5	4	3	4	5	0	6	0	0	0	6	4	6	4	5	0	0
KY 321 @ Mayo Plaza (McDonalds Intersection)	2	0	0	0	2	0	2	0	0	0	0	0	8	0	0	0	8	0	3	0	2	0	0	0
KY 321 @ JCCHS Entrance	0	0	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	0	1	0	2	0	0	0
KY 321@JCCMS/Post Office	3	0	0	0	2	0	0	0	2	0	1	0	8	0	0	0	8	0	3	0	1	0	0	0
KY 321 @ Appletree Plaza	3	0	0	0	2	0	1	0	2	0	2	0	6	0	0	0	6	0	3	0	2	0	0	0
KY 321 @ KY 2378 (James Trimble Boulevard)	0	0	0	0	3	0	3	0	3	0	3	0	4	0	0	0	4	0	2	0	3	0	0	0
KY 321 @ KY 321X	0	0	0	0	4	2	4	2	2	1	3	2	0	0	0	0	0	3	0	0	0	0	0	0
TOTAL # OF INTERSECTION LEGS WITH IMPROVED DELAY OR V/C (VOLUME TO CAPACITY RATIO)	**11**	**4**	**1**	**4**	**29**	**8**	**22**	**7**	**15**	**5**	**21**	**8**	**32**	**6**	**0**	**1**	**32**	**9**	**22**	**6**	**19**	**5**	**7**	**1**

IMPROVED DELAY OR V/C RATIO NOT EXCEEDING 1.0

KY 321X/KY 321 INTERSECTION T1
2035 PEAK HOUR CAPACITY ANALYSIS

AM	Northbound, Left			Southbound, Left			Westbound, TRL			Eastbound, TRL		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.01	8.2	A	0.26	10.3	B	0.31	23.5	C	0.02	10.8	B
No-Build	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Right Turn Alternative	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Walmart/Kmart Continuous Right	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Alternative 1B	0.01	8.4	A	0.33	11.3	B	0.42	32	D	0.02	11.3	B
Alternative 1C	0.03	8.4	A	0.34	11.5	B	0.48	33.8	D	0.02	11.4	B
Alternative 2+3	0.01	8.6	A	0.34	12	B	0.4	48.4	E	0.02	11.8	B
Alternative 2C-1	0.01	8.5	A	0.36	11.7	B	0.49	38.2	E	0.02	11.7	B
Alternative 4	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Alternative 4D	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Alternative 5	0.01	8.6	A	0.4	12.8	B	0.44	30.4	D	0.01	9.8	A
Alternative 6	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Alternative 7	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B
Alternative 8	0.01	8.6	A	0.4	12.7	B	0.63	54.5	F	0.02	11.8	B

PM	Northbound, Left			Southbound, Left			Westbound, TRL			Eastbound, TRL		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.01	8.4	A	0.29	10.5	B	0.81	63.6	F	0.29	39.6	E
No-Build	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Right Turn Alternative	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Walmart/Kmart Continuous Right	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Alternative 1B	0.01	8.5	A	0.32	11.3	B	1.42	N/A	F	0.79	131.8	F
Alternative 1C	0.01	8.6	A	0.37	11.9	B	1.83	N/A	F	1.1	N/A	F
Alternative 2+3	0.01	8.9	A	0.37	12.4	B	2.11	N/A	F	1.03	N/A	F
Alternative 2C-1	0.01	8.9	A	0.41	12.8	B	2.62	N/A	F	1.57	N/A	F
Alternative 4	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Alternative 4D	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Alternative 5	0.01	8.9	A	0.44	13.3	B	2.09	N/A	F	0.99	209.7	F
Alternative 6	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Alternative 7	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F
Alternative 8	0.01	8.9	A	0.43	13.3	B	3.16	N/A	F	1.94	N/A	F

KY 321/2ND STREET (KY 2378) INTERSECTION #T5
2035 PEAK HOUR CAPACITY ANALYSIS

AM

	Eastbound, Left/Through			Eastbound, Right			Westbound, Left			Westbound, Right			Northbound, Left			Northbound, Through			Northbound, Right			Southbound, Left			Southbound, Through		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	---	---	---	---	---	---	0.059	37.9	D	0.508	45.3	D	---	---	---	0.699	35.1	D	0.14	25.6	C	0.891	69.4	E	0.589	7.9	A
No-Build	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.966	85.5	F	0.22	30.7	C	0.929	73	E	0.741	9.6	A
Right Turn Alternative	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.966	85.5	F	0.22	30.7	C	0.929	73	E	0.741	9.6	A
Walmart/Kmart Continuous Right	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.966	85.5	F	0.22	30.7	C	0.929	73	E	0.741	9.6	A
Alternative 1B	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.809	50.6	D	0.22	30.7	C	0.929	73	E	0.657	8.7	A
Alternative 1C	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.837	53.3	D	0.22	30.7	C	0.929	73	E	0.706	9.2	A
Alternative 2+3	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.837	53.3	D	0.22	30.7	C	0.929	73	E	0.696	9	A
Alternative 2C-1	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D				0.83	52.5	D	0.22	30.7	C	0.929	73	E	0.716	9.3	A
Alternative 4	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.507	35.8	D	0.22	30.7	C	0.929	73	E	0.389	7	A
Alternative 4D	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.966	85.5	F	0.22	30.7	C	0.929	73	E	0.741	9.6	A
Alternative 5	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.507	35.8	D	0.22	30.7	C	0.929	73	E	0.389	7	A
Alternative 6	3.504	N/A	F	0.455	44.1	D	1.47	N/A	F	0.685	51.7	D	0.803	90.2	F	0.901	62.6	E	0.152	29.5	C	0.929	73	E	0.777	21.6	C
Alternative 7	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.852	54.9	D	0.22	30.7	C	0.929	73	E	0.574	8	A
Alternative 8	---	---	---	---	---	---	0.079	38.2	D	0.685	51.6	D	---	---	---	0.966	85.5	F	0.22	30.7	C	0.929	73	E	0.741	9.6	A

PM

	Eastbound, Left/Through			Eastbound, Right			Westbound, Left			Westbound, Right			Northbound, Left			Northbound, Through			Northbound, Right			Southbound, Left			Southbound, Through		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	---	---	---	---	---	---	0.069	29.1	C	0.483	35.1	D	---	---	---	1.038	150.9	F	0.104	25.9	C	0.853	63	E	0.756	13.3	B
No-Build	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.433	N/A	F	0.168	29.7	C	0.888	62.1	E	0.961	20.9	C
Right Turn Alternative	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.433	N/A	F	0.168	29.7	C	0.888	62.1	E	0.961	20.9	C
Walmart/Kmart Continuous Right	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.433	N/A	F	0.168	29.7	C	0.888	62.1	E	0.961	20.9	C
Alternative 1B	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.227	N/A	F	0.168	29.7	C	0.888	62.1	E	0.783	13.8	B
Alternative 1C	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.267	N/A	F	0.168	29.7	C	0.888	62.1	E	0.821	14.6	B
Alternative 2+3	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.275	N/A	F	0.168	29.7	C	0.888	62.1	E	0.913	17.4	B
Alternative 2C-1	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.314	N/A	F	0.168	29.7	C	0.888	62.1	E	0.922	18.5	B
Alternative 4	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	0.753	42	D	0.168	29.7	C	0.888	62.1	E	0.505	10.5	B
Alternative 4D	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.433	N/A	F	0.168	29.7	C	0.888	62.1	E	0.961	20.9	C
Alternative 5	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	0.753	42	D	0.168	29.7	C	0.888	62.1	E	0.505	10.5	B
Alternative 6	2.805	N/A	F	0.358	33	C	1.869	N/A	F	0.638	39.5	D	0.822	76.3	E	1.25	N/A	F	0.168	29.6	C	0.887	62.1	E	1.137	N/A	F
Alternative 7	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.259	N/A	F	0.168	29.7	C	0.888	62.1	E	0.81	14.3	B
Alternative 8	---	---	---	---	---	---	0.103	29.5	C	0.638	39.4	D	---	---	---	1.433	N/A	F	0.168	29.7	C	0.888	62.1	E	0.961	20.9	C

KY 321/APPLETREE PLAZA INTERSECTION #7
2035 PEAK HOUR CAPACITY ANALYSIS

AM

	Westbound, Left			Westbound, Right			Northbound, Through			Northbound,Through/ Right			Northbound, Right			Southbound, Left			Southbound, Through		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.244	47.5	D	0.275	48	D	---	---	---	0.828	17.6	B	---	---	---	0.81	75	E	0.619	4.3	A
No-Build	0.244	47.5	D	0.275	48	D	---	---	---	0.96	23.9	C	---	---	---	0.81	75	E	0.8	5.4	A
Right Turn Alternative	0.244	47.5	D	0.275	48	D	---	---	---	0.835	16	B	0.129	16.7	B	0.81	75	E	0.8	5.4	A
Walmart/Kmart Continuous Right	0.244	47.5	D	0.275	48	D	---	---	---	0.96	23.9	C	---	---	---	0.81	75	E	0.8	5.4	A
Alternative 1B	0.244	47.5	D	0.275	48	D	---	---	---	0.911	20.1	C	---	---	---	0.81	75	E	0.725	4.8	A
Alternative 1C	0.244	47.5	D	0.275	48	D	---	---	---	0.922	20.5	C	---	---	---	0.81	75	E	0.734	4.9	A
Alternative 2+3	0.244	47.5	D	0.275	48	D	---	---	---	0.897	19.7	B	---	---	---	0.81	75	E	0.721	4.3	A
Alternative 2C-1	0.244	47.5	D	0.275	48	D	---	---	---	0.865	18.6	B	---	---	---	0.81	75	E	0.778	5.2	A
Alternative 4	0.244	47.5	D	0.275	48	D	0.48	11.1	B	0.48	13.4	B	---	---	---	0.81	75	E	0.41	3.1	A
Alternative 4D	0.244	47.5	D	0.275	48	D	---	---	---	0.96	23.9	C	---	---	---	0.81	75	E	0.8	5.4	A
Alternative 5	0.244	47.5	D	0.275	48	D	0.48	11.1	B	0.48	13.4	B	---	---	---	0.81	75	E	0.41	3.1	A
Alternative 6	0.244	47.5	D	0.275	48	D	---	---	---	0.839	17.2	B	---	---	---	0.81	75	E	0.575	4.2	A
Alternative 7	0.244	47.5	D	0.275	48	D	---	---	---	0.844	18.1	B	---	---	---	0.81	75	E	0.65	4.4	A
Alternative 8	0.244	47.5	D	0.275	48	D	---	---	---	0.96	23.9	C	---	---	---	0.81	75	E	0.8	5.4	A

PM

	Westbound, Left			Westbound, Right			Northbound, Through			Northbound,Through/ Right			Northbound, Right			Southbound, Left			Southbound, Through		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.214	37.6	D	0.24	38	D	---	---	---	1.15	N/A	F	---	---	---	0.791	65.3	E	0.912	11	B
No-Build	0.214	37.6	D	0.24	38	D	---	---	---	1.473	N/A	F	---	---	---	0.791	65.3	E	1.178	N/A	F
Right Turn Alternative	0.214	37.6	D	0.24	38	D	---	---	---	1.335	N/A	F	0.143	18.4	B	0.791	65.3	E	1.178	N/A	F
Walmart/Kmart Continuous Right	0.214	37.6	D	0.24	38	D	---	---	---	1.473	N/A	F	---	---	---	0.791	65.3	E	1.178	N/A	F
Alternative 1B	0.214	37.6	D	0.24	38	D	---	---	---	1.274	N/A	F	---	---	---	0.791	65.3	E	1.022	56.6	F
Alternative 1C	0.214	37.6	D	0.24	38	D	---	---	---	1.303	N/A	F	---	---	---	0.791	65.3	E	1.055	113.4	F
Alternative 2+3	0.214	37.6	D	0.24	38	D	---	---	---	1.191	N/A	F	---	---	---	0.791	65.3	E	1.093	180.8	F
Alternative 2C-1	0.214	37.6	D	0.24	38	D	---	---	---	1.211	N/A	F	---	---	---	0.791	65.3	E	1.155	N/A	F
Alternative 4	0.214	37.6	D	0.24	38	D	0.753	17.1	B	0.738	18.8	B	---	---	---	0.791	65.3	E	0.604	6.6	A
Alternative 4D	0.214	37.6	D	0.24	38	D	---	---	---	1.473	N/A	F	---	---	---	0.791	65.3	E	1.178	N/A	F
Alternative 5	0.214	37.6	D	0.24	38	D	0.753	17.1	B	0.738	18.8	B	---	---	---	0.791	65.3	E	0.604	6.6	A
Alternative 6	0.214	37.6	D	0.24	38	D	---	---	---	1.085	179.8	F	---	---	---	0.791	65.3	E	0.969	15.1	B
Alternative 7	0.214	37.6	D	0.24	38	D	---	---	---	1.297	N/A	F	---	---	---	0.791	65.3	E	1.045	96.8	F
Alternative 8	0.214	37.6	D	0.24	38	D	---	---	---	1.473	N/A	F	---	---	---	0.791	65.3	E	1.178	N/A	F

KY 321/POST OFFICE/JOHNSON CENTRAL SCHOOL INTERSECTION #T6
2035 PEAK HOUR CAPACITY ANALYSIS

AM

	Eastbound, L/T/R			Westbound, L/T/R			Northbound, Left			Northbound,Through			Northbound, Through/Right			Northbound, Right			Southbound, Left			Southbound, Through			Southbound, Through/Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.13	55.6	E	0.799	71.3	E	0.532	78.2	E	---	---	---	0.774	11.8	B	---	---	---	0.87	71.5	E	---	---	---	0.581	2.8	A
No-Build	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.127	N/A	F	---	---	---	0.897	70.5	E	---	---	---	0.798	7.7	A
Right Turn Alternative	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	0.969	26.6	C	0.163	19.2	B	0.897	70.5	E	---	---	---	0.798	7.7	A
Walmart/Kmart Continuous Right	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.127	N/A	F	---	---	---	0.897	70.5	E	---	---	---	0.798	7.7	A
Alternative 1B	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.004	46.7	D	---	---	---	0.897	70.5	E	---	---	---	0.719	6.8	A
Alternative 1C	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.027	78.6	F	---	---	---	0.897	70.5	E	---	---	---	0.728	6.9	A
Alternative 2+3	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	0.971	27.8	C	---	---	---	0.897	70.5	E	---	---	---	0.668	6.1	A
Alternative 2C-1	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.021	69.7	F	---	---	---	0.897	70.5	E	---	---	---	0.775	7.4	A
Alternative 4	0.105	49	D	0.839	75	E	0.532	78.2	E	0.563	14.4	B	0.564	17	B	---	---	---	0.897	70.5	E	0.399	4.9	A	0.399	5.3	A
Alternative 4D	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.127	N/A	F	---	---	---	0.897	70.5	E	---	---	---	0.798	7.7	A
Alternative 5	0.105	49	D	0.839	75	E	0.532	78.2	E	0.563	14.4	B	0.564	17	B	---	---	---	0.897	70.5	E	0.399	4.9	A	0.399	5.3	A
Alternative 6	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.015	61.2	E	---	---	---	0.897	70.5	E	---	---	---	0.561	5.8	A
Alternative 7	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.038	97.3	F	---	---	---	0.897	70.5	E	---	---	---	0.64	6.2	A
Alternative 8	0.105	49	D	0.839	75	E	0.532	78.2	E	---	---	---	1.127	N/A	F	---	---	---	0.897	70.5	E	---	---	---	0.798	7.7	A

PM

	Westbound, L/T/R			Westbound, L/T/R			Northbound, Left			Northbound,Through			Northbound, Through/Right			Northbound, Right			Southbound, Left			Southbound, Through			Southbound, Through/Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.378	53.7	D	0.741	62	E	0.777	66.4	E	---	---	---	0.783	5.5	A	---	---	---	0.777	66.4	E	---	---	---	0.836	6	A
No-Build	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.117	N/A	F	---	---	---	0.799	65.2	E	---	---	---	1.191	N/A	F
Right Turn Alternative	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.047	101.3	F	0.073	12	B	0.799	65.2	E	---	---	---	1.191	N/A	F
Walmart/Kmart Continuous Right	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.117	N/A	F	---	---	---	0.799	65.2	E	---	---	---	1.191	N/A	F
Alternative 1B	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	0.987	23.1	C	---	---	---	0.799	65.2	E	---	---	---	1.025	66.3	E
Alternative 1C	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.012	46	D	---	---	---	0.799	65.2	E	---	---	---	1.061	126.5	F
Alternative 2+3	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.044	96.5	F	---	---	---	0.799	65.2	E	---	---	---	1.031	69.5	E
Alternative 2C-1	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.092	183.2	F	---	---	---	0.799	65.2	E	---	---	---	1.166	N/A	F
Alternative 4	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	0.558	7.8	A	0.559	8.8	A	---	---	---	0.799	65.2	E	0.595	8		0.596	8.8	A
Alternative 4D	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.117	N/A	F	---	---	---	0.799	65.2	E	---	---	---	1.191	N/A	F
Alternative 5	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	0.558	7.8	A	0.559	8.8	A	---	---	---	0.799	65.2	E	0.595	8		0.596	8.8	A
Alternative 6	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	0.977	20	B	---	---	---	0.799	65.2	E	---	---	---	0.97	18.5	B
Alternative 7	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.007	39.4	D	---	---	---	0.799	65.2	E	---	---	---	1.051	109	F
Alternative 8	0.389	48.2	D	0.789	59.9	E	0.799	65.2	E	---	---	---	1.117	N/A	F	---	---	---	0.799	65.2	E	---	---	---	1.191	N/A	F

KY 321/JCCHS INTERSECTION #5
2035 PEAK HOUR CAPACITY ANALYSIS

AM	Southbound, Left			Westbound, Left/Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.25	10.8	B	0.95	160.6	F
No-Build	0.34	12.1	B	2.22	N/A	F
Right Turn Alternative	0.34	12.1	B	2	N/A	F
Walmart/Kmart Continuous Right	0.34	12.1	B	2.22	N/A	F
Alternative 1B	0.32	11.5	B	1.97	N/A	F
Alternative 1C	0.32	11.7	B	2.05	N/A	F
Alternative 2+3	0.36	13	B	2.04	N/A	F
Alternative 2C-1	0.24	11.4	B	0.92	206.6	F
Alternative 4	0.34	12.2	B	1.43	N/A	F
Alternative 4D	0.34	12.1	B	2.22	N/A	F
Alternative 5	0.34	12.2	B	1.43	N/A	F
Alternative 6	0.34	12.2	B	2.05	N/A	F
Alternative 7	0.33	11.8	B	1.93	N/A	F
Alternative 8	0.34	12.1	B	2.22	N/A	F

PM	Southbound, Left			Westbound, Left/Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.09	11.4	B	1.43	N/A	F
No-Build	0.14	14.1	B	5.04	N/A	F
Right Turn Alternative	0.14	14.1	B	4.65	N/A	F
Walmart/Kmart Continuous Right	0.14	14.1	B	5.04	N/A	F
Alternative 1B	0.13	12.8	B	3.1	N/A	F
Alternative 1C	0.13	13.1	B	3.36	N/A	F
Alternative 2+3	0.15	14.4	B	4.65	N/A	F
Alternative 2C-1	0.07	13.2	B	2	N/A	F
Alternative 4	0.14	14.2	B	2.12	N/A	F
Alternative 4D	0.14	14.1	B	5.04	N/A	F
Alternative 5	0.14	14.2	B	2.12	N/A	F
Alternative 6	0.12	12.8	B	2.69	N/A	F
Alternative 7	0.13	13	B	3.27	N/A	F
Alternative 8	0.14	14.1	B	5.04	N/A	F

KY 321 & Mayo Plaza INTERSECTION #T8
2035 Peak Hour Capacity Analysis

AM

	Eastbound, Left/Through			Eastbound, Right			Westbound, Left/Through			Westbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.678	96.9	F	0.059	33.9	C	5.057	N/A	F	0.178	79.6	E
No-Build	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Right Turn Alternative	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Walmart/Kmart Continuous Right	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 1B	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 1C	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 2+3	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 2C-1	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 4	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 4D	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 5	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 6	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 7	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D
Alternative 8	0.678	97.1	F	0.079	34.2	C	6.295	N/A	F	0.217	36.1	D

	Northbound, Left			Northbound, Through			Northbound, Through/Right			Northbound, Right			Southbound, Left			Southbound, Through			Southbound, Through/Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.766	79.6	E	---	---	---	0.811	31.7	C	---	---	---	0.859	74.3	E	---	---	---	0.956	29.5	C
No-Build	0.772	78.3	E	---	---	---	1.104	228.3	F	---	---	---	0.886	74.4	E	---	---	---	1.247	N/A	F
Right Turn Alternative	0.772	78.3	E	0.787	30.2	C	---	---	---	0.327	31.2	C	0.886	74.4	E	---	---	---	1.247	N/A	F
Walmart/Kmart Continuous Right	0.772	78.3	E	---	---	---	1.104	228.3	F	---	---	---	0.886	74.4	E	---	---	---	1.247	N/A	F
Alternative 1B	0.772	78.3	E	---	---	---	0.949	40.7	D	---	---	---	0.886	74.4	E	---	---	---	1.143	N/A	F
Alternative 1C	0.772	78.3	E	---	---	---	0.977	45.4	D	---	---	---	0.886	74.4	E	---	---	---	1.155	N/A	F
Alternative 2+3	0.772	78.3	E	---	---	---	1.062	153.2	F	---	---	---	0.886	74.4	E	---	---	---	1.149	N/A	F
Alternative 2C-1	0.772	78.3	E	---	---	---	1.069	165.6	F	---	---	---	0.886	74.4	E	---	---	---	1.045	N/A	F
Alternative 4	0.772	78.3	E	0.552	25.8	C	0.553	30.8	C	---	---	---	0.886	74.4	E	0.624	19.8	B	0.624	20	B
Alternative 4D	0.772	78.3	E	---	---	---	1.104	228.3	F	---	---	---	0.886	74.4	E	---	---	---	1.247	N/A	F
Alternative 5	0.772	78.3	E	0.552	25.8	C	0.553	30.8	C	---	---	---	0.886	74.4	E	0.624	19.8	B	0.624	20	B
Alternative 6	0.772	78.3	E	---	---	---	0.963	42.4	D	---	---	---	0.886	74.4	E	---	---	---	0.934	28.5	C
Alternative 7	0.772	78.3	E	---	---	---	0.991	51.3	D	---	---	---	0.886	74.4	E	---	---	---	1.161	N/A	F
Alternative 8	0.772	78.3	E	---	---	---	1.104	228.3	F	---	---	---	0.886	74.4	E	---	---	---	1.247	N/A	F

N/A* With very high v/c ratio, delay calculations are unreliable.

PM

	Eastbound, Left/Through			Eastbound, Right			Westbound, Left/Through			Westbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	2.98	N/A*	F	0.189	33.2	C	4.798	N/A*	F	0.21	33.4	C
No-Build	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Right Turn Alternative	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Walmart/Kmart Continuous Right	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 1B	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 1C	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 2+3	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 2C-1	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 4	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 4D	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 5	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 6	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 7	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C
Alternative 8	3.636	N/A*	F	0.231	33.7	C	6.299	N/A*	F	0.252	34	C

	Northbound, Left			Northbound, Through			Northbound, Through/Right			Northbound, Right			Southbound, Left			Southbound, Through			Southbound, Through/Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.813	64.4	E	---	---	---	1.082	176.8	F	---	---	---	0.767	68.1	E	---	---	---	0.794	24.5	C
No-Build	0.839	62.9	E	---	---	---	1.412	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	1.069	157.4	F
Right Turn Alternative	0.839	62.9	E	---	---	---	1.12	242.2	F	0.301	22.1	C	0.773	67.2	E	---	---	---	1.069	157.4	F
Walmart/Kmart Continuous Right	0.839	62.9	E	---	---	---	1.412	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	1.069	157.4	F
Alternative 1B	0.839	62.9	E	---	---	---	1.251	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	0.838	27.6	C
Alternative 1C	0.839	62.9	E	---	---	---	1.282	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	0.887	29.2	C
Alternative 2+3	0.839	62.9	E	---	---	---	1.449	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	1.013	64.5	F
Alternative 2C-1	0.839	62.9	E	---	---	---	1.381	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	1.027	85.6	F
Alternative 4	0.839	62.9	E	0.704	18.9	B	0.707	22.2	C	---	---	---	0.773	67.2	E	0.534	21.8	C	0.534	22.3	C
Alternative 4D	0.839	65.5	E	---	---	---	1.412	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	1.069	157.4	F
Alternative 5	0.839	62.9	E	0.704	18.5	B	0.707	22.2	C	---	---	---	0.773	67.2	E	0.534	21.8	C	0.534	22.3	C
Alternative 6	0.839	62.9	E	---	---	---	1.238	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	0.761	25.8	C
Alternative 7	0.839	62.9	E	---	---	---	1.276	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	0.873	28.7	C
Alternative 8	0.839	62.9	E	---	---	---	1.412	N/A*	F	---	---	---	0.773	67.2	E	---	---	---	1.069	157.4	F

N/A* With very high v/c ratio, delay calculations are unreliable.

KY 321/K MART INTERSECTION #T9
2035 PEAK HOUR CAPACITY ANALYSIS

AM

	Northbound, Left			Southbound, Left			Westbound, Left/Through			Westbound, Right			Eastbound, Left/Through			Eastbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.01	10.9	B	0.07	9.1	A	0.43	122.1	F	0.07	13	B	0.11	92.6	F	0.02	19.3	C
No-Build	0.02	12.8	B	0.11	10.1	B	1.74	N/A	F	0.12	15.8	C	0.65	N/A	F	0.06	27.5	D
Right Turn Alternative	0.02	12.8	B	0.11	10.1	B	1.74	N/A	F	0.11	15.5	C	0.61	N/A	F	0.06	26.4	D
Walmart/Kmart Continuous Right	0.02	12.8	B	0.11	10.1	B	1.74	N/A	F	0.11	15.5	C	0.61	N/A	F	0.06	26.4	D
Alternative 1B	0.02	12.2	B	0.1	9.5	A	1.22	N/A	F	0.1	14	B	0.44	N/A	F	0.06	24.7	C
Alternative 1C	0.02	12.2	B	0.1	9.6	A	1.27	N/A	F	0.1	14.3	B	0.46	N/A	F	0.06	25	C
Alternative 2+3	0.02	12.2	B	0.11	9.9	A	1.43	N/A	F	0.11	15.3	C	0.52	N/A	F	0.06	24.8	C
Alternative 2C-1	0.02	11.8	B	0.11	9.9	A	1.27	N/A	F	0.11	15.4	C	0.48	N/A	F	0.05	23.2	C
Alternative 4	0.02	12.9	B	0.11	10.1	B	0.62	150	F	0.07	11.1	B	0.38	191.2	F	0.03	13.7	B
Alternative 4D	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Alternative 5	0.02	12.9	B	0.11	10.1	B	0.62	150	F	0.07	11.1	B	0.38	191.2	F	0.03	13.7	B
Alternative 6	0.02	11.1	B	0.1	9.6	A	0.89	N/A	F	0.1	14.2	B	0.32	155.1	F	0.04	20	C
Alternative 7	0.02	11.6	B	0.1	9.7	A	1.1	N/A	F	0.1	14.5	B	0.39	N/A	F	0.05	22.1	C
Alternative 8	0.02	12.8	B	0.11	10.1	B	1.74	N/A	F	0.12	15.8	C	0.65	N/A	F	0.06	27.5	D

PM

	Northbound, Left			Southbound, Left			Westbound, Left/Through			Westbound, Right			Eastbound, Left/Through			Eastbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.03	9.5	A	0.13	11.2	B	0.75	N/A	F	0.26	21.1	C	1.42	N/A	F	0.03	14	B
No-Build	0.05	10.6	B	0.21	13.7	B	4.4	N/A	F	0.48	37.4	E	11	N/A	F	0.04	17.1	C
Right Turn Alternative	0.05	10.6	B	0.21	13.7	B	4.4	N/A	F	0.45	33.4	D	9.17	N/A	F	0.03	16.2	C
Walmart/Kmart Continuous Right	0.05	10.6	B	0.21	13.7	B	4.4	N/A	F	0.45	33.4	D	9.17	N/A	F	0.03	16.2	C
Alternative 1B	0.04	9.7	A	0.19	12.4	B	2.1	N/A	F	0.4	28.2	D	4.23	N/A	F	0.03	14.4	B
Alternative 1C	0.04	9.9	A	0.19	12.6	B	2.32	N/A	F	0.41	29.8	D	5.5	N/A	F	0.03	14.9	B
Alternative 2+3	0.05	10.3	B	0.22	14	B	4.89	N/A	F	0.5	40.1	E	11	N/A	F	0.03	16.4	C
Alternative 2C-1	0.05	10.4	B	0.21	13.4	B	3.67	N/A	F	0.46	35	E	9.17	N/A	F	0.03	16.5	C
Alternative 4	0.05	10.6	B	0.21	13.8	B	2.75	N/A	F	0.22	14.9	B	3.24	N/A	F	0.02	11.5	B
Alternative 4D	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Alternative 5	0.05	10.6	B	0.21	13.8	B	2.75	N/A	F	0.22	14.9	B	3.24	N/A	F	0.02	11.5	B
Alternative 6	0.04	9.5	A	0.18	12.3	B	1.76	N/A	F	0.39	27.8	D	3.67	N/A	F	0.03	13.7	B
Alternative 7	0.04	9.8	A	0.19	12.6	B	2.32	N/A	F	0.41	29.5	D	4.58	N/A	F	0.03	14.8	B
Alternative 8	0.05	10.6	B	0.21	13.7	B	4.4	N/A	F	0.48	37.4	E	11	N/A	F	0.04	17.1	C

KY 321/WALMART INTERSECTION #T10
2035 PEAK HOUR CAPACITY ANALYSIS

AM

	Eastbound, Through/Left			Eastbound, Right			Westbound, Through/Left			Westbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	1.583	N/A	F	0.217	50.6	D	0.795	103.7	F	0.186	50.2	D
No-Build	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Right Turn Alternative	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Walmart/Kmart Continuous Right	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 1B	2.193	N/A	F	0.207	41.3	D	1.034	N/A	F	0.092	39.7	D
Alternative 1C	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 2+3	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 2C-1	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 4	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 4D	2.461	N/A	F	0.212	38.6	D	1.052	N/A	F	0.169	37.9	D
Alternative 5	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 6	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 7	2.188	N/A	F	0.202	40.5	D	1.031	N/A	F	0.18	40.2	D
Alternative 8	1.437	N/A	F	0.269	50.4	D	1.256	N/A	F	0.164	48.9	D

	Northbound, Left			Northbound, Through			Northbound, Through/Right			Southbound, Left			Southbound, Through			Southbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.846	73	E	---	---	---	0.478	10.1	B	0.827	79.3	E	0.928	26.6	C	0.137	16.5	B
No-Build	0.875	72	E	---	---	---	0.768	24.3	C	0.86	77.9	E	1.455	N/A	F	0.214	26.1	C
Right Turn Alternative	0.875	72	E	---	---	---	0.768	24.3	C	0.86	77.9	E	0.831	30.7	C	0.837	33.8	C
Walmart/Kmart Continuous Right	0.875	72	E	---	---	---	0.768	24.3	C	0.86	77.9	E	0.831	30.7	C	0.837	33.8	C
Alternative 1B	0.875	72	E	---	---	---	0.646	16.5	B	0.789	82.3	F	1.415	N/A	F	0.211	25.4	C
Alternative 1C	0.875	72	E	---	---	---	0.679	18.2	B	0.86	77.9	E	1.421	N/A	F	0.214	26.1	C
Alternative 2+3	0.875	72	E	---	---	---	0.731	23.5	C	0.86	77.9	E	1.351	N/A	F	0.214	26.1	C
Alternative 2C-1	0.875	72	E	---	---	---	0.737	23.7	C	0.86	77.9	E	1.241	N/A	F	0.214	26.1	C
Alternative 4	0.875	72	E	0.384	18.2	B	0.384	19.1	B	0.86	77.9	E	0.764	26.1	C	0.214	26.1	C
Alternative 4D	0.886	72.8	E	---	---	---	0.787	26.9	C	0.863	79.7	E	1.457	N/A	F	0.323	30.2	C
Alternative 5	0.875	72	E	0.384	18.2	B	0.384	19.1	B	0.86	77.9	E	0.764	26.1	C	0.214	26.1	C
Alternative 6	0.875	72	E	---	---	---	0.642	22	C	0.86	77.9	E	0.86	77.9	E	0.214	26.1	C
Alternative 7	0.875	72	E	---	---	---	0.668	22.4	C	0.86	77.9	E	1.235	N/A	F	0.214	26.1	C
Alternative 8	0.869	71.5	E	---	---	---	0.631	11.6	B	0.816	79.9	E	1.247	N/A	F	0.092	18	B

PM

	Eastbound, Through/Left			Eastbound, Right			Westbound, Through/Left			Westbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	6.605	N/A	F	0.517	39.3	D	1.364	N/A	F	0.323	35.9	D
No-Build	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Right Turn Alternative	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Walmart/Kmart Continuous Right	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 1B	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 1C	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 2+3	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 2C-1	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 4	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 4D	9.31	N/A	F	0.668	44.2	D	1.705	N/A	F	0.41	37.3	D
Alternative 5	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 6	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 7	8.448	N/A	F	0.647	43.3	D	1.705	N/A	F	0.41	37.3	D
Alternative 8	6.147	N/A	F	0.647	43.3	D	1.926	N/A	F	0.28	35.3	D

	Northbound, Left			Northbound, Through			Northbound, Through/Right			Southbound, Left			Southbound, Through			Southbound, Right		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.924	59.6	E	---	---	---	0.952	30.9	C	0.834	68.3	E	1.078	193.5	F	0.363	34.9	C
No-Build	0.996	78.7	E	---	---	---	1.296	N/A	F	0.858	66.8	E	1.517	N/A	F	0.508	40.5	D
Right Turn Alternative	0.996	78.7	E	---	---	---	1.296	N/A	F	0.858	66.8	E	1.011	102.1	F	1.014	110.6	F
Walmart/Kmart Continuous Right	0.996	78.7	E	---	---	---	1.296	N/A	F	0.858	66.8	E	1.011	102.1	F	1.014	110.6	F
Alternative 1B	0.996	78.7	E	---	---	---	1.086	182.2	F	0.787	71.2	E	1.479	N/A	F	0.508	40.5	D
Alternative 1C	0.996	78.7	E	---	---	---	1.095	193.6	F	0.858	66.8	E	1.423	N/A	F	0.508	40.5	D
Alternative 2+3	0.996	78.7	E	---	---	---	1.324	N/A	F	0.858	66.8	E	1.442	N/A	F	0.508	40.5	D
Alternative 2C-1	0.996	78.7	E	---	---	---	1.254	N/A	F	0.858	66.8	E	1.46	N/A	F	0.508	40.5	D
Alternative 4	0.996	78.7	E	0.648	23.1	C	0.648	23.9	C	0.858	66.8	E	0.797	39.2	D	0.508	40.5	D
Alternative 4D	1.082	N/A	F	---	---	---	1.24	N/A	F	0.858	66.8	E	1.329	N/A	F	0.729	46.8	D
Alternative 5	0.996	78.7	E	0.648	23.1	C	0.648	23.9	C	0.858	66.8	E	0.797	39.2	D	0.508	40.5	D
Alternative 6	0.996	78.7	E	---	---	---	1.101	N/A	F	0.858	66.8	E	1.105	242.7	F	0.508	40.5	D
Alternative 7	0.996	78.7	E	---	---	---	1.143	N/A	F	0.858	66.8	E	1.255	N/A	F	0.508	40.5	D
Alternative 8	0.996	78.7	E	---	---	---	1.213	N/A	F	0.819	69.1	E	1.517	N/A	F	0.254	35.9	D

KY 321/KY 40 INTERSECTION #T11
2035 PEAK HOUR CAPACITY ANALYSIS

AM

	Eastbound, Left			Eastbound, Through			Westbound, Left			Westbound, Through			Northbound, Left			Northbound, Through			Southbound, Left			Southbound, Through		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.257	83.3	F	0.801	71.8	E	0.791	91.9	F	0.274	59.3	E	0.776	64.1	E	0.144	10.9	B	0.865	83.3	F	0.388	24	C
No-Build	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.794	60.2	E	0.214	19.4	B	0.884	80.7	F	0.608	39.5	D
Right Turn Alternative	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.794	60.2	E	0.214	19.4	B	0.884	80.7	F	0.608	39.5	D
Walmart/Kmart Continuous Right	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.794	60.2	E	0.214	19.4	B	0.884	80.7	F	0.608	39.5	D
Alternative 1B	0.257	83.3	F	0.848	68.5	E	0.82	89	F	0.306	49.5	D	0.787	61.9	E	0.202	22.7	C	0.893	79.1	E	0.577	38.7	D
Alternative 1C	0.257	83.3	F	0.845	68.5	E	0.82	89	F	0.299	49.9	D	0.789	61.5	E	0.227	22.1	C	0.891	79.5	E	0.582	38.8	D
Alternative 2+3	0.257	83.3	F	0.846	68.4	E	0.82	89	F	0.314	49.7	D	0.795	60.2	E	0.21	23	C	0.895	78.8	E	0.588	40.5	D
Alternative 2C-1	0.257	83.3	F	0.867	69.3	E	0.82	89	F	0.264	47.1	D	0.792	61.1	E	0.239	27.2	C	0.903	76.9	E	0.557	40.5	D
Alternative 4	0.257	83.3	F	0.838	67.8	E	0.82	89	F	0.275	51.1	D	0.794	60.2	E	0.214	19.4	B	0.884	80.7	F	0.608	39.5	D
Alternative 4D	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.794	60.2	E	0.214	19.4	B	0.884	80.7	F	0.608	39.5	D
Alternative 5	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.794	60.2	E	0.214	19.4	B	0.884	80.7	F	0.608	39.5	D
Alternative 6	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.774	64.6	E	0.214	19.4	B	0.884	80.7	F	0.558	34.1	C
Alternative 7	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.779	63.7	E	0.214	19.4	B	0.884	80.7	F	0.568	35.1	D
Alternative 8	0.257	83.3	F	0.838	68.7	E	0.82	89	F	0.275	51.1	D	0.782	53	D	0.214	19.4	B	0.884	80.7	F	0.575	35.9	D

PM

	Eastbound, Left			Eastbound, Through			Westbound, Left			Westbound, Through			Northbound, Left			Northbound, Through			Southbound, Left			Southbound, Through		
	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS	v/c Ratio	Delay	LOS
Existing	0.25	73.2	E	0.58	66.4	E	0.853	74.4	E	0.501	55.6	E	0.804	41.5	D	0.302	6.8	A	0.619	73.5	E	0.355	33.4	C
No-Build	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.829	35.6	D	0.43	11.9	B	0.711	77.3	E	0.68	56	E
Right Turn Alternative	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.829	35.6	D	0.43	11.9	B	0.711	77.3	E	0.68	56	E
Walmart/Kmart Continuous Right	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.829	35.6	D	0.43	11.9	B	0.711	77.3	E	0.68	56	E
Alternative 1B	0.25	73.2	E	0.692	61.3	E	0.884	78.1	E	0.557	47.5	D	0.823	38.6	D	0.423	15.3	B	0.785	78	E	0.609	52.4	D
Alternative 1C	0.25	73.2	E	0.68	61.7	E	0.884	78.1	E	0.569	48.1	D	0.824	38.1	D	0.458	14.8	B	0.78	78.6	E	0.622	53	D
Alternative 2+3	0.25	73.2	E	0.682	63	E	0.884	78.1	E	0.479	47.9	D	0.831	35.7	D	0.453	13.2	B	0.77	80.1	F	0.681	57.2	E
Alternative 2C-1	0.25	73.2	E	0.668	63	E	0.884	78.1	E	0.513	48.7	D	0.828	36.3	D	0.428	12.8	B	0.77	80.1	F	0.656	54.9	D
Alternative 4	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.829	35.6	D	0.43	11.9	B	0.711	77.3	E	0.68	56	E
Alternative 4D	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.829	35.6	D	0.43	11.9	B	0.711	77.3	E	0.68	56	E
Alternative 5	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.829	35.6	D	0.43	11.9	B	0.711	77.3	E	0.68	56	E
Alternative 6	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.812	40.3	D	0.43	11.9	B	0.711	77.3	E	0.567	46.1	D
Alternative 7	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.816	39.2	D	0.43	11.9	B	0.711	77.3	E	0.588	47.9	D
Alternative 8	0.25	73.2	E	0.655	63.7	E	0.884	78.1	E	0.502	49.2	D	0.804	43.2	D	0.43	11.9	B	0.711	77.3	E	0.516	41.6	D

HIGHWAY CAPACITY ANALYSIS

APPENDIX G

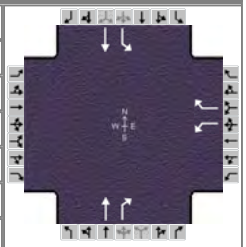
HIGHWAY CAPACITY ANALYSIS

ALTERNATIVE 1B AM

HCS ANALYSIS

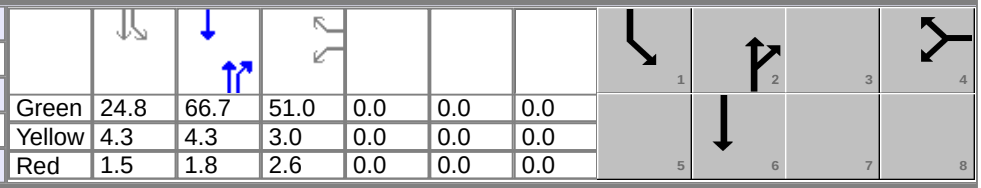
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		565	130	230	670	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.5	1.8	2.6	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	628	144	256	744	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	47.4	9.4	22.8	25.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	47.4	9.4	22.8	25.9	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.809	0.220	0.929	0.657	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		23.2	3.7	10.6	6.3	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		41.0	30.0	66.7	8.4	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	9.5	0.8	6.3	0.3	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		50.6	30.7	73.0	8.7	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	46.9		D	25.1		C
Intersection Delay s/veh / LOS	37.4						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	2.1	B

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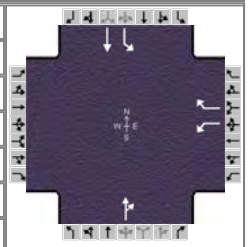
2010 HCS Signalized Intersection Results Summary

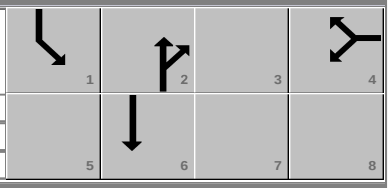
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		795	100	100	760	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	994	111	0	900
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1826	1774	0	1842
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	80.9	9.9	0.0	25.2
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	80.9	9.9	0.0	25.2
Capacity *(c)*, veh/h				455	0	405			1024	137		1241
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.971	0.810	0.000	0.725
Available Capacity *(c_a)*, veh/h				455	0	405			1024	327		1241
Back of Queue *(Q)*, veh/ln				3.6		3.6			26.8	4.5		4.3
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			20.6	72.7		4.5
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	4.9	2.3	0.0	0.3
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			25.5	75.0		4.8
Level of Service (LOS)				D		D			C	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	25.5		C	12.5		B
Intersection Delay s/veh / LOS	21.8						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.2	B

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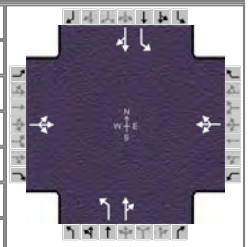
2010 HCS Signalized Intersection Results Summary

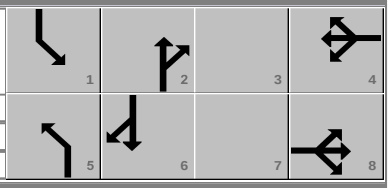
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	755	120	190	750	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.8	11.2	85.2	36.2	0.0	0.0	
Yellow	4.3	4.3	4.3	3.1	0.0	0.0	
Red	2.0	2.0	2.0	1.6	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(ge)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	972	211	0	856
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1818	1774	0	1854
Queue Service time *(gs)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	28.5
Cycle Queue Clearance Time *(gc)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	28.5
Capacity *(c)*, veh/h	317			291			42		968	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.004	0.897	0.000	0.719
Available Capacity *(ca)*, veh/h	390			365			355		968	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		34.7	8.5		5.6
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	48.8			60.2			77.2		25.1	68.3		6.4
Incremental Delay *(d2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	21.5	2.2	0.0	0.3
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		46.7	70.5		6.8
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		47.4	D		19.4	B	
Intersection Delay s/veh / LOS	37.5						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.1	B	2.2	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 1B
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		615	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		683	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		804		197				
v/c		0.32		1.97				
95% queue length		1.37		28.91				
Control Delay		11.5		494.0				
LOS		B		F				
Approach Delay				494.0				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	605	40	80	1150	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	672	44	88	1277	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	513	885	27		443	25		194
v/c	0.02	0.10	1.22		0.10	0.44		0.06
95% queue length	0.07	0.33	3.91		0.33	1.34		0.18
Control Delay	12.2	9.5	463.7		14.0	233.7		24.7
LOS	B	A	F		B	F		C
Approach Delay			206.7			129.2		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	570	120	250	430	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	633	133	277	477	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

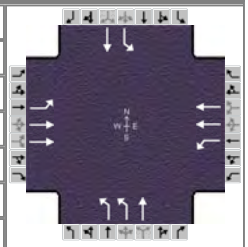
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	75	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	83	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	277		94			11	
C(m) (vph)	1075	847		225			584	
v/c	0.01	0.33		0.42			0.02	
95% queue length	0.03	1.43		1.93			0.06	
Control Delay	8.4	11.3		32.0			11.3	
LOS	A	B		D			B	
Approach Delay				32.0			11.3	
Approach LOS				D			B	

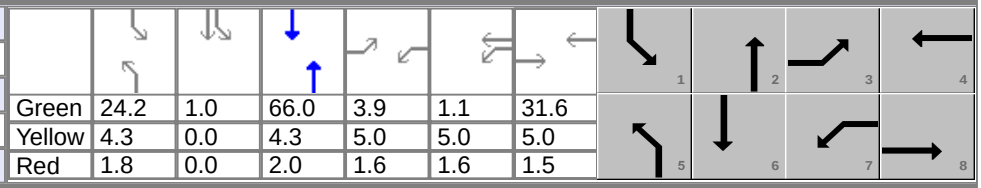
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	535		95	240		370	140		225	405	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.2	1.0	66.0	3.9	1.1	31.6
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	2.0	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	38.1	18.2	45.8	30.3	72.3	31.3	73.3
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	27.9	11.4	11.8	20.1		24.1	
Green Extension Time *(g_e)*, s	0.0	3.8	0.3	4.8	4.1	0.0	1.1	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.12	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	594	0	106	267	0	411	156	0	250	450	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	25.9	0.0	9.4	9.8	0.0	18.1	6.8	0.0	22.1	29.6	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	25.9	0.0	9.4	9.8	0.0	18.1	6.8	0.0	22.1	29.6	0.0
Capacity *(c)*, veh/h	43	701		129	871		522	769		280	781	
Volume-to-Capacity Ratio *(X)*	0.257	0.848	0.000	0.820	0.306	0.000	0.787	0.202	0.000	0.893	0.577	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1587	769		817	781	
Back of Queue *(Q)*, veh/ln	0.5	12.1		4.8	4.3		7.5	2.9		10.9	13.9	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	61.9		73.2	49.2		61.4	22.6		66.1	35.6	
Incremental Delay *(d_2)*, s/veh	6.6	6.6	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.1	3.1	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.5		89.0	49.5		61.9	22.7		79.1	38.7	
Level of Service (LOS)	F	E		F	D		E	C		E	D	
Approach Delay, s/veh / LOS	68.8	E		60.7	E		51.2	D		53.2	D	
Intersection Delay s/veh / LOS	58.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	1.0	A	0.8	A	1.4	A	1.6	A

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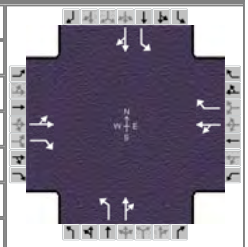
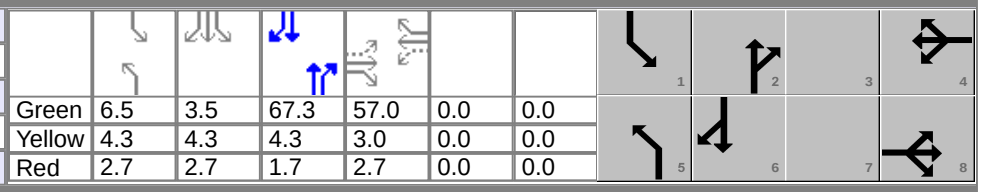
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	445	190	150	920	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	706	167	0	1033
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1768	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	60.5	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	60.5	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		744	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	0.949	0.886	0.000	1.143
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		744	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		24.4	6.9		93.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		36.8	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	3.9	3.9	0.0	258.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		40.7	74.4		287.0
Level of Service (LOS)	F		C	F		D	E		D	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		43.4	D		257.5	F	
Intersection Delay s/veh / LOS	1244.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.7	A	2.5	B

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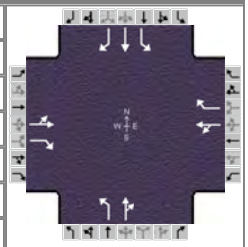
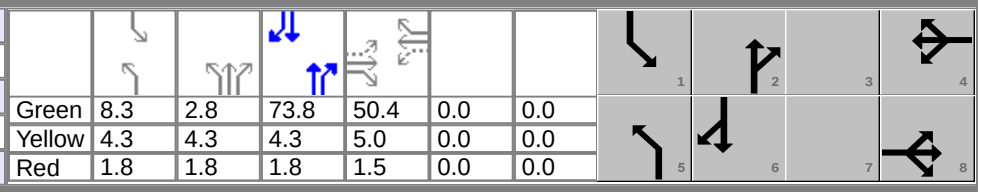
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	40	150	555	10	65	1110	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.3	2.8	73.8	50.4	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	56.9	56.9	56.9	56.9	23.3	88.8	14.4	79.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	51.1	51.1	51.1	51.1	16.8		8.4	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.96	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	44	167	0	628	72	1233	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	55	0	1579	43	0	1579	1774	0	1857	1774	1863	1579
Queue Service time *(g_s)*, s	1.4	0.0	7.5	1.4	0.0	3.2	14.8	0.0	29.9	6.4	74.9	9.3
Cycle Queue Clearance Time *(g_c)*, s	49.1	0.0	7.5	49.1	0.0	3.2	14.8	0.0	29.9	6.4	74.9	9.3
Capacity *(c)*, veh/h	56		484	54		484	191		972	92	872	739
Volume-to-Capacity Ratio *(X)*	2.193	0.000	0.207	1.034	0.000	0.092	0.875	0.000	0.646	0.789	1.415	0.211
Available Capacity *(c_a)*, veh/h	93		550	88		550	320		972	320	872	739
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.2		1.3	6.7		10.1	3.1	209.4	3.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.3		41.1	74.6		39.6	70.3		16.2	75.0	30.1	25.1
Incremental Delay *(d_2)*, s/veh	2206.0	0.0	0.3	201.5	0.0	0.1	1.5	0.0	0.3	7.3	750.4	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2278.3		41.3	276.1		39.7	71.8		16.5	82.3	780.5	25.4
Level of Service (LOS)	F		D	F		D	E		B	F	F	C
Approach Delay, s/veh / LOS	1271.7	F		171.0	F		28.1	C		665.6	F	
Intersection Delay s/veh / LOS	502.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.8	A	2.9	C

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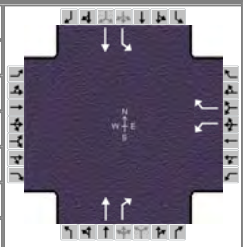
ALTERNATIVE 1B PM

HCS ANALYSIS

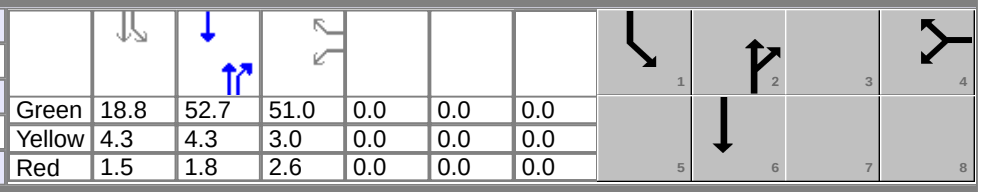
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		775	90	190	725	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	18.8	52.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	861	100	211	806	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	37.7	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	37.7	0.0
Capacity *(c)*, veh/h				646	0	575		702	595	238	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	1.227	0.168	0.888	0.783	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		702	595	322	1029	
Back of Queue *(Q)*, veh/ln				1.5		10.7		105.6	2.3	7.4	10.6	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		43.6	29.0	59.6	13.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	422.7	0.6	2.5	0.6	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		466.3	29.7	62.1	13.8	
Level of Service (LOS)				C		D		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			37.9		D	420.9		F	23.8		C
Intersection Delay s/veh / LOS	184.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.1	B	2.2	B

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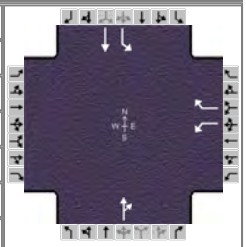
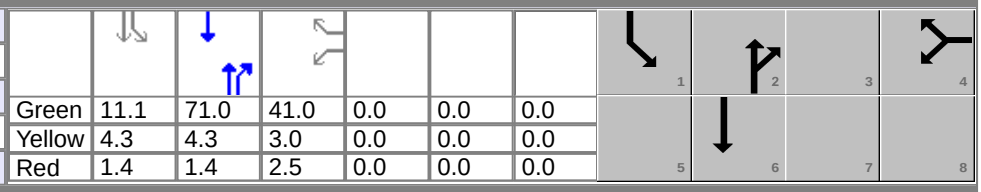
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		965	100	100	1015	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1183	111	0	1183
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1832	1774	0	1847
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			929	140		1158
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.274	0.791	0.000	1.022
Available Capacity *(c_a)*, veh/h				520	0	462			929	374		1158
Back of Queue *(Q)*, veh/ln				2.9		3.0			150.7	3.9		28.0
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.8	63.3		12.2
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	493.2	2.0	0.0	44.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			516.9	65.3		56.6
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	516.9		F	57.4		E
Intersection Delay s/veh / LOS	257.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.6	B	2.6	B

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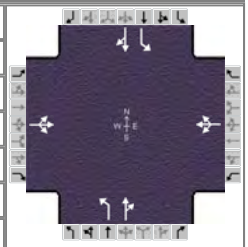
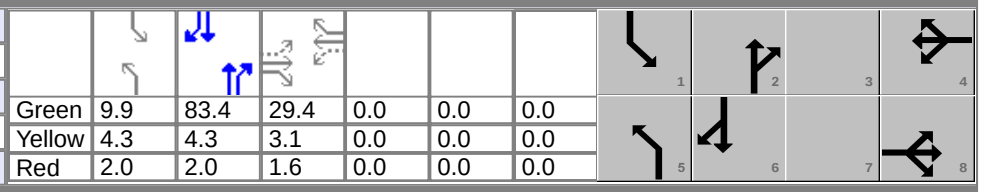
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	915	60	90	965	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1083	100	0	1128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1842	1774	0	1846
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	78.7	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	78.7	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1097	125		1100
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	0.987	0.799	0.000	1.025
Available Capacity *(ca)*, veh/h	450			396			619		1097	619		1100
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		20.6	3.5		34.5
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		14.8	64.1		15.1
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	8.4	1.1	0.0	51.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		23.1	65.2		66.3
Level of Service (LOS)	D			E			E		C	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		26.7	C		66.2	E	
Intersection Delay s/veh / LOS	47.9						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.4	B	2.5	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 1B
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1135	50	60	1155	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1261	55	66	1283	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		525		39				
v/c		0.13		3.10				
95% queue length		0.43		13.59				
Control Delay		12.8		1164				
LOS		B		F				
Approach Delay				1164				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 1B
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	955	100	100	655	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1061	111	111	727	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	796	596	21		253	13		394
v/c	0.04	0.19	2.10		0.40	4.23		0.03
95% queue length	0.13	0.68	5.75		1.79	7.87		0.09
Control Delay	9.7	12.4	894.4		28.2	2036		14.4
LOS	A	B	F		D	F		B
Approach Delay			292.9			1699		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	605	90	245	470	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	672	100	272	522	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

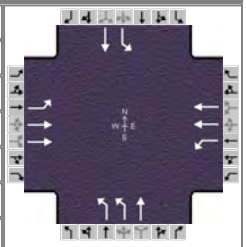
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	160	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	177	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	272		210			66	
C(m) (vph)	1035	843		148			84	
v/c	0.01	0.32		1.42			0.79	
95% queue length	0.03	1.40		13.56			3.98	
Control Delay	8.5	11.3		279.8			131.8	
LOS	A	B		F			F	
Approach Delay				279.8			131.8	
Approach LOS				F			F	

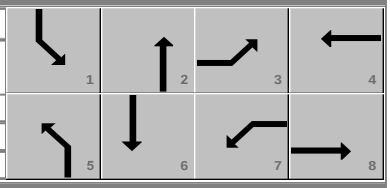
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	270		200	425		775	345		85	255	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	9.5	26.9	35.2	3.5	9.7	17.1		
				Yellow	4.3	4.3	4.3	5.0	5.0	5.0		
				Red	1.8	1.8	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	23.6	26.4	40.0	48.6	74.3	15.6	41.3
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	13.4	19.2	18.4	33.2		9.3	
Green Extension Time *(g_e)*, s	0.0	3.8	0.6	4.1	9.3	0.0	0.4	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.97	
Max Out Probability	0.00	0.02	0.03	0.00	0.07		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	300	0	222	472	0	861	383	0	94	283	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	11.4	0.0	17.2	16.4	0.0	31.2	14.0	0.0	7.3	18.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	11.4	0.0	17.2	16.4	0.0	31.2	14.0	0.0	7.3	18.8	0.0
Capacity *(c)*, veh/h	44	434		251	848		1047	905		120	466	
Volume-to-Capacity Ratio *(X)*	0.250	0.692	0.000	0.884	0.557	0.000	0.823	0.423	0.000	0.785	0.609	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1598	905		823	466	
Back of Queue *(Q)*, veh/ln	0.5	5.2		8.9	7.2		11.9	5.1		3.7	9.3	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	58.9		58.9	46.8		38.3	15.1		64.3	46.4	
Incremental Delay *(d_2)*, s/veh	6.2	2.4	0.0	19.2	0.7	0.0	0.4	0.1	0.0	13.8	6.0	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	61.3		78.1	47.5		38.6	15.3		78.0	52.4	
Level of Service (LOS)	E	E		E	D		D	B		E	D	
Approach Delay, s/veh / LOS	61.7	E		57.3	E		31.4	C		58.8	E	
Intersection Delay s/veh / LOS	45.8						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.1	A	2.5	B	1.1	A

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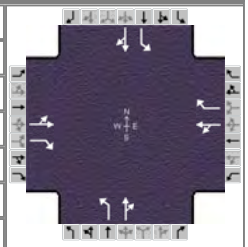
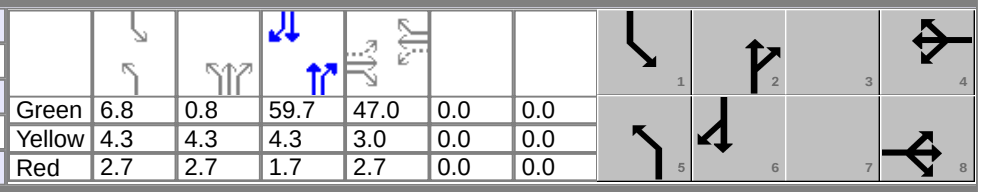
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	775	200	60	575	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1083	67	0	661
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1796	1774	0	1852
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	41.3
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	41.3
Capacity *(c)*, veh/h	52		530	48		530	185		866	86		789
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.251	0.773	0.000	0.838
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		866	384		789
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		132.5	2.3		15.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.3	65.8		26.6
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	452.5	1.4	0.0	1.1
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		479.8	67.2		27.6
Level of Service (LOS)	F		C	F		C	E		F	E		C
Approach Delay, s/veh / LOS	2962.8		F	6693.1		F	427.4		F	31.2		C
Intersection Delay s/veh / LOS	1613.5						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.5	B	1.7	A

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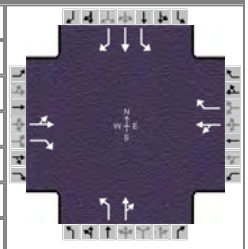
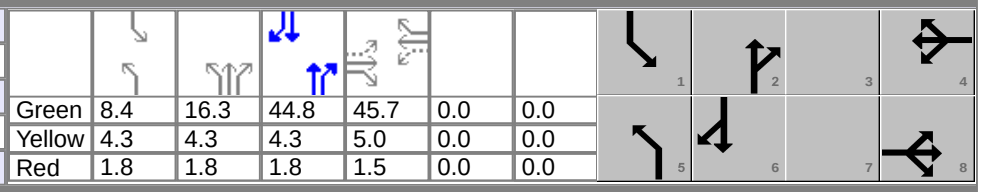
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	15	50	95	350	860	10	75	790	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.4	16.3	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	73.3	14.5	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		8.5	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.96	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	72	0	106	389	0	967	83	878	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	271	0	1579	1774	0	1859	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	6.8	30.7	0.0	67.0	6.5	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	6.8	30.7	0.0	67.0	6.5	44.6	18.4
Capacity *(c)*, veh/h	49		515	120		515	390		890	106	593	503
Volume-to-Capacity Ratio *(X)*	8.447	0.000	0.647	0.601	0.000	0.205	0.996	0.000	1.086	0.787	1.479	0.508
Available Capacity *(c_a)*, veh/h	49		515	120		515	390		890	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	2.0		2.6	16.0		61.8	3.1	161.1	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	38.5		34.0	54.5		25.4	64.9	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13446.6	0.0	3.0	9.2	0.0	0.2	24.2	0.0	156.8	6.3	866.9	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13516.6		43.3	47.6		34.3	78.7		182.2	71.2	907.2	40.5
Level of Service (LOS)	F		D	D		C	E		F	E	F	D
Approach Delay, s/veh / LOS	7483.8	F		39.7	D		152.5	F		667.9	F	
Intersection Delay s/veh / LOS	1888.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	0.8	A	2.7	B	2.5	B

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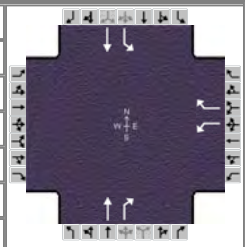
ALTERNATIVE 1C AM

HCS ANALYSIS

2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		585	130	230	720	

Signal Information													
Cycle, s	160.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	24.8	66.7	51.0	0.0	0.0	0.0			
				Yellow	4.3	4.3	3.0	0.0	0.0	0.0			
				Red	1.5	1.8	2.6	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	650	144	256	800	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	50.0	9.4	22.8	30.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	50.0	9.4	22.8	30.4	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.837	0.220	0.929	0.706	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		24.8	3.7	10.6	6.9	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		41.8	30.0	66.7	8.8	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	11.5	0.8	6.3	0.3	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		53.3	30.7	73.0	9.2	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	49.2		D	24.6		C
Intersection Delay s/veh / LOS	37.7						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	2.2	B

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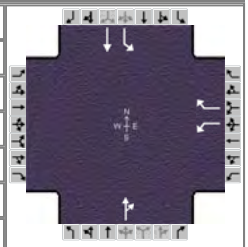
2010 HCS Signalized Intersection Results Summary

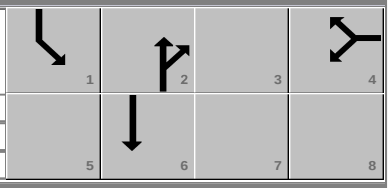
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		815	100	100	770	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1017	111	0	911
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1827	1774	0	1843
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	87.3	9.9	0.0	26.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	87.3	9.9	0.0	26.0
Capacity *(c)*, veh/h				455	0	405			1024	137		1241
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.992	0.810	0.000	0.734
Available Capacity *(c_a)*, veh/h				455	0	405			1024	327		1241
Back of Queue *(Q)*, veh/ln				3.6		3.6			30.6	4.5		4.4
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			21.5	72.7		4.5
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	11.3	2.3	0.0	0.4
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			32.8	75.0		4.9
Level of Service (LOS)				D		D			C	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	32.8		C	12.5		B
Intersection Delay s/veh / LOS	25.1						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.2	B

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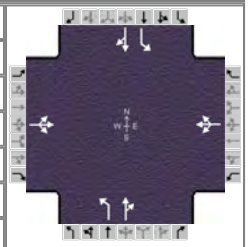
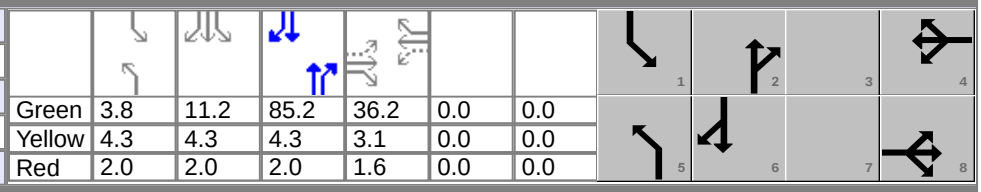
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	775	120	190	760	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	994	211	0	867
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1819	1774	0	1854
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	29.4
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	29.4
Capacity *(c)*, veh/h	317			291			42		969	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.027	0.897	0.000	0.728
Available Capacity *(c_a)*, veh/h	390			365			355		969	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		43.3	8.5		5.7
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2		25.1	68.3		6.5
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	53.6	2.2	0.0	0.4
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		78.6	70.5		6.9
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		78.6	E		19.3	B	
Intersection Delay s/veh / LOS	50.9						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.2	B	2.3	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 1B
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		635	130	230	765	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		705	144	255	850	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		789		189				
v/c		0.32		2.05				
95% queue length		1.40		29.76				
Control Delay		11.7		532.5				
LOS		B		F				
Approach Delay				532.5				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	625	40	80	1160	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	694	44	88	1288	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	508	868	26		430	24		191
v/c	0.02	0.10	1.27		0.10	0.46		0.06
95% queue length	0.07	0.34	3.98		0.34	1.38		0.18
Control Delay	12.2	9.6	491.7		14.3	247.1		25.0-
LOS	B	A	F		B	F		C
Approach Delay			218.9			136.1		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	590	110	255	440	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	655	122	283	488	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

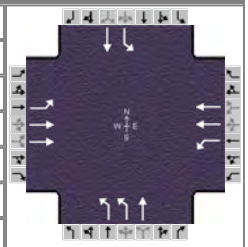
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	283		111			11	
C(m) (vph)	1065	839		233			575	
v/c	0.01	0.34		0.48			0.02	
95% queue length	0.03	1.49		2.36			0.06	
Control Delay	8.4	11.5		33.8			11.4	
LOS	A	B		D			B	
Approach Delay				33.8			11.4	
Approach LOS				D			B	

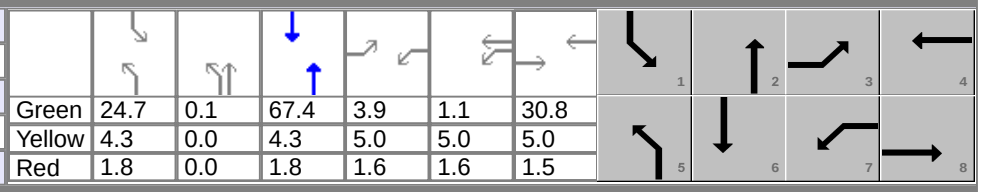
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	520		95	230		380	160		220	410	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.7	0.1	67.4	3.9	1.1	30.8	
Yellow	4.3	0.0	4.3	5.0	5.0	5.0	
Red	1.8	0.0	1.8	1.6	1.6	1.5	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	37.3	18.2	45.0	30.9	73.6	30.8	73.5
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	27.1	11.4	11.4	20.6		23.6	
Green Extension Time *(g_e)*, s	0.0	3.7	0.3	4.6	4.3	0.0	1.1	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.10	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	578	0	106	256	0	422	178	0	244	456	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	25.1	0.0	9.4	9.4	0.0	18.6	7.7	0.0	21.6	30.0	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	25.1	0.0	9.4	9.4	0.0	18.6	7.7	0.0	21.6	30.0	0.0
Capacity *(c)*, veh/h	43	684		129	854		535	784		274	783	
Volume-to-Capacity Ratio *(X)*	0.257	0.845	0.000	0.820	0.299	0.000	0.789	0.227	0.000	0.891	0.582	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1603	784		826	783	
Back of Queue *(Q)*, veh/ln	0.5	11.7		4.8	4.2		7.7	3.2		10.6	14.1	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	62.3		73.2	49.7		61.0	22.0		66.3	35.6	
Incremental Delay *(d_2)*, s/veh	6.6	6.2	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.2	3.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.5		89.0	49.9		61.5	22.1		79.5	38.8	
Level of Service (LOS)	F	E		F	D		E	C		E	D	
Approach Delay, s/veh / LOS	68.8	E		61.4	E		49.8	D		53.0	D	
Intersection Delay s/veh / LOS	57.6						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	1.0	A	0.8	A	1.5	A	1.6	A

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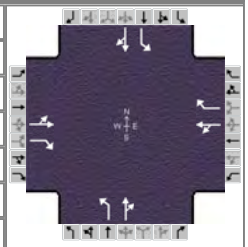
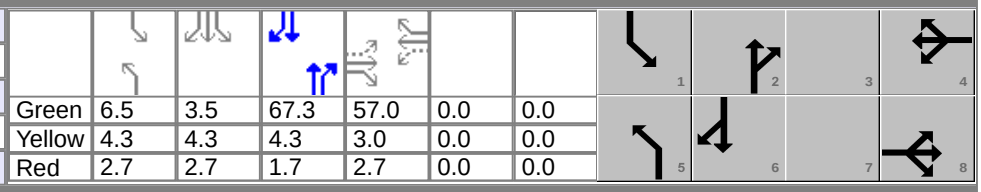
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	465	190	150	930	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	728	167	0	1044
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1770	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	64.2	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	64.2	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		745	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	0.977	0.886	0.000	1.155
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		745	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		26.6	6.9		98.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		37.6	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	7.8	3.9	0.0	280.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		45.4	74.4		309.0
Level of Service (LOS)	F		C	F		D	E		D	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		47.7	D		276.7	F	
Intersection Delay s/veh / LOS	1239.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.8	A	2.5	B

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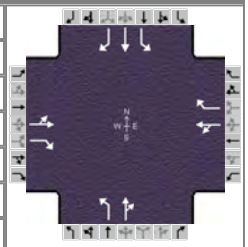
2010 HCS Signalized Intersection Results Summary

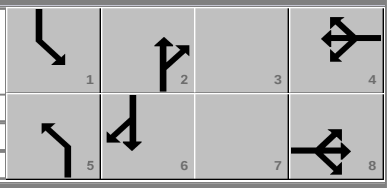
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 1B				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	80	10	210	150	470	145	160	1095	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	17.0	1.0	67.5	55.7	0.0	0.0	
Yellow	4.3	0.0	4.3	5.0	0.0	0.0	
Red	1.8	0.0	2.0	1.5	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	62.2	62.2	62.2	62.2	23.1	73.8	24.1	74.7
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	57.6	57.6	57.6	57.6	16.8		17.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.97		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	100	0	233	167	0	683	178	1217	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	29	0	1579	12	0	1579	1774	0	1787	1774	1863	1579
Queue Service time *(g_s)*, s	0.2	0.0	7.1	0.2	0.0	18.1	14.8	0.0	55.4	15.8	68.5	10.0
Cycle Queue Clearance Time *(g_c)*, s	55.6	0.0	7.1	55.6	0.0	18.1	14.8	0.0	55.4	15.8	68.5	10.0
Capacity *(c)*, veh/h	49		549	47		549	188		754	199	797	676
Volume-to-Capacity Ratio *(X)*	2.497	0.000	0.182	2.146	0.000	0.425	0.884	0.000	0.906	0.892	1.526	0.230
Available Capacity *(c_a)*, veh/h	49		550	47		550	232		754	232	797	676
Back of Queue *(Q)*, veh/ln	39.5		2.8	29.5		7.2	6.8		22.0	8.2	237.0	3.8
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.1		36.4	76.5		40.0	70.5		34.8	70.1	34.3	29.0
Incremental Delay *(d_2)*, s/veh	2754.2	0.0	0.2	2131.9	0.0	0.6	3.6	0.0	2.1	20.1	949.9	0.4
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2824.3		36.5	2208.4		40.6	74.1		36.8	90.1	984.2	29.4
Level of Service (LOS)	F		D	F		D	E		D	F	F	C
Approach Delay, s/veh / LOS	1569.8	F		690.9	F		44.1	D		785.9	F	
Intersection Delay s/veh / LOS	620.8						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	1.0	A	1.9	A	3.0	C

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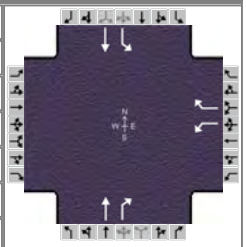
ALTERNATIVE 1C PM

HCS ANALYSIS

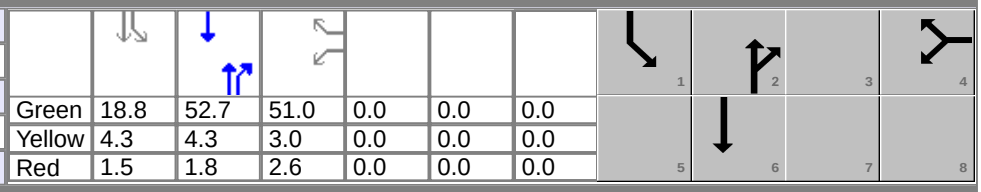
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	Alternative 1C PM				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		800	90	190	760	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	18.8	52.7	51.0	0.0	0.0	0.0		
Yellow	4.3	4.3	3.0	0.0	0.0	0.0		
Red	1.5	1.8	2.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	889	100	211	844	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	42.3	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	42.3	0.0
Capacity *(c)*, veh/h				646	0	575		702	595	238	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	1.267	0.168	0.888	0.821	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		702	595	322	1029	
Back of Queue *(Q)*, veh/ln				1.5		10.7		119.2	2.3	7.4	12.0	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		43.6	29.0	59.6	13.9	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	492.4	0.6	2.5	0.7	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		536.0	29.7	62.1	14.6	
Level of Service (LOS)				C		D		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			37.9		D	484.8		F	24.1		C
Intersection Delay s/veh / LOS	210.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.1	B	2.2	B

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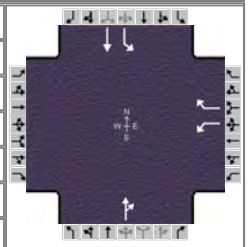
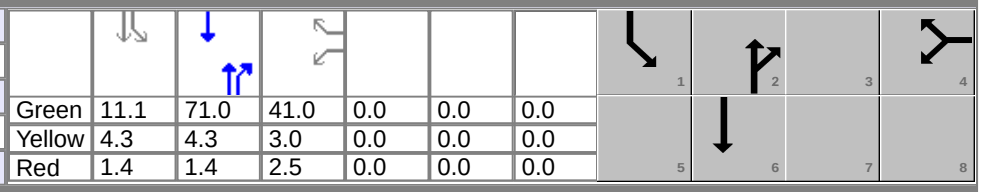
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 1C				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		990	100	100	1050	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1211	111	0	1222
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1832	1774	0	1848
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			930	140		1159
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.303	0.791	0.000	1.055
Available Capacity *(c_a)*, veh/h				520	0	462			930	374		1159
Back of Queue *(Q)*, veh/ln				2.9		3.0			164.4	3.9		46.2
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.7	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	546.0	2.0	0.0	101.2
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			569.8	65.3		113.4
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	569.8		F	109.4		F
Intersection Delay s/veh / LOS	305.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.7	B	2.7	B

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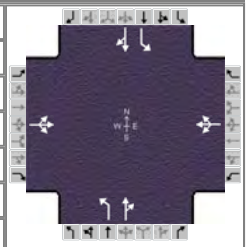
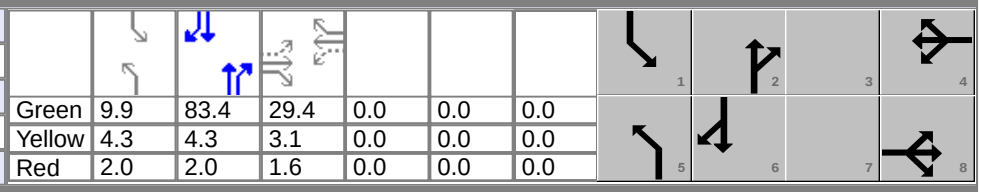
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 1C				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	940	60	90	1000	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1111	100	0	1167
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1843	1774	0	1847
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1098	125		1100
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	1.012	0.799	0.000	1.061
Available Capacity *(ca)*, veh/h	450			396			619		1098	619		1100
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		28.5	3.5		52.8
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		15.2	64.1		15.1
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	30.8	1.1	0.0	111.5
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		46.0	65.2		126.5
Level of Service (LOS)	D			E			E		F	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		47.6	D		121.7	F	
Intersection Delay s/veh / LOS	81.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.5	B	2.6	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 1C
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1160	50	60	1190	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1288	55	66	1322	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		513		36				
v/c		0.13		3.36				
95% queue length		0.44		13.89				
Control Delay		13.1		1295				
LOS		B		F				
Approach Delay				1295				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 1C
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	980	100	100	690	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1088	111	111	766	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	770	582	19		243	10		374
v/c	0.04	0.19	2.32		0.41	5.50		0.03
95% queue length	0.13	0.70	5.91		1.90	8.15		0.09
Control Delay	9.9	12.6	1024		29.8	2762		14.9
LOS	A	B	F		D	F		B
Approach Delay			333.7			2304		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: Alternative 1C PM
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	625	90	275	490	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	694	100	305	544	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

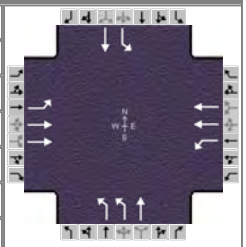
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	305		244			66	
C(m) (vph)	1015	827		133			60	
v/c	0.01	0.37		1.83			1.10	
95% queue length	0.03	1.71		18.75			5.36	
Control Delay	8.6	11.9		459.9			261.3	
LOS	A	B		F			F	
Approach Delay				459.9			261.3	
Approach LOS				F			F	

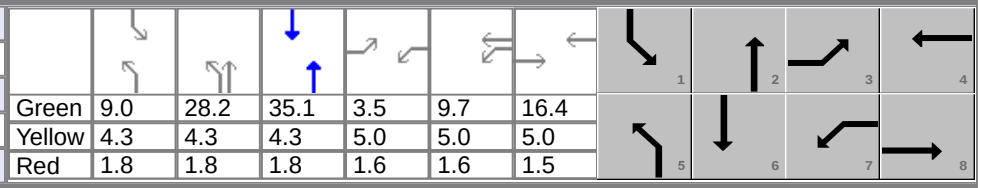
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 1C				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	255		200	425		790	380		80	260	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.0	28.2	35.1	3.5	9.7	16.4
Yellow	4.3	4.3	4.3	5.0	5.0	5.0
Red	1.8	1.8	1.8	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	22.9	26.4	39.3	49.4	75.5	15.1	41.2
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	12.7	19.2	18.5	33.7		8.9	
Green Extension Time *(g_e)*, s	0.0	3.7	0.6	4.0	9.6	0.0	0.4	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.97	
Max Out Probability	0.00	0.02	0.03	0.00	0.07		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	283	0	222	472	0	878	422	0	89	289	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	10.7	0.0	17.2	16.5	0.0	31.7	15.5	0.0	6.9	19.3	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	10.7	0.0	17.2	16.5	0.0	31.7	15.5	0.0	6.9	19.3	0.0
Capacity *(c)*, veh/h	44	416		251	830		1066	921		114	464	
Volume-to-Capacity Ratio *(X)*	0.250	0.680	0.000	0.884	0.569	0.000	0.824	0.458	0.000	0.780	0.622	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1615	921		831	464	
Back of Queue *(Q)*, veh/ln	0.5	4.9		8.9	7.2		12.1	5.4		3.5	9.6	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	59.3		58.9	47.4		37.7	14.7		64.5	46.7	
Incremental Delay *(d_2)*, s/veh	6.2	2.4	0.0	19.2	0.7	0.0	0.4	0.1	0.0	14.1	6.3	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	61.7		78.1	48.1		38.1	14.8		78.6	53.0	
Level of Service (LOS)	E	E		E	D		D	B		E	D	
Approach Delay, s/veh / LOS	62.1	E		57.7	E		30.5	C		59.0	E	
Intersection Delay s/veh / LOS	45.1						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.1	A	2.6	B	1.1	A

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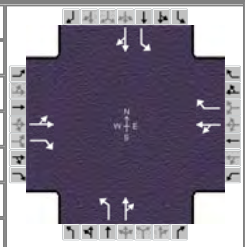
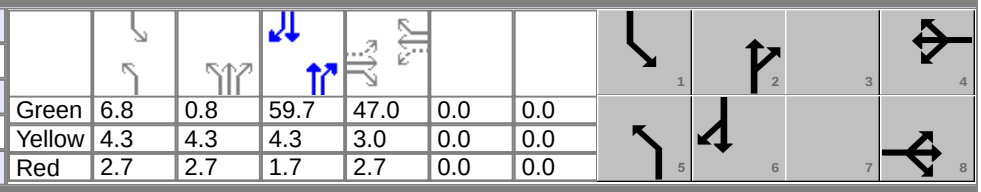
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 1C				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	800	200	60	610	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1111	67	0	700
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1798	1774	0	1852
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	46.2
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	46.2
Capacity *(c)*, veh/h	52		530	48		530	185		867	86		789
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.282	0.773	0.000	0.887
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		867	384		789
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		146.0	2.3		17.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.3	65.8		27.6
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	508.1	1.4	0.0	1.6
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		535.3	67.2		29.2
Level of Service (LOS)	F		C	F		C	E		F	E		C
Approach Delay, s/veh / LOS	2962.8		F	6693.1		F	477.3		F	32.5		C
Intersection Delay s/veh / LOS	1602.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.6	B	1.8	A

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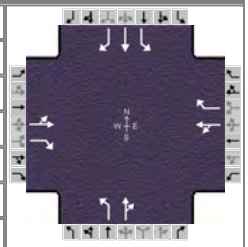
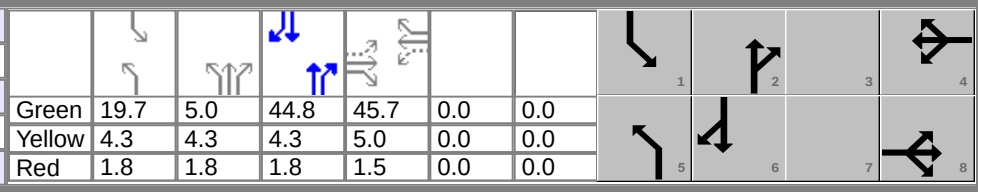
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 1C				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	105	50	240	350	695	230	200	760	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	19.7	5.0	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	62.0	25.8	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	5.0	5.0	5.0	5.0	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		19.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	172	0	267	389	0	1028	222	844	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	39	0	1579	1774	0	1783	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	19.2	30.7	0.0	55.7	17.2	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	19.2	30.7	0.0	55.7	17.2	44.6	18.4
Capacity *(c)*, veh/h	49		515	56		515	390		709	250	593	503
Volume-to-Capacity Ratio *(X)*	8.449	0.000	0.647	3.086	0.000	0.517	0.996	0.000	1.450	0.888	1.423	0.508
Available Capacity *(c_a)*, veh/h	49		515	56		515	390		709	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	60.9		7.6	16.0		180.9	8.2	144.5	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	59.7		38.2	54.5		35.2	59.0	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13450.0	0.0	3.0	3801.8	0.0	1.1	24.2	0.0	810.9	8.4	766.2	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13520.0		43.3	3861.5		39.3	78.7		846.1	67.4	806.5	40.5
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	7485.7	F		1539.1	F		635.5	F		534.2	F	
Intersection Delay s/veh / LOS	2002.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.2	A	2.8	C	2.7	B

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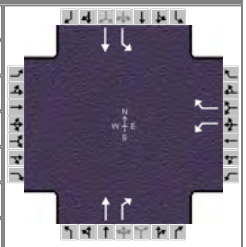
ALTERNATIVE 2+3 AM

HCS ANALYSIS

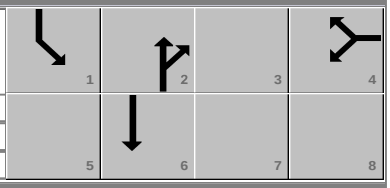
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		585	130	230	710	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	650	144	256	789	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	50.0	9.4	22.8	29.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	50.0	9.4	22.8	29.4	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.837	0.220	0.929	0.696	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		24.8	3.7	10.6	6.7	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		41.8	30.0	66.7	8.7	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	11.5	0.8	6.3	0.3	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		53.3	30.7	73.0	9.0	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	49.2		D	24.7		C
Intersection Delay s/veh / LOS	37.9						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	2.2	B

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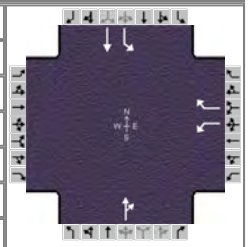
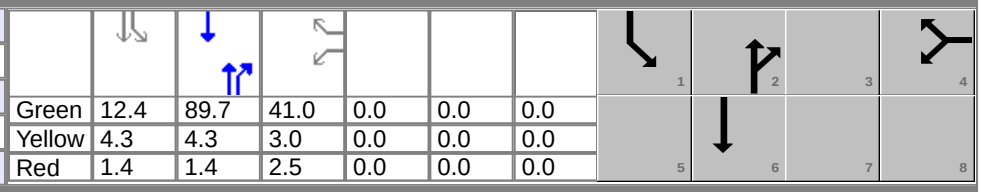
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		725	100	100	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.4	89.7	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	917	111	0	894
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1823	1774	0	1842
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	63.2	9.9	0.0	24.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	63.2	9.9	0.0	24.8
Capacity *(c)*, veh/h				455	0	405			1022	137		1241
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.897	0.810	0.000	0.721
Available Capacity *(c_a)*, veh/h				455	0	405			1022	327		1241
Back of Queue *(Q)*, veh/ln				3.6		3.6			20.3	4.5		4.3
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			18.4	72.7		4.4
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	1.4	2.3	0.0	0.3
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			19.7	75.0		4.8
Level of Service (LOS)				D		D			B	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	19.7		B	12.5		B
Intersection Delay s/veh / LOS	19.3						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.2	B	2.1	B

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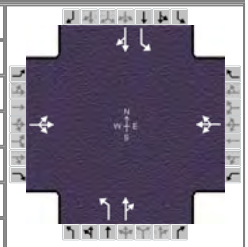
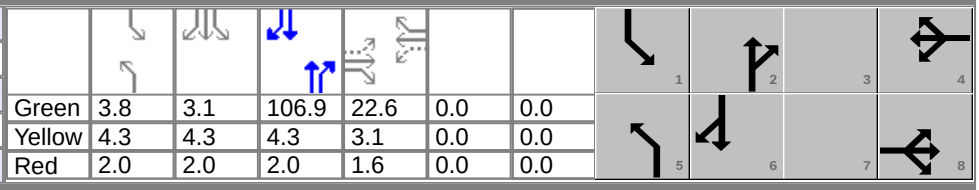
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	45	0	100	20	745	60	110	790	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	3.1	106.9	22.6	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	27.3	27.3	27.3	27.3	10.1	113.2	19.5	122.6
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.8	4.8	21.9	21.9	4.0		12.9	
Green Extension Time *(ge)*, s	0.8	0.8	0.7	0.7	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	161	0	0	22	0	894	122	0	900
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1182	0	0	1261	0	0	1774	0	1838	1774	0	1855
Queue Service time *(gs)*, s	0.0	0.0	0.0	16.5	0.0	0.0	2.0	0.0	27.0	10.9	0.0	8.0
Cycle Queue Clearance Time *(gc)*, s	2.8	0.0	0.0	19.9	0.0	0.0	2.0	0.0	27.0	10.9	0.0	8.0
Capacity *(c)*, veh/h	197			208			42		1228	146		1348
Volume-to-Capacity Ratio *(X)*	0.169	0.000	0.000	0.775	0.000	0.000	0.532	0.000	0.728	0.836	0.000	0.668
Available Capacity *(ca)*, veh/h	368			389			506		1228	506		1348
Back of Queue *(Q)*, veh/ln	1.2			6.8			0.9		4.8	4.9		1.2
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	60.2			67.0			77.2		5.0	72.3		1.0
Incremental Delay *(d2)*, s/veh	0.4	0.0	0.0	6.3	0.0	0.0	1.0	0.0	0.4	1.2	0.0	0.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	60.6			73.3			78.2		5.4	73.6		1.2
Level of Service (LOS)	E			E			E		A	E		A
Approach Delay, s/veh / LOS	60.6	E		73.3	E		7.2	A		9.8	A	
Intersection Delay s/veh / LOS	14.3						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.8	A	2.0	B	2.2	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 2+3
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		695	190	230	785	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		772	211	255	872	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		50			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		55			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		110				
C(m) (vph)		703		54				
v/c		0.36		2.04				
95% queue length		1.66		10.81				
Control Delay		13.0		644.9				
LOS		B		F				
Approach Delay				644.9				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 2+3
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	685	40	80	1155	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	761	44	88	1283	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	510	819	23		394	21		193
v/c	0.02	0.11	1.43		0.11	0.52		0.06
95% queue length	0.07	0.36	4.20		0.37	1.50		0.18
Control Delay	12.2	9.9	592.0		15.3	297.1		24.8
LOS	B	A	F		C	F		C
Approach Delay			262.4			160.9		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 2+3
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	235	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	261	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

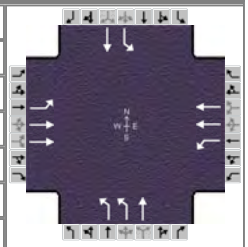
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	40	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	44	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	261		55			11	
C(m) (vph)	1021	774		136			539	
v/c	0.01	0.34		0.40			0.02	
95% queue length	0.03	1.49		1.74			0.06	
Control Delay	8.6	12.0		48.4			11.8	
LOS	A	B		E			B	
Approach Delay				48.4			11.8	
Approach LOS				E			B	

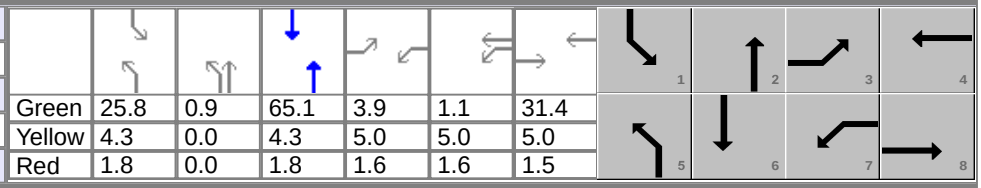
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	530		95	245		410	145		230	400	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	25.8	0.9	65.1	3.9	1.1	31.4	
Yellow	4.3	0.0	4.3	5.0	5.0	5.0	
Red	1.8	0.0	1.8	1.6	1.6	1.5	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	37.9	18.2	45.6	32.7	72.0	31.9	71.2
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	27.6	11.4	12.1	22.0		24.6	
Green Extension Time *(g_e)*, s	0.0	3.8	0.3	4.8	4.6	0.0	1.2	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.12	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	589	0	106	272	0	456	161	0	256	444	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	25.6	0.0	9.4	10.1	0.0	20.0	7.1	0.0	22.6	29.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	25.6	0.0	9.4	10.1	0.0	20.0	7.1	0.0	22.6	29.8	0.0
Capacity *(c)*, veh/h	43	696		129	867		573	765		286	755	
Volume-to-Capacity Ratio *(X)*	0.257	0.846	0.000	0.820	0.314	0.000	0.795	0.210	0.000	0.895	0.588	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1591	765		819	755	
Back of Queue *(Q)*, veh/ln	0.5	12.0		4.8	4.5		8.3	3.0		11.1	14.1	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	62.0		73.2	49.5		59.7	22.9		65.8	37.1	
Incremental Delay *(d_2)*, s/veh	6.6	6.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.0	3.4	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.4		89.0	49.7		60.2	23.0		78.8	40.5	
Level of Service (LOS)	F	E		F	D		E	C		E	D	
Approach Delay, s/veh / LOS	68.7	E		60.7	E		50.5	D		54.5	D	
Intersection Delay s/veh / LOS	58.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	1.0	A	0.8	A	1.5	A	1.6	A

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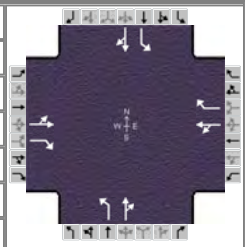
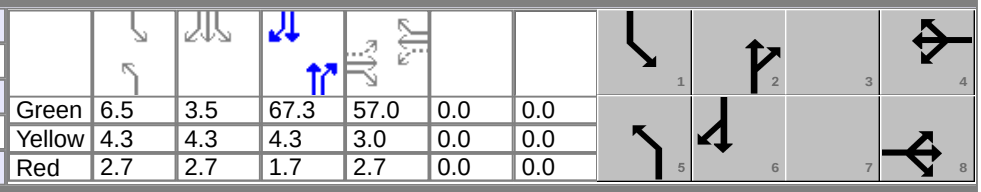
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	525	190	150	925	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	794	167	0	1039
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1778	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		748	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	1.062	0.886	0.000	1.149
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		748	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		50.2	6.9		95.8
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		38.1	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	115.1	3.9	0.0	269.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		153.2	74.4		298.0
Level of Service (LOS)	F		C	F		D	E		F	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		148.3	F		267.1	F	
Intersection Delay s/veh / LOS	1239.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.5	B

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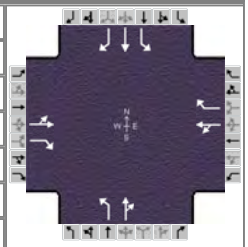
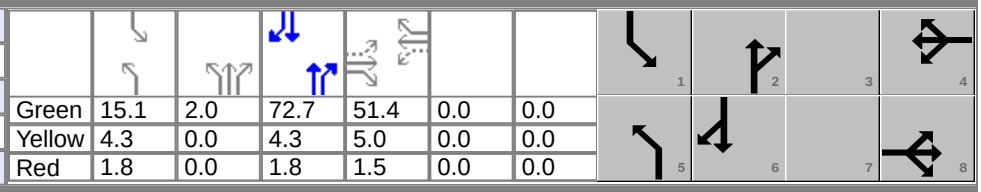
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	545	30	130	1045	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	639	144	1161	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1845	1774	1863	1579
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	38.3	12.8	73.8	9.4
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	38.3	12.8	73.8	9.4
Capacity *(c)*, veh/h	56		495	54		495	190		875	168	859	728
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.731	0.860	1.351	0.214
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		875	308	859	728
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		14.2	6.1	179.4	3.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		23.0	71.4	30.8	25.8
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.5	6.5	636.1	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		23.5	77.9	666.9	26.1
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.6	C		540.5	F	
Intersection Delay s/veh / LOS	424.3						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.8	A	2.9	C

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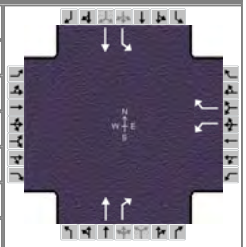
ALTERNATIVE 2+3 PM

HCS ANALYSIS

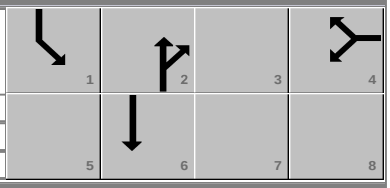
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		805	90	190	845	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	18.8	52.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	894	100	211	939	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	56.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	56.8	0.0
Capacity *(c)*, veh/h				646	0	575		702	595	238	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	1.275	0.168	0.888	0.913	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		702	595	322	1029	
Back of Queue *(Q)*, veh/ln				1.5		10.7		122.0	2.3	7.4	16.2	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		43.6	29.0	59.6	15.8	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	506.4	0.6	2.5	1.6	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		550.0	29.7	62.1	17.4	
Level of Service (LOS)				C		D		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			37.9		D	497.7		F	25.6		C
Intersection Delay s/veh / LOS	209.8						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.1	B	2.4	B

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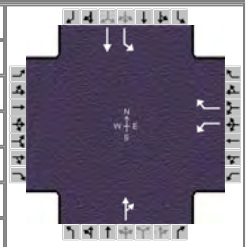
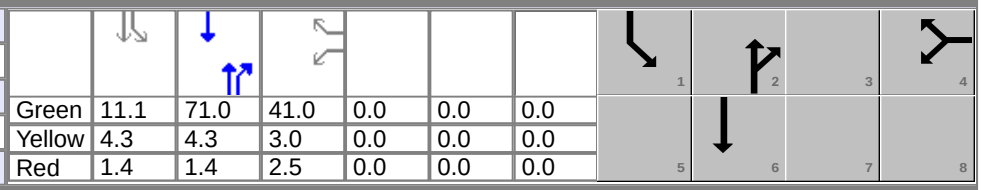
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		895	100	100	1090	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1106	111	0	1267
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1830	1774	0	1848
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			928	140		1159
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.191	0.791	0.000	1.093
Available Capacity *(c_a)*, veh/h				520	0	462			928	374		1159
Back of Queue *(Q)*, veh/ln				2.9		3.0			112.5	3.9		67.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.8	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	345.3	2.0	0.0	168.7
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			369.1	65.3		180.8
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	369.1		F	171.5		F
Intersection Delay s/veh / LOS	241.3						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.5	B	2.8	C

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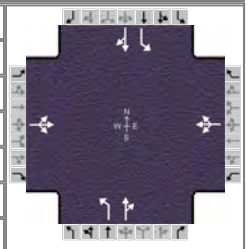
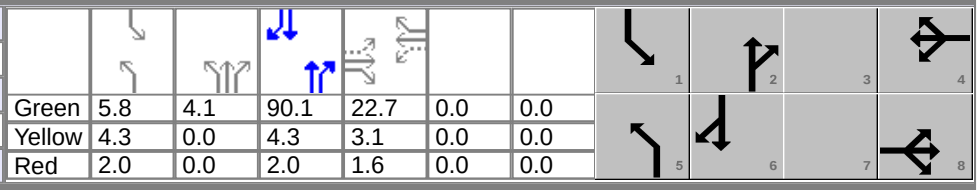
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	45	10	120	90	875	30	50	1085	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.8	4.1	90.1	22.7	0.0	0.0
Yellow	4.3	0.0	4.3	3.1	0.0	0.0
Red	2.0	0.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	27.4	27.4	27.4	27.4	16.2	100.6	12.1	96.4
Change Period, (*Y+Rc*), s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway (*MAH*), s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time (*gs*), s	16.3	16.3	21.4	21.4	9.8		6.3	
Green Extension Time (*ge*), s	1.3	1.3	1.2	1.2	0.3	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.88	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	122	0	0	194	0	0	100	0	1006	56	0	1261
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1081	0	0	1347	0	0	1774	0	1852	1774	0	1848
Queue Service time (*gs*), s	0.0	0.0	0.0	5.2	0.0	0.0	7.8	0.0	29.6	4.3	0.0	90.1
Cycle Queue Clearance Time (*gc*), s	14.3	0.0	0.0	19.4	0.0	0.0	7.8	0.0	29.6	4.3	0.0	90.1
Capacity (*c*), veh/h	210			251			125		1247	73		1190
Volume-to-Capacity Ratio (*X*)	0.582	0.000	0.000	0.776	0.000	0.000	0.798	0.000	0.807	0.762	0.000	1.060
Available Capacity (*ca*), veh/h	399			463			705		1247	705		1190
Back of Queue (*Q*), veh/ln	4.2			7.0			3.5		4.0	2.0		45.7
Overflow Queue (*Q3*), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (*d1*), s/veh	54.3			56.8			64.1		4.1	66.4		10.6
Incremental Delay (*d2*), s/veh	2.6	0.0	0.0	5.3	0.0	0.0	1.1	0.0	0.5	1.5	0.0	110.2
Initial Queue Delay (*d3*), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	56.9			62.1			65.2		4.7	68.0		120.8
Level of Service (LOS)	E			E			E		A	E		F
Approach Delay, s/veh / LOS	56.9	E		62.1	E		10.1	B		118.6	F	
Intersection Delay s/veh / LOS	68.0						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.3	B	2.7	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 2+3
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1295	50	60	1280	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1438	55	66	1422	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		450		26				
v/c		0.15		4.65				
95% queue length		0.51		14.92				
Control Delay		14.4		1948				
LOS		B		F				
Approach Delay				1948				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 2+3
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	1115	100	100	780	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1238	111	111	866	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	706	510	9		199	5		327
v/c	0.05	0.22	4.89		0.50	11.00		0.03
95% queue length	0.15	0.82	6.80		2.52	8.64		0.10
Control Delay	10.3	14.0	2563		40.1	5912		16.4
LOS	B	B	F		E	F		C
Approach Delay			810.9			4929		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 2+3
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	255	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	283	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

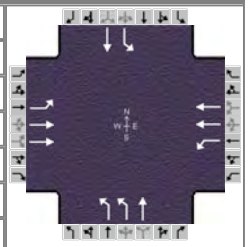
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	90	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	100	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	283		133			66	
C(m) (vph)	932	766		63			64	
v/c	0.01	0.37		2.11			1.03	
95% queue length	0.04	1.71		12.68			5.10	
Control Delay	8.9	12.4		653.9			230.0	
LOS	A	B		F			F	
Approach Delay				653.9			230.0	
Approach LOS				F			F	

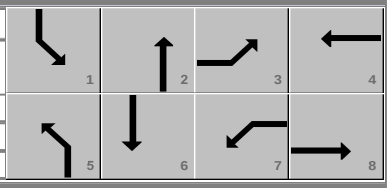
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	230		200	340		860	390		70	270	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	8.0	32.7	33.3	3.5	9.7	14.8		
				Yellow	4.3	4.3	4.3	5.0	5.0	5.0		
				Red	1.8	1.8	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	21.3	26.4	37.6	52.8	78.2	14.1	39.4
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	11.7	19.2	15.0	36.2		8.1	
Green Extension Time *(g_e)*, s	0.0	3.1	0.6	3.3	10.6	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.95	
Max Out Probability	0.00	0.00	0.03	0.00	0.11		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	256	0	222	378	0	956	433	0	78	300	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	9.7	0.0	17.2	13.0	0.0	34.2	14.9	0.0	6.1	20.5	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	9.7	0.0	17.2	13.0	0.0	34.2	14.9	0.0	6.1	20.5	0.0
Capacity *(c)*, veh/h	44	375		251	789		1150	956		101	441	
Volume-to-Capacity Ratio *(X)*	0.250	0.682	0.000	0.884	0.479	0.000	0.831	0.453	0.000	0.770	0.681	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1655	956		852	441	
Back of Queue *(Q)*, veh/ln	0.5	4.4		8.9	5.7		12.8	5.1		3.1	10.4	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	60.3		58.9	47.4		35.3	13.1		65.1	48.6	
Incremental Delay *(d_2)*, s/veh	6.2	2.7	0.0	19.2	0.5	0.0	0.4	0.1	0.0	15.0	8.6	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.0		78.1	47.9		35.7	13.2		80.1	57.2	
Level of Service (LOS)	E	E		E	D		D	B		F	E	
Approach Delay, s/veh / LOS	63.4	E		59.1	E		28.7	C		61.9	E	
Intersection Delay s/veh / LOS	43.9						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.8	C	1.1	A

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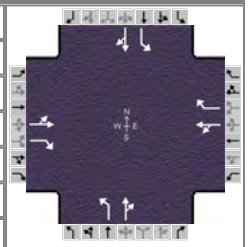
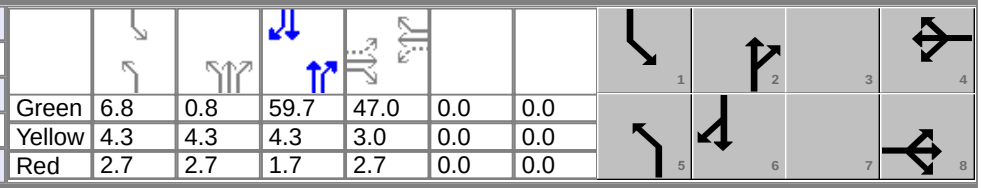
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	935	200	60	700	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1261	67	0	800
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1805	1774	0	1853
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Capacity *(c)*, veh/h	52		530	48		530	185		870	86		790
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.449	0.773	0.000	1.013
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		870	384		790
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		219.1	2.3		29.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.0	65.8		30.5
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	808.5	1.4	0.0	34.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		835.4	67.2		64.5
Level of Service (LOS)	F		C	F		C	E		F	E		F
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		750.6	F		64.7	E	
Intersection Delay s/veh / LOS	1632.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.8	C	1.9	A

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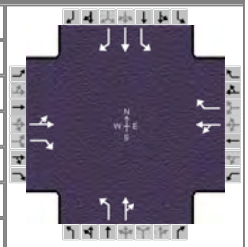
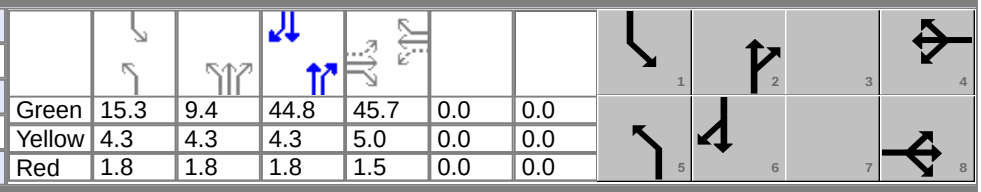
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 2+3				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	50	50	190	350	905	40	150	770	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	111	0	211	389	0	1050	167	856	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1849	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		793	194	593	503
Volume-to-Capacity Ratio *(X)*	8.448	0.000	0.647	1.705	0.000	0.410	0.996	0.000	1.324	0.858	1.442	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		793	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	26.4		5.7	16.0		150.8	6.0	150.0	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.5		30.4	61.3	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13449.0	0.0	3.0	1331.7	0.0	0.6	24.2	0.0	583.6	5.6	799.8	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13519.0		43.3	1383.5		37.3	78.7		613.9	66.8	840.0	40.5
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	7485.1	F		501.5	F		469.3	F		579.3	F	
Intersection Delay s/veh / LOS	1889.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.0	A	2.9	C	2.6	B

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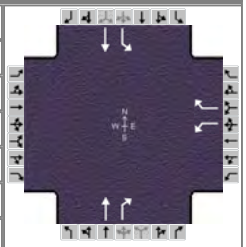
ALTERNATIVE 2A-1 AM

HCS ANALYSIS

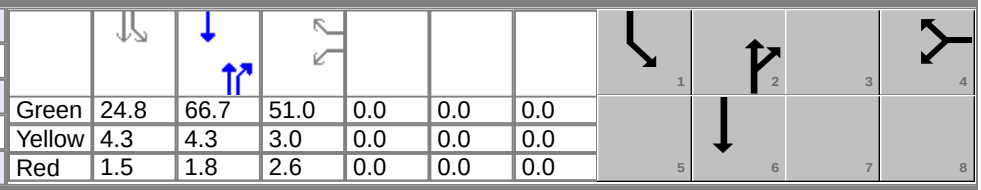
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		580	130	230	730	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.5	1.8	2.6	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	644	144	256	811	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	49.4	9.4	22.8	31.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	49.4	9.4	22.8	31.4	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.830	0.220	0.929	0.716	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		24.4	3.7	10.6	7.2	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		41.6	30.0	66.7	8.9	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	10.9	0.8	6.3	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		52.5	30.7	73.0	9.3	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	48.5		D	24.5		C
Intersection Delay s/veh / LOS	37.4						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	2.2	B

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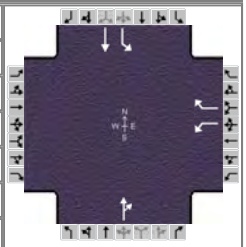
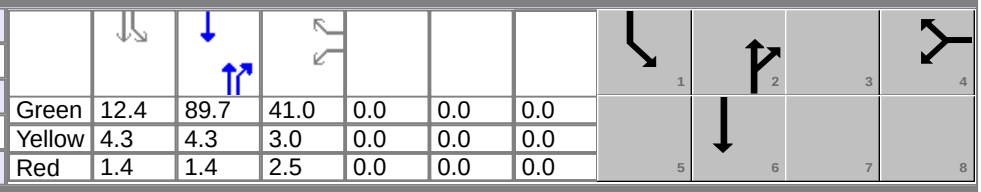
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		695	100	100	820	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.4	89.7	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	883	111	0	967
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1822	1774	0	1844
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	57.3	9.9	0.0	30.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	57.3	9.9	0.0	30.9
Capacity *(c)*, veh/h				455	0	405			1022	137		1242
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.865	0.810	0.000	0.778
Available Capacity *(c_a)*, veh/h				455	0	405			1022	327		1242
Back of Queue *(Q)*, veh/ln				3.6		3.6			18.4	4.5		4.7
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			17.6	72.7		4.8
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	1.0	2.3	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			18.6	75.0		5.2
Level of Service (LOS)				D		D			B	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	18.6		B	12.4		B
Intersection Delay s/veh / LOS	18.5						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.1	B	2.3	B

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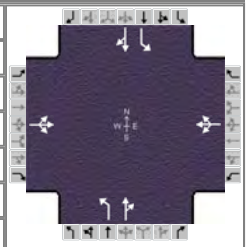
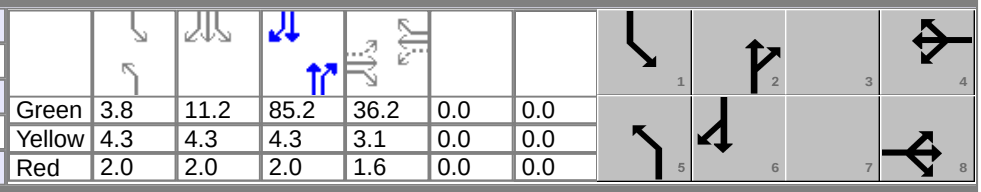
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	770	120	190	810	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	989	211	0	922
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1819	1774	0	1855
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	34.9
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	34.9
Capacity *(c)*, veh/h	317			291			42		969	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.021	0.897	0.000	0.775
Available Capacity *(c_a)*, veh/h	390			365			355		969	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		40.9	8.5		6.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2		25.1	68.3		6.9
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	44.6	2.2	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		69.7	70.5		7.4
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		69.9	E		19.1	B	
Intersection Delay s/veh / LOS	46.4						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.2	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 2C-1
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		725	95	165	955	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		805	105	183	1061	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25		25			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	27		27			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		183		54				
C(m) (vph)		748		59				
v/c		0.24		0.92				
95% queue length		0.96		4.20				
Control Delay		11.4		206.6				
LOS		B		F				
Approach Delay				206.6				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 2C-1
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	690	40	80	1100	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	766	44	88	1222	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	538	816	26		391	23		209
v/c	0.02	0.11	1.27		0.11	0.48		0.05
95% queue length	0.06	0.36	3.98		0.38	1.42		0.17
Control Delay	11.8	9.9	491.7		15.4	262.0		23.2
LOS	B	A	F		C	F		C
Approach Delay			219.5			142.6		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 2C-1
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	580	120	270	470	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	644	133	300	522	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

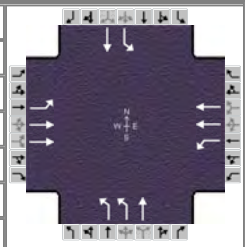
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	80	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	88	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	300		99			11	
C(m) (vph)	1035	839		204			550	
v/c	0.01	0.36		0.49			0.02	
95% queue length	0.03	1.63		2.39			0.06	
Control Delay	8.5	11.7		38.2			11.7	
LOS	A	B		E			B	
Approach Delay				38.2			11.7	
Approach LOS				E			B	

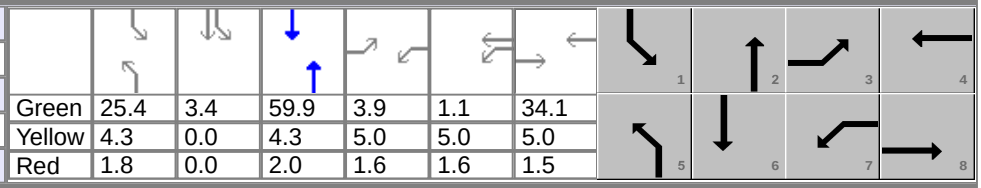
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	590		95	220		390	150		260	370	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	25.4	3.4	59.9	3.9	1.1	34.1
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	2.0	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	40.6	18.2	48.3	31.5	66.2	35.0	69.7
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	30.5	11.4	10.7	21.1		27.5	
Green Extension Time *(g_e)*, s	0.0	3.6	0.3	5.1	4.4	0.0	1.3	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.24	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	656	0	106	244	0	433	167	0	289	411	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	28.5	0.0	9.4	8.7	0.0	19.1	8.1	0.0	25.5	27.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	28.5	0.0	9.4	8.7	0.0	19.1	8.1	0.0	25.5	27.4	0.0
Capacity *(c)*, veh/h	43	756		129	927		547	698		320	738	
Volume-to-Capacity Ratio *(X)*	0.257	0.867	0.000	0.820	0.264	0.000	0.792	0.239	0.000	0.903	0.557	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1533	698		789	738	
Back of Queue *(Q)*, veh/ln	0.5	13.5		4.8	3.9		7.9	3.5		12.5	12.9	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	60.8		73.2	46.9		60.5	27.1		64.2	37.4	
Incremental Delay *(d_2)*, s/veh	6.6	8.5	0.0	15.9	0.2	0.0	0.5	0.1	0.0	12.7	3.1	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	69.3		89.0	47.1		61.1	27.2		76.9	40.5	
Level of Service (LOS)	F	E		F	D		E	C		E	D	
Approach Delay, s/veh / LOS	69.5	E		59.7	E		51.6	D		55.5	E	
Intersection Delay s/veh / LOS	59.2						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	1.0	A	0.8	A	1.5	A	1.6	A

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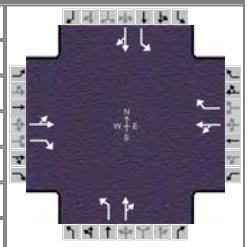
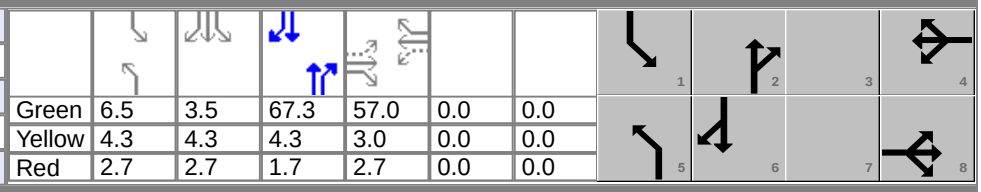
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	530	190	150	840	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	800	167	0	944
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1778	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		748	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	1.069	0.886	0.000	1.045
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		748	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		52.8	6.9		49.3
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		38.1	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	127.5	3.9	0.0	84.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		165.6	74.4		112.9
Level of Service (LOS)	F		C	F		D	E		F	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		160.0	F		107.2	F	
Intersection Delay s/veh / LOS	1206.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.3	B

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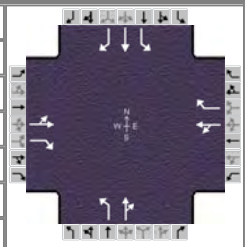
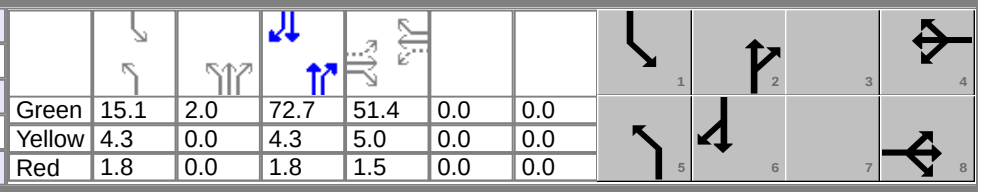
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	550	30	130	960	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	644	144	1067	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1846	1774	1863	1579
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	38.9	12.8	73.8	9.4
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	38.9	12.8	73.8	9.4
Capacity *(c)*, veh/h	56		495	54		495	190		875	168	859	728
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.737	0.860	1.241	0.214
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		875	308	859	728
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		14.5	6.1	132.5	3.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		23.2	71.4	30.8	25.8
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.5	6.5	439.5	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		23.7	77.9	470.3	26.1
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.6	C		378.3	F	
Intersection Delay s/veh / LOS	332.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.8	A	2.7	B

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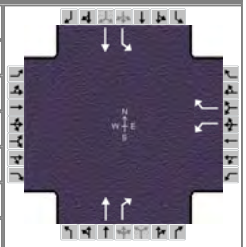
ALTERNATIVE 2A-1 PM

HCS ANALYSIS

2010 HCS Signalized Intersection Results Summary

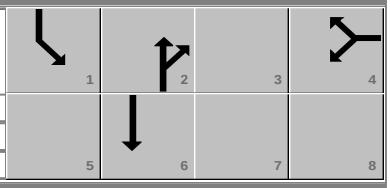
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				44		243		640	66	140	620	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.4	57.1	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	119.8	20.2	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			14.1	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			49	0	270	0	711	73	156	689	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.5	51.0	18.4	0.0	51.2	4.0	12.1	26.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.5	51.0	18.4	0.0	51.2	4.0	12.1	26.9	0.0
Capacity *(c)*, veh/h				646	0	575		760	644	182	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.076	0.000	0.470	0.000	0.936	0.114	0.853	0.670	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		760	644	322	1029	
Back of Queue *(Q)*, veh/ln				1.1		7.2		28.3	1.6	5.4	7.6	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.1	0.0	34.1		39.7	25.7	61.8	11.8	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	0.7	0.0	27.9	0.4	1.2	0.3	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.2	0.0	34.8		67.6	26.1	63.0	12.1	
Level of Service (LOS)				C		C		E	C	E	B	
Approach Delay, s/veh / LOS	0.0			34.0		C	63.7		E	21.5		C
Intersection Delay s/veh / LOS	40.5						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	1.9	A

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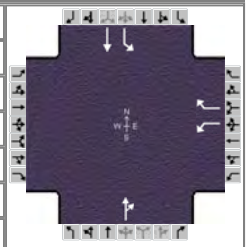
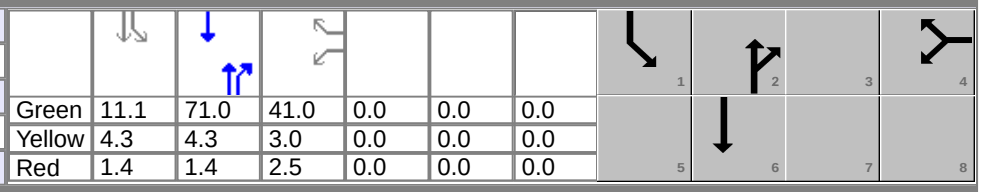
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		1110	100	100	1155	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1344	111	0	1339
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1835	1774	0	1849
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			931	140		1160
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.444	0.791	0.000	1.155
Available Capacity *(c_a)*, veh/h				520	0	462			931	374		1160
Back of Queue *(Q)*, veh/ln				2.9		3.0			230.2	3.9		103.5
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.6	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	799.8	2.0	0.0	279.4
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			823.5	65.3		291.5
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	823.5		F	274.2		F
Intersection Delay s/veh / LOS	501.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.9	C	2.9	C

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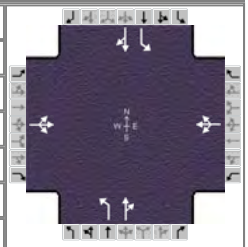
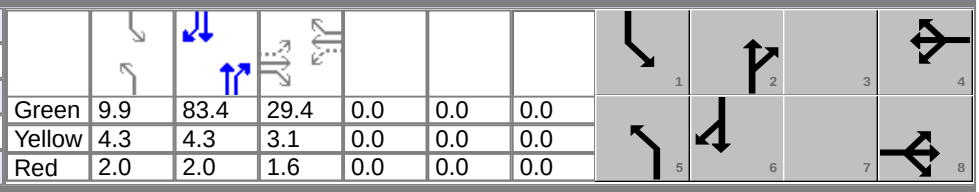
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	1020	60	90	1105	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1200	100	0	1283
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1844	1774	0	1848
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1099	125		1101
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	1.092	0.799	0.000	1.166
Available Capacity *(ca)*, veh/h	450			396			619		1099	619		1101
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		70.2	3.5		110.2
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		15.2	64.1		15.0
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	168.0	1.1	0.0	299.3
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		183.2	65.2		314.3
Level of Service (LOS)	D			E			E		F	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		174.1	F		296.3	F	
Intersection Delay s/veh / LOS	217.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.6	B	2.8	C

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 2C-1
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	25	30	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	27	33	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	25		30			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	27		33			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		33		60				
C(m) (vph)		474		30				
v/c		0.07		2.00				
95% queue length		0.22		6.98				
Control Delay		13.2		748.3				
LOS		B		F				
Approach Delay				748.3				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 2C-1
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	1055	100	100	790	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1172	111	111	877	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	699	541	12		217	6		323
v/c	0.05	0.21	3.67		0.46	9.17		0.03
95% queue length	0.15	0.76	6.53		2.23	8.54		0.11
Control Delay	10.4	13.4	1830		35.0+	4861		16.5
LOS	B	B	F		E	F		C
Approach Delay			583.4			4054		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 2C-1
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	685	90	290	565	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	761	100	322	627	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

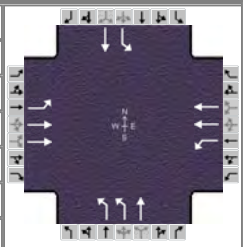
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	185	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	205	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	322		238			66	
C(m) (vph)	946	781		91			42	
v/c	0.01	0.41		2.62			1.57	
95% queue length	0.04	2.03		22.37			6.70	
Control Delay	8.9	12.8		830.7			497.0	
LOS	A	B		F			F	
Approach Delay				830.7			497.0	
Approach LOS				F			F	

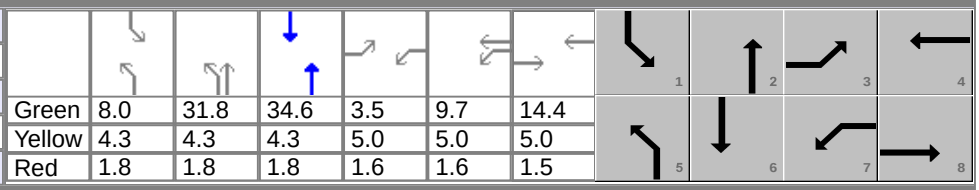
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	220		200	360		840	370		70	270	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	8.0	31.8	34.6	3.5	9.7	14.4						
Yellow	4.3	4.3	4.3	5.0	5.0	5.0						
Red	1.8	1.8	1.8	1.6	1.6	1.5						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	20.9	26.4	37.3	51.9	78.5	14.1	40.7
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	11.3	19.2	15.9	35.5		8.1	
Green Extension Time *(g_e)*, s	0.0	3.1	0.6	3.4	10.4	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.95	
Max Out Probability	0.00	0.00	0.03	0.00	0.09		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	244	0	222	400	0	933	411	0	78	300	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	9.3	0.0	17.2	13.9	0.0	33.5	13.7	0.0	6.1	20.3	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	9.3	0.0	17.2	13.9	0.0	33.5	13.7	0.0	6.1	20.3	0.0
Capacity *(c)*, veh/h	44	366		251	780		1128	961		101	457	
Volume-to-Capacity Ratio *(X)*	0.250	0.668	0.000	0.884	0.513	0.000	0.828	0.428	0.000	0.770	0.656	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1664	961		857	457	
Back of Queue *(Q)*, veh/ln	0.5	4.2		8.9	6.1		12.6	4.7		3.1	10.2	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	60.5		58.9	48.0		36.0	12.7		65.1	47.5	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.4	0.1	0.0	15.0	7.4	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.0		78.1	48.7		36.3	12.8		80.1	54.9	
Level of Service (LOS)	E	E		E	D		D	B		F	D	
Approach Delay, s/veh / LOS	63.5	E		59.2	E		29.1	C		60.1	E	
Intersection Delay s/veh / LOS	44.2						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.7	B	1.1	A

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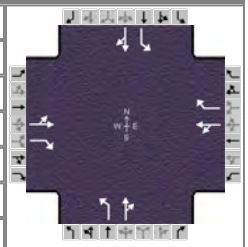
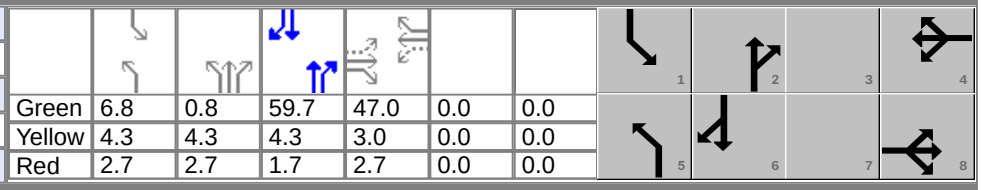
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	880	200	60	710	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1200	67	0	811
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1803	1774	0	1854
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Capacity *(c)*, veh/h	52		530	48		530	185		869	86		790
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.381	0.773	0.000	1.027
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		869	384		790
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		189.2	2.3		34.3
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.1	65.8		30.5
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	686.0	1.4	0.0	55.1
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		713.1	67.2		85.6
Level of Service (LOS)	F		C	F		C	E		F	E		F
Approach Delay, s/veh / LOS	2962.8		F	6693.1		F	638.5		F	84.2		F
Intersection Delay s/veh / LOS	1599.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.7	B	1.9	A

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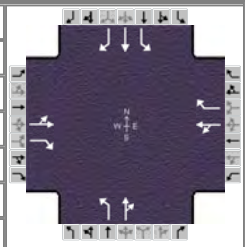
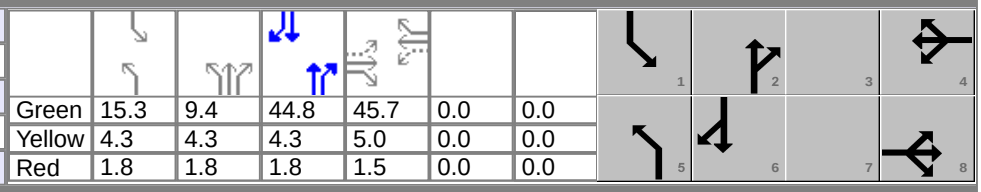
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	50	50	190	350	855	40	150	780	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	111	0	211	389	0	994	167	867	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1848	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		793	194	593	503
Volume-to-Capacity Ratio *(X)*	8.448	0.000	0.647	1.705	0.000	0.410	0.996	0.000	1.254	0.858	1.460	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		793	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	26.4		5.7	16.0		123.3	6.0	155.5	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.5		30.4	61.3	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13449.0	0.0	3.0	1331.7	0.0	0.6	24.2	0.0	458.6	5.6	833.3	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13519.0		43.3	1383.5		37.3	78.7		489.0	66.8	873.6	40.5
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	7485.1	F		501.5	F		373.7	F		604.1	F	
Intersection Delay s/veh / LOS	1880.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.0	A	2.8	C	2.6	B

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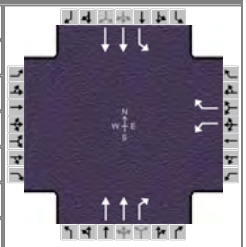
ALTERNATIVE 4 AM

HCS ANALYSIS

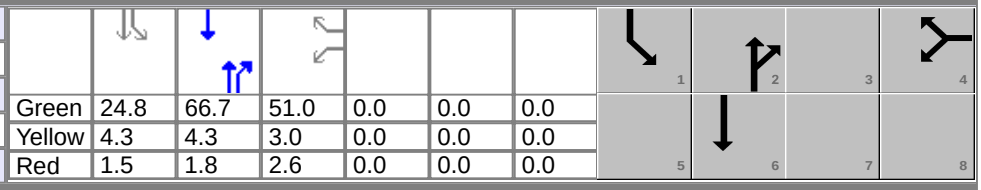
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.5	1.8	2.6	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1773	1579	1774	1773	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	25.0	9.4	22.8	10.5	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	25.0	9.4	22.8	10.5	0.0
Capacity *(c)*, veh/h				565	0	503		1478	658	275	2157	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.507	0.220	0.929	0.389	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		1478	658	282	2157	
Back of Queue *(Q)*, veh/ln				1.2		12.5		10.9	3.7	10.6	3.2	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		34.5	30.0	66.7	6.9	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	1.3	0.8	6.3	0.0	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		35.8	30.7	73.0	7.0	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	34.9		C	22.4		C
Intersection Delay s/veh / LOS	31.6						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.2	A	1.4	A

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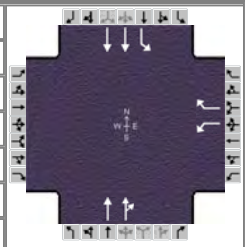
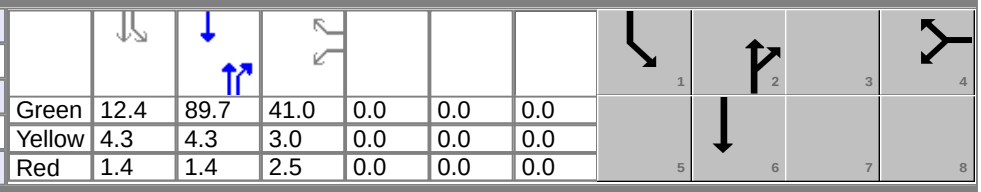
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.4	89.7	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	502	482	111	490	505
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1788	1774	1773	1827
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	17.0	19.2	9.9	7.1	8.7
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	17.0	19.2	9.9	7.1	8.7
Capacity *(c)*, veh/h				455	0	405		1045	1003	137	1195	1231
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.480	0.480	0.810	0.410	0.410
Available Capacity *(c_a)*, veh/h				455	0	405		1045	1003	327	1195	1231
Back of Queue *(Q)*, veh/ln				3.6		3.6		5.5	6.4	4.5	1.9	2.4
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6		11.0	13.2	72.7	3.0	3.8
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.1	0.1	2.3	0.1	0.1
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0		11.1	13.4	75.0	3.1	3.9
Level of Service (LOS)				D		D		B	B	E	A	A
Approach Delay, s/veh / LOS	0.0			47.8		D	12.2		B	10.7		B
Intersection Delay s/veh / LOS	14.9						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	1.4	A	1.4	A

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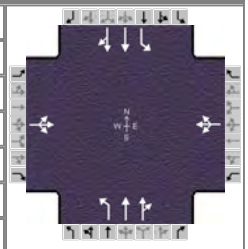
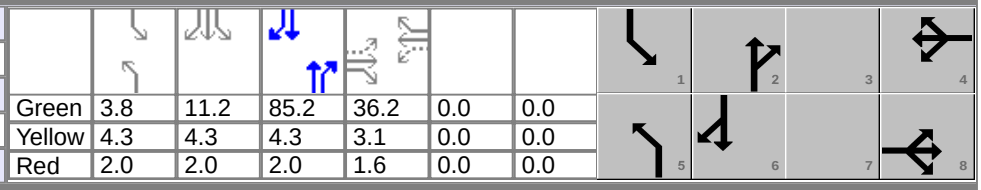
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	559	535	211	477	473
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	1863	1783	1774	1863	1847
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	23.2	25.7	18.7	9.0	9.5
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	23.2	25.7	18.7	9.0	9.5
Capacity *(c)*, veh/h	317			291			42	992	950	235	1195	1185
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.563	0.564	0.897	0.399	0.399
Available Capacity *(c_a)*, veh/h	390			365			355	992	950	355	1195	1185
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9	7.6	9.0	8.5	2.7	2.9
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2	14.2	16.8	68.3	4.8	5.2
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.2	0.2	2.2	0.1	0.1
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2	14.4	17.0	70.5	4.9	5.3
Level of Service (LOS)	D			E			E	B	B	E	A	A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		16.9	B		17.0	B	
Intersection Delay s/veh / LOS	22.9						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	1.4	A	1.4	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		675	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		750	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2	0	1	2	
Configuration		T	TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		755		272				
v/c		0.34		1.43				
95% queue length		1.49		21.32				
Control Delay		12.2		247.2				
LOS		B		F				
Approach Delay				247.2				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

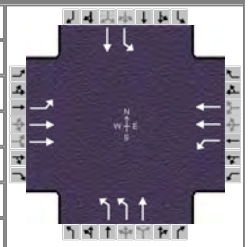
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		177			539	
v/c	0.01	0.40		0.63			0.02	
95% queue length	0.03	1.95		3.53			0.06	
Control Delay	8.6	12.7		54.5			11.8	
LOS	A	B		F			B	
Approach Delay				54.5			11.8	
Approach LOS				F			B	

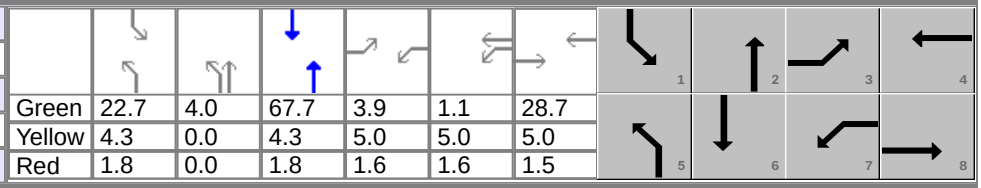
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		410	160		200	430	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	22.7	4.0	67.7	3.9	1.1	28.7
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	1.8	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	32.7	77.8	28.8	73.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	22.0		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	4.7	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	456	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Capacity *(c)*, veh/h	43	636		129	807		574	832		251	786	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.794	0.214	0.000	0.884	0.608	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	786	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		8.3	2.9		9.7	15.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		59.7	19.3		67.4	35.9	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	3.5	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		60.2	19.4		80.7	39.5	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		48.7	D		52.6	D	
Intersection Delay s/veh / LOS	57.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.5	A	1.6	A

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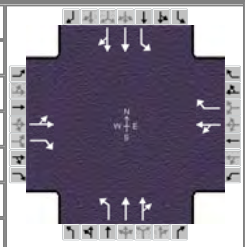
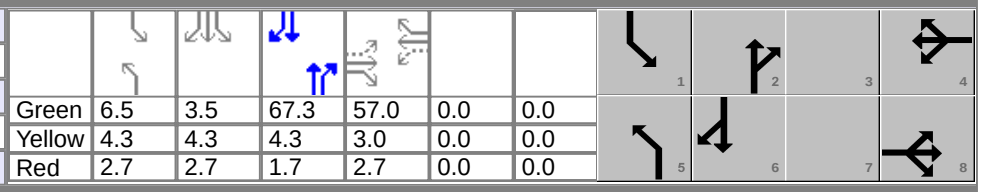
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, (*Y+Rc*), s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway (*MAH*), s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	33	0	44	278	0	122	56	432	395	167	565	563
Adjusted Saturation Flow Rate (*s*), veh/h/ln	33	0	1579	0	0	1579	1774	1863	1699	1774	1863	1856
Queue Service time (g_s), s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	23.6	26.2	14.8	28.6	28.8
Cycle Queue Clearance Time (g_c), s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	23.6	26.2	14.8	28.6	28.8
Capacity (*c*), veh/h	49		562	44		562	72	784	715	188	906	903
Volume-to-Capacity Ratio (*X*)	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.552	0.553	0.886	0.624	0.624
Available Capacity (c_a), veh/h	49		562	44		562	225	784	715	225	906	903
Back of Queue (*Q*), veh/ln	1.9		1.2	119.2		3.4	2.3	9.3	10.2	6.9	10.4	10.5
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (d_1), s/veh	60.3		34.1	80.0		35.9	76.0	25.5	30.5	70.6	19.5	19.7
Incremental Delay (d_2), s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.3	0.3	3.9	0.3	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	97.1		34.2	9659.6		36.1	78.3	25.8	30.8	74.4	19.8	20.0
Level of Service (LOS)	F		C	F		D	E	C	C	E	B	B
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		31.3	C		26.9	C	
Intersection Delay s/veh / LOS	1037.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.8	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.2	A	1.6	A

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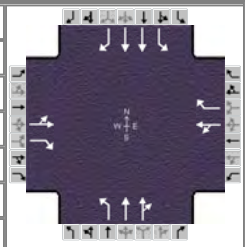
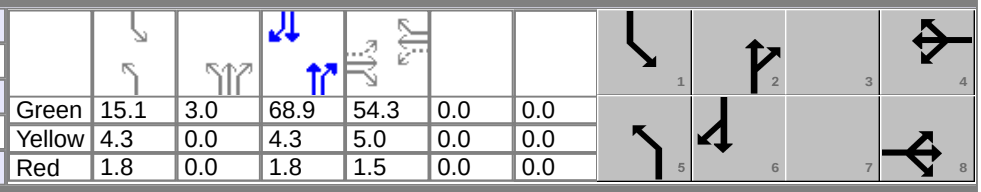
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Alternative 4	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	100	40	10	80	160	565	30	130	1065	200

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	3.0	68.9	54.3	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	60.8	60.8	60.8	60.8	24.2	78.0	21.2	75.0
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	55.2	55.2	55.2	55.2	17.8		14.8	
Green Extension Time *(g_e)*, s	0.1	0.1	0.1	0.1	0.2	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.33		0.02	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	133	0	111	56	0	89	178	333	328	144	1183	222
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	45	0	1579	37	0	1579	1774	1863	1829	1774	1773	1579
Queue Service time *(g_s)*, s	1.3	0.0	8.1	1.3	0.0	6.4	15.8	14.8	15.3	12.8	40.3	14.8
Cycle Queue Clearance Time *(g_c)*, s	53.2	0.0	8.1	53.2	0.0	6.4	15.8	14.8	15.3	12.8	40.3	14.8
Capacity *(c)*, veh/h	54		525	53		525	201	847	832	167	1546	688
Volume-to-Capacity Ratio *(X)*	2.461	0.000	0.212	1.052	0.000	0.169	0.886	0.393	0.394	0.863	0.765	0.323
Available Capacity *(c_a)*, veh/h	68		550	65		550	271	847	832	271	1546	688
Back of Queue *(Q)*, veh/ln	42.6		3.2	6.2		2.5	7.2	5.7	5.9	6.2	15.1	5.7
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.3		38.3	74.1		37.7	69.9	20.1	21.0	71.4	27.3	29.6
Incremental Delay *(d_2)*, s/veh	2684.3	0.0	0.2	275.5	0.0	0.2	2.9	0.1	0.1	8.2	1.8	0.6
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2756.7		38.6	349.6		37.9	72.8	20.2	21.1	79.7	29.1	30.2
Level of Service (LOS)	F		D	F		D	E	C	C	E	C	C
Approach Delay, s/veh / LOS	1521.2	F		157.8	F		31.7	C		34.0	C	
Intersection Delay s/veh / LOS	170.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	3.0	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.2	A	1.8	A

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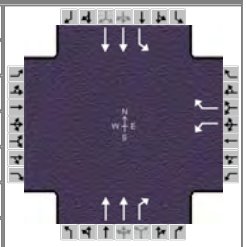
ALTERNATIVE 4 PM

HCS ANALYSIS

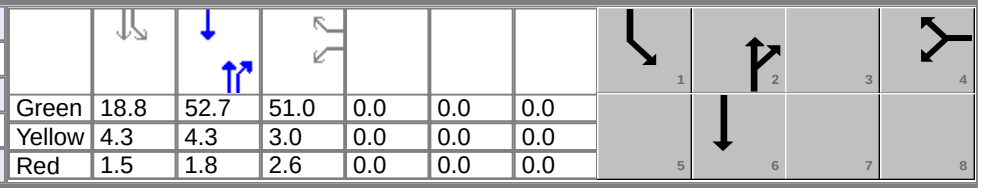
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		905	90	190	890	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	18.8	52.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	1006	100	211	989	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1773	1579	1774	1773	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	34.5	5.9	16.4	16.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	34.5	5.9	16.4	16.4	0.0
Capacity *(c)*, veh/h				646	0	575		1336	595	238	1958	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	0.753	0.168	0.888	0.505	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		1336	595	322	1958	
Back of Queue *(Q)*, veh/ln				1.5		10.7		15.3	2.3	7.4	4.9	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		38.0	29.0	59.6	10.4	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	4.1	0.6	2.5	0.1	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		42.0	29.7	62.1	10.5	
Level of Service (LOS)				C		D		D	C	E	B	
Approach Delay, s/veh / LOS	0.0			37.9		D	40.9		D	19.6		B
Intersection Delay s/veh / LOS	31.1						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.4	A	1.5	A

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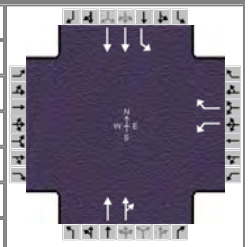
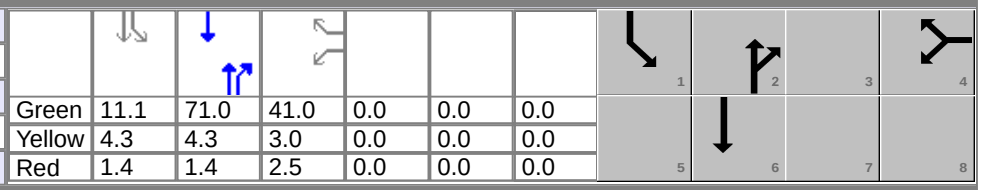
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		1135	100	100	1180	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	694	678	111	671	696
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1809	1774	1773	1836
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	33.6	35.4	8.6	17.5	19.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	33.6	35.4	8.6	17.5	19.0
Capacity *(c)*, veh/h				520	0	462		945	918	140	1112	1152
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.735	0.738	0.791	0.603	0.604
Available Capacity *(c_a)*, veh/h				520	0	462		945	918	374	1112	1152
Back of Queue *(Q)*, veh/ln				2.9		3.0		10.9	12.0	3.9	3.9	4.6
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7		16.6	18.3	63.3	5.7	6.4
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.5	0.5	2.0	0.2	0.2
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0		17.1	18.8	65.3	5.9	6.6
Level of Service (LOS)				D		D		B	B	E	A	A
Approach Delay, s/veh / LOS	0.0			37.8		D	17.9		B	10.7		B
Intersection Delay s/veh / LOS	15.9						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	1.7	A	1.7	A

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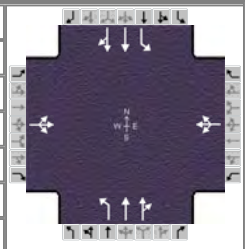
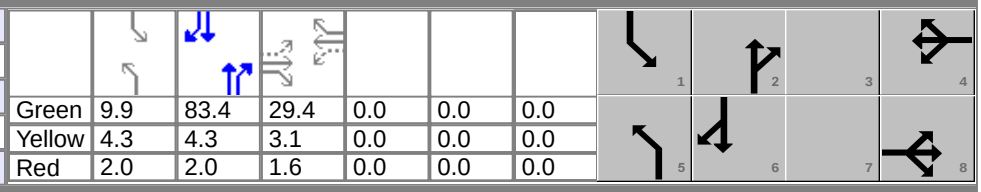
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	1045	60	90	1130	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	619	608	100	660	651
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	1863	1827	1774	1863	1835
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	17.2	18.7	7.8	19.3	20.6
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	17.2	18.7	7.8	19.3	20.6
Capacity *(c)*, veh/h	314			268			125	1110	1088	125	1110	1093
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.558	0.559	0.799	0.595	0.596
Available Capacity *(ca)*, veh/h	450			396			619	1110	1088	619	1110	1093
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5	4.7	5.2	3.5	5.0	5.5
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1	7.6	8.6	64.1	7.8	8.6
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.2	0.2	1.1	0.2	0.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2	7.8	8.8	65.2	8.0	8.8
Level of Service (LOS)	D			E			E	A	A	E	A	A
Approach Delay, s/veh / LOS	48.2	D		59.9	E		12.6	B		12.4	B	
Intersection Delay s/veh / LOS	17.2						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	1.6	A	1.7	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	50	60	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	55	66	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2	0	1	2	
Configuration		T	TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		459		57				
v/c		0.14		2.12				
95% queue length		0.50		11.83				
Control Delay		14.2		673.1				
LOS		B		F				
Approach Delay				673.1				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 4
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

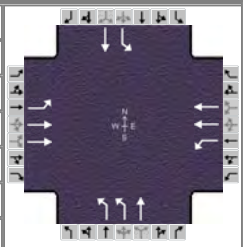
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		78			34	
v/c	0.01	0.43		3.13			1.94	
95% queue length	0.04	2.22		24.49			7.36	
Control Delay	8.9	13.3		1072			693.2	
LOS	A	B		F			F	
Approach Delay				1072			693.2	
Approach LOS				F			F	

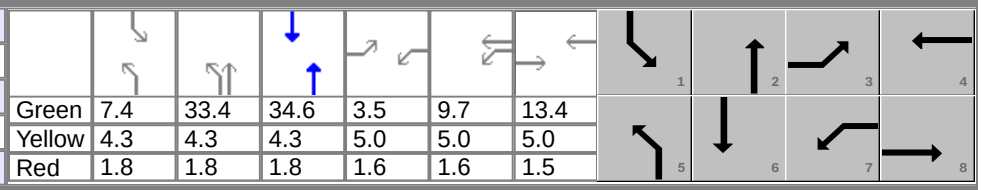
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		860	380		60	280	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.4	33.4	34.6	3.5	9.7	13.4						
Yellow	4.3	4.3	4.3	5.0	5.0	5.0						
Red	1.8	1.8	1.8	1.6	1.6	1.5						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	53.0	80.2	13.5	40.7
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	36.1		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	10.7	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.09		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	956	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Capacity *(c)*, veh/h	44	339		251	753		1153	983		94	458	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.829	0.430	0.000	0.711	0.680	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	458	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		12.8	4.6		2.6	10.7	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		35.2	11.8		65.2	47.8	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.4	0.1	0.0	12.0	8.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		35.6	11.9		77.3	56.0	
Level of Service (LOS)	E	E		E	D		D	B		E	E	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		28.3	C		59.8	E	
Intersection Delay s/veh / LOS	43.5						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.8	C	1.1	A

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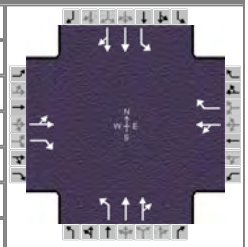
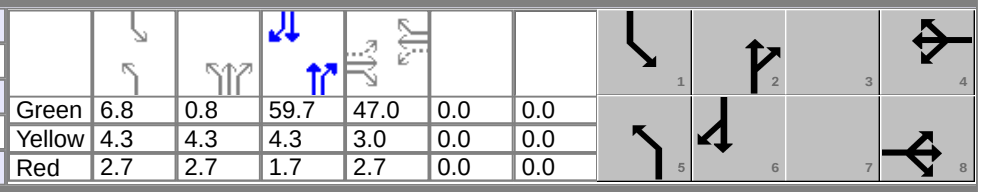
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	905	200	60	740	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0	1	2	3	4		
Yellow	4.3	4.3	4.3	3.0	0.0	0.0	5	6	7	8		
Red	2.7	2.7	1.7	2.7	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	633	595	67	424	420
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	1863	1745	1774	1863	1845
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	31.0	33.9	5.2	19.8	20.0
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	31.0	33.9	5.2	19.8	20.0
Capacity *(c)*, veh/h	52		530	48		530	185	898	842	86	794	786
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.704	0.707	0.773	0.534	0.534
Available Capacity *(c_a)*, veh/h	52		530	48		530	384	898	842	384	794	786
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4	10.7	12.2	2.3	7.4	7.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5	18.5	22.2	65.8	21.6	22.0
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.4	0.5	1.4	0.2	0.2
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9	18.9	22.7	67.2	21.8	22.3
Level of Service (LOS)	F		C	F		C	E	B	C	E	C	C
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		25.5	C		25.4	C	
Intersection Delay s/veh / LOS	1276.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.8	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	1.6	A	1.2	A

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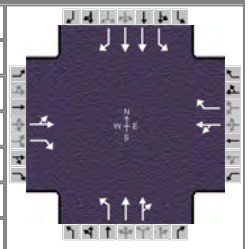
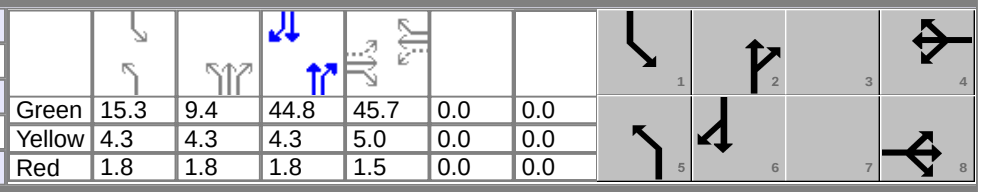
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 4				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	370	40	310	50	50	190	380	845	40	150	710	330

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.8		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	456	0	344	111	0	211	422	496	488	167	789	367
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	1863	1833	1774	1773	1579
Queue Service time *(g_s)*, s	0.0	0.0	26.3	0.0	0.0	14.6	30.8	24.7	25.1	12.9	25.5	28.9
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	26.3	45.7	0.0	14.6	30.8	24.7	25.1	12.9	25.5	28.9
Capacity *(c)*, veh/h	49		515	65		515	390	799	786	194	1130	503
Volume-to-Capacity Ratio *(X)*	9.310	0.000	0.668	1.705	0.000	0.410	1.082	0.620	0.620	0.858	0.698	0.729
Available Capacity *(c_a)*, veh/h	49		515	65		515	390	799	786	390	1130	503
Back of Queue *(Q)*, veh/ln	205.6		10.7	26.4		5.7	29.9	9.2	9.4	6.0	10.1	11.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.6	51.8		36.7	54.6	22.4	23.2	61.3	34.8	42.3
Incremental Delay *(d_2)*, s/veh	14998.9	0.0	3.6	1331.8	0.0	0.6	152.6	0.3	0.3	5.6	1.7	4.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	15068.9		44.2	1383.5		37.3	207.2	22.7	23.5	66.8	36.5	46.8
Level of Service (LOS)	F		D	F		D	F	C	C	E	D	D
Approach Delay, s/veh / LOS	8599.9	F		501.5	F		78.4	E		43.2	D	
Intersection Delay s/veh / LOS	1872.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	3.0	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.8	A	1.0	A	1.6	A	1.6	A

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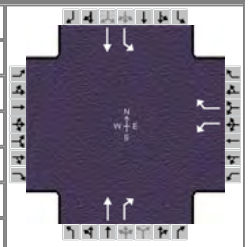
ALTERNATIVE 4C AM

HCS ANALYSIS

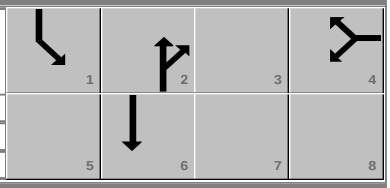
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0		
Yellow	4.3	4.3	3.0	0.0	0.0	0.0		
Red	1.5	1.8	2.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.966	0.220	0.929	0.741	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		36.7	3.7	10.6	7.8	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		45.6	30.0	66.7	9.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	39.9	0.8	6.3	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		85.5	30.7	73.0	9.6	
Level of Service (LOS)				D		D		F	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	76.6		E	24.4		C
Intersection Delay s/veh / LOS	48.2						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.0	A	2.3	B

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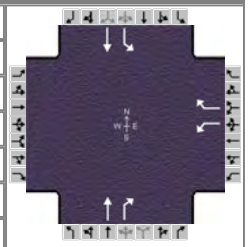
2010 HCS Signalized Intersection Results Summary

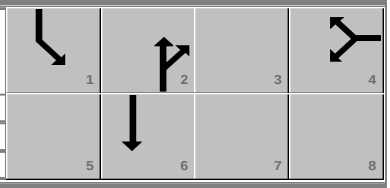
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	872	111	111	0	994
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1533	1774	0	1844
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	50.3	5.5	9.9	0.0	33.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	50.3	5.5	9.9	0.0	33.9
Capacity *(c)*, veh/h				455	0	405		1045	860	137		1243
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.835	0.129	0.810	0.000	0.800
Available Capacity *(c_a)*, veh/h				455	0	405		1045	860	327		1243
Back of Queue *(Q)*, veh/ln				3.6		3.6		15.2	1.9	4.5		4.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6		15.2	16.6	72.7		4.9
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.8	0.0	2.3	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0		16.0	16.7	75.0		5.4
Level of Service (LOS)				D		D		B	B	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	16.1		B	12.4		B
Intersection Delay s/veh / LOS	17.4						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.3	B

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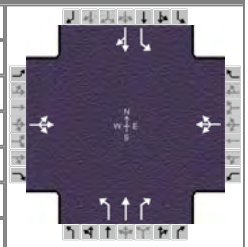
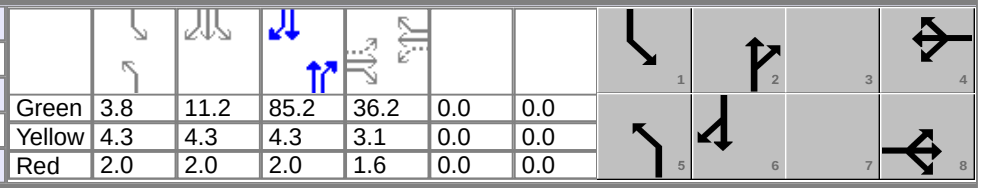
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	3.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(ge)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	961	133	211	0	950
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	1863	1533	1774	0	1855
Queue Service time *(gs)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	76.7	7.1	18.7	0.0	38.1
Cycle Queue Clearance Time *(gc)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	76.7	7.1	18.7	0.0	38.1
Capacity *(c)*, veh/h	317			291			42	992	817	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.969	0.163	0.897	0.000	0.798
Available Capacity *(ca)*, veh/h	390			365			355	992	817	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9	26.3	2.5	8.5		6.4
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	48.8			60.2			77.2	22.0	19.1	68.3		7.1
Incremental Delay *(d2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	4.7	0.0	2.2	0.0	0.5
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2	26.6	19.2	70.5		7.7
Level of Service (LOS)	D			E			E	C	B	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		26.8	C		19.1	B	
Intersection Delay s/veh / LOS	28.2						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.3	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Right Turns Alternative
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		675	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		750	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?			No			
Lanes		1	1	1	1	
Configuration		T	R	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		759		194				
v/c		0.34		2.00				
95% queue length		1.48		29.23				
Control Delay		12.1		508.0				
LOS		B		F				
Approach Delay				508.0				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Right Turns Alternative
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	715	40	80	1235	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	794	44	88	1372	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?		No			No	
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration		LT	R		LT	R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	472	796	19		388	18		179
v/c	0.02	0.11	1.74		0.11	0.61		0.06
95% queue length	0.07	0.37	4.50		0.38	1.64		0.19
Control Delay	12.8	10.1	779.3		15.5	367.8		26.4
LOS	B	B	F		C	F		D
Approach Delay			342.8			197.1		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period:
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?		No				
Lanes	1	1	1	1	1	0
Configuration	L	T	R	L		TR
Upstream Signal?		No			No	

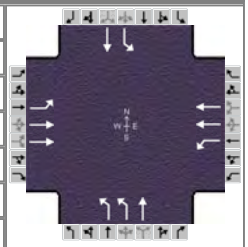
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		194			539	
v/c	0.01	0.40		0.57			0.02	
95% queue length	0.03	1.95		3.09			0.06	
Control Delay	8.6	12.7		45.8			11.8	
LOS	A	B		E			B	
Approach Delay				45.8			11.8	
Approach LOS				E			B	

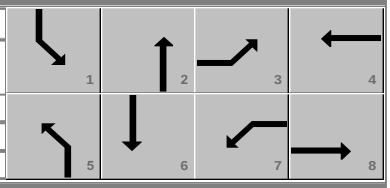
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		410	160		200	430	

Signal Information												
Cycle, s	160.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	22.7	4.0	67.7	3.9	1.1	28.7		
				Yellow	4.3	0.0	4.3	5.0	5.0	5.0		
				Red	1.8	0.0	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	32.7	77.8	28.8	73.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	22.0		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	4.7	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	456	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Capacity *(c)*, veh/h	43	636		129	807		574	832		251	786	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.794	0.214	0.000	0.884	0.608	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	786	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		8.3	2.9		9.7	15.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		59.7	19.3		67.4	35.9	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	3.5	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		60.2	19.4		80.7	39.5	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		48.7	D		52.6	D	
Intersection Delay s/veh / LOS	57.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.5	A	1.6	A

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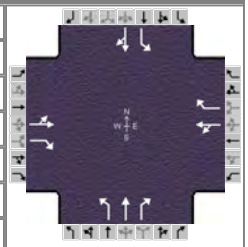
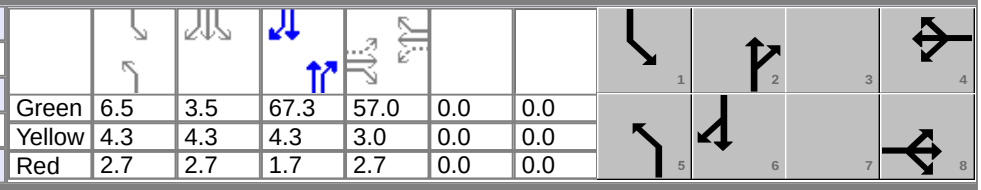
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	3.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	617	211	167	0	1128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	1863	1533	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	41.6	14.8	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	41.6	14.8	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72	784	645	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.787	0.327	0.886	0.000	1.247
Available Capacity *(c_a)*, veh/h	49		562	44		562	225	784	645	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3	16.5	5.5	6.9		140.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0	29.5	31.1	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.8	0.1	3.9	0.0	445.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3	30.2	31.2	74.4		474.1
Level of Service (LOS)	F		C	F		D	E	C	C	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		33.5	C		422.7	F	
Intersection Delay s/veh / LOS	1231.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.6	B

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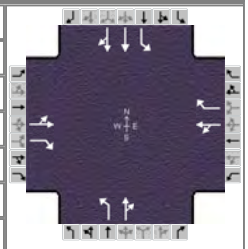
2010 HCS Signalized Intersection Results Summary

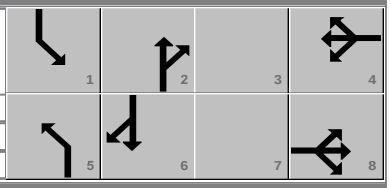
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	575	30	130	1125	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	15.1	2.0	72.7	51.4	0.0	0.0	
Yellow	4.3	0.0	4.3	5.0	0.0	0.0	
Red	1.8	0.0	1.8	1.5	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	672	144	714	692
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1846	1774	1863	1790
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	42.1	12.8	48.3	50.5
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	42.1	12.8	48.3	50.5
Capacity *(c)*, veh/h	56		495	54		495	190		875	168	859	826
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.768	0.860	0.831	0.837
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		875	308	859	826
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		15.7	6.1	19.2	20.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		23.7	71.4	25.9	28.7
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.6	6.5	4.8	5.2
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		24.3	77.9	30.7	33.8
Level of Service (LOS)	F		D	F		D	E		C	E	C	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.8	C		36.5	D	
Intersection Delay s/veh / LOS	139.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.9	A	1.8	A

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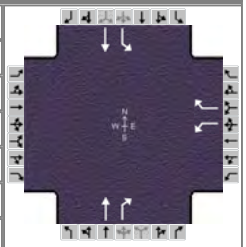
ALTERNATIVE 4C PM HCS ANALYSIS

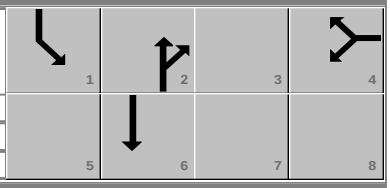
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.5	1.8	2.6	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.966	0.220	0.929	0.741	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		36.7	3.7	10.6	7.8	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		45.6	30.0	66.7	9.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	39.9	0.8	6.3	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		85.5	30.7	73.0	9.6	
Level of Service (LOS)				D		D		F	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	76.6		E	24.4		C
Intersection Delay s/veh / LOS	48.2						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.0	A	2.3	B

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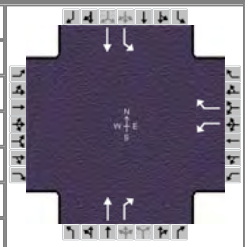
2010 HCS Signalized Intersection Results Summary

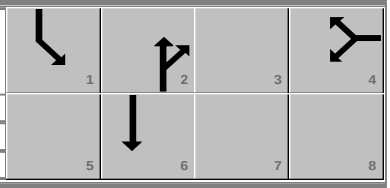
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	872	111	111	0	994
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1533	1774	0	1844
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	50.3	5.5	9.9	0.0	33.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	50.3	5.5	9.9	0.0	33.9
Capacity *(c)*, veh/h				455	0	405		1045	860	137		1243
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.835	0.129	0.810	0.000	0.800
Available Capacity *(c_a)*, veh/h				455	0	405		1045	860	327		1243
Back of Queue *(Q)*, veh/ln				3.6		3.6		15.2	1.9	4.5		4.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6		15.2	16.6	72.7		4.9
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.8	0.0	2.3	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0		16.0	16.7	75.0		5.4
Level of Service (LOS)				D		D		B	B	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	16.1		B	12.4		B
Intersection Delay s/veh / LOS	17.4						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.3	B

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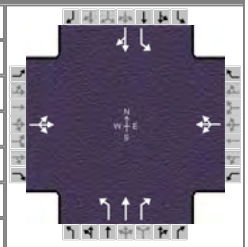
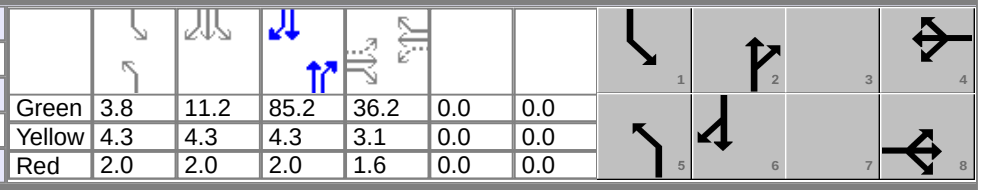
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	3.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	961	133	211	0	950
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	1863	1533	1774	0	1855
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	76.7	7.1	18.7	0.0	38.1
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	76.7	7.1	18.7	0.0	38.1
Capacity *(c)*, veh/h	317			291			42	992	817	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.969	0.163	0.897	0.000	0.798
Available Capacity *(c_a)*, veh/h	390			365			355	992	817	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9	26.3	2.5	8.5		6.4
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2	22.0	19.1	68.3		7.1
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	4.7	0.0	2.2	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2	26.6	19.2	70.5		7.7
Level of Service (LOS)	D			E			E	C	B	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		26.8	C		19.1	B	
Intersection Delay s/veh / LOS	28.2						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.3	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Right Turns Alternative
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	50	60	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	55	66	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?			No			
Lanes		1	1	1	1	
Configuration		T	R	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		463		26				
v/c		0.14		4.65				
95% queue length		0.49		14.92				
Control Delay		14.1		1948				
LOS		B		F				
Approach Delay				1948				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Right Turns Alternative
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	1085	100	100	820	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1205	111	111	911	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?			No			No
Lanes	1	1	1	1	1	1
Configuration	L	T	R	L	T	R
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	679	525	10		224	6		332
v/c	0.05	0.21	4.40		0.45	9.17		0.03
95% queue length	0.15	0.79	6.71		2.13	8.54		0.10
Control Delay	10.6	13.7	2269		33.4	4861		16.2
LOS	B	B	F		D	F		C
Approach Delay			716.6			4054		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Right Turns Alternative
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?			No			
Lanes	1	1	1	1	1	0
Configuration	L	T	R	L		TR
Upstream Signal?		No			No	

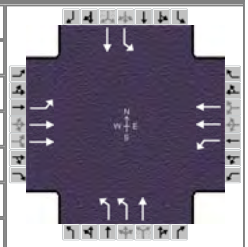
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		84			37	
v/c	0.01	0.43		2.90			1.78	
95% queue length	0.04	2.22		23.84			7.11	
Control Delay	8.9	13.3		966.0			609.1	
LOS	A	B		F			F	
Approach Delay				966.0			609.1	
Approach LOS				F			F	

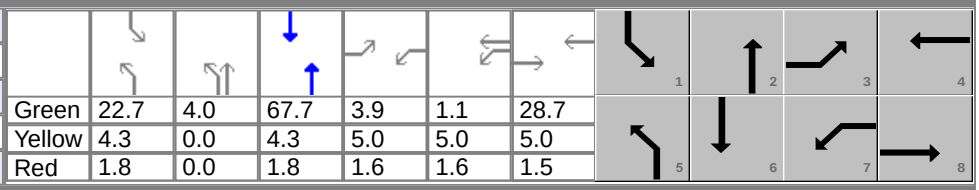
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		410	160		200	430	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	22.7	4.0	67.7	3.9	1.1	28.7
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	1.8	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	32.7	77.8	28.8	73.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	22.0		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	4.7	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	456	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Capacity *(c)*, veh/h	43	636		129	807		574	832		251	786	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.794	0.214	0.000	0.884	0.608	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	786	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		8.3	2.9		9.7	15.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		59.7	19.3		67.4	35.9	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	3.5	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		60.2	19.4		80.7	39.5	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		48.7	D		52.6	D	
Intersection Delay s/veh / LOS	57.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.5	A	1.6	A

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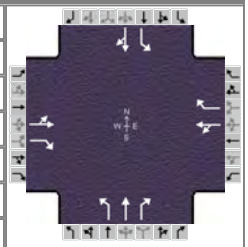
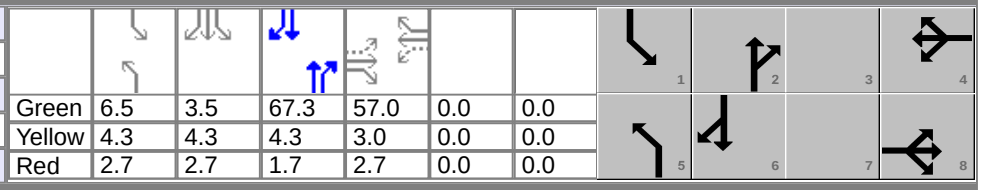
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	3.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	617	211	167	0	1128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	1863	1533	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	41.6	14.8	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	41.6	14.8	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72	784	645	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.787	0.327	0.886	0.000	1.247
Available Capacity *(c_a)*, veh/h	49		562	44		562	225	784	645	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3	16.5	5.5	6.9		140.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0	29.5	31.1	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.8	0.1	3.9	0.0	445.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3	30.2	31.2	74.4		474.1
Level of Service (LOS)	F		C	F		D	E	C	C	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		33.5	C		422.7	F	
Intersection Delay s/veh / LOS	1231.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.6	B

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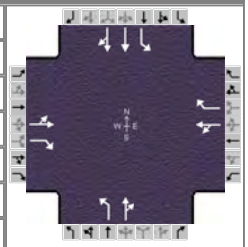
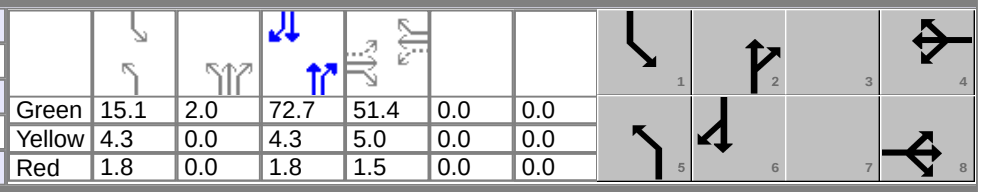
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Right Turns Alternative				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	575	30	130	1125	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	672	144	714	692
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1846	1774	1863	1790
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	42.1	12.8	48.3	50.5
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	42.1	12.8	48.3	50.5
Capacity *(c)*, veh/h	56		495	54		495	190		875	168	859	826
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.768	0.860	0.831	0.837
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		875	308	859	826
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		15.7	6.1	19.2	20.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		23.7	71.4	25.9	28.7
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.6	6.5	4.8	5.2
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		24.3	77.9	30.7	33.8
Level of Service (LOS)	F		D	F		D	E		C	E	C	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.8	C		36.5	D	
Intersection Delay s/veh / LOS	139.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.9	A	1.8	A

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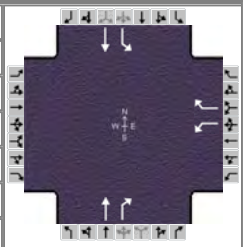
ALTERNATIVE 4D AM HCS ANALYSIS

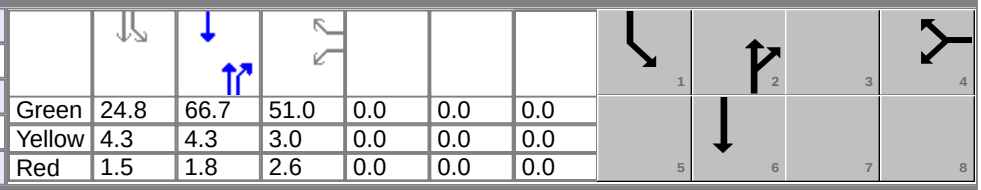
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.5	1.8	2.6	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.966	0.220	0.929	0.741	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		36.7	3.7	10.6	7.8	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		45.6	30.0	66.7	9.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	39.9	0.8	6.3	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		85.5	30.7	73.0	9.6	
Level of Service (LOS)				D		D		F	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	76.6		E	24.4		C
Intersection Delay s/veh / LOS	48.2						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.0	A	2.3	B

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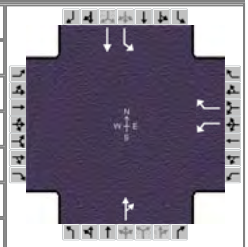
2010 HCS Signalized Intersection Results Summary

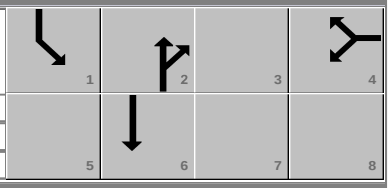
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	983	111	0	994
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1826	1774	0	1844
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	78.0	9.9	0.0	33.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	78.0	9.9	0.0	33.9
Capacity *(c)*, veh/h				455	0	405			1024	137		1243
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.960	0.810	0.000	0.800
Available Capacity *(c_a)*, veh/h				455	0	405			1024	327		1243
Back of Queue *(Q)*, veh/ln				3.6		3.6			25.6	4.5		4.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			20.3	72.7		4.9
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	3.7	2.3	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			23.9	75.0		5.4
Level of Service (LOS)				D		D			C	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	23.9		C	12.4		B
Intersection Delay s/veh / LOS	20.7						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.3	B

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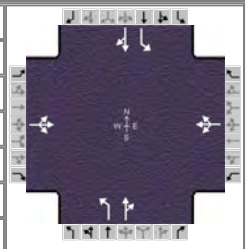
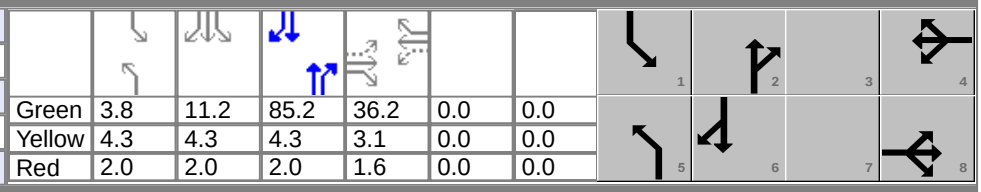
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(ge)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	1094	211	0	950
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1823	1774	0	1855
Queue Service time *(gs)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	38.1
Cycle Queue Clearance Time *(gc)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	38.1
Capacity *(c)*, veh/h	317			291			42		971	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.127	0.897	0.000	0.798
Available Capacity *(ca)*, veh/h	390			365			355		971	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		91.0	8.5		6.4
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	48.8			60.2			77.2		24.9	68.3		7.1
Incremental Delay *(d2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	230.7	2.2	0.0	0.5
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		255.6	70.5		7.7
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		252.1	F		19.1	B	
Intersection Delay s/veh / LOS	126.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.3	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 4D
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		675	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		750	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		759		175				
v/c		0.34		2.22				
95% queue length		1.48		31.28				
Control Delay		12.1		608.5				
LOS		B		F				
Approach Delay				608.5				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 4D
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

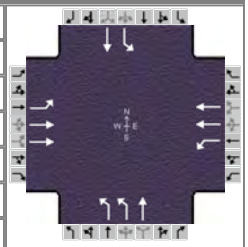
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		177			539	
v/c	0.01	0.40		0.63			0.02	
95% queue length	0.03	1.95		3.53			0.06	
Control Delay	8.6	12.7		54.5			11.8	
LOS	A	B		F			B	
Approach Delay				54.5			11.8	
Approach LOS				F			B	

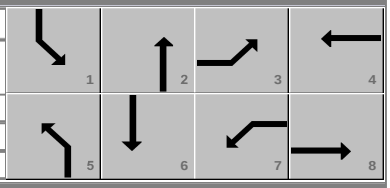
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		410	160		200	430	

Signal Information												
Cycle, s	160.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	22.7	4.0		67.7	3.9	1.1	28.7					
Yellow	4.3	0.0		4.3	5.0	5.0	5.0					
Red	1.8	0.0		1.8	1.6	1.6	1.5					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	32.7	77.8	28.8	73.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	22.0		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	4.7	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	456	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Capacity *(c)*, veh/h	43	636		129	807		574	832		251	786	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.794	0.214	0.000	0.884	0.608	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	786	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		8.3	2.9		9.7	15.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		59.7	19.3		67.4	35.9	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	3.5	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		60.2	19.4		80.7	39.5	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		48.7	D		52.6	D	
Intersection Delay s/veh / LOS	57.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.5	A	1.6	A

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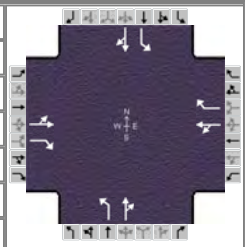
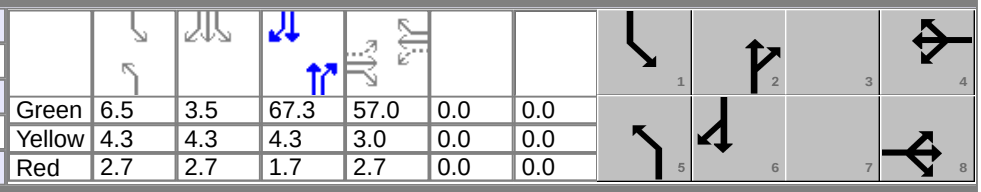
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	828	167	0	1128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1781	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		749	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	1.104	0.886	0.000	1.247
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		749	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		65.9	6.9		140.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		38.0	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	190.3	3.9	0.0	445.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		228.3	74.4		474.1
Level of Service (LOS)	F		C	F		D	E		F	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		218.9	F		422.7	F	
Intersection Delay s/veh / LOS	1292.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.6	B

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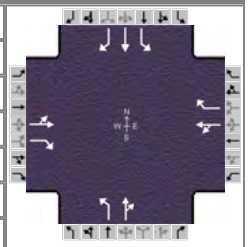
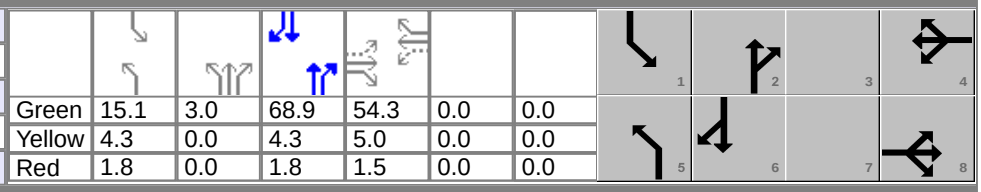
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	30	100	40	10	80	160	565	30	130	1065	200

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	3.0	68.9	54.3	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	60.8	60.8	60.8	60.8	24.2	78.0	21.2	75.0
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	55.2	55.2	55.2	55.2	17.8		14.8	
Green Extension Time *(g_e)*, s	0.1	0.1	0.1	0.1	0.2	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.33		0.02	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	133	0	111	56	0	89	178	0	661	144	1183	222
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	45	0	1579	37	0	1579	1774	0	1846	1774	1863	1579
Queue Service time *(g_s)*, s	1.3	0.0	8.1	1.3	0.0	6.4	15.8	0.0	43.5	12.8	69.8	14.8
Cycle Queue Clearance Time *(g_c)*, s	53.2	0.0	8.1	53.2	0.0	6.4	15.8	0.0	43.5	12.8	69.8	14.8
Capacity *(c)*, veh/h	54		525	53		525	201		840	167	812	688
Volume-to-Capacity Ratio *(X)*	2.461	0.000	0.212	1.052	0.000	0.169	0.886	0.000	0.787	0.863	1.457	0.323
Available Capacity *(c_a)*, veh/h	68		550	65		550	271		840	271	812	688
Back of Queue *(Q)*, veh/ln	42.6		3.2	6.2		2.5	7.2		16.6	6.2	213.2	5.7
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.3		38.3	74.1		37.7	69.9		26.2	71.4	33.5	29.6
Incremental Delay *(d_2)*, s/veh	2684.3	0.0	0.2	275.5	0.0	0.2	2.9	0.0	0.7	8.2	825.7	0.6
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2756.7		38.6	349.6		37.9	72.8		26.9	79.7	859.2	30.2
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	1521.2	F		157.8	F		36.7	D		667.7	F	
Intersection Delay s/veh / LOS	525.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.9	A	3.0	C

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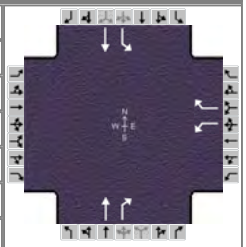
ALTERNATIVE 4D PM HCS ANALYSIS

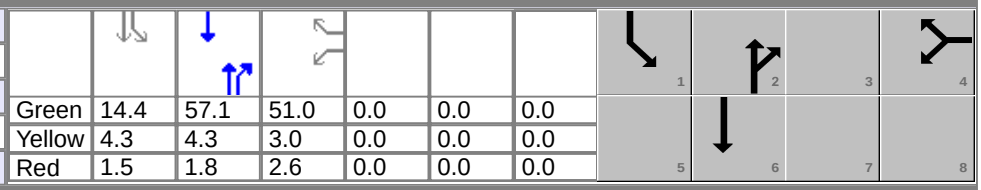
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				44		243		665	66	140	654	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	14.4	57.1	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	119.8	20.2	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			14.1	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			49	0	270	0	739	73	156	727	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.5	51.0	18.4	0.0	54.5	4.0	12.1	30.0	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.5	51.0	18.4	0.0	54.5	4.0	12.1	30.0	0.0
Capacity *(c)*, veh/h				646	0	575		760	644	182	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.076	0.000	0.470	0.000	0.973	0.114	0.853	0.707	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		760	644	322	1029	
Back of Queue *(Q)*, veh/ln				1.1		7.2		33.2	1.6	5.4	8.4	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.1	0.0	34.1		40.7	25.7	61.8	12.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	0.7	0.0	44.3	0.4	1.2	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.2	0.0	34.8		84.9	26.1	63.0	12.6	
Level of Service (LOS)				C		C		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			34.0		C	79.6		E	21.5		C
Intersection Delay s/veh / LOS	46.9						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	1.9	A

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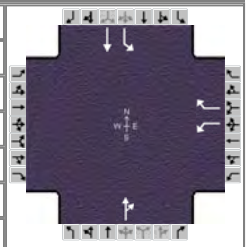
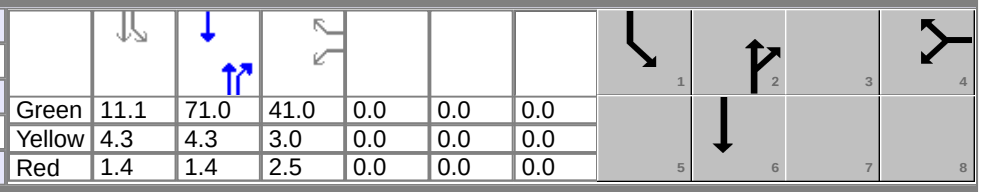
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		1135	100	100	1180	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1372	111	0	1367
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1836	1774	0	1849
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			931	140		1160
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.473	0.791	0.000	1.178
Available Capacity *(c_a)*, veh/h				520	0	462			931	374		1160
Back of Queue *(Q)*, veh/ln				2.9		3.0			244.0	3.9		117.2
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.6	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	852.7	2.0	0.0	322.1
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			876.3	65.3		334.2
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	876.3		F	314.0		F
Intersection Delay s/veh / LOS	545.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.9	C	2.9	C

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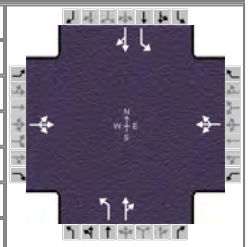
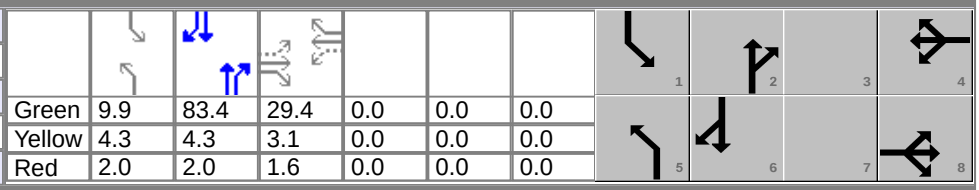
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	1045	60	90	1130	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0
Yellow	4.3	4.3	3.1	0.0	0.0	0.0
Red	2.0	2.0	1.6	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1228	100	0	1311
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1845	1774	0	1849
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1099	125		1101
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	1.117	0.799	0.000	1.191
Available Capacity *(ca)*, veh/h	450			396			619		1099	619		1101
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		83.9	3.5		123.9
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		15.2	64.1		15.0
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	212.7	1.1	0.0	344.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		227.9	65.2		359.2
Level of Service (LOS)	D			E			E		F	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		215.6	F		338.4	F	
Intersection Delay s/veh / LOS	254.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.7	B	2.8	C

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 4D
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	50	60	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	55	66	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		463		24				
v/c		0.14		5.04				
95% queue length		0.49		15.13				
Control Delay		14.1		2145				
LOS		B		F				
Approach Delay				2145				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 4D
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

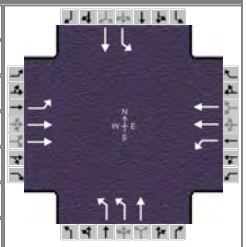
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		78			34	
v/c	0.01	0.43		3.13			1.94	
95% queue length	0.04	2.22		24.49			7.36	
Control Delay	8.9	13.3		1072			693.2	
LOS	A	B		F			F	
Approach Delay				1072			693.2	
Approach LOS				F			F	

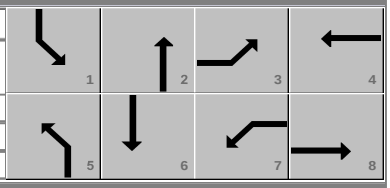
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		860	380		60	280	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	7.4	33.4	34.6	3.5	9.7	13.4		
				Yellow	4.3	4.3	4.3	5.0	5.0	5.0		
				Red	1.8	1.8	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	53.0	80.2	13.5	40.7
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	36.1		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	10.7	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.09		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	956	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Capacity *(c)*, veh/h	44	339		251	753		1153	983		94	458	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.829	0.430	0.000	0.711	0.680	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	458	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		12.8	4.6		2.6	10.7	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		35.2	11.8		65.2	47.8	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.4	0.1	0.0	12.0	8.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		35.6	11.9		77.3	56.0	
Level of Service (LOS)	E	E		E	D		D	B		E	E	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		28.3	C		59.8	E	
Intersection Delay s/veh / LOS	43.5						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.8	C	1.1	A

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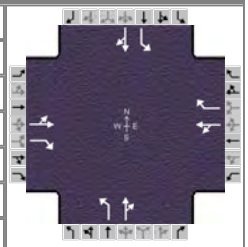
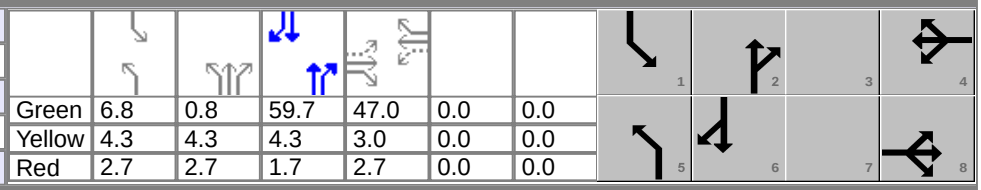
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	905	200	60	740	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1228	67	0	844
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1804	1774	0	1854
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Capacity *(c)*, veh/h	52		530	48		530	185		870	86		790
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.412	0.773	0.000	1.069
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		870	384		790
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		202.8	2.3		50.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.0	65.8		30.5
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	741.7	1.4	0.0	126.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		768.7	67.2		157.4
Level of Service (LOS)	F		C	F		C	E		F	E		F
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		689.4	F		150.8	F	
Intersection Delay s/veh / LOS	1616.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.8	C	2.0	A

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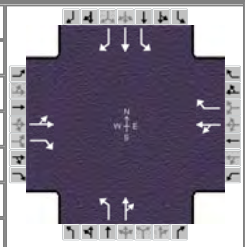
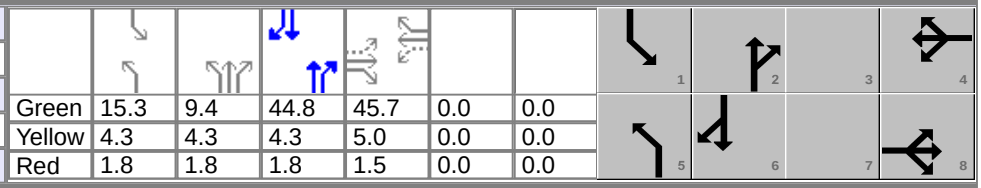
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 4D				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	370	40	310	50	50	190	380	845	40	150	710	330

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.8		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	456	0	344	111	0	211	422	0	983	167	789	367
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1848	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	26.3	0.0	0.0	14.6	30.8	0.0	60.1	12.9	44.6	28.9
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	26.3	45.7	0.0	14.6	30.8	0.0	60.1	12.9	44.6	28.9
Capacity *(c)*, veh/h	49		515	65		515	390		793	194	593	503
Volume-to-Capacity Ratio *(X)*	9.310	0.000	0.668	1.705	0.000	0.410	1.082	0.000	1.240	0.858	1.329	0.729
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		793	390	593	503
Back of Queue *(Q)*, veh/ln	205.6		10.7	26.4		5.7	29.9		117.7	6.0	116.8	11.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.6	51.8		36.7	54.6		30.4	61.3	40.3	42.3
Incremental Delay *(d_2)*, s/veh	14998.9	0.0	3.6	1331.8	0.0	0.6	152.6	0.0	433.6	5.6	598.6	4.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	15068.9		44.2	1383.5		37.3	207.2		464.0	66.8	638.9	46.8
Level of Service (LOS)	F		D	F		D	F		F	E	F	D
Approach Delay, s/veh / LOS	8599.9	F		501.5	F		386.9	F		402.6	F	
Intersection Delay s/veh / LOS	2108.5						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.8	A	1.0	A	2.8	C	2.7	B

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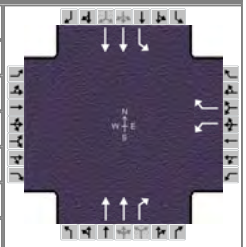
ALTERNATIVE 5 AM

HCS ANALYSIS

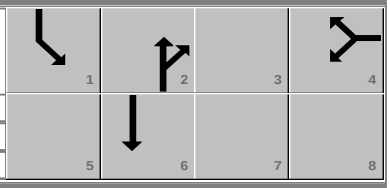
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0		
Yellow	4.3	4.3	3.0	0.0	0.0	0.0		
Red	1.5	1.8	2.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1773	1579	1774	1773	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	25.0	9.4	22.8	10.5	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	25.0	9.4	22.8	10.5	0.0
Capacity *(c)*, veh/h				565	0	503		1478	658	275	2157	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.507	0.220	0.929	0.389	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		1478	658	282	2157	
Back of Queue *(Q)*, veh/ln				1.2		12.5		10.9	3.7	10.6	3.2	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		34.5	30.0	66.7	6.9	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	1.3	0.8	6.3	0.0	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		35.8	30.7	73.0	7.0	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	34.9		C	22.4		C
Intersection Delay s/veh / LOS	31.6						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.2	A	1.4	A

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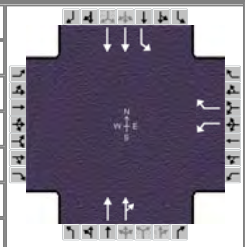
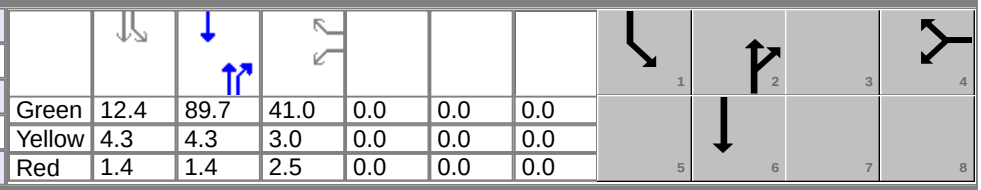
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.4	89.7	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	502	482	111	490	505
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1788	1774	1773	1827
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	17.0	19.2	9.9	7.1	8.7
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	17.0	19.2	9.9	7.1	8.7
Capacity *(c)*, veh/h				455	0	405		1045	1003	137	1195	1231
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.480	0.480	0.810	0.410	0.410
Available Capacity *(c_a)*, veh/h				455	0	405		1045	1003	327	1195	1231
Back of Queue *(Q)*, veh/ln				3.6		3.6		5.5	6.4	4.5	1.9	2.4
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6		11.0	13.2	72.7	3.0	3.8
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.1	0.1	2.3	0.1	0.1
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0		11.1	13.4	75.0	3.1	3.9
Level of Service (LOS)				D		D		B	B	E	A	A
Approach Delay, s/veh / LOS	0.0			47.8		D	12.2		B	10.7		B
Intersection Delay s/veh / LOS	14.9						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	1.4	A	1.4	A

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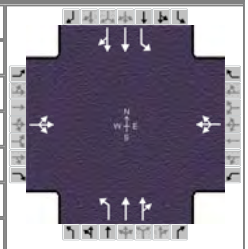
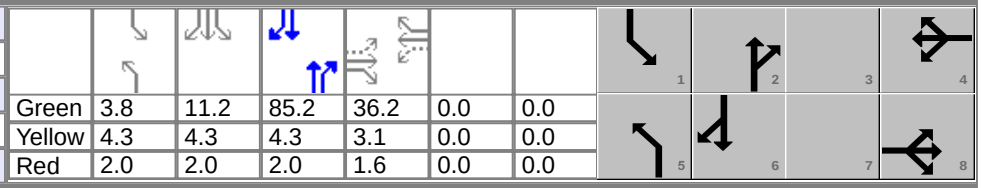
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(ge)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	559	535	211	477	473
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	1863	1783	1774	1863	1847
Queue Service time *(gs)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	23.2	25.7	18.7	9.0	9.5
Cycle Queue Clearance Time *(gc)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	23.2	25.7	18.7	9.0	9.5
Capacity *(c)*, veh/h	317			291			42	992	950	235	1195	1185
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.563	0.564	0.897	0.399	0.399
Available Capacity *(ca)*, veh/h	390			365			355	992	950	355	1195	1185
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9	7.6	9.0	8.5	2.7	2.9
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	48.8			60.2			77.2	14.2	16.8	68.3	4.8	5.2
Incremental Delay *(d2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.2	0.2	2.2	0.1	0.1
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2	14.4	17.0	70.5	4.9	5.3
Level of Service (LOS)	D			E			E	B	B	E	A	A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		16.9	B		17.0	B	
Intersection Delay s/veh / LOS	22.9						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	1.4	A	1.4	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 5
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		675	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		750	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2	0	1	2	
Configuration		T	TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		755		272				
v/c		0.34		1.43				
95% queue length		1.49		21.32				
Control Delay		12.2		247.2				
LOS		B		F				
Approach Delay				247.2				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 5
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	715	40	80	1235	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	794	44	88	1372	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration		LT	R		LT	R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	468	792	53		632	29		427
v/c	0.02	0.11	0.62		0.07	0.38		0.03
95% queue length	0.07	0.37	2.48		0.22	1.20		0.08
Control Delay	12.9	10.1	150.0		11.1	191.2		13.7
LOS	B	B	F		B	F		B
Approach Delay			70.6			102.4		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 5
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

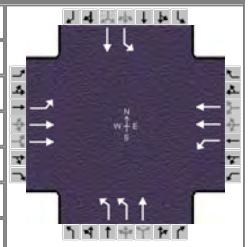
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1017	770		250			763	
v/c	0.01	0.40		0.44			0.01	
95% queue length	0.03	1.97		2.13			0.04	
Control Delay	8.6	12.8		30.4			9.8	
LOS	A	B		D			A	
Approach Delay				30.4			9.8	
Approach LOS				D			A	

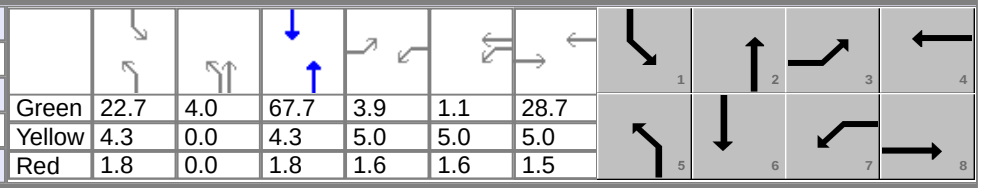
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		410	160		200	430	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	22.7	4.0	67.7	3.9	1.1	28.7
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	1.8	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	32.7	77.8	28.8	73.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	22.0		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	4.7	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	456	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Capacity *(c)*, veh/h	43	636		129	807		574	832		251	786	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.794	0.214	0.000	0.884	0.608	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	786	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		8.3	2.9		9.7	15.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		59.7	19.3		67.4	35.9	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	3.5	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		60.2	19.4		80.7	39.5	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		48.7	D		52.6	D	
Intersection Delay s/veh / LOS	57.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.5	A	1.6	A

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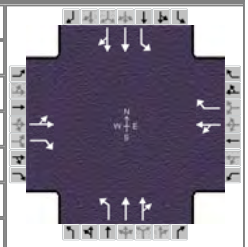
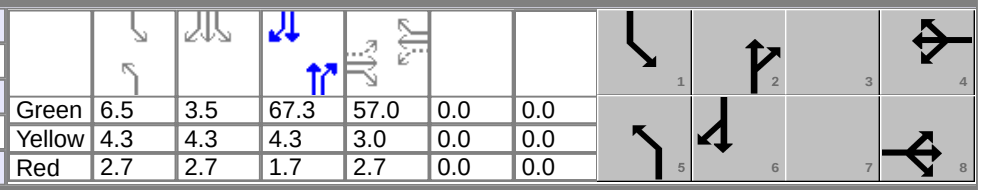
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	432	395	167	565	563
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	1863	1699	1774	1863	1856
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	23.6	26.2	14.8	28.6	28.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	23.6	26.2	14.8	28.6	28.8
Capacity *(c)*, veh/h	49		562	44		562	72	784	715	188	906	903
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.552	0.553	0.886	0.624	0.624
Available Capacity *(c_a)*, veh/h	49		562	44		562	225	784	715	225	906	903
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3	9.3	10.2	6.9	10.4	10.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0	25.5	30.5	70.6	19.5	19.7
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.3	0.3	3.9	0.3	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3	25.8	30.8	74.4	19.8	20.0
Level of Service (LOS)	F		C	F		D	E	C	C	E	B	B
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		31.3	C		26.9	C	
Intersection Delay s/veh / LOS	1037.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.8	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.2	A	1.6	A

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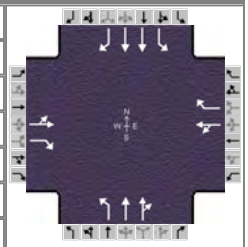
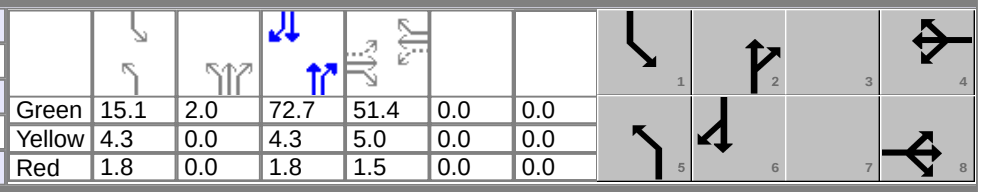
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	575	30	130	1125	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	339	333	144	1250	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	1863	1830	1774	1773	1579
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	14.1	14.7	12.8	41.0	9.4
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	14.1	14.7	12.8	41.0	9.4
Capacity *(c)*, veh/h	56		495	54		495	190	883	867	168	1636	728
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.384	0.384	0.860	0.764	0.214
Available Capacity *(c_a)*, veh/h	87		550	83		550	308	883	867	308	1636	728
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7	5.4	5.6	6.1	14.9	3.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4	18.1	19.0	71.4	24.5	25.8
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.1	0.1	6.5	1.7	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0	18.2	19.1	77.9	26.1	26.1
Level of Service (LOS)	F		D	F		D	E	B	B	E	C	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		29.3	C		31.0	C	
Intersection Delay s/veh / LOS	135.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	3.0	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.2	A	1.8	A

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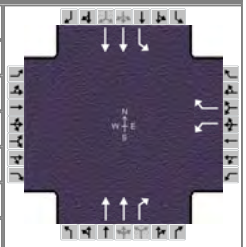
ALTERNATIVE 5 PM

HCS ANALYSIS

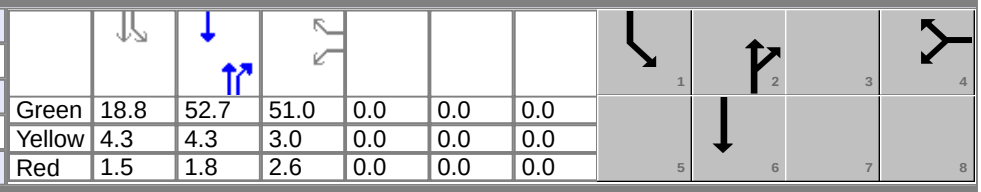
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		905	90	190	890	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	18.8	52.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	1006	100	211	989	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1773	1579	1774	1773	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	34.5	5.9	16.4	16.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	34.5	5.9	16.4	16.4	0.0
Capacity *(c)*, veh/h				646	0	575		1336	595	238	1958	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	0.753	0.168	0.888	0.505	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		1336	595	322	1958	
Back of Queue *(Q)*, veh/ln				1.5		10.7		15.3	2.3	7.4	4.9	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		38.0	29.0	59.6	10.4	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	4.1	0.6	2.5	0.1	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		42.0	29.7	62.1	10.5	
Level of Service (LOS)				C		D		D	C	E	B	
Approach Delay, s/veh / LOS	0.0			37.9		D	40.9		D	19.6		B
Intersection Delay s/veh / LOS	31.1						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.4	A	1.5	A

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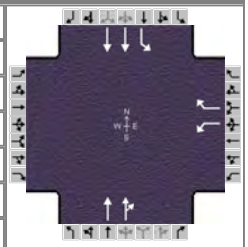
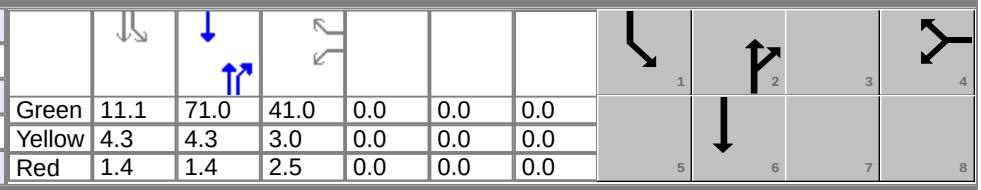
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		1135	100	100	1180	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	694	678	111	671	696
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1809	1774	1773	1836
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	33.6	35.4	8.6	17.5	19.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	33.6	35.4	8.6	17.5	19.0
Capacity *(c)*, veh/h				520	0	462		945	918	140	1112	1152
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.735	0.738	0.791	0.603	0.604
Available Capacity *(c_a)*, veh/h				520	0	462		945	918	374	1112	1152
Back of Queue *(Q)*, veh/ln				2.9		3.0		10.9	12.0	3.9	3.9	4.6
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7		16.6	18.3	63.3	5.7	6.4
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.5	0.5	2.0	0.2	0.2
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0		17.1	18.8	65.3	5.9	6.6
Level of Service (LOS)				D		D		B	B	E	A	A
Approach Delay, s/veh / LOS	0.0			37.8		D	17.9		B	10.7		B
Intersection Delay s/veh / LOS	15.9						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.9	C	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	1.7	A	1.7	A

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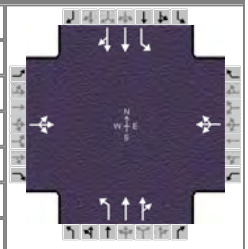
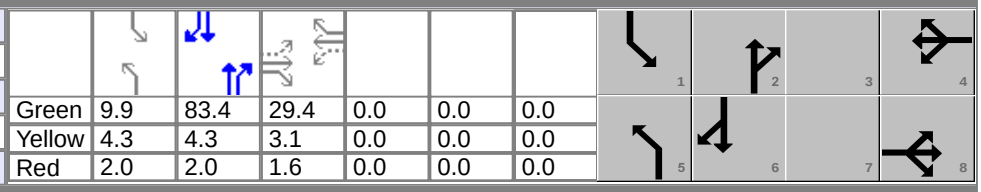
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	1045	60	90	1130	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0
Yellow	4.3	4.3	3.1	0.0	0.0	0.0
Red	2.0	2.0	1.6	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	619	608	100	660	651
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	1863	1827	1774	1863	1835
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	17.2	18.7	7.8	19.3	20.6
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	17.2	18.7	7.8	19.3	20.6
Capacity *(c)*, veh/h	314			268			125	1110	1088	125	1110	1093
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.558	0.559	0.799	0.595	0.596
Available Capacity *(ca)*, veh/h	450			396			619	1110	1088	619	1110	1093
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5	4.7	5.2	3.5	5.0	5.5
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1	7.6	8.6	64.1	7.8	8.6
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.2	0.2	1.1	0.2	0.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2	7.8	8.8	65.2	8.0	8.8
Level of Service (LOS)	D			E			E	A	A	E	A	A
Approach Delay, s/veh / LOS	48.2	D		59.9	E		12.6	B		12.4	B	
Intersection Delay s/veh / LOS	17.2						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.9	C	2.9	C	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	1.6	A	1.7	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 5
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	50	60	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	55	66	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		2	0	1	2	
Configuration		T	TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		459		57				
v/c		0.14		2.12				
95% queue length		0.50		11.83				
Control Delay		14.2		673.1				
LOS		B		F				
Approach Delay				673.1				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 5
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	1085	100	100	820	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1205	111	111	911	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration		LT	R		LT	R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	675	521	16		462	17		561
v/c	0.05	0.21	2.75		0.22	3.24		0.02
95% queue length	0.15	0.80	6.17		0.81	7.50		0.06
Control Delay	10.6	13.8	1282		14.9	1469		11.5
LOS	B	B	F		B	F		B
Approach Delay			402.1			1226		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 5
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0	1	2	0
Configuration	L	T	TR	L	T	TR
Upstream Signal?		No			No	

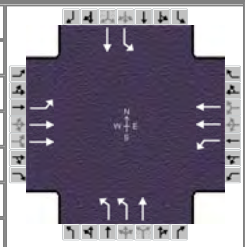
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	928	762		117			67	
v/c	0.01	0.44		2.09			0.99	
95% queue length	0.04	2.24		20.37			4.91	
Control Delay	8.9	13.3		577.5			209.7	
LOS	A	B		F			F	
Approach Delay				577.5			209.7	
Approach LOS				F			F	

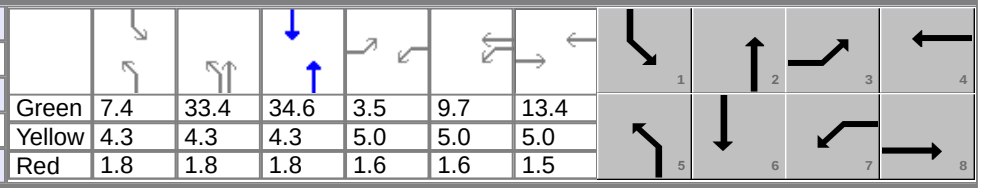
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		860	380		60	280	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.4	33.4	34.6	3.5	9.7	13.4						
Yellow	4.3	4.3	4.3	5.0	5.0	5.0						
Red	1.8	1.8	1.8	1.6	1.6	1.5						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	53.0	80.2	13.5	40.7
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	36.1		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	10.7	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.09		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	956	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Capacity *(c)*, veh/h	44	339		251	753		1153	983		94	458	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.829	0.430	0.000	0.711	0.680	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	458	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		12.8	4.6		2.6	10.7	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		35.2	11.8		65.2	47.8	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.4	0.1	0.0	12.0	8.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		35.6	11.9		77.3	56.0	
Level of Service (LOS)	E	E		E	D		D	B		E	E	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		28.3	C		59.8	E	
Intersection Delay s/veh / LOS	43.5						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.8	C	1.1	A

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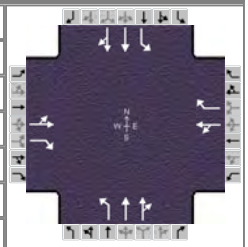
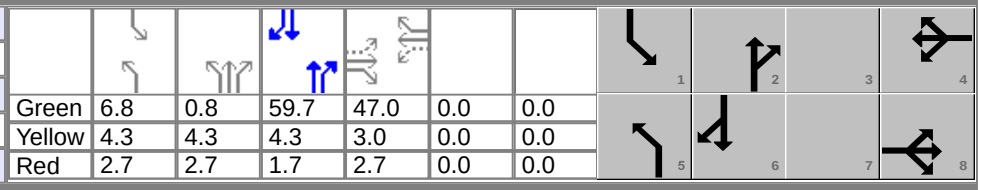
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	905	200	60	740	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0	1	2	3	4		
Yellow	4.3	4.3	4.3	3.0	0.0	0.0						
Red	2.7	2.7	1.7	2.7	0.0	0.0	5	6	7	8		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	633	595	67	424	420
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	1863	1745	1774	1863	1845
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	31.0	33.9	5.2	19.8	20.0
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	31.0	33.9	5.2	19.8	20.0
Capacity *(c)*, veh/h	52		530	48		530	185	898	842	86	794	786
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.704	0.707	0.773	0.534	0.534
Available Capacity *(c_a)*, veh/h	52		530	48		530	384	898	842	384	794	786
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4	10.7	12.2	2.3	7.4	7.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5	18.5	22.2	65.8	21.6	22.0
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.4	0.5	1.4	0.2	0.2
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9	18.9	22.7	67.2	21.8	22.3
Level of Service (LOS)	F		C	F		C	E	B	C	E	C	C
Approach Delay, s/veh / LOS	2962.8		F	6693.1		F	25.5		C	25.4		C
Intersection Delay s/veh / LOS	1276.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	2.8	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	1.6	A	1.2	A

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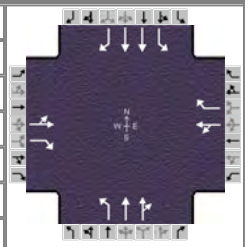
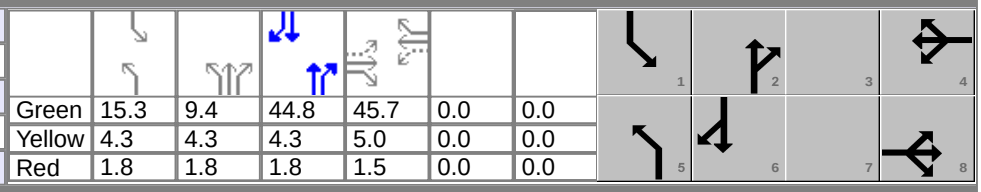
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 5				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	50	50	190	350	885	40	150	810	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4		44.8	45.7	0.0	0.0	1	2	3	4	
Yellow	4.3	4.3		4.3	5.0	0.0	0.0	5	6	7	8	
Red	1.8	1.8		1.8	1.5	0.0	0.0					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	111	0	211	389	518	510	167	900	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	1863	1834	1774	1773	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.7	26.5	26.9	12.9	30.9	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.7	26.5	26.9	12.9	30.9	18.4
Capacity *(c)*, veh/h	49		515	65		515	390	799	787	194	1130	503
Volume-to-Capacity Ratio *(X)*	8.448	0.000	0.647	1.705	0.000	0.410	0.996	0.648	0.648	0.858	0.797	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390	799	787	390	1130	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	26.4		5.7	16.0	9.9	10.1	6.0	12.4	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.5	22.8	23.5	61.3	36.3	38.8
Incremental Delay *(d_2)*, s/veh	13449.0	0.0	3.0	1331.7	0.0	0.6	24.2	0.4	0.4	5.6	2.9	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13519.0		43.3	1383.5		37.3	78.7	23.1	23.9	66.8	39.2	40.5
Level of Service (LOS)	F		D	F		D	E	C	C	E	D	D
Approach Delay, s/veh / LOS	7485.1	F		501.5	F		38.7	D		43.0	D	
Intersection Delay s/veh / LOS	1536.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.8	C	3.0	C	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.0	A	1.7	A	1.6	A

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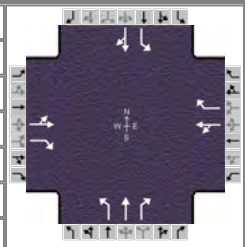
ALTERNATIVE 6 AM

HCS ANALYSIS

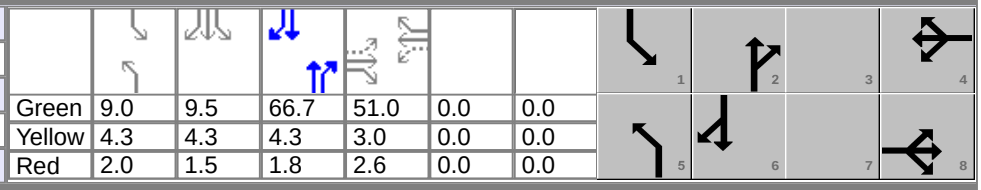
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	60	200	40	30	310	70	630	90	230	550	100

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.0	9.5	66.7	51.0	0.0	0.0						
Yellow	4.3	4.3	4.3	3.0	0.0	0.0						
Red	2.0	1.5	1.8	2.6	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	3.0	2.0	4.0
Phase Duration, s	56.6	56.6	56.6	56.6	15.3	72.8	30.6	88.1
Change Period, (*Y+Rc*), s	5.6	5.6	5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway (*MAH*), s	4.6	4.6	4.6	4.6	4.0	0.0	4.2	0.0
Queue Clearance Time (g_s), s	53.0	53.0	53.0	53.0	9.1		24.8	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.97		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	178	0	222	78	0	344	78	700	100	256	0	722
Adjusted Saturation Flow Rate (*s*), veh/h/ln	43	0	1533	54	0	1579	1723	1863	1579	1774	0	1813
Queue Service time (g_s), s	0.0	0.0	18.5	0.0	0.0	30.4	7.1	56.2	6.3	22.8	0.0	44.7
Cycle Queue Clearance Time (g_c), s	51.0	0.0	18.5	51.0	0.0	30.4	7.1	56.2	6.3	22.8	0.0	44.7
Capacity (*c*), veh/h	50		489	52		503	97	776	658	275		929
Volume-to-Capacity Ratio (*X*)	3.532	0.000	0.455	1.482	0.000	0.685	0.803	0.902	0.152	0.929	0.000	0.777
Available Capacity (c_a), veh/h	50		489	53		503	268	776	658	282		929
Back of Queue (*Q*), veh/ln	66.5		7.2	16.2		12.5	3.5	29.2	2.5	10.6		15.9
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (d_1), s/veh	66.4		43.4	63.8		47.5	74.6	43.6	29.1	66.7		21.0
Incremental Delay (d_2), s/veh	4607.4	0.0	0.7	961.8	0.0	4.1	15.6	19.2	0.5	6.3	0.0	0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	4673.8		44.1	1025.5		51.6	90.2	62.8	29.5	73.0		21.6
Level of Service (LOS)	F		D	F		D	F	E	C	E		C
Approach Delay, s/veh / LOS	2101.7		F	231.0		F	61.4		E	35.1		D
Intersection Delay s/veh / LOS	383.3						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.1	A	1.2	A	1.9	A	2.1	B

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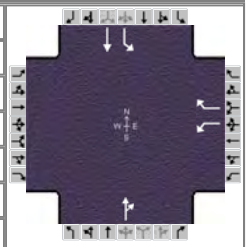
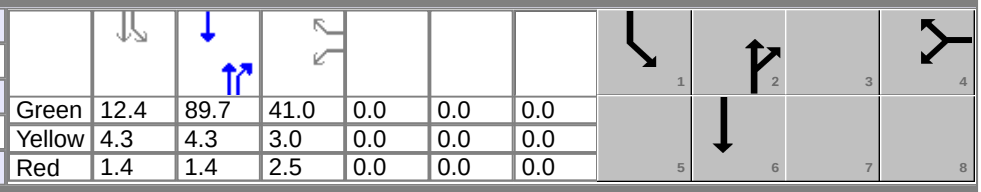
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		905	100	100	590	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.4	89.7	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1117	111	0	711
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1830	1774	0	1837
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	89.7	9.9	0.0	14.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	89.7	9.9	0.0	14.9
Capacity *(c)*, veh/h				455	0	405			1026	137		1238
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	1.088	0.810	0.000	0.575
Available Capacity *(c_a)*, veh/h				455	0	405			1026	327		1238
Back of Queue *(Q)*, veh/ln				3.6		3.6			73.8	4.5		3.4
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			21.7	72.7		4.0
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	160.5	2.3	0.0	0.2
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			182.2	75.0		4.2
Level of Service (LOS)				D		D			F	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	182.2		F	13.7		B
Intersection Delay s/veh / LOS	104.3						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.5	B	1.8	A

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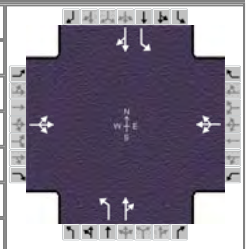
2010 HCS Signalized Intersection Results Summary

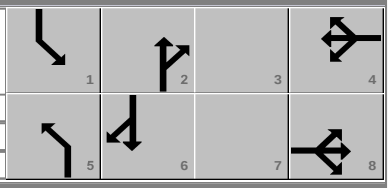
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	765	120	190	580	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	3.8	11.2	85.2	36.2	0.0	0.0	
Yellow	4.3	4.3	4.3	3.1	0.0	0.0	
Red	2.0	2.0	2.0	1.6	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(ge)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	983	211	0	667
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1818	1774	0	1852
Queue Service time *(gs)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	16.7
Cycle Queue Clearance Time *(gc)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	16.7
Capacity *(c)*, veh/h	317			291			42		968	235		1188
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.015	0.897	0.000	0.561
Available Capacity *(ca)*, veh/h	390			365			355		968	355		1188
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		38.6	8.5		4.2
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	48.8			60.2			77.2		25.1	68.3		5.6
Incremental Delay *(d2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	36.1	2.2	0.0	0.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		61.2	70.5		5.8
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		61.6	E		21.3	C	
Intersection Delay s/veh / LOS	46.6						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.1	B	1.9	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 6
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		625	190	230	700	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		694	211	255	777	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		752		189				
v/c		0.34		2.05				
95% queue length		1.50		29.76				
Control Delay		12.2		532.5				
LOS		B		F				
Approach Delay				532.5				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 6
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	615	40	80	980	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	683	44	88	1088	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	605	876	37		436	34		251
v/c	0.02	0.10	0.89		0.10	0.32		0.04
95% queue length	0.06	0.33	3.28		0.33	1.05		0.14
Control Delay	11.1	9.6	277.1		14.2	155.1		20.0
LOS	B	A	F		B	F		C
Approach Delay			126.9			87.5		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 6
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

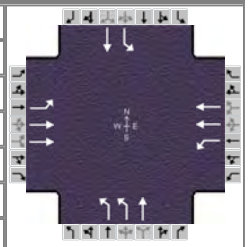
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		177			539	
v/c	0.01	0.40		0.63			0.02	
95% queue length	0.03	1.95		3.53			0.06	
Control Delay	8.6	12.7		54.5			11.8	
LOS	A	B		F			B	
Approach Delay				54.5			11.8	
Approach LOS				F			B	

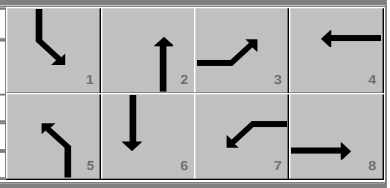
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		310	160		200	430	

Signal Information												
Cycle, s	160.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	20.7	2.0	71.5	3.9	1.1	28.7		
				Yellow	4.3	0.0	4.3	5.0	5.0	5.0		
				Red	1.8	0.0	2.0	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	26.8	77.8	28.8	79.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	17.3		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	3.4	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	344	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	15.3	7.1	0.0	19.7	29.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	15.3	7.1	0.0	19.7	29.8	0.0
Capacity *(c)*, veh/h	43	636		129	807		445	832		251	856	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.774	0.214	0.000	0.884	0.558	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	856	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		6.4	2.9		9.7	13.8	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		64.0	19.3		67.4	31.4	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.6	0.1	0.0	13.4	2.7	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		64.6	19.4		80.7	34.1	
Level of Service (LOS)	F	E		F	D		E	B		F	C	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		49.2	D		48.9	D	
Intersection Delay s/veh / LOS	56.5						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.3	A	1.6	A

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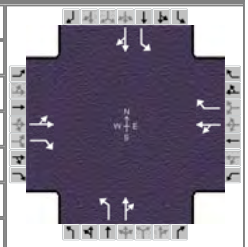
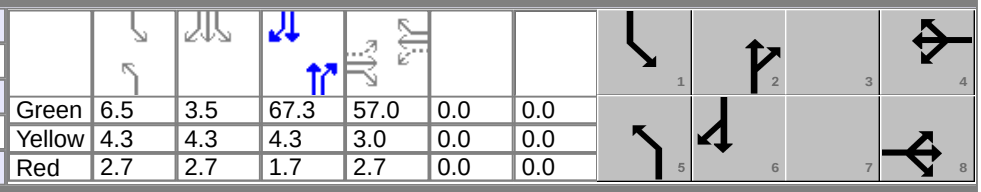
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	455	190	150	750	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	717	167	0	844
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1769	1774	0	1858
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	62.3	14.8	0.0	64.9
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	62.3	14.8	0.0	64.9
Capacity *(c)*, veh/h	49		562	44		562	72		744	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	0.963	0.886	0.000	0.934
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		744	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		25.4	6.9		24.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		37.2	70.6		26.0
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	5.2	3.9	0.0	2.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		42.4	74.4		28.5
Level of Service (LOS)	F		C	F		D	E		D	E		C
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		45.0	D		36.1	D	
Intersection Delay s/veh / LOS	1222.3						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.8	A	2.2	B

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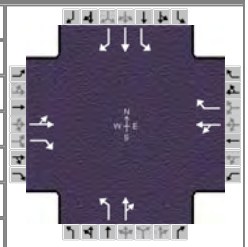
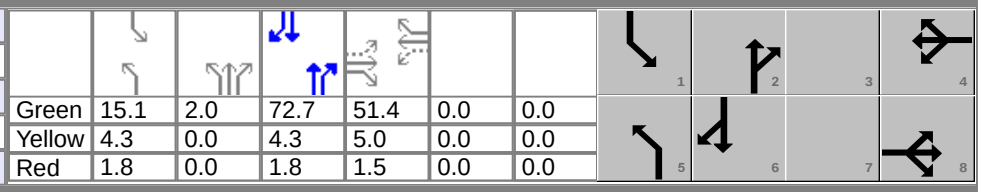
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	475	30	130	870	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	561	144	967	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1843	1774	1863	1579
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	30.6	12.8	73.8	9.4
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	30.6	12.8	73.8	9.4
Capacity *(c)*, veh/h	56		495	54		495	190		873	168	859	728
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.642	0.860	1.125	0.214
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		873	308	859	728
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		11.4	6.1	83.3	3.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		21.7	71.4	30.8	25.8
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.3	6.5	233.6	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		22.0	77.9	264.4	26.1
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.5	C		213.8	F	
Intersection Delay s/veh / LOS	252.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.7	A	2.6	B

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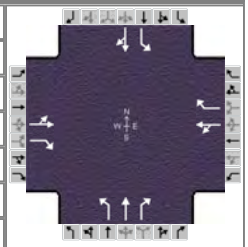
ALTERNATIVE 6 PM

HCS ANALYSIS

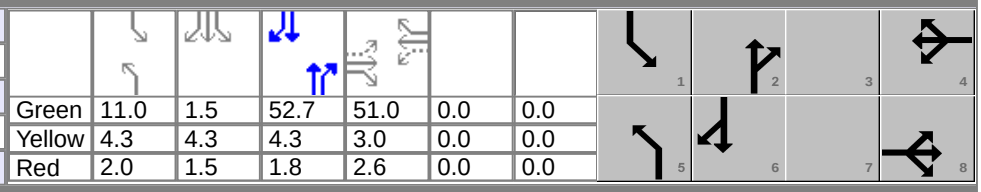
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	100	40	180	60	40	330	100	790	90	190	700	100

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.0	1.5	52.7	51.0	0.0	0.0						
Yellow	4.3	4.3	4.3	3.0	0.0	0.0						
Red	2.0	1.5	1.8	2.6	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	3.0	2.0	4.0
Phase Duration, s	56.6	56.6	56.6	56.6	17.3	58.8	24.6	66.1
Change Period, *(Y+Rc)*, s	5.6	5.6	5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	4.6	4.6	4.6	4.6	4.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s	53.0	53.0	53.0	53.0	10.9		18.4	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.99		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	156	0	200	111	0	367	111	878	100	211	0	889
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	29	0	1533	48	0	1579	1723	1863	1579	1774	0	1822
Queue Service time *(g_s)*, s	0.1	0.0	13.4	0.1	0.0	26.9	8.9	52.7	5.9	16.4	0.0	60.0
Cycle Queue Clearance Time *(g_c)*, s	51.0	0.0	13.4	51.0	0.0	26.9	8.9	52.7	5.9	16.4	0.0	60.0
Capacity *(c)*, veh/h	55		558	59		575	135	702	595	238		781
Volume-to-Capacity Ratio *(X)*	2.838	0.000	0.358	1.890	0.000	0.638	0.822	1.251	0.168	0.887	0.000	1.138
Available Capacity *(c_a)*, veh/h	55		559	59		575	307	702	595	322		781
Back of Queue *(Q)*, veh/ln	53.1		5.0	29.3		10.7	4.3	113.7	2.3	7.4		76.5
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.5		32.5	55.2		36.9	63.5	43.6	29.0	59.6		31.2
Incremental Delay *(d_2)*, s/veh	3358.0	0.0	0.4	1664.8	0.0	2.5	12.8	464.0	0.6	2.5	0.0	249.8
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	3418.5		32.9	1720.0		39.4	76.3	507.6	29.6	62.1		281.0
Level of Service (LOS)	F		C	F		D	E	F	C	E		F
Approach Delay, s/veh / LOS	1514.1		F	430.2		F	419.7		F	239.0		F
Intersection Delay s/veh / LOS	484.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.4	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.1	A	1.3	A	2.3	B	2.3	B

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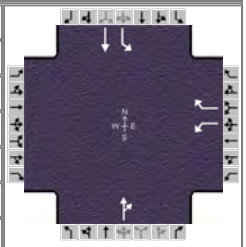
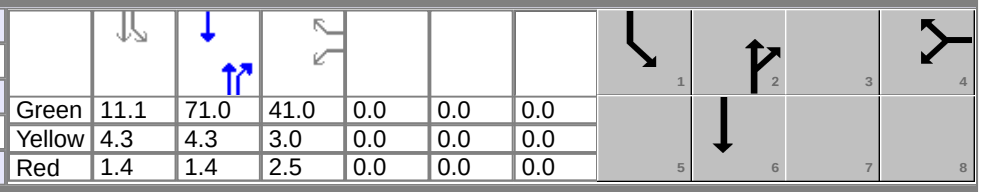
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		805	100	100	960	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1006	111	0	1122
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1826	1774	0	1846
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	74.2
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	74.2
Capacity *(c)*, veh/h				520	0	462			926	140		1158
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.085	0.791	0.000	0.969
Available Capacity *(c_a)*, veh/h				520	0	462			926	374		1158
Back of Queue *(Q)*, veh/ln				2.9		3.0			63.6	3.9		13.0
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			24.0	63.3		11.0
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	155.9	2.0	0.0	4.1
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			179.8	65.3		15.1
Level of Service (LOS)				D		D			F	E		B
Approach Delay, s/veh / LOS	0.0			37.8		D	179.8		F	19.6		B
Intersection Delay s/veh / LOS	86.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.5	B

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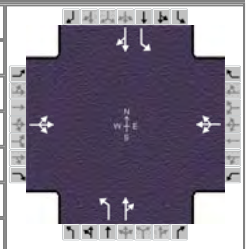
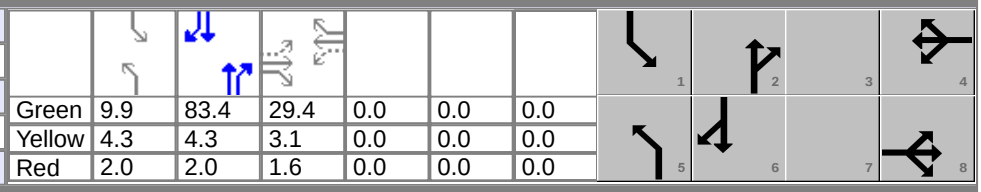
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	905	60	90	910	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1072	100	0	1067
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1842	1774	0	1845
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	75.3	7.8	0.0	73.1
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	75.3	7.8	0.0	73.1
Capacity *(c)*, veh/h	314			268			125		1097	125		1099
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	0.977	0.799	0.000	0.970
Available Capacity *(ca)*, veh/h	450			396			619		1097	619		1099
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		19.0	3.5		17.9
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		14.4	64.1		14.0
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	5.6	1.1	0.0	4.5
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		20.0	65.2		18.5
Level of Service (LOS)	D			E			E		B	E		B
Approach Delay, s/veh / LOS	48.2	D		59.9	E		23.8	C		22.5	C	
Intersection Delay s/veh / LOS	27.2						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.4	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 6
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1125	50	60	1100	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1250	55	66	1222	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		530		45				
v/c		0.12		2.69				
95% queue length		0.42		12.99				
Control Delay		12.8		956.1				
LOS		B		F				
Approach Delay				956.1				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 6
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	945	100	100	600	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1050	111	111	666	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	839	602	25		256	15		427
v/c	0.04	0.18	1.76		0.39	3.67		0.03
95% queue length	0.12	0.67	5.42		1.76	7.68		0.08
Control Delay	9.5	12.3	698.5		27.8	1714		13.7
LOS	A	B	F		D	F		B
Approach Delay			232.7			1431		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 6
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

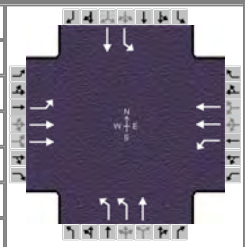
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		78			34	
v/c	0.01	0.43		3.13			1.94	
95% queue length	0.04	2.22		24.49			7.36	
Control Delay	8.9	13.3		1072			693.2	
LOS	A	B		F			F	
Approach Delay				1072			693.2	
Approach LOS				F			F	

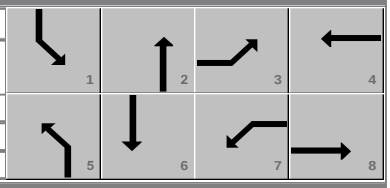
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		720	380		60	280	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	7.4	26.5	41.4	3.5	9.7	13.4		
				Yellow	4.3	4.3	4.3	5.0	5.0	5.0		
				Red	1.8	1.8	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	46.1	80.2	13.5	47.5
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	31.1		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	8.9	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.02		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	800	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	29.1	13.5	0.0	5.2	19.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	29.1	13.5	0.0	5.2	19.8	0.0
Capacity *(c)*, veh/h	44	339		251	753		985	983		94	549	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.812	0.430	0.000	0.711	0.567	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	549	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		11.2	4.6		2.6	9.6	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		40.0	11.8		65.2	41.8	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.3	0.1	0.0	12.0	4.3	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		40.3	11.9		77.3	46.1	
Level of Service (LOS)	E	E		E	D		D	B		E	D	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		30.5	C		51.6	D	
Intersection Delay s/veh / LOS	44.3						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.5	B	1.1	A

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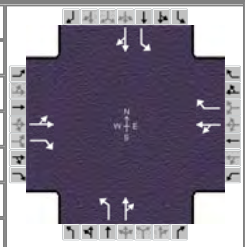
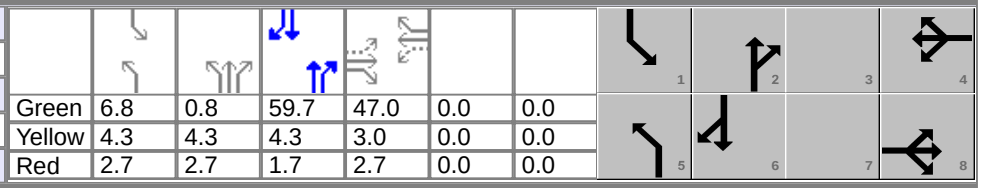
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	765	200	60	520	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1072	67	0	600
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1796	1774	0	1850
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	34.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	34.7
Capacity *(c)*, veh/h	52		530	48		530	185		866	86		789
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.238	0.773	0.000	0.761
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		866	384		789
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		127.1	2.3		13.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.3	65.8		25.1
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	430.2	1.4	0.0	0.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		457.6	67.2		25.8
Level of Service (LOS)	F		C	F		C	E		F	E		C
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		407.6	F		29.9	C	
Intersection Delay s/veh / LOS	1645.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.5	B	1.6	A

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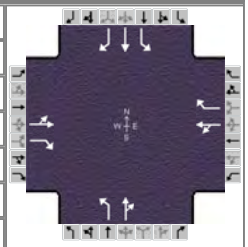
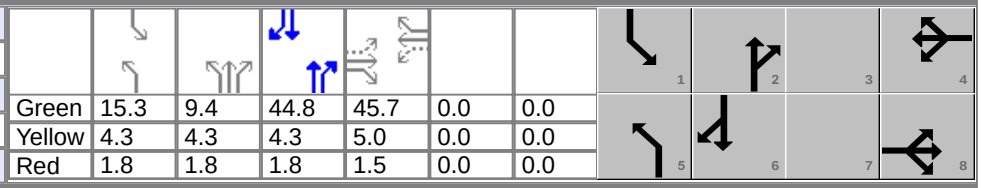
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 6				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	50	50	190	350	745	40	150	590	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	111	0	211	389	0	872	167	656	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1846	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		792	194	593	503
Volume-to-Capacity Ratio *(X)*	8.448	0.000	0.647	1.705	0.000	0.410	0.996	0.000	1.101	0.858	1.105	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		792	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	26.4		5.7	16.0		62.9	6.0	51.6	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.5		30.5	61.3	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13449.0	0.0	3.0	1331.7	0.0	0.6	24.2	0.0	184.5	5.6	202.5	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13519.0		43.3	1383.5		37.3	78.7		215.0	66.8	242.7	40.5
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	7485.1	F		501.5	F		173.0	F		167.6	F	
Intersection Delay s/veh / LOS	1800.8						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.0	A	2.6	B	2.3	B

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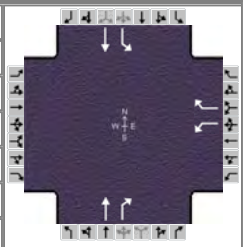
ALTERNATIVE 7 AM

HCS ANALYSIS

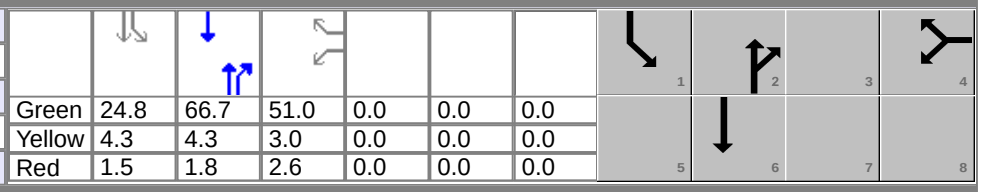
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		595	130	230	585	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.5	1.8	2.6	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	661	144	256	650	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	51.3	9.4	22.8	19.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	51.3	9.4	22.8	19.8	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.852	0.220	0.929	0.574	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		25.6	3.7	10.6	5.3	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		42.2	30.0	66.7	7.8	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	12.7	0.8	6.3	0.2	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		54.9	30.7	73.0	8.0	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	50.5		D	26.3		C
Intersection Delay s/veh / LOS	40.0						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	2.0	A

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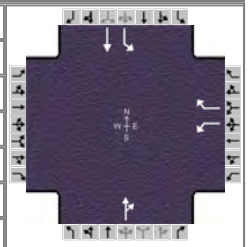
2010 HCS Signalized Intersection Results Summary

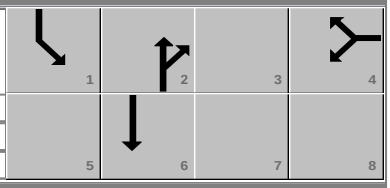
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		825	100	100	675	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1028	111	0	806
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1827	1774	0	1840
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	89.7	9.9	0.0	19.3
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	89.7	9.9	0.0	19.3
Capacity *(c)*, veh/h				455	0	405			1025	137		1240
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	1.003	0.810	0.000	0.650
Available Capacity *(c_a)*, veh/h				455	0	405			1025	327		1240
Back of Queue *(Q)*, veh/ln				3.6		3.6			33.8	4.5		3.8
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			21.8	72.7		4.2
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	19.8	2.3	0.0	0.2
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			41.6	75.0		4.4
Level of Service (LOS)				D		D			F	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	41.6		D	13.0		B
Intersection Delay s/veh / LOS	30.1						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.0	B

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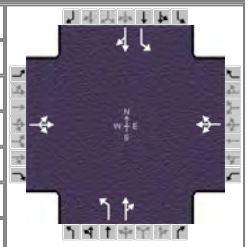
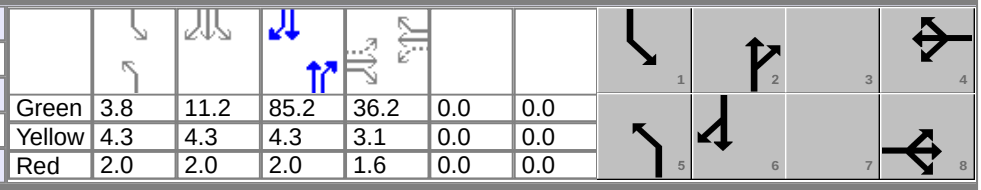
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	785	120	190	665	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	1006	211	0	761
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1819	1774	0	1853
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	21.7
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	21.7
Capacity *(c)*, veh/h	317			291			42		969	235		1189
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.038	0.897	0.000	0.640
Available Capacity *(c_a)*, veh/h	390			365			355		969	355		1189
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		48.3	8.5		4.9
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2		25.1	68.3		5.9
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	72.3	2.2	0.0	0.2
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		97.3	70.5		6.2
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		96.9	F		20.1	C	
Intersection Delay s/veh / LOS	61.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.2	B	2.1	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 7
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		645	130	230	655	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		716	144	255	727	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		781		201				
v/c		0.33		1.93				
95% queue length		1.42		28.48				
Control Delay		11.8		475.9				
LOS		B		F				
Approach Delay				475.9				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 7
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	635	40	80	1065	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	705	44	88	1183	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	557	860	30		424	28		221
v/c	0.02	0.10	1.10		0.10	0.39		0.05
95% queue length	0.06	0.34	3.71		0.34	1.23		0.16
Control Delay	11.6	9.7	392.3		14.5	200.4		22.1
LOS	B	A	F		B	F		C
Approach Delay			176.4			111.3		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 7
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

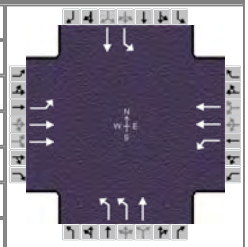
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		177			539	
v/c	0.01	0.40		0.63			0.02	
95% queue length	0.03	1.95		3.53			0.06	
Control Delay	8.6	12.7		54.5			11.8	
LOS	A	B		F			B	
Approach Delay				54.5			11.8	
Approach LOS				F			B	

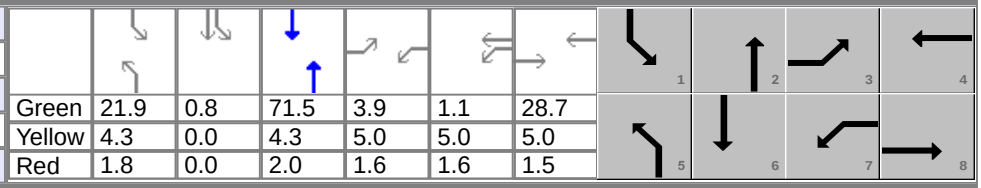
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		330	160		200	430	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	21.9	0.8	71.5	3.9	1.1	28.7
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	2.0	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	28.0	77.8	28.8	78.6
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	18.2		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	3.6	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	367	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	16.2	7.1	0.0	19.7	30.3	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	16.2	7.1	0.0	19.7	30.3	0.0
Capacity *(c)*, veh/h	43	636		129	807		471	832		251	842	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.779	0.214	0.000	0.884	0.568	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	842	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		6.8	2.9		9.7	14.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		63.1	19.3		67.4	32.3	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.6	0.1	0.0	13.4	2.8	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		63.7	19.4		80.7	35.1	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		49.2	D		49.6	D	
Intersection Delay s/veh / LOS	56.6						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.4	A	1.6	A

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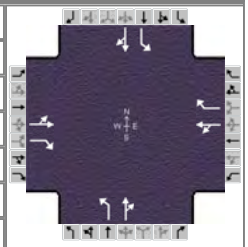
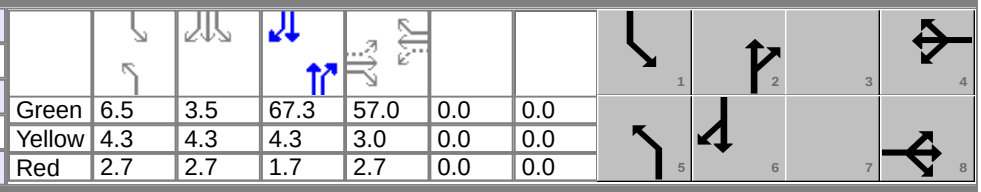
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	475	190	150	935	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	739	167	0	1050
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1772	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	66.1	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	66.1	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		746	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	0.991	0.886	0.000	1.161
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		746	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		28.5	6.9		101.3
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		38.0	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	13.2	3.9	0.0	291.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		51.3	74.4		320.0
Level of Service (LOS)	F		C	F		D	E		D	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		53.2	D		286.3	F	
Intersection Delay s/veh / LOS	1238.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.8	A	2.5	B

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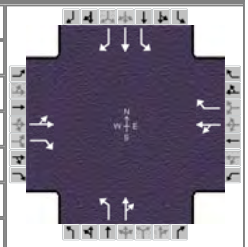
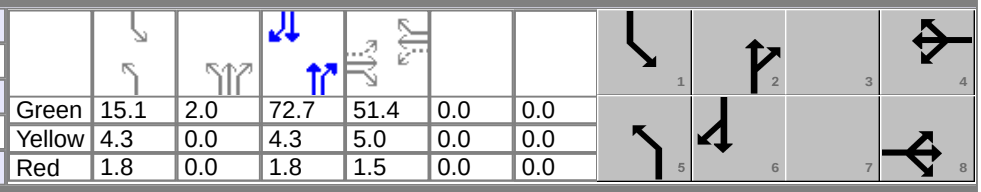
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	495	30	130	955	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	583	144	1061	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1844	1774	1863	1579
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	32.7	12.8	73.8	9.4
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	32.7	12.8	73.8	9.4
Capacity *(c)*, veh/h	56		495	54		495	190		874	168	859	728
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.668	0.860	1.235	0.214
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		874	308	859	728
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		12.1	6.1	129.7	3.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		22.0	71.4	30.8	25.8
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.4	6.5	428.0	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		22.4	77.9	458.8	26.1
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.4	C		368.9	F	
Intersection Delay s/veh / LOS	334.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.7	A	2.7	B

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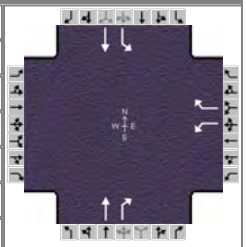
ALTERNATIVE 7 PM

HCS ANALYSIS

2010 HCS Signalized Intersection Results Summary

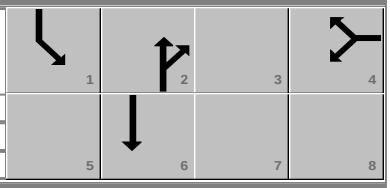
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		795	90	190	750	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	18.8	52.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	883	100	211	833	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	40.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	40.9	0.0
Capacity *(c)*, veh/h				646	0	575		702	595	238	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	1.259	0.168	0.888	0.810	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		702	595	322	1029	
Back of Queue *(Q)*, veh/ln				1.5		10.7		116.5	2.3	7.4	11.6	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		43.6	29.0	59.6	13.7	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	478.4	0.6	2.5	0.7	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		522.1	29.7	62.1	14.3	
Level of Service (LOS)				C		D		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			37.9		D	472.0		F	24.0		C
Intersection Delay s/veh / LOS	205.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.1	B	2.2	B

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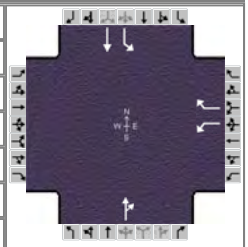
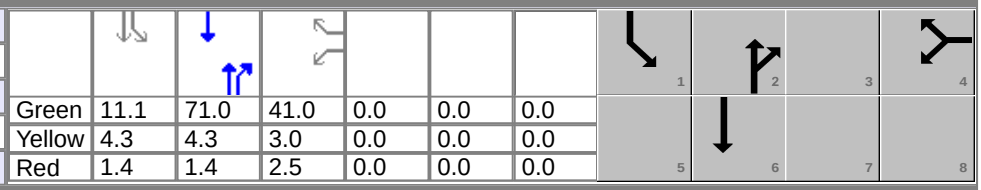
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		985	100	100	1040	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1206	111	0	1211
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1832	1774	0	1847
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			929	140		1159
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.297	0.791	0.000	1.045
Available Capacity *(c_a)*, veh/h				520	0	462			929	374		1159
Back of Queue *(Q)*, veh/ln				2.9		3.0			161.7	3.9		40.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.7	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	535.4	2.0	0.0	84.6
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			559.2	65.3		96.8
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	559.2		F	94.1		F
Intersection Delay s/veh / LOS	293.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.6	B	2.7	B

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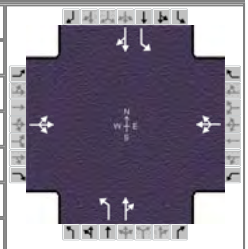
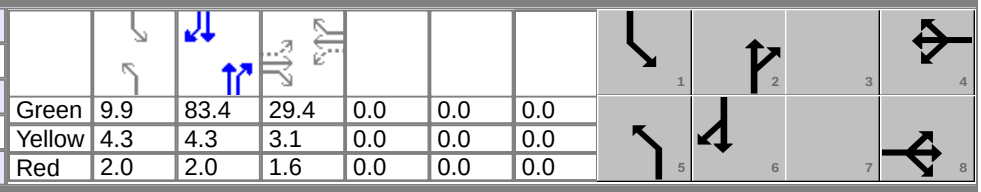
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	935	60	90	990	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1106	100	0	1156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1843	1774	0	1847
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1098	125		1100
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	1.007	0.799	0.000	1.051
Available Capacity *(ca)*, veh/h	450			396			619		1098	619		1100
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		26.4	3.5		47.5
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		15.2	64.1		15.1
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	24.1	1.1	0.0	93.9
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		39.4	65.2		109.0
Level of Service (LOS)	D			E			E		F	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		41.5	D		105.5	F	
Intersection Delay s/veh / LOS	71.9						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.5	B	2.6	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 7
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1155	50	60	1180	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1283	55	66	1311	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		515		37				
v/c		0.13		3.27				
95% queue length		0.44		13.79				
Control Delay		13.0		1249				
LOS		B		F				
Approach Delay				1249				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 7
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	975	100	100	680	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1083	111	111	755	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	777	585	19		245	12		380
v/c	0.04	0.19	2.32		0.41	4.58		0.03
95% queue length	0.13	0.69	5.91		1.88	7.96		0.09
Control Delay	9.8	12.6	1024		29.5	2238		14.8
LOS	A	B	F		D	F		B
Approach Delay			333.5			1867		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 7
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

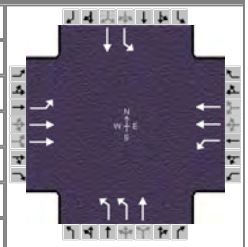
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		78			34	
v/c	0.01	0.43		3.13			1.94	
95% queue length	0.04	2.22		24.49			7.36	
Control Delay	8.9	13.3		1072			693.2	
LOS	A	B		F			F	
Approach Delay				1072			693.2	
Approach LOS				F			F	

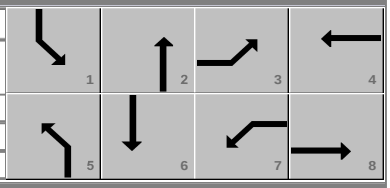
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		750	380		60	280	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	7.4	28.0		39.9	3.5	9.7	13.4					
Yellow	4.3	4.3		4.3	5.0	5.0	5.0					
Red	1.8	1.8		1.8	1.6	1.6	1.5					



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	47.6	80.2	13.5	46.0
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	32.2		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	9.3	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.03		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	833	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	30.2	13.5	0.0	5.2	20.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	30.2	13.5	0.0	5.2	20.1	0.0
Capacity *(c)*, veh/h	44	339		251	753		1022	983		94	529	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.816	0.430	0.000	0.711	0.588	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	529	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		11.6	4.6		2.6	9.8	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		38.9	11.8		65.2	43.1	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.3	0.1	0.0	12.0	4.8	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		39.2	11.9		77.3	47.9	
Level of Service (LOS)	E	E		E	D		D	B		E	D	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		30.1	C		53.1	D	
Intersection Delay s/veh / LOS	44.1						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.6	B	1.1	A

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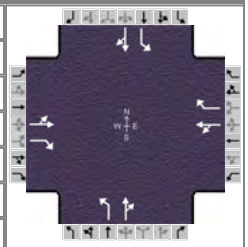
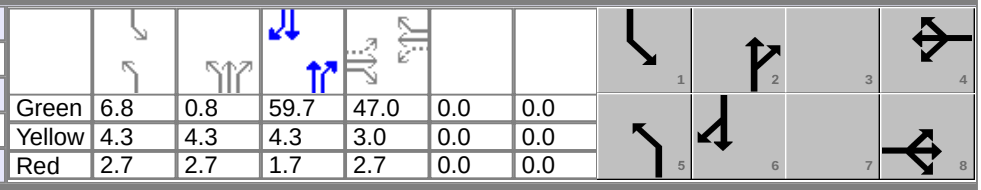
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	795	200	60	600	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1106	67	0	689
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1798	1774	0	1852
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	44.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	44.7
Capacity *(c)*, veh/h	52		530	48		530	185		867	86		789
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.276	0.773	0.000	0.873
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		867	384		789
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		143.3	2.3		16.9
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.3	65.8		27.3
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	496.9	1.4	0.0	1.4
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		524.2	67.2		28.7
Level of Service (LOS)	F		C	F		C	E		F	E		C
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		467.3	F		32.1	C	
Intersection Delay s/veh / LOS	1606.5						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.6	B	1.7	A

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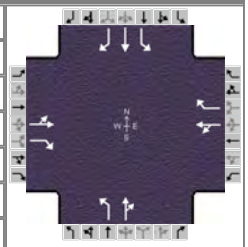
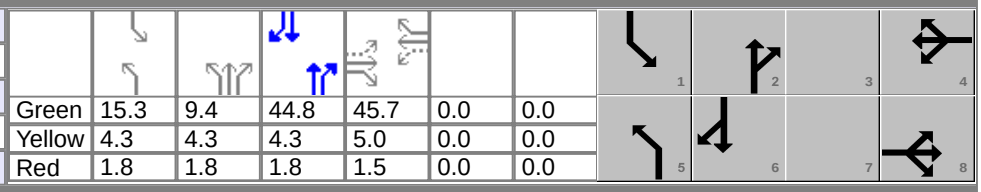
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 7				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	50	50	190	350	775	40	150	670	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	111	0	211	389	0	906	167	744	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1846	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		792	194	593	503
Volume-to-Capacity Ratio *(X)*	8.448	0.000	0.647	1.705	0.000	0.410	0.996	0.000	1.143	0.858	1.255	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		792	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	26.4		5.7	16.0		79.3	6.0	94.8	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.5		30.4	61.3	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13449.0	0.0	3.0	1331.7	0.0	0.6	24.2	0.0	259.0	5.6	465.0	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13519.0		43.3	1383.5		37.3	78.7		289.5	66.8	505.3	40.5
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	7485.1	F		501.5	F		226.2	F		340.8	F	
Intersection Delay s/veh / LOS	1821.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.0	A	2.6	B	2.4	B

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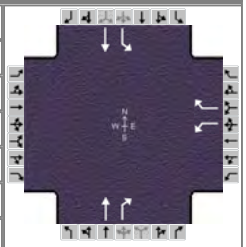
ALTERNATIVE 8 AM

HCS ANALYSIS

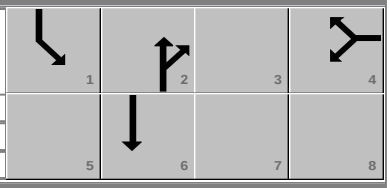
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	24.8	66.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.966	0.220	0.929	0.741	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		36.7	3.7	10.6	7.8	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		45.6	30.0	66.7	9.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	39.9	0.8	6.3	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		85.5	30.7	73.0	9.6	
Level of Service (LOS)				D		D		F	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	76.6		E	24.4		C
Intersection Delay s/veh / LOS	48.2						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.0	A	2.3	B

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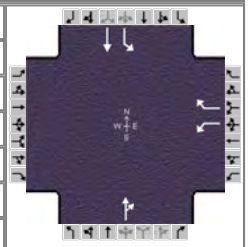
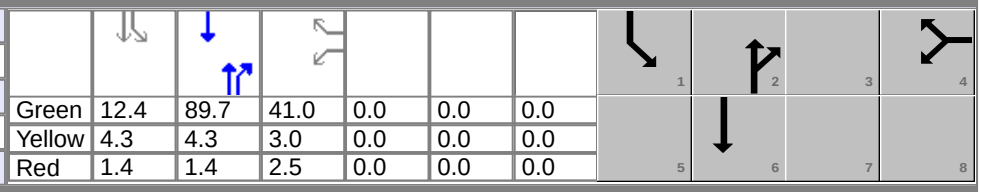
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.4	89.7	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	983	111	0	994
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1826	1774	0	1844
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	78.0	9.9	0.0	33.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	78.0	9.9	0.0	33.9
Capacity *(c)*, veh/h				455	0	405			1024	137		1243
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.960	0.810	0.000	0.800
Available Capacity *(c_a)*, veh/h				455	0	405			1024	327		1243
Back of Queue *(Q)*, veh/ln				3.6		3.6			25.6	4.5		4.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			20.3	72.7		4.9
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	3.7	2.3	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			23.9	75.0		5.4
Level of Service (LOS)				D		D			C	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	23.9		C	12.4		B
Intersection Delay s/veh / LOS	20.7						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.3	B

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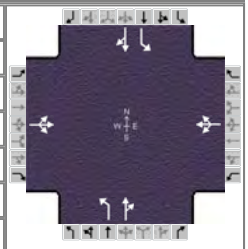
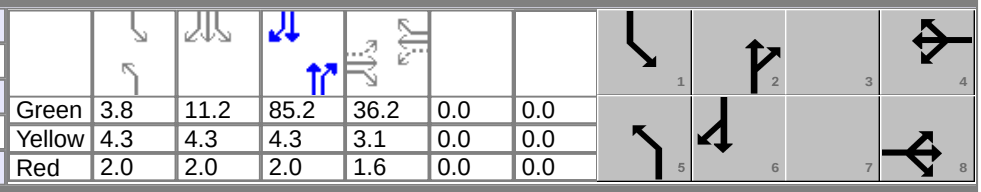
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	1094	211	0	950
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1823	1774	0	1855
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	38.1
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	38.1
Capacity *(c)*, veh/h	317			291			42		971	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.127	0.897	0.000	0.798
Available Capacity *(c_a)*, veh/h	390			365			355		971	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		91.0	8.5		6.4
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2		24.9	68.3		7.1
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	230.7	2.2	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		255.6	70.5		7.7
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		252.1	F		19.1	B	
Intersection Delay s/veh / LOS	126.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.3	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 8
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		675	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		750	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		759		175				
v/c		0.34		2.22				
95% queue length		1.48		31.28				
Control Delay		12.1		608.5				
LOS		B		F				
Approach Delay				608.5				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 8
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	715	40	80	1235	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	794	44	88	1372	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	472	796	19		377	17		171
v/c	0.02	0.11	1.74		0.12	0.65		0.06
95% queue length	0.07	0.37	4.50		0.39	1.69		0.20
Control Delay	12.8	10.1	779.3		15.8	398.1		27.5
LOS	B	B	F		C	F		D
Approach Delay			343.0			212.8		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Alternative 8
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

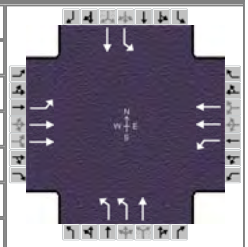
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		177			539	
v/c	0.01	0.40		0.63			0.02	
95% queue length	0.03	1.95		3.53			0.06	
Control Delay	8.6	12.7		54.5			11.8	
LOS	A	B		F			B	
Approach Delay				54.5			11.8	
Approach LOS				F			B	

2010 HCS Signalized Intersection Results Summary

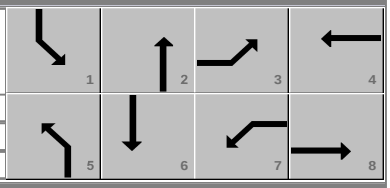
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		345	160		200	430	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	22.7	71.5	3.9	1.1	28.7	0.0	
Yellow	4.3	4.3	5.0	5.0	5.0	0.0	
Red	1.8	2.0	1.6	1.6	1.5	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	28.9	77.8	28.8	77.7
Change Period, ($Y+R_c$), s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway (*MAH*), s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time (g_s), s	3.0	25.2	11.4	10.3	18.9		21.7	
Green Extension Time (g_e), s	0.0	3.5	0.3	4.1	3.8	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	11	533	0	106	222	0	383	178	0	222	478	0
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time (g_s), s	1.0	23.2	0.0	9.4	8.3	0.0	16.9	7.1	0.0	19.7	30.6	0.0
Cycle Queue Clearance Time (g_c), s	1.0	23.2	0.0	9.4	8.3	0.0	16.9	7.1	0.0	19.7	30.6	0.0
Capacity (*c*), veh/h	43	636		129	807		490	832		251	831	
Volume-to-Capacity Ratio (*X*)	0.257	0.838	0.000	0.820	0.275	0.000	0.782	0.214	0.000	0.884	0.575	0.000
Available Capacity (c_a), veh/h	333	926		333	1097		1649	832		849	831	
Back of Queue (*Q*), veh/ln	0.5	10.8		4.8	3.7		7.1	2.9		9.7	14.2	
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (d_1), s/veh	76.6	63.4		73.2	50.9		62.5	19.3		67.4	33.0	
Incremental Delay (d_2), s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	2.9	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	83.3	68.7		89.0	51.1		63.0	19.4		80.7	35.9	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		49.2	D		50.1	D	
Intersection Delay s/veh / LOS	56.7						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.4	A	1.6	A

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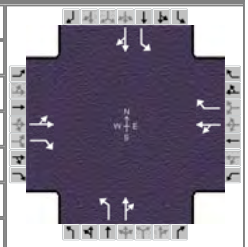
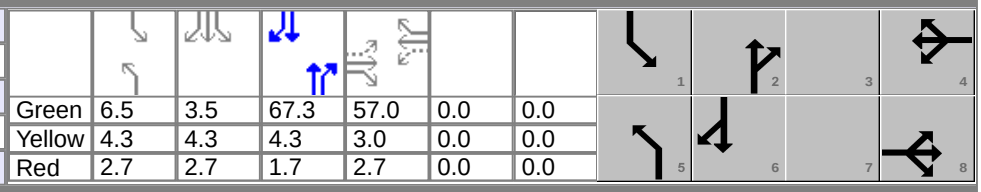
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	828	167	0	1128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1781	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		749	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	1.104	0.886	0.000	1.247
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		749	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		65.9	6.9		140.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		38.0	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	190.3	3.9	0.0	445.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		228.3	74.4		474.1
Level of Service (LOS)	F		C	F		D	E		F	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		218.9	F		422.7	F	
Intersection Delay s/veh / LOS	1292.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.6	B

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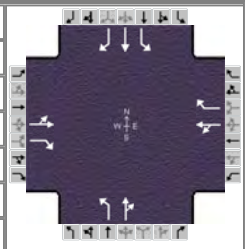
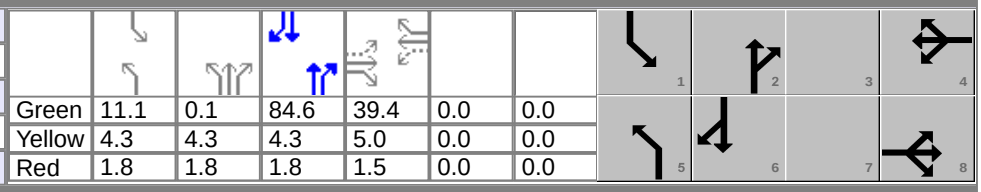
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	70	90	40	35	55	150	575	30	90	1125	70

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	0.1	84.6	39.4	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	45.9	45.9	45.9	45.9	23.4	96.9	17.2	90.7
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.7	4.7	4.7	4.7	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	39.7	39.7	39.7	39.7	16.8		10.9	
Green Extension Time *(g_e)*, s	1.5	1.5	1.5	1.5	0.5	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.99	
Max Out Probability	0.01	0.01	0.01	0.01	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	83	0	61	167	0	672	100	1250	78
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	231	0	1579	135	0	1579	1774	0	1846	1774	1863	1579
Queue Service time *(g_s)*, s	1.8	0.0	8.3	1.8	0.0	4.9	14.8	0.0	26.8	8.9	86.1	3.8
Cycle Queue Clearance Time *(g_c)*, s	37.7	0.0	8.3	37.7	0.0	4.9	14.8	0.0	26.8	8.9	86.1	3.8
Capacity *(c)*, veh/h	85		372	66		372	192		1066	123	1003	850
Volume-to-Capacity Ratio *(X)*	1.437	0.000	0.269	1.256	0.000	0.164	0.869	0.000	0.631	0.816	1.247	0.092
Available Capacity *(c_a)*, veh/h	221		550	181		550	450		1066	450	1003	850
Back of Queue *(Q)*, veh/ln	22.6		3.3	11.8		2.0	6.7		7.8	4.2	152.5	1.4
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	62.6		49.9	68.5		48.6	70.2		11.3	73.5	22.6	17.9
Incremental Delay *(d_2)*, s/veh	809.6	0.0	0.5	493.0	0.0	0.2	1.2	0.0	0.3	6.5	448.2	0.1
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	872.3		50.4	561.6		48.9	71.5		11.6	79.9	470.8	18.0
Level of Service (LOS)	F		D	F		D	E		B	E	F	B
Approach Delay, s/veh / LOS	502.4	F		344.7	F		23.5	C		418.8	F	
Intersection Delay s/veh / LOS	295.8						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.9	A	2.8	C

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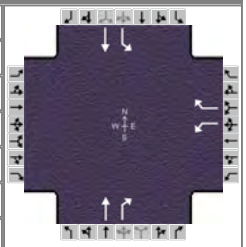
ALTERNATIVE 8 PM

HCS ANALYSIS

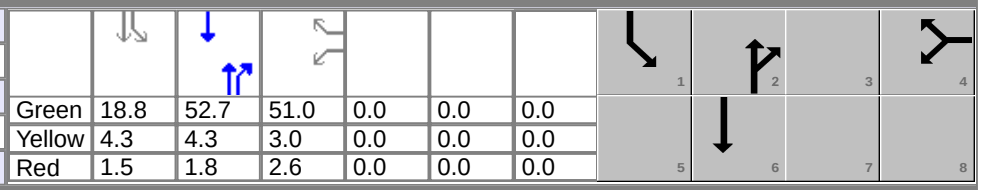
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				60		330		905	90	190	890	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	18.8	52.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	115.4	24.6	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			18.4	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.16	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			67	0	367	0	1006	100	211	989	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	67.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			3.5	51.0	26.9	0.0	52.7	5.9	16.4	67.1	0.0
Capacity *(c)*, veh/h				646	0	575		702	595	238	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.103	0.000	0.638	0.000	1.433	0.168	0.888	0.961	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		702	595	322	1029	
Back of Queue *(Q)*, veh/ln				1.5		10.7		176.9	2.3	7.4	19.7	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.4	0.0	36.8		43.6	29.0	59.6	17.1	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	2.5	0.0	788.2	0.6	2.5	3.7	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.5	0.0	39.4		831.9	29.7	62.1	20.9	
Level of Service (LOS)				C		D		F	C	E	C	
Approach Delay, s/veh / LOS	0.0			37.9		D	759.3		F	28.1		C
Intersection Delay s/veh / LOS	324.8						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.3	B	2.5	B

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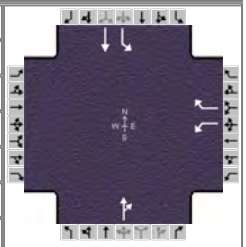
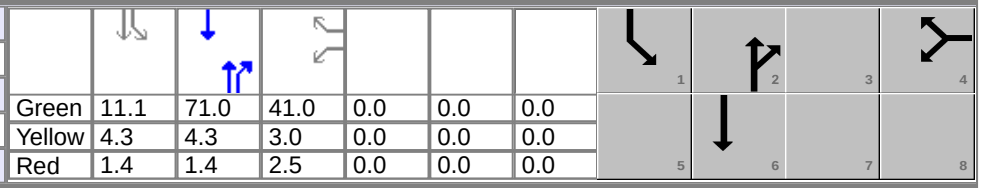
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		1135	100	100	1180	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0		
Yellow	4.3	4.3	3.0	0.0	0.0	0.0		
Red	1.4	1.4	2.5	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1372	111	0	1367
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1836	1774	0	1849
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			931	140		1160
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.473	0.791	0.000	1.178
Available Capacity *(c_a)*, veh/h				520	0	462			931	374		1160
Back of Queue *(Q)*, veh/ln				2.9		3.0			244.0	3.9		117.2
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.6	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	852.7	2.0	0.0	322.1
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			876.3	65.3		334.2
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	876.3		F	314.0		F
Intersection Delay s/veh / LOS	545.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.9	C	2.9	C

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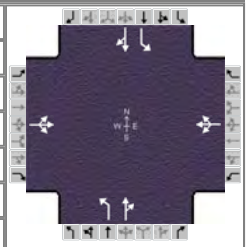
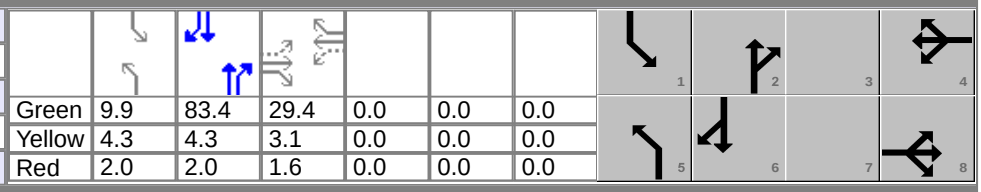
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	1045	60	90	1130	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1228	100	0	1311
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1845	1774	0	1849
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1099	125		1101
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	1.117	0.799	0.000	1.191
Available Capacity *(ca)*, veh/h	450			396			619		1099	619		1101
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		83.9	3.5		123.9
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		15.2	64.1		15.0
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	212.7	1.1	0.0	344.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		227.9	65.2		359.2
Level of Service (LOS)	D			E			E		F	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		215.6	F		338.4	F	
Intersection Delay s/veh / LOS	254.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.7	B	2.8	C

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 8
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	50	60	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	55	66	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		463		24				
v/c		0.14		5.04				
95% queue length		0.49		15.13				
Control Delay		14.1		2145				
LOS		B		F				
Approach Delay				2145				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 8
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	1085	100	100	820	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1205	111	111	911	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	679	525	10		208	5		309
v/c	0.05	0.21	4.40		0.48	11.00		0.04
95% queue length	0.15	0.79	6.71		2.36	8.64		0.11
Control Delay	10.6	13.7	2269		37.4	5912		17.1
LOS	B	B	F		E	F		C
Approach Delay			719.3			4930		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Alternative 8
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

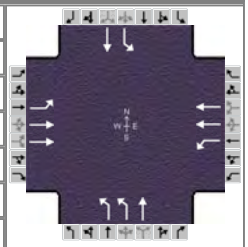
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		78			34	
v/c	0.01	0.43		3.13			1.94	
95% queue length	0.04	2.22		24.49			7.36	
Control Delay	8.9	13.3		1072			693.2	
LOS	A	B		F			F	
Approach Delay				1072			693.2	
Approach LOS				F			F	

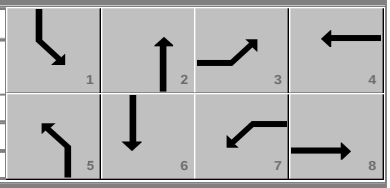
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		640	380		60	280	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	7.4	22.5	45.5	3.5	9.7	13.4		
				Yellow	4.3	4.3	4.3	5.0	5.0	5.0		
				Red	1.8	1.8	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	42.1	80.2	13.5	51.6
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	28.2		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	7.7	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	711	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	26.2	13.5	0.0	5.2	19.0	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	26.2	13.5	0.0	5.2	19.0	0.0
Capacity *(c)*, veh/h	44	339		251	753		885	983		94	603	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.804	0.430	0.000	0.711	0.516	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	603	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		10.3	4.6		2.6	9.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		42.8	11.8		65.2	38.5	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.3	0.1	0.0	12.0	3.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		43.2	11.9		77.3	41.6	
Level of Service (LOS)	E	E		E	D		D	B		E	D	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		31.5	C		47.9	D	
Intersection Delay s/veh / LOS	44.7						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.4	B	1.1	A

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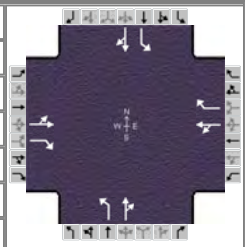
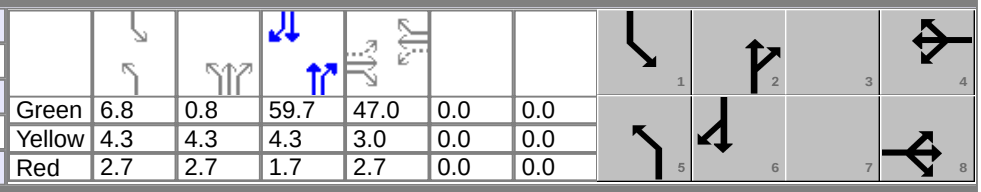
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	905	200	60	740	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1228	67	0	844
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1804	1774	0	1854
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Capacity *(c)*, veh/h	52		530	48		530	185		870	86		790
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.412	0.773	0.000	1.069
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		870	384		790
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		202.8	2.3		50.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.0	65.8		30.5
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	741.7	1.4	0.0	126.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		768.7	67.2		157.4
Level of Service (LOS)	F		C	F		C	E		F	E		F
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		689.4	F		150.8	F	
Intersection Delay s/veh / LOS	1616.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.8	C	2.0	A

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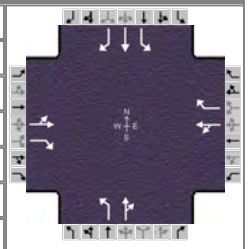
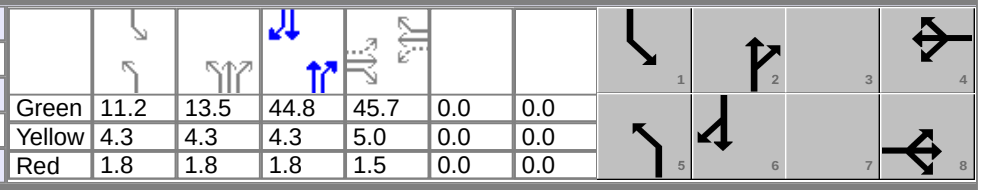
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Alternative 8				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	170	85	300	50	110	130	350	885	40	105	810	115

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.2	13.5	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	70.5	17.3	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		11.1	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.99	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	283	0	333	178	0	144	389	0	1028	117	900	128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	10	0	1579	179	0	1579	1774	0	1848	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	9.5	30.7	0.0	64.2	9.1	44.6	8.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	9.5	30.7	0.0	64.2	9.1	44.6	8.4
Capacity *(c)*, veh/h	46		515	92		515	390		847	142	593	503
Volume-to-Capacity Ratio *(X)*	6.147	0.000	0.647	1.926	0.000	0.280	0.996	0.000	1.213	0.819	1.517	0.254
Available Capacity *(c_a)*, veh/h	46		515	92		515	390		847	390	593	503
Back of Queue *(Q)*, veh/ln	120.9		10.2	46.0		3.7	16.0		113.5	4.2	172.2	3.3
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		40.3	42.4		35.0	54.5		27.7	63.4	40.3	35.4
Incremental Delay *(d_2)*, s/veh	9310.6	0.0	3.0	1706.9	0.0	0.4	24.2	0.0	385.1	5.7	934.1	0.6
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	9377.4		43.3	1749.3		35.3	78.7		412.7	69.1	974.4	35.9
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	4332.0		F	981.0		F	321.0		F	777.3		F
Intersection Delay s/veh / LOS	1237.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.5	A	1.0	A	2.8	C	2.4	B

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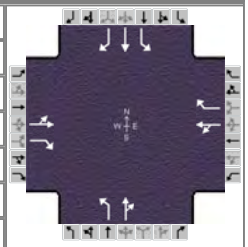
ALTERNATIVE
WALMART MCLOUD
AM
HCS ANALYSIS

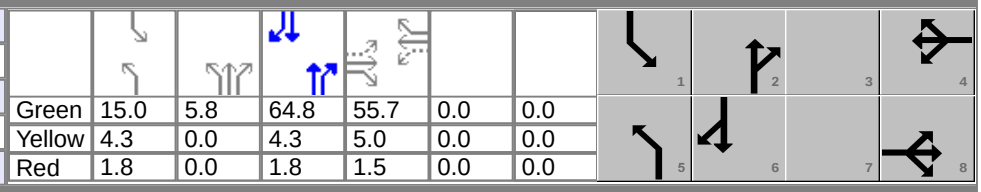
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	AM KY 321 & New Walmart (McCloud).xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	181	30	90	40	10	80	268	537	30	130	1125	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.0	5.8	64.8	55.7	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	62.2	62.2	62.2	62.2	26.9	76.7	21.1	70.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	57.7	57.7	57.7	57.7	22.8		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.19	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	234	0	100	56	0	89	298	0	630	144	1250	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	17	0	1579	1774	0	1845	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	7.1	0.0	0.0	6.2	20.8	0.0	41.8	12.9	64.6	10.4
Cycle Queue Clearance Time *(g_c)*, s	55.7	0.0	7.1	55.7	0.0	6.2	20.8	0.0	41.8	12.9	64.6	10.4
Capacity *(c)*, veh/h	42		550	46		550	231		812	166	752	637
Volume-to-Capacity Ratio *(X)*	5.604	0.000	0.182	1.199	0.000	0.162	1.291	0.000	0.776	0.868	1.662	0.244
Available Capacity *(c_a)*, veh/h	42		550	46		550	231		812	231	752	637
Back of Queue *(Q)*, veh/ln	98.6		2.8	8.6		2.5	43.1		16.2	6.4	275.2	4.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	80.0		36.3	73.0		36.0	69.6		27.7	71.5	36.9	31.6
Incremental Delay *(d_2)*, s/veh	8340.0	0.0	0.2	519.5	0.0	0.2	527.0	0.0	0.7	13.1	1194.6	0.4
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	8420.0		36.5	592.6		36.2	596.6		28.4	84.6	1231.5	32.0
Level of Service (LOS)	F		D	F		D	F		C	F	F	C
Approach Delay, s/veh / LOS	5913.3	F		250.2	F		210.7	F		1004.3	F	
Intersection Delay s/veh / LOS	1273.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	0.7	A	2.0	B	3.0	C

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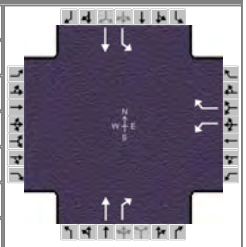
ALTERNATIVE EXISTING AM HCS ANALYSIS

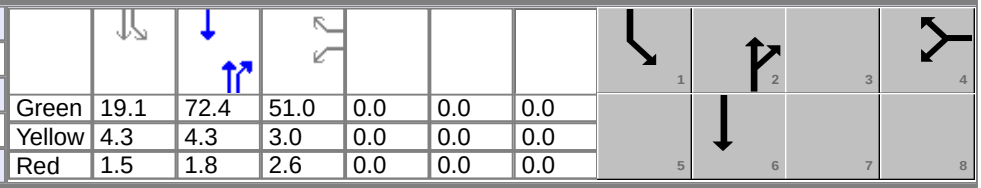
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				30		230		530	90	170	600	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	19.1	72.4	51.0	0.0	0.0	0.0		
Yellow	4.3	4.3	3.0	0.0	0.0	0.0		
Red	1.5	1.8	2.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	135.1	24.9	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(gs)*, s			53.0	53.0			18.8	
Green Extension Time *(ge)*, s	0.0		0.0	0.0	0.0	0.0	0.3	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.19	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			33	0	256	0	589	100	189	667	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(gs)*, s	0.0			2.1	51.0	21.1	0.0	40.5	5.9	16.8	20.7	0.0
Cycle Queue Clearance Time *(gc)*, s	0.0			2.1	51.0	21.1	0.0	40.5	5.9	16.8	20.7	0.0
Capacity *(c)*, veh/h				565	0	503		843	714	212	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.059	0.000	0.508	0.000	0.699	0.140	0.891	0.589	0.000
Available Capacity *(ca)*, veh/h				565	0	503		843	714	282	1133	
Back of Queue *(Q)*, veh/ln				0.9		8.4		19.0	2.3	7.7	5.5	
Overflow Queue *(Q3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh				37.8	0.0	44.3		35.1	25.6	69.4	7.9	
Incremental Delay *(d2)*, s/veh	0.0			0.1	0.0	1.0	0.0	4.9	0.4	3.1	0.2	0.0
Initial Queue Delay *(d3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.9	0.0	45.3		40.0	26.0	72.5	8.1	
Level of Service (LOS)				D		D		D	C	E	A	
Approach Delay, s/veh / LOS	0.0			44.4		D	38.0		D	22.3		C
Intersection Delay s/veh / LOS	31.7						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.6	A	1.9	A

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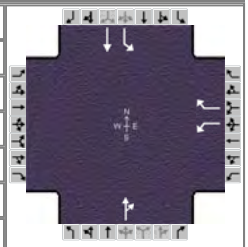
2010 HCS Signalized Intersection Results Summary

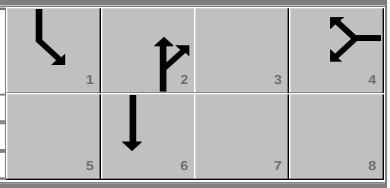
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		660	100	100	640	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	844	111	0	767
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1820	1774	0	1839
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	51.2	9.9	0.0	17.3
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	51.2	9.9	0.0	17.3
Capacity *(c)*, veh/h				455	0	405			1020	137		1239
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.828	0.810	0.000	0.619
Available Capacity *(c_a)*, veh/h				455	0	405			1020	327		1239
Back of Queue *(Q)*, veh/ln				3.6		3.6			16.4	4.5		3.6
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			16.8	72.7		4.1
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	0.8	2.3	0.0	0.2
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			17.6	75.0		4.3
Level of Service (LOS)				D		D			B	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	17.6		B	13.3		B
Intersection Delay s/veh / LOS	19.1						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.0	B	1.9	A

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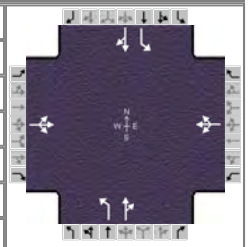
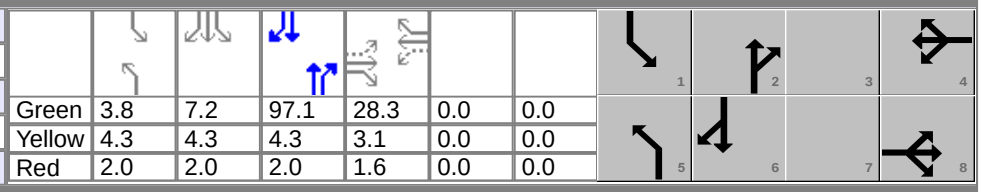
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	70	0	100	20	670	100	150	650	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	7.2	97.1	28.3	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	33.0	33.0	33.0	33.0	10.1	103.4	23.6	117.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	4.7	4.7	27.5	27.5	4.0		16.8	
Green Extension Time *(ge)*, s	0.9	0.9	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	189	0	0	22	0	856	167	0	744
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1284	0	0	1158	0	0	1774	0	1820	1774	0	1853
Queue Service time *(gs)*, s	0.0	0.0	0.0	22.8	0.0	0.0	2.0	0.0	41.4	14.8	0.0	11.6
Cycle Queue Clearance Time *(gc)*, s	2.7	0.0	0.0	25.5	0.0	0.0	2.0	0.0	41.4	14.8	0.0	11.6
Capacity *(c)*, veh/h	257			236			42		1105	192		1281
Volume-to-Capacity Ratio *(X)*	0.130	0.000	0.000	0.799	0.000	0.000	0.532	0.000	0.774	0.870	0.000	0.581
Available Capacity *(ca)*, veh/h	387			365			444		1105	444		1281
Back of Queue *(Q)*, veh/ln	1.2			8.0			0.9		11.1	6.7		2.4
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	55.3			64.1			77.2		11.3	70.3		2.6
Incremental Delay *(d2)*, s/veh	0.2	0.0	0.0	7.2	0.0	0.0	1.0	0.0	0.5	1.2	0.0	0.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	55.6			71.3			78.2		11.8	71.5		2.8
Level of Service (LOS)	E			E			E		B	E		A
Approach Delay, s/veh / LOS	55.6	E		71.3	E		13.5	B		15.3	B	
Intersection Delay s/veh / LOS	20.5						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.8	A	1.9	A	2.0	A

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Existing
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		560	150	190	750	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		622	166	211	833	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		40			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		44			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		211		88				
C(m) (vph)		831		93				
v/c		0.25		0.95				
95% queue length		1.01		5.44				
Control Delay		10.8		160.6				
LOS		B		F				
Approach Delay				160.6				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Existing
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	5	550	30	60	970	50
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	611	33	66	1077	55
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20	0	30	5	0	5
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	0	33	5	0	5
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	5	66	22		33	5		5
C(m) (vph)	617	941	51		483	46		257
v/c	0.01	0.07	0.43		0.07	0.11		0.02
95% queue length	0.02	0.23	1.58		0.22	0.34		0.06
Control Delay	10.9	9.1	121.1		13.0	92.6		19.3
LOS	B	A	F		B	F		C
Approach Delay			56.2			55.9		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM Existing
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	510	90	220	380	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	566	100	244	422	5
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

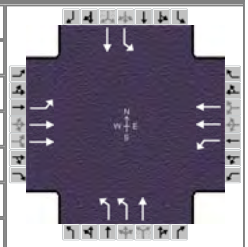
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	70	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	77	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	244		88			11	
C(m) (vph)	1132	923		282			630	
v/c	0.01	0.26		0.31			0.02	
95% queue length	0.03	1.06		1.29			0.05	
Control Delay	8.2	10.3		23.5			10.8	
LOS	A	B		C			B	
Approach Delay				23.5			10.8	
Approach LOS				C			B	

2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	330		70	140		320	130		160	340	

Signal Information													
Cycle, s	160.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
										1	2	3	4
Green				18.5	2.7	83.9	3.9	5.0	20.6				
Yellow				4.3	0.0	4.3	5.0	0.0	5.0				
Red				1.8	0.0	1.8	1.6	0.0	1.5	5	6	7	8

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	27.1	15.5	32.1	27.4	92.7	24.6	90.0
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	18.1	8.9	8.2	17.8		17.8	
Green Extension Time *(g_e)*, s	0.0	2.6	0.2	2.7	3.5	0.0	0.8	0.0
Phase Call Probability	0.39	1.00	0.97	1.00	1.00		1.00	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	367	0	78	156	0	356	144	0	178	378	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	16.1	0.0	6.9	6.2	0.0	15.8	3.9	0.0	15.8	19.4	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	16.1	0.0	6.9	6.2	0.0	15.8	3.9	0.0	15.8	19.4	0.0
Capacity *(c)*, veh/h	43	458		98	568		458	1006		206	974	
Volume-to-Capacity Ratio *(X)*	0.257	0.801	0.000	0.791	0.274	0.000	0.776	0.144	0.000	0.865	0.388	0.000
Available Capacity *(c_a)*, veh/h	333	987		333	1097		1881	1006		969	974	
Back of Queue *(Q)*, veh/ln	0.5	7.4		3.6	2.8		6.6	1.6		7.8	8.7	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	67.7		74.6	59.0		63.5	10.8		69.5	22.8	
Incremental Delay *(d_2)*, s/veh	6.6	4.1	0.0	17.2	0.3	0.0	0.6	0.0	0.0	13.8	1.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	71.8		91.9	59.3		64.1	10.9		83.3	24.0	
Level of Service (LOS)	F	E		F	E		E	B		F	C	
Approach Delay, s/veh / LOS	72.1	E		70.2	E		48.7	D		43.0	D	
Intersection Delay s/veh / LOS	55.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.3	A	1.4	A

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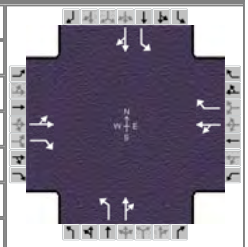
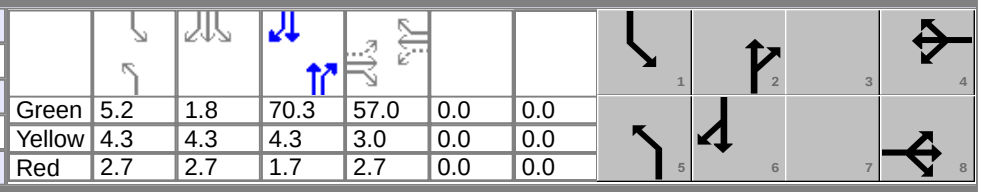
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	30	190	10	90	40	420	150	120	780	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.2	1.8	70.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	12.2	76.3	21.0	85.1
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	6.0		13.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.86		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.12	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	33	222	0	100	44	0	633	133	0	878
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1779	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	2.2	0.0	0.0	7.0	4.0	0.0	46.4	11.9	0.0	69.7
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	2.2	57.0	0.0	7.0	4.0	0.0	46.4	11.9	0.0	69.7
Capacity *(c)*, veh/h	49		562	44		562	58		781	155		918
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.059	5.057	0.000	0.178	0.766	0.000	0.811	0.859	0.000	0.956
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		781	225		918
Back of Queue *(Q)*, veh/ln	1.9		0.9	91.6		2.7	1.8		18.0	5.4		25.7
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		33.9	80.0		35.4	76.8		30.8	72.0		25.8
Incremental Delay *(d_2)*, s/veh	36.7	0.0	0.0	7352.8	0.0	0.2	2.8	0.0	0.9	2.3	0.0	3.6
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	96.9		33.9	7432.8		35.6	79.6		31.7	74.3		29.5
Level of Service (LOS)	F		C	F		D	E		C	E		C
Approach Delay, s/veh / LOS	65.4	E		5137.1	F		34.8	C		35.4	D	
Intersection Delay s/veh / LOS	827.3						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.0	A	1.6	A	2.2	B

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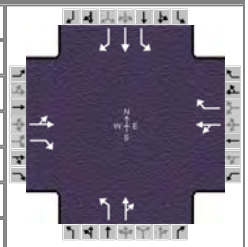
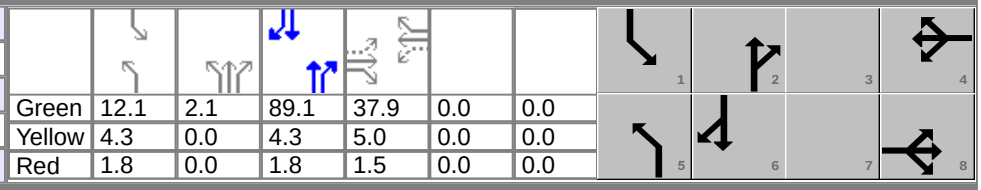
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	60	20	70	30	10	60	120	440	20	100	880	110

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.1	2.1	89.1	37.9	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	44.4	44.4	44.4	44.4	20.3	97.3	18.2	95.2
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	38.4	38.4	38.4	38.4	13.8		11.9	
Green Extension Time *(g_e)*, s	1.1	1.1	1.1	1.1	0.4	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.99	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	89	0	78	44	0	67	133	0	511	111	978	122
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	74	0	1579	73	0	1579	1774	0	1848	1774	1863	1579
Queue Service time *(g_s)*, s	1.6	0.0	6.4	1.6	0.0	5.5	11.8	0.0	16.5	9.9	68.8	5.8
Cycle Queue Clearance Time *(g_c)*, s	36.4	0.0	6.4	36.4	0.0	5.5	11.8	0.0	16.5	9.9	68.8	5.8
Capacity *(c)*, veh/h	56		359	56		359	158		1070	134	1054	893
Volume-to-Capacity Ratio *(X)*	1.583	0.000	0.217	0.795	0.000	0.186	0.846	0.000	0.478	0.827	0.928	0.137
Available Capacity *(c_a)*, veh/h	164		550	161		550	462		1070	462	1054	893
Back of Queue *(Q)*, veh/ln	19.1		2.6	2.3		2.2	5.4		5.2	4.7	22.9	2.1
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	74.9		50.2	73.5		49.9	71.8		9.9	72.9	17.0	16.4
Incremental Delay *(d_2)*, s/veh	1076.4	0.0	0.4	30.1	0.0	0.3	1.2	0.0	0.1	6.4	9.6	0.2
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	1151.3		50.6	103.7		50.2	73.0		10.1	79.3	26.6	16.5
Level of Service (LOS)	F		D	F		D	E		B	E	C	B
Approach Delay, s/veh / LOS	637.6	F		71.6	E		23.1	C		30.4	C	
Intersection Delay s/veh / LOS	77.8						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.6	A	2.5	B

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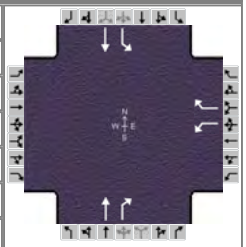
ALTERNATIVE EXISTING PM HCS ANALYSIS

2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		250		710	60	140	700	

Signal Information													
Cycle, s	140.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	14.4	57.1	51.0	0.0	0.0	0.0			
				Yellow	4.3	4.3	3.0	0.0	0.0	0.0			
				Red	1.5	1.8	2.6	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	119.8	20.2	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			14.1	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	278	0	789	67	156	778	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.3	51.0	19.0	0.0	57.1	3.7	12.1	34.8	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.3	51.0	19.0	0.0	57.1	3.7	12.1	34.8	0.0
Capacity *(c)*, veh/h				646	0	575		760	644	182	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.069	0.000	0.483	0.000	1.038	0.104	0.853	0.756	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		760	644	322	1029	
Back of Queue *(Q)*, veh/ln				1.0		7.4		48.1	1.4	5.4	9.8	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.0	0.0	34.3		41.4	25.6	61.8	12.9	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	0.8	0.0	109.5	0.3	1.2	0.5	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.1	0.0	35.1		150.9	25.9	63.0	13.3	
Level of Service (LOS)				C		D		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			34.3		C	141.2		F	21.6		C
Intersection Delay s/veh / LOS	72.0						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.9	A	2.0	B

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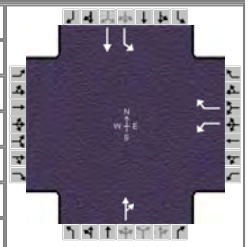
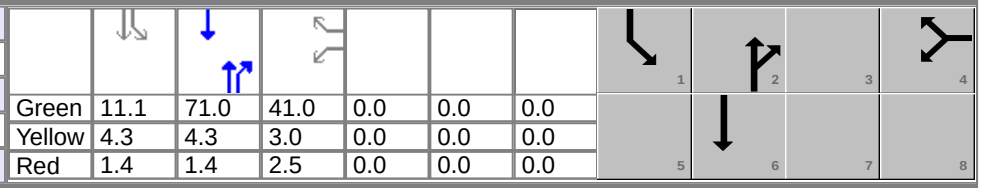
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		860	100	100	900	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0						
Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Red	1.4	1.4	2.5	0.0	0.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1067	111	0	1056
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1828	1774	0	1845
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	56.6
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	56.6
Capacity *(c)*, veh/h				520	0	462			927	140		1157
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.150	0.791	0.000	0.912
Available Capacity *(c_a)*, veh/h				520	0	462			927	374		1157
Back of Queue *(Q)*, veh/ln				2.9		3.0			93.4	3.9		9.5
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.9	63.3		9.5
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	271.4	2.0	0.0	1.4
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			295.3	65.3		11.0
Level of Service (LOS)				D		D			F	E		B
Approach Delay, s/veh / LOS	0.0			37.8		D	295.3		F	16.1		B
Intersection Delay s/veh / LOS	139.4						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.4	B	2.4	B

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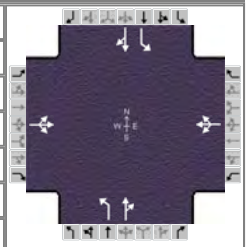
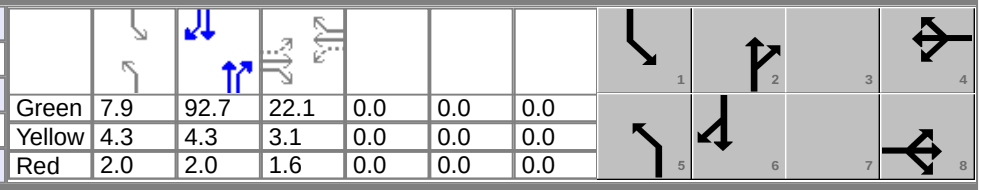
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30	5	50	70	5	70	70	810	50	70	880	40

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.9	92.7	22.1	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	26.8	26.8	26.8	26.8	14.2	99.0	14.2	99.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	10.0	10.0	21.2	21.2	8.1		8.1	
Green Extension Time *(ge)*, s	1.0	1.0	1.0	1.0	0.2	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.95		0.95	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	94	0	0	161	0	0	78	0	956	78	0	1022
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1361	0	0	1134	0	0	1774	0	1843	1774	0	1848
Queue Service time *(gs)*, s	0.0	0.0	0.0	11.2	0.0	0.0	6.1	0.0	29.7	6.1	0.0	36.4
Cycle Queue Clearance Time *(gc)*, s	8.0	0.0	0.0	19.2	0.0	0.0	6.1	0.0	29.7	6.1	0.0	36.4
Capacity *(c)*, veh/h	250			218			100		1220	100		1223
Volume-to-Capacity Ratio *(X)*	0.378	0.000	0.000	0.741	0.000	0.000	0.777	0.000	0.783	0.777	0.000	0.836
Available Capacity *(ca)*, veh/h	447			399			712		1220	712		1223
Back of Queue *(Q)*, veh/ln	3.1			6.1			2.7		4.6	2.7		4.9
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	52.7			56.9			65.2		5.0	65.2		5.3
Incremental Delay *(d2)*, s/veh	0.9	0.0	0.0	5.1	0.0	0.0	1.2	0.0	0.5	1.2	0.0	0.7
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	53.7			62.0			66.4		5.5	66.4		6.0
Level of Service (LOS)	D			E			E		A	E		A
Approach Delay, s/veh / LOS	53.7	D		62.0	E		10.1	B		10.3	B	
Intersection Delay s/veh / LOS	15.4						B					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.6	A	0.8	A	2.2	B	2.3	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Existing
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		980	40	50	1030	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1088	44	55	1144	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		50			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		55			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		55		99				
C(m) (vph)		617		69				
v/c		0.09		1.43				
95% queue length		0.29		8.25				
Control Delay		11.4		363.0				
LOS		B		F				
Approach Delay				363.0				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Existing
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	850	80	80	640	80
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	944	88	88	711	88
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20	5	70	30	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	5	77	33	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	22	88	27		77	44		11
C(m) (vph)	824	673	36		300	31		409
v/c	0.03	0.13	0.75		0.26	1.42		0.03
95% queue length	0.08	0.45	2.67		1.00	4.95		0.08
Control Delay	9.5	11.2	240.9		21.1	503.7		14.0
LOS	A	B	F		C	F		B
Approach Delay			78.2			405.8		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM Existing
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	540	70	240	450	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	600	77	266	500	5
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

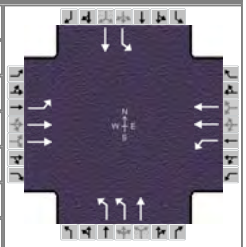
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	20	0	150	5	5	30
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	0	166	5	5	33
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	266		188			43	
C(m) (vph)	1060	915		233			146	
v/c	0.01	0.29		0.81			0.29	
95% queue length	0.03	1.21		6.04			1.15	
Control Delay	8.4	10.5		63.6			39.6	
LOS	A	B		F			E	
Approach Delay				63.6			39.6	
Approach LOS				F			E	

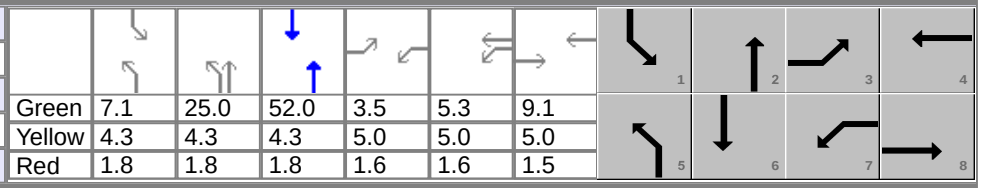
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	120		150	240		680	300		50	220	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	7.1	25.0	52.0	3.5	5.3	9.1						
Yellow	4.3	4.3	4.3	5.0	5.0	5.0						
Red	1.8	1.8	1.8	1.6	1.6	1.5						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	15.6	22.0	27.5	44.3	89.2	13.2	58.1
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	7.1	14.9	11.7	29.6		6.3	
Green Extension Time *(g_e)*, s	0.0	2.0	0.5	2.0	8.6	0.0	0.2	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.88	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	133	0	167	267	0	756	333	0	56	244	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	5.1	0.0	12.9	9.7	0.0	27.6	6.9	0.0	4.3	13.3	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	5.1	0.0	12.9	9.7	0.0	27.6	6.9	0.0	4.3	13.3	0.0
Capacity *(c)*, veh/h	44	230		195	532		940	1103		90	689	
Volume-to-Capacity Ratio *(X)*	0.250	0.580	0.000	0.853	0.501	0.000	0.804	0.302	0.000	0.619	0.355	0.000
Available Capacity *(c_a)*, veh/h	380	962		380	1264		1905	1103		981	689	
Back of Queue *(Q)*, veh/ln	0.5	2.4		6.4	4.3		10.7	2.3		2.1	6.2	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	63.6		61.2	54.7		41.2	6.7		65.1	32.0	
Incremental Delay *(d_2)*, s/veh	6.2	2.8	0.0	13.2	0.9	0.0	0.3	0.1	0.0	8.4	1.4	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	66.4		74.4	55.6		41.5	6.8		73.5	33.4	
Level of Service (LOS)	E	E		E	E		D	A		E	C	
Approach Delay, s/veh / LOS	66.9	E		62.8	E		30.9	C		40.8	D	
Intersection Delay s/veh / LOS	42.1						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.6	A	0.8	A	2.3	B	1.0	A

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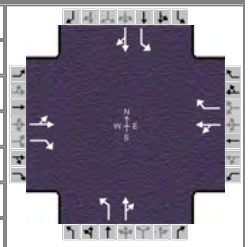
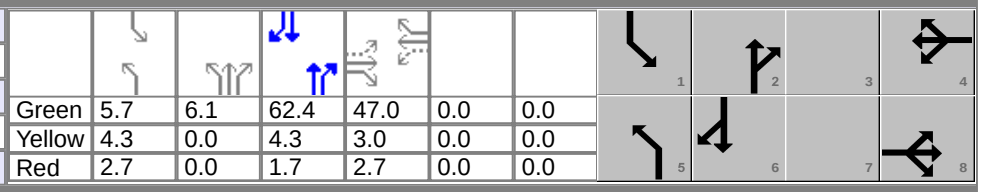
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	120	20	90	180	30	100	110	700	160	50	570	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	5.7	6.1	62.4	47.0	0.0	0.0
Yellow	4.3	0.0	4.3	3.0	0.0	0.0
Red	2.7	0.0	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	18.9	74.6	12.7	68.4
Change Period, (*Y+Rc*), s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway (*MAH*), s	4.7	4.7	4.7	4.7	5.0	0.0	4.0	0.0
Queue Clearance Time (g_s), s	49.0	49.0	49.0	49.0	11.5		6.3	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.5	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.99		0.88	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	156	0	100	233	0	111	122	0	956	56	0	656
Adjusted Saturation Flow Rate (*s*), veh/h/ln	13	0	1579	3	0	1579	1774	0	1802	1774	0	1851
Queue Service time (g_s), s	0.0	0.0	6.3	0.0	0.0	7.0	9.5	0.0	68.6	4.3	0.0	38.3
Cycle Queue Clearance Time (g_c), s	47.0	0.0	6.3	47.0	0.0	7.0	9.5	0.0	68.6	4.3	0.0	38.3
Capacity (*c*), veh/h	52		530	49		530	150		883	72		826
Volume-to-Capacity Ratio (*X*)	2.980	0.000	0.189	4.798	0.000	0.210	0.813	0.000	1.082	0.767	0.000	0.794
Available Capacity (c_a), veh/h	52		530	49		530	384		883	384		826
Back of Queue (*Q*), veh/ln	54.3		2.5	94.7		2.7	4.3		60.6	2.0		14.0
Overflow Queue (Q_3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio (*RQ*)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay (d_1), s/veh	66.0		33.0	69.2		33.2	63.0		26.4	66.5		23.8
Incremental Delay (d_2), s/veh	3615.5	0.0	0.2	6882.8	0.0	0.2	1.4	0.0	150.4	1.6	0.0	0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	3681.5		33.2	6952.0		33.4	64.4		176.8	68.1		24.5
Level of Service (LOS)	F		C	F		C	E		F	E		C
Approach Delay, s/veh / LOS	2253.9		F	4720.2		F	164.1		F	27.9		C
Intersection Delay s/veh / LOS	1004.0						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	1.1	A	2.3	B	1.7	A

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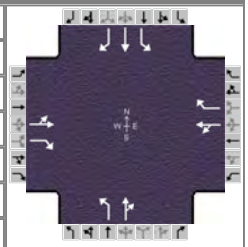
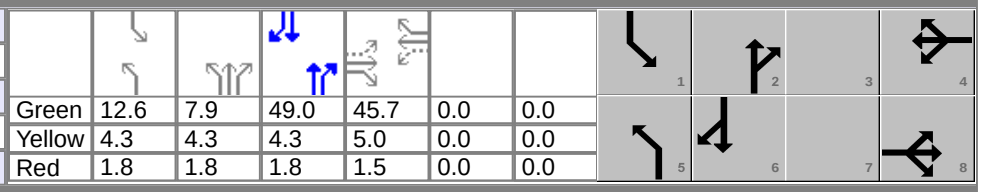
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Walmart/Lowes	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM Existing				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	260	30	240	40	40	150	280	680	30	120	630	180

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	12.6	7.9	49.0	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	32.7	69.1	18.7	55.1
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	26.1		12.4	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.5	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.99	
Max Out Probability	1.00	1.00	1.00	1.00	0.69		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	322	0	267	89	0	167	311	0	789	133	700	200
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1849	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	19.2	0.0	0.0	11.1	24.1	0.0	55.8	10.4	48.8	13.2
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	19.2	45.7	0.0	11.1	24.1	0.0	55.8	10.4	48.8	13.2
Capacity *(c)*, veh/h	49		515	65		515	337		829	160	650	550
Volume-to-Capacity Ratio *(X)*	6.605	0.000	0.517	1.364	0.000	0.323	0.924	0.000	0.952	0.834	1.078	0.363
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		829	390	650	550
Back of Queue *(Q)*, veh/ln	139.1		7.6	15.8		4.4	10.9		21.0	4.8	47.6	5.1
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		38.2	51.8		35.5	55.7		27.2	62.7	37.5	34.0
Incremental Delay *(d_2)*, s/veh	10132.6	0.0	1.1	745.4	0.0	0.4	3.9	0.0	3.7	5.6	156.0	0.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	10202.6		39.3	797.1		35.9	59.6		30.9	68.3	193.5	34.9
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	5600.3		F	300.7		F	39.0		D	146.6		F
Intersection Delay s/veh / LOS	1198.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.5	A	0.9	A	2.3	B	2.2	B

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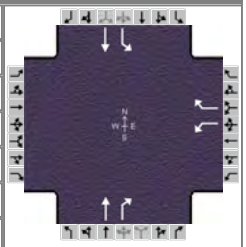
ALTERNATIVE NO-BUILD AM HCS ANALYSIS

2010 HCS Signalized Intersection Results Summary

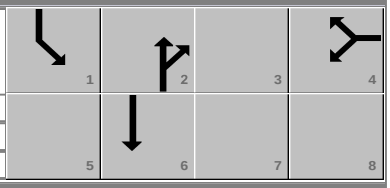
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				40		310		675	130	230	755	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	24.8	66.7	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	129.4	30.6	160.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			24.8	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.1	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			44	0	344	0	750	144	256	839	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.8	51.0	30.4	0.0	62.9	9.4	22.8	34.1	0.0
Capacity *(c)*, veh/h				565	0	503		776	658	275	1133	
Volume-to-Capacity Ratio *(X)*	0.000			0.079	0.000	0.685	0.000	0.966	0.220	0.929	0.741	0.000
Available Capacity *(c_a)*, veh/h				565	0	503		776	658	282	1133	
Back of Queue *(Q)*, veh/ln				1.2		12.5		36.7	3.7	10.6	7.8	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				38.1	0.0	47.5		45.6	30.0	66.7	9.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	4.1	0.0	39.9	0.8	6.3	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				38.2	0.0	51.6		85.5	30.7	73.0	9.6	
Level of Service (LOS)				D		D		F	C	E	A	
Approach Delay, s/veh / LOS	0.0			50.1		D	76.6		E	24.4		C
Intersection Delay s/veh / LOS	48.2						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	2.0	A	2.3	B

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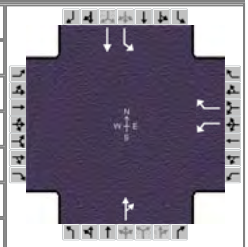
2010 HCS Signalized Intersection Results Summary

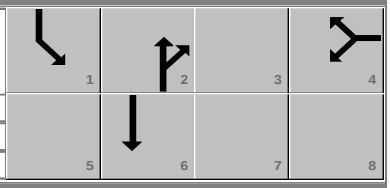
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		785	100	100	845	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	12.4	89.7	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	141.9	18.1	160.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			11.9	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	983	111	0	994
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1826	1774	0	1844
Queue Service time *(g_s)*, s	0.0			8.0	41.0	9.0	0.0	0.0	78.0	9.9	0.0	33.9
Cycle Queue Clearance Time *(g_c)*, s	0.0			8.0	41.0	9.0	0.0	0.0	78.0	9.9	0.0	33.9
Capacity *(c)*, veh/h				455	0	405			1024	137		1243
Volume-to-Capacity Ratio *(X)*	0.000			0.244	0.000	0.275	0.000	0.000	0.960	0.810	0.000	0.800
Available Capacity *(c_a)*, veh/h				455	0	405			1024	327		1243
Back of Queue *(Q)*, veh/ln				3.6		3.6			25.6	4.5		4.9
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				47.2	0.0	47.6			20.3	72.7		4.9
Incremental Delay *(d_2)*, s/veh	0.0			0.3	0.0	0.4	0.0	0.0	3.7	2.3	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				47.5	0.0	48.0			23.9	75.0		5.4
Level of Service (LOS)				D		D			C	E		A
Approach Delay, s/veh / LOS	0.0			47.8		D	23.9		C	12.4		B
Intersection Delay s/veh / LOS	20.7						C					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.3	B	2.3	B

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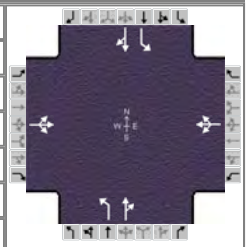
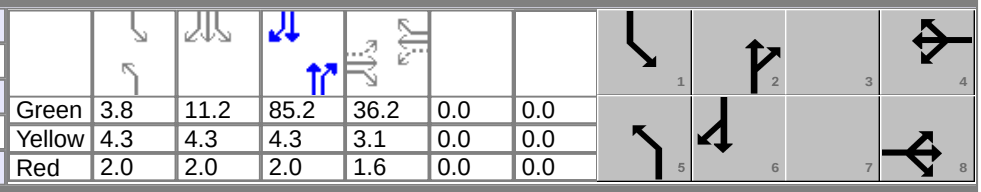
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	0	20	90	0	130	20	865	120	190	835	20

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	3.8	11.2	85.2	36.2	0.0	0.0
Yellow	4.3	4.3	4.3	3.1	0.0	0.0
Red	2.0	2.0	2.0	1.6	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	40.9	40.9	40.9	40.9	10.1	91.5	27.5	109.0
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.3	4.3	4.3	4.3	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	4.5	4.5	35.4	35.4	4.0		20.7	
Green Extension Time *(g_e)*, s	1.1	1.1	0.8	0.8	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.63		1.00	
Max Out Probability	0.00	0.00	0.02	0.02	0.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	0	244	0	0	22	0	1094	211	0	950
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1266	0	0	1145	0	0	1774	0	1823	1774	0	1855
Queue Service time *(g_s)*, s	0.0	0.0	0.0	30.9	0.0	0.0	2.0	0.0	85.2	18.7	0.0	38.1
Cycle Queue Clearance Time *(g_c)*, s	2.5	0.0	0.0	33.4	0.0	0.0	2.0	0.0	85.2	18.7	0.0	38.1
Capacity *(c)*, veh/h	317			291			42		971	235		1190
Volume-to-Capacity Ratio *(X)*	0.105	0.000	0.000	0.839	0.000	0.000	0.532	0.000	1.127	0.897	0.000	0.798
Available Capacity *(c_a)*, veh/h	390			365			355		971	355		1190
Back of Queue *(Q)*, veh/ln	1.1			10.9			0.9		91.0	8.5		6.4
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	48.8			60.2			77.2		24.9	68.3		7.1
Incremental Delay *(d_2)*, s/veh	0.1	0.0	0.0	14.8	0.0	0.0	1.0	0.0	230.7	2.2	0.0	0.5
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	49.0			75.0			78.2		255.6	70.5		7.7
Level of Service (LOS)	D			E			E		F	E		A
Approach Delay, s/veh / LOS	49.0	D		75.0	E		252.1	F		19.1	B	
Intersection Delay s/veh / LOS	126.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.5	A	0.9	A	2.3	B	2.4	B

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM No Build
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		675	130	230	755	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		750	144	255	838	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	40		310			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	44		344			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		255		388				
C(m) (vph)		759		175				
v/c		0.34		2.22				
95% queue length		1.48		31.28				
Control Delay		12.1		608.5				
LOS		B		F				
Approach Delay				608.5				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM No Build
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	715	40	80	1235	60
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	794	44	88	1372	66
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	40	10	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	44	11	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	11	88	33		44	11		11
C(m) (vph)	472	796	19		377	17		171
v/c	0.02	0.11	1.74		0.12	0.65		0.06
95% queue length	0.07	0.37	4.50		0.39	1.69		0.20
Control Delay	12.8	10.1	779.3		15.8	398.1		27.5
LOS	B	B	F		C	F		D
Approach Delay			343.0			212.8		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: AM No Build
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	665	120	280	485	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	738	133	311	538	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1 0		1	1 0	
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

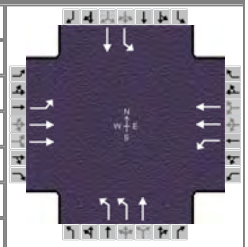
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	90	0	0	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	100	0	0	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1 0		0	1 0	
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	311		111			11	
C(m) (vph)	1021	774		177			539	
v/c	0.01	0.40		0.63			0.02	
95% queue length	0.03	1.95		3.53			0.06	
Control Delay	8.6	12.7		54.5			11.8	
LOS	A	B		F			B	
Approach Delay				54.5			11.8	
Approach LOS				F			B	

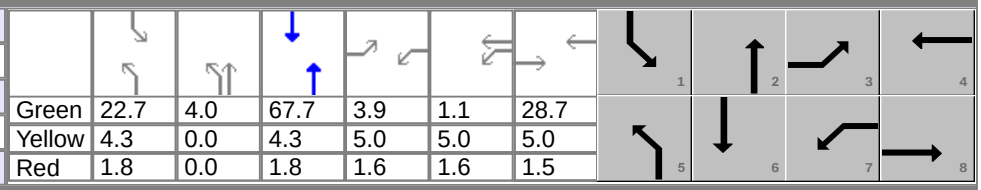
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	480		95	200		410	160		200	430	

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	22.7	4.0	67.7	3.9	1.1	28.7
Yellow	4.3	0.0	4.3	5.0	5.0	5.0
Red	1.8	0.0	1.8	1.6	1.6	1.5

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.5	35.2	18.2	42.9	32.7	77.8	28.8	73.8
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	3.0	25.2	11.4	10.3	22.0		21.7	
Green Extension Time *(g_e)*, s	0.0	3.5	0.3	4.1	4.7	0.0	1.0	0.0
Phase Call Probability	0.39	1.00	0.99	1.00	1.00		1.00	
Max Out Probability	0.00	0.05	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	533	0	106	222	0	456	178	0	222	478	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Cycle Queue Clearance Time *(g_c)*, s	1.0	23.2	0.0	9.4	8.3	0.0	20.0	7.1	0.0	19.7	31.9	0.0
Capacity *(c)*, veh/h	43	636		129	807		574	832		251	786	
Volume-to-Capacity Ratio *(X)*	0.257	0.838	0.000	0.820	0.275	0.000	0.794	0.214	0.000	0.884	0.608	0.000
Available Capacity *(c_a)*, veh/h	333	926		333	1097		1649	832		849	786	
Back of Queue *(Q)*, veh/ln	0.5	10.8		4.8	3.7		8.3	2.9		9.7	15.0	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	76.6	63.4		73.2	50.9		59.7	19.3		67.4	35.9	
Incremental Delay *(d_2)*, s/veh	6.6	5.4	0.0	15.9	0.2	0.0	0.5	0.1	0.0	13.4	3.5	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	83.3	68.7		89.0	51.1		60.2	19.4		80.7	39.5	
Level of Service (LOS)	F	E		F	D		E	B		F	D	
Approach Delay, s/veh / LOS	69.0	E		63.3	E		48.7	D		52.6	D	
Intersection Delay s/veh / LOS	57.1						E					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.8	C
Bicycle LOS Score / LOS	0.9	A	0.8	A	1.5	A	1.6	A

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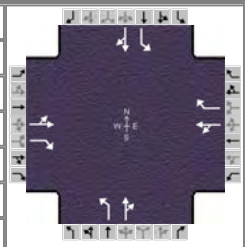
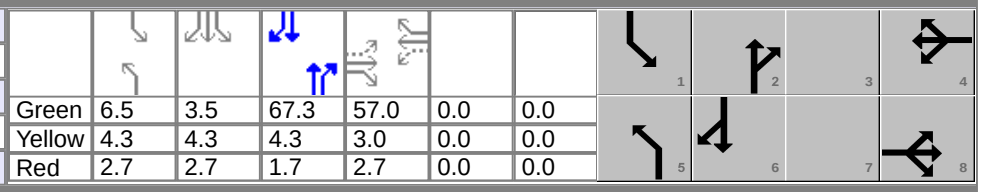
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	20	10	40	240	10	110	50	555	190	150	1005	10

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.5	3.5	67.3	57.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	62.7	62.7	62.7	62.7	13.5	73.3	24.0	83.8
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	59.0	59.0	59.0	59.0	7.0		16.8	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.92		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	33	0	44	278	0	122	56	0	828	167	0	1128
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	33	0	1579	0	0	1579	1774	0	1781	1774	0	1859
Queue Service time *(g_s)*, s	0.0	0.0	3.0	0.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Cycle Queue Clearance Time *(g_c)*, s	57.0	0.0	3.0	57.0	0.0	8.6	5.0	0.0	67.3	14.8	0.0	77.8
Capacity *(c)*, veh/h	49		562	44		562	72		749	188		904
Volume-to-Capacity Ratio *(X)*	0.678	0.000	0.079	6.295	0.000	0.217	0.772	0.000	1.104	0.886	0.000	1.247
Available Capacity *(c_a)*, veh/h	49		562	44		562	225		749	225		904
Back of Queue *(Q)*, veh/ln	1.9		1.2	119.2		3.4	2.3		65.9	6.9		140.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	60.3		34.1	80.0		35.9	76.0		38.0	70.6		28.3
Incremental Delay *(d_2)*, s/veh	36.8	0.0	0.1	9579.6	0.0	0.2	2.3	0.0	190.3	3.9	0.0	445.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	97.1		34.2	9659.6		36.1	78.3		228.3	74.4		474.1
Level of Service (LOS)	F		C	F		D	E		F	E		F
Approach Delay, s/veh / LOS	61.1	E		6719.1	F		218.9	F		422.7	F	
Intersection Delay s/veh / LOS	1292.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.6	A	1.1	A	1.9	A	2.6	B

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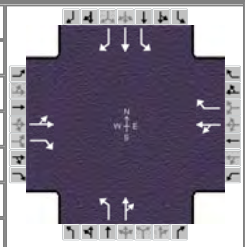
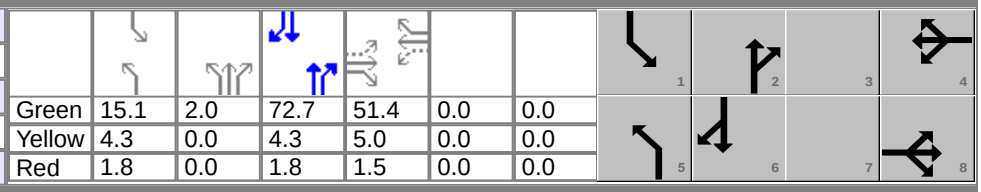
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	AM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	30	90	40	10	80	150	575	30	130	1125	140

Signal Information			
Cycle, s	160.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.1	2.0	72.7	51.4	0.0	0.0
Yellow	4.3	0.0	4.3	5.0	0.0	0.0
Red	1.8	0.0	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	57.9	57.9	57.9	57.9	23.2	80.8	21.2	78.8
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	52.1	52.1	52.1	52.1	16.8		14.8	
Green Extension Time *(g_e)*, s	0.6	0.6	0.6	0.6	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	100	56	0	89	167	0	672	144	1250	156
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	54	0	1579	43	0	1579	1774	0	1846	1774	1863	1579
Queue Service time *(g_s)*, s	1.5	0.0	7.4	1.5	0.0	6.6	14.8	0.0	42.1	12.8	73.8	9.4
Cycle Queue Clearance Time *(g_c)*, s	50.1	0.0	7.4	50.1	0.0	6.6	14.8	0.0	42.1	12.8	73.8	9.4
Capacity *(c)*, veh/h	56		495	54		495	190		875	168	859	728
Volume-to-Capacity Ratio *(X)*	2.188	0.000	0.202	1.031	0.000	0.180	0.875	0.000	0.768	0.860	1.455	0.214
Available Capacity *(c_a)*, veh/h	87		550	83		550	308		875	308	859	728
Back of Queue *(Q)*, veh/ln	36.4		3.0	5.4		2.6	6.7		15.7	6.1	223.7	3.6
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	72.1		40.3	74.5		40.0	70.4		23.7	71.4	30.8	25.8
Incremental Delay *(d_2)*, s/veh	2196.2	0.0	0.2	209.3	0.0	0.2	1.7	0.0	0.6	6.5	821.7	0.3
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	2268.3		40.5	283.8		40.2	72.0		24.3	77.9	852.5	26.1
Level of Service (LOS)	F		D	F		D	E		C	E	F	C
Approach Delay, s/veh / LOS	1265.8	F		133.9	F		33.8	C		697.4	F	
Intersection Delay s/veh / LOS	511.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.5	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	0.9	A	0.7	A	1.9	A	3.0	C

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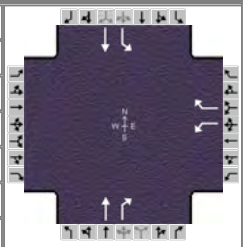
ALTERNATIVE NO-BUILD PM HCS ANALYSIS

2010 HCS Signalized Intersection Results Summary

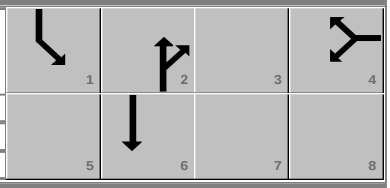
General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & 2nd St	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & 2nd St.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				44		243		665	66	140	654	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	14.4	57.1	51.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.5	1.8	2.6	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	3.0	2.0	4.0
Phase Duration, s	0.0		56.6	56.6	0.0	119.8	20.2	140.0
Change Period, *(Y+Rc)*, s	0.0		5.6	5.6	6.3	6.1	5.8	6.1
Max Allow Headway *(MAH)*, s	0.0		4.8	4.8	0.0	0.0	4.2	0.0
Queue Clearance Time *(g_s)*, s			53.0	53.0			14.1	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability			1.00	1.00			1.00	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			49	0	270	0	739	73	156	727	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	1863	1579	1774	1863	0
Queue Service time *(g_s)*, s	0.0			2.5	51.0	18.4	0.0	54.5	4.0	12.1	30.0	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.0			2.5	51.0	18.4	0.0	54.5	4.0	12.1	30.0	0.0
Capacity *(c)*, veh/h				646	0	575		760	644	182	1029	
Volume-to-Capacity Ratio *(X)*	0.000			0.076	0.000	0.470	0.000	0.973	0.114	0.853	0.707	0.000
Available Capacity *(c_a)*, veh/h				646	0	575		760	644	322	1029	
Back of Queue *(Q)*, veh/ln				1.1		7.2		33.2	1.6	5.4	8.4	
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				29.1	0.0	34.1		40.7	25.7	61.8	12.2	
Incremental Delay *(d_2)*, s/veh	0.0			0.1	0.0	0.7	0.0	44.3	0.4	1.2	0.4	0.0
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				29.2	0.0	34.8		84.9	26.1	63.0	12.6	
Level of Service (LOS)				C		C		F	C	E	B	
Approach Delay, s/veh / LOS	0.0			34.0		C	79.6		E	21.5		C
Intersection Delay s/veh / LOS	46.9						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS				F	1.8	A	1.9	A

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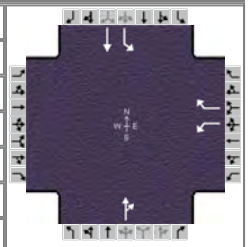
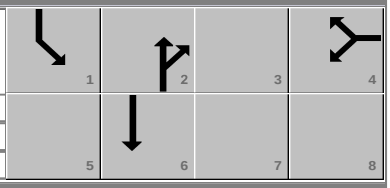
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Apple Tree Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Apple Tree Plaza.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h				100		100		1135	100	100	1180	

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	11.1	71.0	41.0	0.0	0.0	0.0	
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	
Red	1.4	1.4	2.5	0.0	0.0	0.0	

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	0		4	4	5	2	1	6
Case Number	0.0		9.0	9.0	0.0	4.0	2.0	4.0
Phase Duration, s	0.0		46.5	46.5	0.0	123.2	16.8	140.0
Change Period, *(Y+Rc)*, s	0.0		5.5	5.5	6.3	5.7	5.7	5.7
Max Allow Headway *(MAH)*, s	0.0		4.7	4.7	0.0	0.0	6.0	0.0
Queue Clearance Time *(g_s)*, s			43.0	43.0			10.6	
Green Extension Time *(g_e)*, s	0.0		0.0	0.0	0.0	0.0	0.6	0.0
Phase Call Probability			1.00	1.00			0.99	
Max Out Probability			1.00	1.00			0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	0			111	0	111	0	0	1372	111	0	1367
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0			1774	0	1579	0	0	1836	1774	0	1849
Queue Service time *(g_s)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Cycle Queue Clearance Time *(g_c)*, s	0.0			6.6	41.0	7.5	0.0	0.0	71.0	8.6	0.0	87.8
Capacity *(c)*, veh/h				520	0	462			931	140		1160
Volume-to-Capacity Ratio *(X)*	0.000			0.214	0.000	0.240	0.000	0.000	1.473	0.791	0.000	1.178
Available Capacity *(c_a)*, veh/h				520	0	462			931	374		1160
Back of Queue *(Q)*, veh/ln				2.9		3.0			244.0	3.9		117.2
Overflow Queue *(Q_3)*, veh/ln				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh				37.3	0.0	37.7			23.6	63.3		12.1
Incremental Delay *(d_2)*, s/veh	0.0			0.2	0.0	0.3	0.0	0.0	852.7	2.0	0.0	322.1
Initial Queue Delay *(d_3)*, s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh				37.6	0.0	38.0			876.3	65.3		334.2
Level of Service (LOS)				D		D			F	E		F
Approach Delay, s/veh / LOS	0.0			37.8		D	876.3		F	314.0		F
Intersection Delay s/veh / LOS	545.2						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.2	B	2.3	B	1.7	A	0.7	A
Bicycle LOS Score / LOS		F		F	2.9	C	2.9	C

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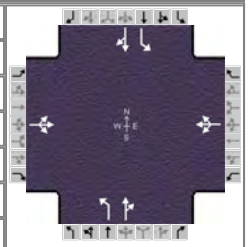
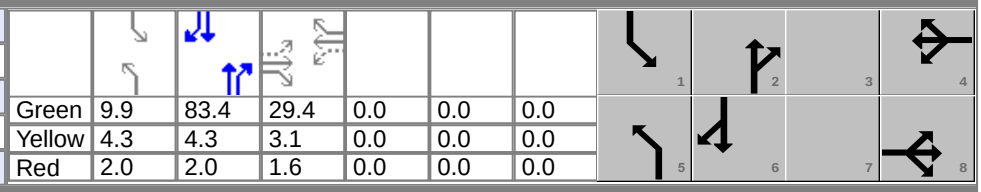
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Federal Dr	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Federal Dr.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	60	90	10	90	90	1045	60	90	1130	50

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	9.9	83.4	29.4	0.0	0.0	0.0		
Yellow	4.3	4.3	3.1	0.0	0.0	0.0		
Red	2.0	2.0	1.6	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	8.0	8.0	8.0	8.0	2.0	4.0	2.0	4.0
Phase Duration, s	34.1	34.1	34.1	34.1	16.2	89.7	16.2	89.7
Change Period, *(Y+Rc)*, s	4.7	4.7	4.7	4.7	6.3	6.3	6.3	6.3
Max Allow Headway *(MAH)*, s	4.4	4.4	4.4	4.4	4.0	0.0	4.0	0.0
Queue Clearance Time *(gs)*, s	12.3	12.3	28.2	28.2	9.8		9.8	
Green Extension Time *(ge)*, s	1.4	1.4	1.2	1.2	0.3	0.0	0.3	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	0.98		0.98	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	122	0	0	211	0	0	100	0	1228	100	0	1311
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1327	0	0	1093	0	0	1774	0	1845	1774	0	1849
Queue Service time *(gs)*, s	0.0	0.0	0.0	15.9	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Cycle Queue Clearance Time *(gc)*, s	10.3	0.0	0.0	26.2	0.0	0.0	7.8	0.0	83.4	7.8	0.0	83.4
Capacity *(c)*, veh/h	314			268			125		1099	125		1101
Volume-to-Capacity Ratio *(X)*	0.389	0.000	0.000	0.789	0.000	0.000	0.799	0.000	1.117	0.799	0.000	1.191
Available Capacity *(ca)*, veh/h	450			396			619		1099	619		1101
Back of Queue *(Q)*, veh/ln	3.9			8.2			3.5		83.9	3.5		123.9
Overflow Queue *(Q3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d1)*, s/veh	47.4			53.3			64.1		15.2	64.1		15.0
Incremental Delay *(d2)*, s/veh	0.8	0.0	0.0	6.6	0.0	0.0	1.1	0.0	212.7	1.1	0.0	344.2
Initial Queue Delay *(d3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	48.2			59.9			65.2		227.9	65.2		359.2
Level of Service (LOS)	D			E			E		F	E		F
Approach Delay, s/veh / LOS	48.2	D		59.9	E		215.6	F		338.4	F	
Intersection Delay s/veh / LOS	254.6						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.1	B	2.1	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	2.7	B	2.8	C

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HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM No Build
Intersection: KY 321 & JCCHS Entrance
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: JCCHS Entrance
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		1265	50	60	1320	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		1405	55	66	1466	
Percent Heavy Vehicles		--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	50		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	55		66			
Percent Heavy Vehicles	2		2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		66		121				
C(m) (vph)		463		24				
v/c		0.14		5.04				
95% queue length		0.49		15.13				
Control Delay		14.1		2145				
LOS		B		F				
Approach Delay				2145				
Approach LOS				F				

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM No Build
Intersection: KY 321 & Kmart
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: Kmart
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	30	1085	100	100	820	100
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	1205	111	111	911	111
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	10	90	40	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	11	100	44	11	11
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	0	1	1	0	1	1
Configuration	LT		R	LT		R

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L	LT		R	LT		R
v (vph)	33	111	44		100	55		11
C(m) (vph)	679	525	10		208	5		309
v/c	0.05	0.21	4.40		0.48	11.00		0.04
95% queue length	0.15	0.79	6.71		2.36	8.64		0.11
Control Delay	10.6	13.7	2269		37.4	5912		17.1
LOS	B	B	F		E	F		C
Approach Delay			719.3			4930		
Approach LOS			F			F		

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY

Analyst: JJL
Agency/Co.: Qk4
Date Performed: 11/14/2011
Analysis Time Period: PM No Build
Intersection: KY 321 & KY 321X
Jurisdiction: KYTC
Units: U. S. Customary
Analysis Year: 2035
Project ID: KY 321 Paintsville
East/West Street: KY 321X
North/South Street: KY 321
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	705	90	300	580	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	783	100	333	644	11
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	1	0	1	1	0
Configuration	L	TR		L	TR	
Upstream Signal?		No			No	

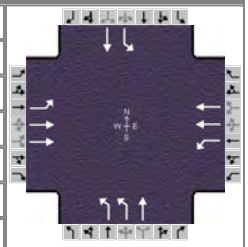
Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	30	0	190	10	10	40
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	33	0	211	11	11	44
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L	L		LTR			LTR	
v (vph)	11	333		244			66	
C(m) (vph)	932	766		78			34	
v/c	0.01	0.43		3.13			1.94	
95% queue length	0.04	2.22		24.49			7.36	
Control Delay	8.9	13.3		1072			693.2	
LOS	A	B		F			F	
Approach Delay				1072			693.2	
Approach LOS				F			F	

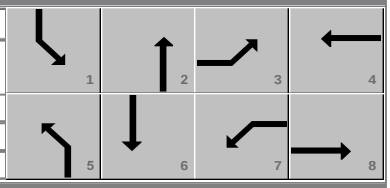
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & KY 40	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & KY 40.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	200		200	340		860	380		60	280	

Signal Information												
Cycle, s	140.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
				Green	7.4	33.4	34.6	3.5	9.7	13.4		
				Yellow	4.3	4.3	4.3	5.0	5.0	5.0		
				Red	1.8	1.8	1.8	1.6	1.6	1.5		



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	3	8	7	4	5	2	1	6
Case Number	2.0	4.0	2.0	4.0	2.0	4.0	2.0	4.0
Phase Duration, s	10.1	19.9	26.4	36.2	53.0	80.2	13.5	40.7
Change Period, *(Y+Rc)*, s	6.6	6.5	6.6	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	6.0	4.4	4.5	4.4	6.0	0.0	4.5	0.0
Queue Clearance Time *(g_s)*, s	2.9	10.5	19.2	15.1	36.1		7.2	
Green Extension Time *(g_e)*, s	0.0	2.9	0.6	3.1	10.7	0.0	0.3	0.0
Phase Call Probability	0.35	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	0.00	0.00	0.03	0.00	0.09		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	11	222	0	222	378	0	956	422	0	67	311	0
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	1774	1773	0	1774	1773	0	1723	1863	0	1774	1863	0
Queue Service time *(g_s)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Cycle Queue Clearance Time *(g_c)*, s	0.9	8.5	0.0	17.2	13.1	0.0	34.1	13.5	0.0	5.2	21.2	0.0
Capacity *(c)*, veh/h	44	339		251	753		1153	983		94	458	
Volume-to-Capacity Ratio *(X)*	0.250	0.655	0.000	0.884	0.502	0.000	0.829	0.430	0.000	0.711	0.680	0.000
Available Capacity *(c_a)*, veh/h	380	850		380	1264		1690	983		870	458	
Back of Queue *(Q)*, veh/ln	0.5	3.9		8.9	5.8		12.8	4.6		2.6	10.7	
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	67.0	61.1		58.9	48.6		35.2	11.8		65.2	47.8	
Incremental Delay *(d_2)*, s/veh	6.2	2.6	0.0	19.2	0.6	0.0	0.4	0.1	0.0	12.0	8.2	0.0
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	73.2	63.7		78.1	49.2		35.6	11.9		77.3	56.0	
Level of Service (LOS)	E	E		E	D		D	B		E	E	
Approach Delay, s/veh / LOS	64.1	E		59.9	E		28.3	C		59.8	E	
Intersection Delay s/veh / LOS	43.5						D					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.5	B	2.3	B	2.8	C	2.9	C
Bicycle LOS Score / LOS	0.7	A	1.0	A	2.8	C	1.1	A

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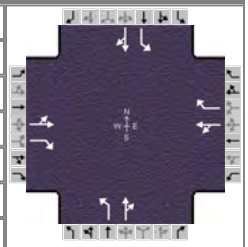
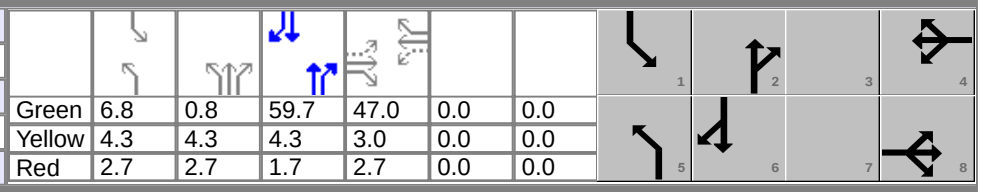
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & Mayo Plaza	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & Mayo Plaza.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	150	20	110	230	40	120	140	905	200	60	740	20

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	6.8	0.8	59.7	47.0	0.0	0.0
Yellow	4.3	4.3	4.3	3.0	0.0	0.0
Red	2.7	2.7	1.7	2.7	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	4.0
Phase Duration, s	52.7	52.7	52.7	52.7	21.6	73.5	13.8	65.7
Change Period, *(Y+Rc)*, s	5.7	5.7	5.7	5.7	7.0	6.0	7.0	6.0
Max Allow Headway *(MAH)*, s	4.8	4.8	4.8	4.8	5.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	49.0	49.0	49.0	49.0	14.0		7.2	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.6	0.0	0.2	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.93	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	189	0	122	300	0	133	156	0	1228	67	0	844
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	11	0	1579	0	0	1579	1774	0	1804	1774	0	1854
Queue Service time *(g_s)*, s	0.0	0.0	7.8	0.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Cycle Queue Clearance Time *(g_c)*, s	47.0	0.0	7.8	47.0	0.0	8.6	12.0	0.0	67.5	5.2	0.0	59.7
Capacity *(c)*, veh/h	52		530	48		530	185		870	86		790
Volume-to-Capacity Ratio *(X)*	3.636	0.000	0.231	6.299	0.000	0.252	0.839	0.000	1.412	0.773	0.000	1.069
Available Capacity *(c_a)*, veh/h	52		530	48		530	384		870	384		790
Back of Queue *(Q)*, veh/ln	71.0		3.0	128.5		3.3	5.4		202.8	2.3		50.0
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	66.8		33.5	70.0		33.7	61.5		27.0	65.8		30.5
Incremental Delay *(d_2)*, s/veh	4791.3	0.0	0.2	9582.8	0.0	0.3	1.4	0.0	741.7	1.4	0.0	126.9
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	4858.1		33.7	9652.8		34.0	62.9		768.7	67.2		157.4
Level of Service (LOS)	F		C	F		C	E		F	E		F
Approach Delay, s/veh / LOS	2962.8	F		6693.1	F		689.4	F		150.8	F	
Intersection Delay s/veh / LOS	1616.7						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.0	A	1.2	A	2.8	C	2.0	A

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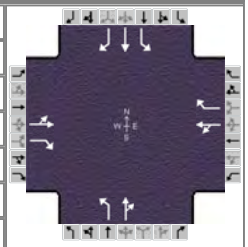
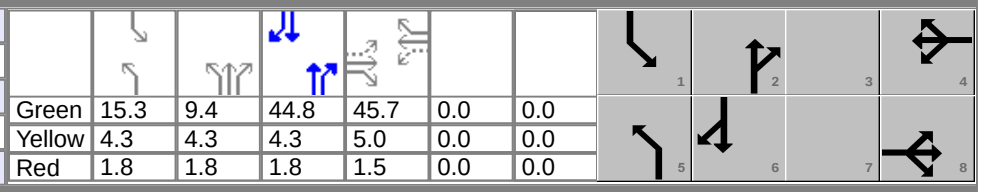
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	KY 321 & New Walmart.xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	330	40	300	50	50	190	350	885	40	150	810	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.7		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	411	0	333	111	0	211	389	0	1028	167	900	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1848	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.7	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		793	194	593	503
Volume-to-Capacity Ratio *(X)*	8.448	0.000	0.647	1.705	0.000	0.410	0.996	0.000	1.296	0.858	1.517	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		793	390	593	503
Back of Queue *(Q)*, veh/ln	183.5		10.2	26.4		5.7	16.0		139.8	6.0	172.2	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.5		30.4	61.3	40.3	38.8
Incremental Delay *(d_2)*, s/veh	13449.0	0.0	3.0	1331.7	0.0	0.6	24.2	0.0	533.6	5.6	934.1	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	13519.0		43.3	1383.5		37.3	78.7		564.0	66.8	974.4	40.5
Level of Service (LOS)	F		D	F		D	E		F	E	F	D
Approach Delay, s/veh / LOS	7485.1	F		501.5	F		430.8	F		679.5	F	
Intersection Delay s/veh / LOS	1903.1						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	1.7	A	1.0	A	2.8	C	2.7	B

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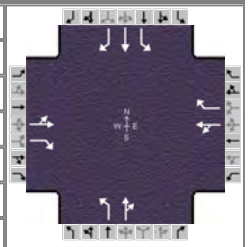
ALTERNATIVE
WALMART MCLOUD
PM
HCS ANALYSIS

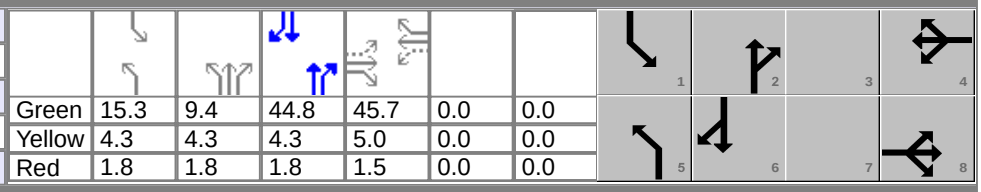
2010 HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency				Duration, h	1.00
Analyst		Analysis Date	Nov 14, 2011	Area Type	Other
Jurisdiction		Time Period		PHF	0.90
Intersection	KY 321 & New Walmart	Analysis Year	2011	Analysis Period	1> 7:00
File Name	PM KY 321 & New Walmart (McCloud).xus				
Project Description	PM No Build				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	464	40	300	50	50	190	506	824	40	150	810	230

Signal Information			
Cycle, s	140.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	15.3	9.4	44.8	45.7	0.0	0.0
Yellow	4.3	4.3	4.3	5.0	0.0	0.0
Red	1.8	1.8	1.8	1.5	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	8	8	4	4	5	2	1	6
Case Number	7.0	7.0	7.0	7.0	2.0	4.0	2.0	3.0
Phase Duration, s	52.2	52.2	52.2	52.2	36.9	66.4	21.4	50.9
Change Period, *(Y+Rc)*, s	6.5	6.5	6.5	6.5	6.1	6.3	6.1	6.3
Max Allow Headway *(MAH)*, s	4.9	4.9	4.9	4.9	4.0	0.0	4.0	0.0
Queue Clearance Time *(g_s)*, s	47.7	47.7	47.7	47.7	32.8		14.9	
Green Extension Time *(g_e)*, s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	5	2	12	1	6	16
Adjusted Flow Rate *(v)*, veh/h	560	0	333	111	0	211	562	0	960	167	900	256
Adjusted Saturation Flow Rate *(s)*, veh/h/ln	0	0	1579	82	0	1579	1774	0	1847	1774	1863	1579
Queue Service time *(g_s)*, s	0.0	0.0	25.2	0.0	0.0	14.6	30.8	0.0	60.1	12.9	44.6	18.4
Cycle Queue Clearance Time *(g_c)*, s	45.7	0.0	25.2	45.7	0.0	14.6	30.8	0.0	60.1	12.9	44.6	18.4
Capacity *(c)*, veh/h	49		515	65		515	390		793	194	593	503
Volume-to-Capacity Ratio *(X)*	11.336	0.000	0.647	1.705	0.000	0.410	1.441	0.000	1.211	0.858	1.517	0.508
Available Capacity *(c_a)*, veh/h	49		515	65		515	390		793	390	593	503
Back of Queue *(Q)*, veh/ln	257.6		10.2	26.4		5.7	99.5		106.2	6.0	172.2	7.2
Overflow Queue *(Q_3)*, veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Storage Ratio *(RQ)*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uniform Delay *(d_1)*, s/veh	70.0		40.3	51.8		36.7	54.6		30.4	61.3	40.3	38.8
Incremental Delay *(d_2)*, s/veh	18644.8	0.0	3.0	1331.9	0.0	0.6	794.3	0.0	381.2	5.6	934.1	1.7
Initial Queue Delay *(d_3)*, s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay *(d)*, s/veh	18714.8		43.3	1383.6		37.3	848.9		411.6	66.8	974.4	40.5
Level of Service (LOS)	F		D	F		D	F		F	E	F	D
Approach Delay, s/veh / LOS	11747.8	F		501.5	F		573.1	F		679.5	F	
Intersection Delay s/veh / LOS	3060.9						F					

MultiModal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.4	B	2.3	B	2.3	B
Bicycle LOS Score / LOS	2.0	A	1.0	A	3.0	C	2.7	B

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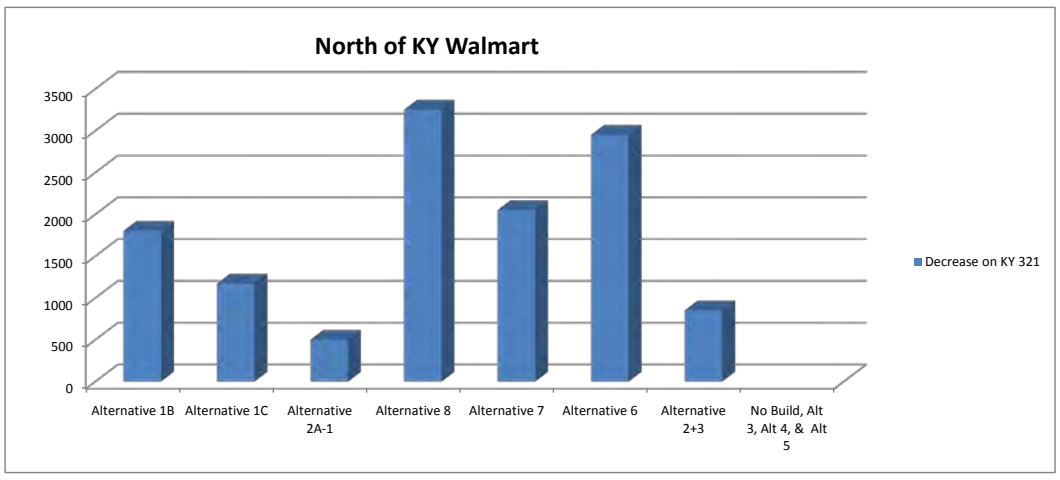
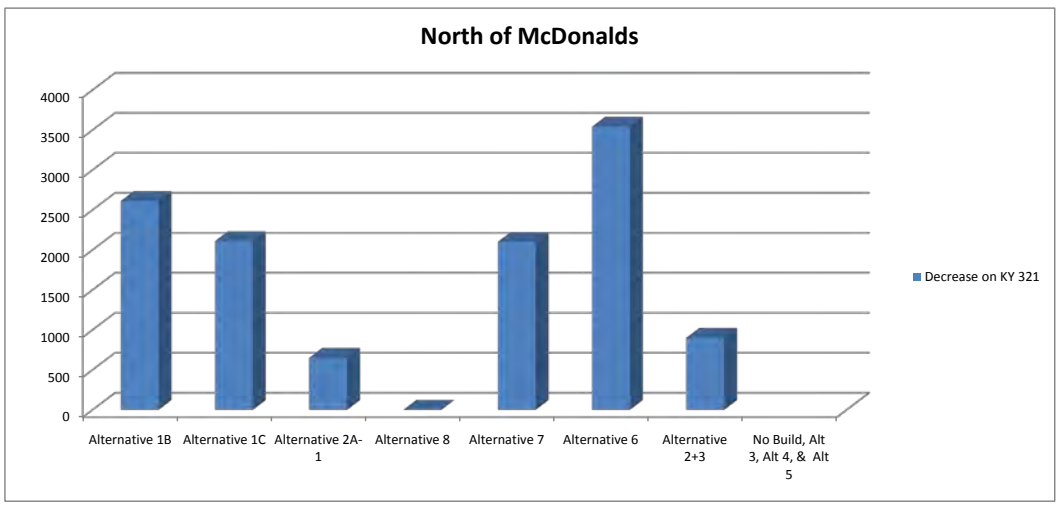
KY 321 SPOT ADTS FOR CONNECTOR ALTERNATIVES

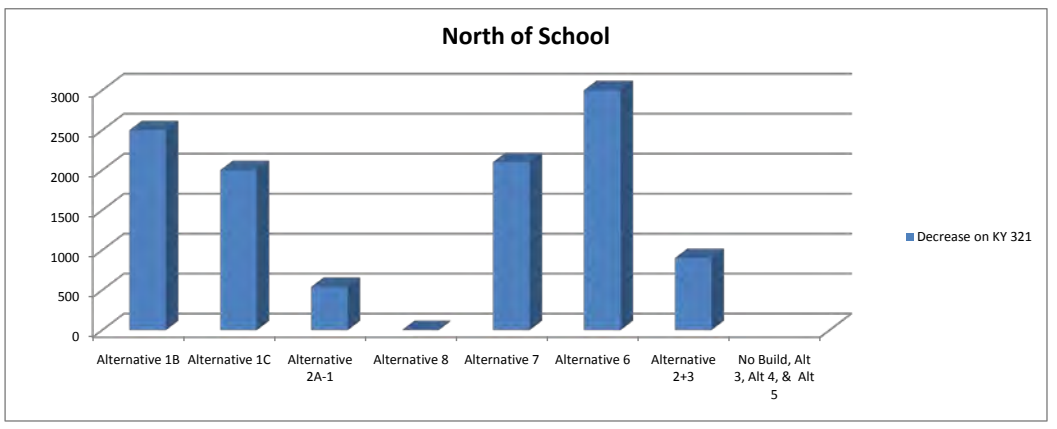
North of Walmart	Decrease on KY 321	ADT	DHV
Alternative 1B	1800	19830	2380
Alternative 1C	1170	20460	2455
Alternative 2A-1	500	21130	2535
Alternative 8	3250	18380	2215
Alternative 7	2050	19580	2345
Alternative 6	2950	18680	2235
Alternative 2+3	850	20780	2575
No Build, Alt 3, Alt 4, & Alt 5		21630	2595



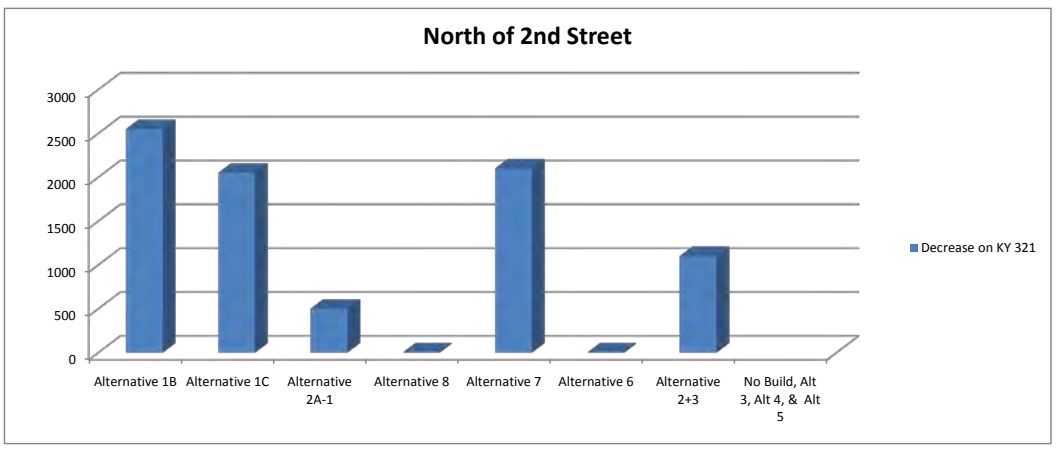
North of McDonalds	Decrease on KY 321	ADT	DHV
Alternative 1B	2610	14170	1700
Alternative 1C	2110	14670	1760
Alternative 2A-1	650	16130	1935
Alternative 8	0	16780	1995
Alternative 7	2100	14680	1745
Alternative 6	3540	13240	1635
Alternative 2+3	900	15880	1985
No Build, Alt 3, Alt 4, & Alt 5		16780	1995



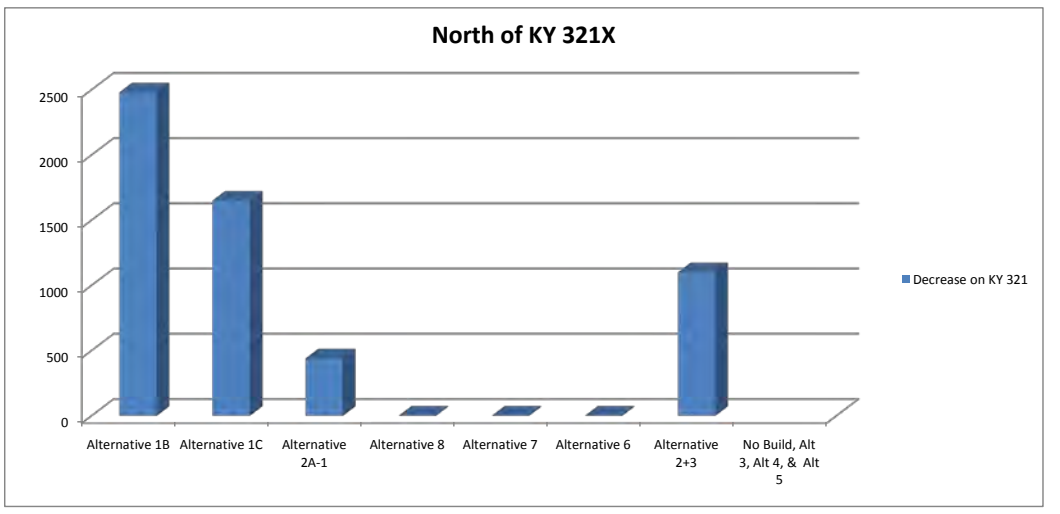
North of School	Decrease on KY 321	ADT	DHV
Alternative 1B	2500	20080	2410
Alternative 1C	2000	20580	2470
Alternative 2A-1	540	22040	2645
Alternative 8	0	22580	2705
Alternative 7	2100	20480	2455
Alternative 6	3000	19580	2345
Alternative 2+3	900	21680	2695
No Build, Alt 3, Alt 4, & Alt 5		22580	2705



North of 2nd St	Decrease on KY 321	ADT	DHV
Alternative 1B	2550	16830	2020
Alternative 1C	2050	17330	2080
Alternative 2A-1	500	18880	2265
Alternative 8	0	19380	2315
Alternative 7	2100	17280	2065
Alternative 6	0	19380	2315
Alternative 2+3	1100	18280	2170
No Build, Alt 3, Alt 4, & Alt 5		19380	2315



North of KY 321X	Decrease on KY 321	ADT	DHV
Alternative 1B	2480	12500	1500
Alternative 1C	1650	13330	1600
Alternative 2A-1	440	14540	1745
Alternative 8	0	14980	1795
Alternative 7	0	14980	1795
Alternative 6	0	14980	1795
Alternative 2+3	1100	13880	1650
No Build, Alt 3, Alt 4, & Alt 5		14980	1795



INTERSECTIONS	Alternative 1B	Alternative 1C	Alternative 2A-1	Alternative 8	Alternative 7	Alternative 6	Alternative 2+3	No Build, Alt 3, Alt 4, & Alt 5		
North of Walmart	1800	1170	500	3250	2050	2950	850		0	
North of McDonalds	2610	2110	650	0	2100	3540	900		0	
North of School	2500	2000	540	0	2100	3000	900		0	
North of 2nd St/ James Trimble Blvd	2550	2050	500	0	2100	0	1100		0	
North of KY 321X	2480	1650	440	0	0	0	1100			

-

APPENDIX H

MEETING MINUTES

PROJECT TEAM MEETINGS

Architecture
Engineering
Construction

MEETING MINUTES

Project:	KY 321 Johnson County Programming Study
Purpose:	Project Team Meeting
Place:	Johnson County Board of Education Paintsville
Meeting Date:	July 18, 2011
Prepared By:	Annette Coffey

Attendance:

Willard Cuzzort	KYTC, District #12
Mandy Justice	KYTC, District #12
Tarnell Patton	KYTC, District #12
James D. Wright	KYTC, District #12
Mary Westfall-Holbrook	KYTC, District #12
Kevin Damron	KYTC, District #12
Tim Spencer	KYTC, District #12
Mikael Pelfrey	KYTC, CO Planning
Jill Asher	KYTC, CO Planning
Jeremy Lukat	Qk4
Tom Springer	Qk4
Annette Coffey	Qk4

Following the stakeholders' meeting, there was a Project Team Meeting to go into more detail on some items, discuss what was heard at the stakeholders' meeting, and chart the course for studying alternative scenarios. Annette Coffey with Qk4 gave more detail into what was left to do after this meeting.

Qk4 is currently reviewing District 12's cost estimates, which were provided to Qk4 on July 12, 2011. The major concern is excavation because it is the largest cost item. For the environmental footprint, the HAZMAT and UST information has not yet been identified and noise and air will presented in the report, therefore, the environmental footprint is near completion.

From the crash analysis, most crashes are happening during the day, involve multiple vehicles, and are either rear-end or angle crashes and have many injuries. A map showing 0.1-mile, 0.2-mile, and 0.3-mile spots were shown on KY 321, KY 40 and KY 321X. Much of the corridor of KY 321 illustrates crash concerns where crashes are not

happening at random. Annette explained that the analysis from the crash software considered KY 321 a two-lane rural section. She will talk to the UK Kentucky Transportation Center to see if there is a more appropriate methodology because KY 321 is a rural three-lane section at minimum. The adequacy rating due to the congestion and safety shows that KY 321 ranges between 14-20%, meaning 80% of the roadways in that classification in Kentucky operate better than KY 321.

Jeremy Lukat (Qk4) will develop scenarios from the stakeholders' meeting and run those "solutions" through the traffic model. Once that is complete and traffic projections and capacity calculations are performed, another Project Team Meeting will be necessary before meeting with the Stakeholders again. Ms. Coffey also explained that the alternative evaluation methodology agreed upon in the project scoping process is as follows: if an alternative does not relieve congestion from KY 321 (which is the purpose of the project), then a cost estimate will not be developed for that alternative.

Mr. Damron expressed a concern that the study may be expanding to an area study, because there are other transportation projects that need to be identified in Paintsville. However, he did not want the concept of improving KY 321 to be overshadowed. Kevin stated that KY 321 has problems, and they need to be addressed with this study. (The stakeholders' meeting revealed that most individuals wanted KY 40 to be the focus.)

The remaining discussion centered on what we heard from the Stakeholders' Meeting and what possible solutions would move forward to be evaluated in the traffic model. The project team after much discussion decided the following were viable options for the traffic model runs:

- Five-lane urban (curb and gutter) section for KY 321 with consideration of some right in/right out movements. The five-lane section may only be necessary to Wendy's and then transition to three lanes before KY 2378 and further south to 321X.
- KY 321/KY 40 Connector with a bridge over Paint Creek giving access to the schools. Turn lanes should be considered on both the connector, KY 321 and KY 40.
- Improve KY 40 with a rural typical with these scenarios:
    - Improve KY 40 from Teays Branch to KY 40/KY 321 Intersection including a left-turn lane at Teays Branch Road
    - A KY 40 left turn lane into Teays Branch Road only
    - Improve KY 40 from the KY 40/KY 321 Intersection south to Paul Hall Hospital and also add a left turn lane at Teays Branch Road
    - Improve KY 40 from the KY 40/KY 321 Intersection south to Paul Haul Hospital, add a left turn lane at Teays Branch Road, and improve from Teays Branch Road to the KY 40/KY 321 Intersection

The main theme here is to only improve what is necessary on KY 40. Improving the entire length of KY 40 from KY 321 to Paul Hall Hospital while desirable may not be necessary.

- A Route from KY 321 west to US 23
- A connector from KY 321 around Mills' Branch Road to KY 40 skirting the development behind Wal-Mart and connecting with KY 40. The estimate should include the cost of a signal.
- Consider an alternative that routes at least Wal-Mart traffic headed for US 23 onto KY 40 rather than onto KY 321.

The KY 321 and KY 40 Connector alternatives should also consider sidewalks at least on one side.

Near the end of August, Qk4 will return to the Project Team with results of the above analysis. The meeting concluded at 1:30 p.m.

Architecture
Engineering
Construction

MEETING MINUTES

Project:	KY 321 Johnson County Programming Study
Purpose:	Project Team Meeting
Place:	KYTC District 12 Office
Meeting Date:	November 21, 2011
Prepared By:	Bruce Siria

Attendance:

Willard G. Cuzzort	KYTC, District #12
Mandy Justice	KYTC, District #12
Tarnell Patton	KYTC, District #12
James D. Wright	KYTC, District #12
Mary Westfall-Holbrook	KYTC, District #12
Tim Spencer	KYTC, District #12
Ron Slone	KYTC, District #12
Greg Couch	KYTC, District #12
Samuel Hale	KYTC, District #12
Darold Slone	KYTC, District #12
Mikael Pelfrey	KYTC, CO Planning
Jill Asher	KYTC, CO Planning
Jeremy Lukat	Qk4
Annette Coffey	Qk4
Bruce Siria	Qk4

Following brief introductions, Annette Coffey provided the Project Team with a short refresher of existing crash information, environmental data, existing and projected traffic information, and the location of nine intersections along KY 321 that were the focus of the traffic analysis. Ms. Coffey also discussed the limitations of the digital elevation model (DEM) for the area and the resulting difficulty in determining certain elements of cost estimates for alternatives.

Ms. Coffey then presented a proposed Purpose and Need statement for the study (attached) with which the Project Team concurred.

Ms. Coffey then began a discussion of the alternatives development process. The first concept discussed was an Access Management scenario (attached) in which several

entrances would be closed and an internal circulation system would be developed near Arby's, Fazolli's, and McDonald's restaurants. Several alternatives that were originally considered were dropped from detailed analysis for the reasons cited:

- An alternative for combining the Wal-Mart and K-Mart entrances at the current K-Mart entrance near MP 8.4 was considered impractical due to the steep grade required for the entrance.
- A connector between KY 321 and KY 40 between Johnson Central High School and McDonalds was not further considered because of the difficulty in providing access to the school. Absent service to school traffic, a connector between KY 321 and KY 40 this far south would serve little traffic.
- A north-south connector from KY 40 that would utilize West Street and bridge Paint Creek near Mill Branch Road on KY 321 was considered very early. This connector was eliminated from further study due to the dense development and multiple businesses along the north side of the creek.

Nineteen alternative improvement concepts were then presented graphically (attached) and evaluated in terms of cost, potential environmental impacts, current and future year traffic, service to Johnson Central High School, Johnson County Middle School, and the Midway Pharmacy School. Finally, a detailed traffic congestion evaluation for current and future year traffic for eight of these alternatives. Locations along KY 321 where the volume to capacity (v/c) ratio and/or the average delay time were improved when compared to the no-build option, except where the improved v/c ratio would still be greater than 1.0, were highlighted. Looking at the nine critical intersections along KY 321 presented at the beginning of the meeting, the number of intersection legs, both on the KY 321 mainline and on the intersecting cross road, at which the v/c improved in both the morning and afternoon peak periods was identified for these alternatives:

- Right-turn lanes at seven locations – improves 9 KY 321 intersection legs/3 crossroad intersection legs
- Alternative 1B (KY 321/KY 40 connector at Teays Branch Road) – improves 22 KY 321 intersection legs/8 crossroad intersection legs
- Alternatives 2+3 (KY 321/KY 40 connector from south of Johnson County Middle School on KY 321 to just south of W H Dixon Boulevard on KY 40 and improvements to KY 40 from the new connector south to the vicinity of Paul B. Hall Regional Medical Center) – improves 17 KY 321 intersection legs /3 crossroad intersection legs
- Alternative 4 (5-lane KY 321 from KY 40 south to KY 2378) – improves 28 KY 321 intersection legs /6 crossroad intersection legs
- Alternative 5 (4-lane KY 321 from KY 2378 south to KY 321X – improves 32 KY 321 intersection legs /9 crossroad intersection legs

- Alternative 6 (New connector from KY 321 @ KY 2378 to US 23) – improves 21 KY 321 intersection legs /6 crossroad intersection legs
- Alternative 7 (New circulator road from KY 321 near Mill Branch Road around behind Wal-mart to McLoud Street) - improves 18 KY 321 intersection legs /5 crossroad intersection legs
- Alternative 8 (New connector from KY 40 between Tractor Supply and the new Judicial Center to McCloud Street) - improves 8 KY 321 intersection legs /0 crossroad intersection legs

In summary, Qk4 stated that a couple of short-term alternatives could be implemented that may help congestion and safety on KY 321. One was to extend a through lane through and past KY 321's intersection with Wal-Mart so that motorists do not have to merge immediately upon entering KY 321 from the west headed south. Currently a merge, lane drop, right turn lane, and a left turn occur at probably the largest traffic generator along the route (Wal-Mart). A second possibility would be to add right turn lanes on KY 321 beginning with McDonald's and Arby's, and then five more locations. Both of these concepts help improve congestion some, however, not enough to place the v/c ratio under 1.0 along KY 321 in the design year. The alternatives that seem to have the most impact on KY 321 are Alternatives 4 and 5 with Alternative 6 following behind. Qk4's Traffic Engineer, Jeremy Lukat also stated that optimizing some signal timings would also improve the volume to capacity ratio even more.

Following the presentation of alternative concepts and the metrics associated with them, the Project Team discussed several issues.

- The 100-year flood plain shown on the topo map that showed environmental features was thought not to be inclusive of all areas that flooded. Qk4 agreed to check the 100-year flood plain for the study area.
- Concern was expressed that closing entrances on the north side of KY 321 between Southside Drive (Mill Branch Road) and KY 321X, and providing access to these businesses only from Mill Branch Road was problematical due to flooding along Mill Branch Road near KY 321X.
- Much discussion concerned whether the portion of Alternate 5 between KY 2378 and Mill Creek Road should be four lanes or remain two lanes. Ultimately, it was the consensus of the Project Team that 4-lanes were preferred. When compared to the future year, no-build scenario, four lanes would improve the future year v/c ratio from 0.74 to 0.39 in the a.m. peak hours, and from 0.96 to 0.51 in the p.m. peak hours.

The next step in the study process will be a Project Stakeholders' meeting to discuss some or all of the alternatives discussed at the Project Team meeting. The Project Team will decide which alternatives they would like to present to the stakeholders, and

will advise Qk4 in the next few weeks. The Project Stakeholders' meeting will likely be scheduled in early January.

STAKEHOLDER MEETINGS

KY 321- PROGRAMMING STUDY

JULY 18, 2011 STAKEHOLDER'S MEETING

ISSUES

- Cannot turn in into schools heading south on KY 321
- When busses pull out of the schools turning north, they encounter an immediate red light.
- POSITIVE COMMENT – the two turn lanes west on US 460 was a positive improvement
- Red light at Wal-Mart backs up onto KY 40.
- At the unsignalized intersection, people turning left onto KY 321 have to wait a long time.
- At the Lowes and Mexican restaurant, everyone goes over to red light to come out at a traffic signal, and causes back up.
- People turning south from KY 40 onto KY 321 who are trying to continue south have a difficult time merging with the present lane configuration and it causes accidents. Another through lane is needed so that a vehicle can merge left when they do not want to turn into Wal-Mart.
- Downtown, travelling KY 40 to KY 321 you can easily miss the bridge to KY 321. It is a clumsy connection.
- Coming from hospital parking lot to turn left you take your life in your hands, especially in morning and first of the month.
- "Garbage Hollow" will develop and may be able to put ball fields that may be affected by the KY 321/KY 40 Connector there. It is the site of an old garbage dump.
- It is very difficult to make turns at lights and non-signalized intersections.
- Concerned about safety of hospital and school access
- KY 40 improvements would provide material that could be used for development
- North of the KY 321/KY 40 intersection, if you are trying to turn left to head south on KY 321, is difficult. KYTC uses that area as storage.
- Most people from west turn on KY 321.
- Midway College – 30 employees now from Tayes Branch Road and turn left you cannot see. 80—85 students will be the initial class with a class added each year will grow to 340 students and 75-90 employees. Because there are no dormitory facilities, and no cafeteria, those students will be travelling KY 321 to travel to and from school and eat possibly at the restaurants. This will occur from 7-9 a.m. and 5-6 p.m. Therefore, this will make the situation worse. They are also trying to build a second building constructed with community events.
- Lowes across to Wal-Mart (left) tight intersection; someone tries to cut in on you.
- S-curve needs something done about it near hospital
- 2000 people are on the school campuses everyday during the school year.
- 460 toward Salyersville backs up
- Cars trying to get to Paintsville schools are an issue

- KY 321 is not safe for pedestrians
- Backs up in all directions
- Sunlight is an issue at the KY 40/KY 321 Intersection
- Interconnected signals are good until school lets out and then they are not good.
- It is good to have a global view of the problems; however, KY 321 still needs to be the main focus.
- No way to walk from the City of Paintsville to the plaza, many come through the school properties and that is a liability problem. There is no way to go to Kmart, Wal-Mart, and Food City without getting back out on KY 321. KY 321 needs a third lane and sidewalks.
- People walk in parking lots and behind guardrail. From the high-rise and downtown, there is no safe way to walk to the schools.
- Currently there is an indirect connection to the hospital.
- Tayes Branch has 850 acres there to be developed and KY 40 is up/down/curvy.
- Hospital/KY 40 intersection is a problem
- Immediate problem is the school access
- Southside to Collins Branch there is 25 acres of developable land, which will add to the problems.
- There are rockfall problems on the south side of bridge at hospital to new post office.
- Must be realistic with the solutions
- Traffic flow through town is a problem. Everyone also with their own traffic signal is a problem.
- Drivers from McDonald's to Food City challenge each other to pull out.
- There is no access to Wal-Mart from Kmart. Wal-Mart refused that access 6 to 7 years ago. Need Post Office, Food City and Wal-Mart connections.

SOLUTIONS

- Think connector to KY 40 and improve KY 40 for schools
- Use back gate to get to "Plaza" (High School).
- Construct route KY 40 bridge across is doable and would take care of the schools.
- Pharmacy school opens in February 2012.
- KY 40 Connector into town to improve KY 321/KY 40 improve KY 50 to Paintsville and connector
- Another solution "plaza area, access road, a way into Wal Mart from KY 40)
- Investment must include pedestrian traffic.

COMMENT – KY was not "widened" was built in 1960's.
COMMENT – $5 Million bridge is a 3-4 year project; $30M project is a 10-15-20 year project.

Architecture
Engineering
Construction

MEETING MINUTES

Project:	KY 321 Johnson County
Purpose:	Stakeholders' Meeting
Place:	Johnson County Board of Education Paintsville
Meeting Date:	July 18, 2011
Prepared By:	Annette Coffey

Attendance:

David Matthews	Midway College
Willard Cuzzort	KYTC, District 12
Justin Nairn	De la Vega Development
Martha Wells	Midway College SOP
Mark McKenzie	Mayo Plaza
Sandy Runyon	Big Sandy ADD
Kevin Raymer	Lowes
Bob Porter	City of Paintsville
Clayton Holland	cehollandjr@yahoo.com
Harry Burchett	Johnson County Board of Education
Dennis Dorton	Citizens National Bank
Hubert Collins	House of Representatives
Deborah Trimble	Paul B. Hall Regional Medical Center
Venice Branham	Paul B. Hall Regional Medical Center
Mandy Justice	KYTC, District 12 Traffic
Tarnell Patton	KYTC, District 12 Traffic
Clarence Scarberry	Bocook Engineering
Tom Salyer	Johnson County Schools
Steve Trimble	Johnson County Schools
Bruce Aaron Davis	Johnson County Schools
James D. Wright	KYTC, District 12
Ron Slone	KYTC, District 12
Mary Westfall-Holbrook	KYTC, District 12
Mikael Pelfrey	KYTC, CO Planning
Kevin Damron	KYTC, District 12
Tim Spencer	KYTC, District 12
Jill Asher	KYTC, CO Planning
Jeremy Lukat	Qk4
Tom Springer	Qk4
Annette Coffey	Qk4

Following introductions, Willard Cuzzort, District 12, provided a project history. Relieving congestion on KY 321 has been on the Unscheduled Needs List for six to eight years and has consistently ranked in the top 10 priorities for District 12 and the Area Development District but has not progressed to the Transportation Cabinet's Six-Year Plan. KY 321, formerly US 23, passes through the commercial section of town and has between 13000 and 16000 vehicles per day. Recently, District 12 staff has looked at various options that included a new connector from KY 321 east to KY 40 ($4.9M), widening KY 321 ($30M) and KY 40 ($19M) and a left turn lane at KY 40 ($4.7M) to provide better access to Midway College. Mr. Cuzzort emphasized that we are in the study phase and are not close to starting any construction.

Annette Coffey from Qk4 began a presentation by stating that the purpose of the meeting today was to tell the group what work Qk4 and District 12 had done to date, but the main purpose was to listen to their concerns and solution ideas. Ms. Coffey said that when US 23 was built it took the coal trucks from KY 321 but congestion remains. In addition to congestion, there appears to be many crashes that are rear end and angle crashes, of which many included multiple injuries. Qk4 will examine solutions both short and long term that will help minimize that congestion and improve safety, study the effects of a proposed new bridge over Paint Creek from KY 321 to KY 40, and study the effects of the new pharmacy school on KY 40. Qk4 is also challenged with "what can be done for minimal costs that will make the situation better," because smaller projects have a better chance of being funded.

The challenges for this project are topography, commercial property values, potential archaeology sites, historic sites, public parks, streams, and very tight development. To assist in this study, District 12 staff counted traffic at 13 intersections at three peak times during the weekday and two peak times on Saturday. In addition, Mr. Lukat performed travel time studies. Jeremy has built a traffic model that shows how traffic is operating today. The model showed queues at the Wal-Mart entrance and at the southern end of the project but not a continuous line of traffic. He said that the traffic signals are coordinated, which does help with traffic flow.

Tom Springer and Annette Coffey stated that the environmental issues on this project were not insurmountable and we could work with the entities–such as the schools to replace ball fields, or businesses to replace parking lots however, they do equate to additional costs. One of the key environmental concerns was the historic structures in downtown Paintsville. The potential historic structure shown at the north end of the project is no longer an issue because the school was moved. There is also a strong potential for archaeology sites in the area; however, many may have been disturbed by private development. There are several wetlands and a crossing of Paint Creek, large cuts, many utilities, and potentially five pipeline crossings depending on what solutions are selected. Ms. Coffey brought to the group's attention that, for such a developed area, the number of property owners that could be affected was not large. District 12 staff stated that the state owns most of the property needed to widen KY 321 except in

one location. Ms. Coffey had several handouts that were given to the participants that contained existing traffic, crashes for Years 2008-2010, the environmental conditions, and utility locations discovered to date.

Ms. Coffey stated that we were ahead of our contract schedule. The next milestone would be at the end of August where initial solutions would be presented to the Project Team. Those solutions must meet the purpose of the project, which is to relieve congestion from KY 321 to continue to be studied throughout the planning process. She said that even though the study document will not be completed until May of 2012, Qk4 would ensure that KYTC has enough information and cost estimates for consideration of a project into the Six-Year Highway Plan in late fall.

At the conclusion of Ms. Coffey's presentation, Tom Springer, Qk4, led a stakeholder discussion where two questions asked:

- What is your #1 issue and please be specific?
- What do you propose as a solution?

The below bullets capture the results of that discussion.

ISSUES

- Cannot turn into schools heading south on KY 321
- When buses pull out of the schools turning north, they encounter an immediate red light.
- Red light at Wal-Mart backs up onto KY 40.
- At unsignalized intersections, people turning left onto KY 321 have to wait a long time.
- At the Lowes and Mexican restaurant, everyone goes over to the red light to come out at a traffic signal, and that causes a back up.
- People turning from KY 40 south onto KY 321 have a difficult time merging with the present lane configuration and cause crashes. Another through lane is needed so that a vehicle can merge left when they do not want to turn into Wal-Mart.
- Downtown, travelling KY 40 to KY 321 you can easily miss the bridge to KY 321. It is a clumsy connection.
- Coming from the hospital parking lot to turn left onto KY 40 you take your life in your hands, especially in the morning.
- "Garbage Hollow" may be developed with ball fields that may be affected by the KY 321/KY 40 Connector there. It is the site of an old garbage dump.
- It is very difficult to make turns at lights and non-signalized intersections.
- Concerned about safety of hospital and school access
- KY 40 improvements would provide material that could be used for development.
- North of the KY 321/KY 40 intersection, if you are trying to turn left to head south on KY 321, it is difficult. KYTC uses that area as storage.

- Most people coming from the west turn right on KY 321.
- Midway College has 30 employees now. There will be 80 - 85 students in the initial class with a class added each year. The facility will grow to 340 students and 75-90 employees. Because there are no dormitory facilities, and no cafeteria, those students will be using KY 321 to travel to and from school and will eat possibly at the restaurants along KY 321. This will occur from 7-9 a.m. and 5-6 p.m. Therefore, this will make the situation worse. They are also trying to build a second building to hold community events. It was noted that when you travel from Teays Branch Road and turn left onto KY 40, you cannot see around the cliffs.
- Lowes across to Wal-Mart (left) is a tight intersection; someone tries to cut in on you.
- The S-curve near hospital needs something done.
- 2000 people are on the school campuses everyday during the school year.
- US 460 toward Salyersville backs up
- Cars trying to get to Paintsville schools are an issue
- KY 321 is not safe for pedestrians
- KY 321 backs up in all directions
- Sunlight is an issue at the KY 40/KY 321 intersection
- Interconnected signals are good until school lets out and then they are not good.
- It is good to have a global view of the problems; however, KY 321 still needs to be the main focus.
- No way to walk from the City of Paintsville to the plaza, many come through the school properties and that is a liability problem. There is no way to go to Kmart, Wal-Mart, and Food City without getting back out on KY 321. KY 321 needs a third lane and sidewalks.
- People walk in parking lots and behind guardrail. From the high-rise and downtown, there is no safe way to walk to the schools.
- Currently there is an indirect connection to the hospital.
- Teays Branch has 850 acres of developable land and KY 40 is up/down/curvy.
- Hospital/KY 40 intersection is a problem
- Immediate problem is the Pharmacy School access
- Southside to Collins Branch there is 25 acres of developable land, which will add to the problems.
- There are rockfall problems on the south side of bridge at hospital to new post office.
- Must be realistic with the solutions
- Traffic flow through town is a problem. .
- Drivers from McDonald's to Food City challenge each other to pull out.
- There is no access to Wal-Mart from Kmart. Wal-Mart refused that access 6 to 7 years ago. Need Post Office, Food City and Wal-Mart connections.

SOLUTIONS

- Connector to KY 40 and improve KY 40 for schools

- Use back gate to get to "Plaza" (High School).
- Construct route to KY 40 and bridge across is doable and would take care of the schools.
- Pharmacy school opens in February 2012.
- Build KY 321/KY 40 Connector, improve KY 40 into town, and improve KY 321/KY 40 intersection to Teays Branch Road.
- Another solution "plaza area, access road," and a way into Wal-Mart from KY 40
- Investment must include pedestrian traffic.

ADDITIONAL COMMENTS

COMMENT – KY 321 was not "widened," it was built in 1960's.
COMMENT – $5 Million bridge is a 3-4 year project; $30M project is a 10-15-20 year project.
COMMENT - The two turn lanes west on US 460 was a positive improvement

After a period for questions and answers, the participants were thanked for their participation, reminded of the project schedule, and the meeting adjourned.

HANDOUTS

ALTERNATIVE COMPARISON MATRIX

									GOAL 1		GOAL 2	GOAL 3	GOAL 4	GOAL 5		
ALTERNATIVE NUMBER	DESCRIPTION	LENGTH	CONSTRUCTION COST ESTIMATE ****	POTENTIAL IMPACTS TO NATURAL ENVIRONMENT	POTENTIAL IMPACTS TO HUMAN ENVIRONMENT	2011 ADT RANGE (vehicles per day)	2035 ADT RANGE (vehicles per day)	# OF KY 321 IMPROVED INTERSECTION MOVEMENTS	ESTIMATED CRASH REDUCTION	PROVIDES CONGESTION RELIEF ON KY 321	PROVIDES SERVICE TO TEAYS BRANCH	PROVIDES ACCESS TO JOHNSON COUNTY SCHOOLS	PROVIDES ACCESS TO HOSPITAL	PROVIDES FOR PEDESTRIAN MOVEMENTS	ADVANTAGES	DISADVANTAGES
DO NOTHING	**NO BUILD**		$0	None	None	13000-17400	15000-22300	0	0%	No	No	No	No	No	No investment other than routine maintenance	Conditions remain the same, congestion, crashes
1	**LEFT TURN LANE AT TEAYS BRANCH ROAD**	0.30 mile	2300000+	Steep cut slopes 100 year floodplain floodway	·1 business ·10" water main ·6" force main wastewater ·2" gas main ·2 fire hydrants ·overhead utilities creek side	810	1030	0	Yes on KY 40 If unsignalized, 35% reduction in all crashes and 50% reduction in left turn crashes	No	Yes	No	No	No	Provides safer access to a new traffic generator that is to open soon	Provides inconsistency and driver expectation of the route, still no congestion relief for KY 321
**1A	Improve KY 40 from the Left Turn Lane (ALT 1) to KY 321	0.30 mile	$1,339,000	Steep cut slopes 100 year floodplain floodway	·10" water main ·overhead utilities creek side	7000	10300	0	Yes 40%	No	Yes	No	No	No	Provides safer access to a new traffic generator that is to open soon	Provides consistency on KY 40 from Teays Branch to KY 321, however still no congestion relief for KY 321
1B	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF LOWES TERMINATING AT TEAYS BRANCH ROAD**	0.24 mile	$4,260,000	Crosses stream 100 year floodplain floodway	·4 businesses ·10" water main ·lift station ·2 fire hydrants ·6" force main wastewater ·6" gas main (two) ·overhead utilities on Paint Creek side of KY 40	3800	4600	29	N/A	1800-2600 vpd	Yes	No	No	Yes (on connector)	Provides a shorter connection to KY 321 for Teays Branch Road traffic, improves KY 321 congestion and less floodplain impacts	Places two intersections on KY 321 (KY 40 and the Connector) very close together, and will also impact Lowe's internal circulation
1C	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE NORTH SIDE OF LOWES with Bridge**	0.18 mile	$4,149,000	Crosses stream 100 year floodplain floodway	·4 businesses ·10" water main ·2 fire hydrants, ·8" and 12" force main wastewater ·overhead utilities on Paint Creek side of KY 40	3400	4300	21	N/A	1200-2100 vpd	Yes	No	No	Yes (on connector)	Provides a shorter connection to KY 321 for Teays Branch Road traffic	Places two intersections on KY 321 (KY 40 and the Connector) very close together
1D	Improve KY 40 from the Connector North of Lowes (1C) to KY 321/KY 40 Intersection	0.15 mile	$644,000	Steep cut slopes 100 year floodplain floodway	·pipeline ·10" water main, ·Overhead utilities on Paint Creek side of KY 40	7000	10300	0	N/A	1 intersection (Walmart)	Yes	No	No	No	Provides a shorter connection to KY 321 for Teays Branch Road traffic	Provides no congestion relief for KY 321
2	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF JOHNSON CENTRAL SCHOOLS**	0.25 mile	$6,996,000	Crosses stream 100 year floodplain floodway	·1 business ·2 schools and school ball field ·school traffic internal circulation ·2" and 6" gas mains, ·8" water and wastewater mains ·archaeological ·Overhead utilities on Paint Creek side of KY 40 and along path of connector	3000	4300	15 (MUST BE COUPLED WITH ALTERNATIVE 3A OR 3B TO ACHIEVE THIS IMPROVEMENT)	N/A	850 - 1100 vpd	No	Yes	Yes	Yes	Provides for a "backdoor" entrance/exit and pedestrian access for the Johnson County schools.	Provides less relief to KY 321 congestion than other connector options and the connection to school will have a steeper grade
**2B	Left Turn Lane on KY 40 for Alt 2	0.28 mile	$793,000	100 year floodplain floodway	·2 businesses ·1 cemetery ·10" water main ·Overhead utilities on Paint Creek side of KY 40	780	1120	0	Yes on KY 40 If unsignalized, 35% reduction in all crashes and 50% reduction in left turn crashes	No	Limited	Yes	Limited	Yes (on connector)	Provides for safer KY 40 turns	No congestion relief for KY 321
2A	**KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS**	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	100 year floodplain floodway	·1 business, ·school traffic internal circulation, ·2 " and 6" gas main ·8"water and wastewater main, ·archaeological	NOT FEASIBLE	NOT FEASIBLE	N/A	N/A	Not able to tie into school	Not able to tie into School	Limited	Limited	Limited	Not considered due to the impacts of the school traffic circulation	Would impact the schools internal circulation and cut off one of their main exits
2A-1	**SHORTENED KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS**	0.17 mile	$4,440,000	100 year floodplain floodway	·2 businesses ·2" gas main ·8" and 10" water main ·6" force main wastewater ·1 fire hydrants ·Overhead utilities on Paint Creek side of KY 40	1700	2200	21	N/A	500-650 vpd	Limited	Yes	Limited	Yes (on connector)	Provides for a "backdoor" entrance/exit and pedestrian access for the schools for Johnson County Schools	Does not connect to KY 321 nor provide pedestrian access to KY 321 and begins in what is almost a parking lot, provides very little congestion relief
**2A-1 KY 40	Left Turn Lane on KY 40 at Connector 2A-1	0.30 mile	$1,585,000	100 year floodplain floodway	·10" water main ·overhead utilities on Paint Creek side of KY 40	450	550	0	Yes If unsignalized, 35% reduction in all crashes and 50% reduction in left turn crashes	No	Limited	Yes	Limited	Yes (on connector)	Provides for safer KY 40 turns	No congestion relief for KY 321
3A	**IMPROVE KY 40 SHARP CURVE ON NEW ALIGNMENT**	0.26 mile	$3,000,000	Steep cut slopes	·8 residential ·2 businesses ·cemetery, ·10" water main ·6" force main wastewater ·2" gas main ·1 fire hydrant	6700	9300 (with Alternative 2)	0	Yes 40%	Yes if coupled with a connector 850-1100 vpd	No	Yes if coupled with a connector	Yes	No	Improves a less than desirable curve and adds pedestrian movement. However, to be effective with pedestrian movement it must be coupled with the KY 321/KY 40 connector.	Requires business and residential impacts and has steep cut slopes and the new alignment will have a steeper grade. It also cuts off access to Church Street at the very top of the hill that will need to access their property from WH Dixon Boulevard and may impact the cemetery. It must be coupled with a connector to realize any minimal congestion improvement on KY 321.
3B	**IMPROVE KY 40 SHARP CURVE TO PAUL HALL HOSPITAL**	0.27 mile	$1,100,000	Steep cut slopes 100 year floodplain floodway	·1 business ·hospital parking lot ·2 residential, ·4 empty buildings ·cemetery ·2" gas main ·8" water main ·3 fire hydrants ·overhead utilities on Paint Creek side of KY 40	6700	9300 (with Alternative 2)	0	Yes 50%	Yes, if coupled with a connector 850-1100 vpd	No	Yes if coupled with a connector	Yes	No	Improves a less than desirable curve and adds pedestrian movement. However, to be effective with pedestrian movement it must be coupled with Alternative 2. It is less expensive than Alternative 3A but has more residential impacts	Requires some of the hospital parking lot, requires purchasing some vacant buildings, and will impact one business and residential properties. It must be coupled with a connector to realize any minimal congestion improvement on KY 321.

ALTERNATIVE COMPARISON MATRIX

									GOAL 1		GOAL 2	GOAL 3	GOAL 4	GOAL 5		
ALTERNATIVE NUMBER	DESCRIPTION	LENGTH	CONSTRUCTION COST ESTIMATE ****	POTENTIAL IMPACTS TO: NATURAL ENVIRONMENT	POTENTIAL IMPACTS TO: HUMAN ENVIRONMENT	2011 ADT RANGE (vehicles per day)	2035 ADT RANGE (vehicles per day)	# OF KY 321 IMPROVED INTERSECTION MOVEMENTS	ESTIMATED CRASH REDUCTION	PROVIDES CONGESTION RELIEF ON KY 321	PROVIDES SERVICE TO TEAYS BRANCH	PROVIDES ACCESS TO JOHNSON COUNTY SCHOOLS	PROVIDES ACCESS TO HOSPITAL	PROVIDES FOR PEDESTRIAN MOVEMENTS	ADVANTAGES	DISADVANTAGES
4	**FIVE LANE KY 321 FROM KY 40 TO KY 2378 / JAMES TRIMBLE BOULEVARD**	1.01 mile	$8,236,000	Steep cut slopes 100 year floodplain floodway	·21 businesses, ·2 residential, ·pipeline, ·8" water and wastewater main, ·2" and 6" gas main, ·water pump station ·Overhead utilities on both sides	12600	16280	32	Yes 25% if right-turn lanes are included	Yes North of James Trimble Boulevard	No	Yes	Yes	Yes	Improves congestion by adding through lanes and adds safe pedestrian movement along the corridor.	business and some residential impacts, right of way and utility costs will most likely be high
*· **4A	Right In/Right Out Scenarios	N/A	$200,000	Minimal	·5 businesses ·12" wastewater main ·8" and 12" force main wastewater ·3" and 6" gas main ·1 UST	Not available	Not available	Not Significant	Yes 25% if right-turn lanes are included	Minimal	No	No	No	No	Eliminates left turns	Left turning vehicles will have adverse travel
4B, 4B-1, 4B-2	Access Road that parallels KY 321 (Restriping, Purchase of Business, and Restriping and purchase of some of Lowes Parking Lot)	0.50 mile	$500,000	100 year floodplain	·2 businesses ·8" water and wastewater main	Not available	Not available	Did not count traffic to determine but access management improve slightly	N/A	Did not count traffic to determine but access management will help	No	Minimal	No	No	Most of the route is already there, just restriping and traffic control would be necessary. It does little to help with congestion on KY 321	One impact to a business
**4C	Right Turn Lanes at: NB Apple Tree Plaza NB Middle School NB High School NB McDonalds Intersection SB Kmart NB 321X NB James Trimble Boulevard	0.33 mile	$2,400,000	Minimal	·2 businesses, ·3" and 6" gas main ·8" water main ·overhead utilities	1430, 400, and 820	1810, 510, and 1050	11	Yes 25% if right-turn lanes are included	Yes for those intersections	No	Yes	No	No	Improvement in KY 321 congestion for the right turn lane movements for all 6 intersections and some through movements at those intersections, less cost and impacts to businesses	Business impacts to parking and business fronts and utilities will be an issue
4D	Carry additional KY 321 SB lane and Turn Lane from Paint Creek Bridge SB past Wal-Mart entrance dropping at Kmart Entrance	0.31 mile	$1,845,000	Minimal 100 year floodplain	·5 businesses ·1 UST ·3" and 6" gas main ·8" wastewater and water main ·overhead utilities	1870	2730	1	Yes 10%	Yes Between Kmart and KY 40	No	Yes	No	No	Allows WB KY 40 traffic turning south onto KY 321 to travel south without having to merge until the Wal-Mart traffic has turned right	Provides little congestion relief to KY 321 as a whole
4E	Connects the entrances of Wal-Mart and K-Mart and would close the K-mart entrance	0.04 mile	$87,000	Minimal	·Two businesses ·8" water main ·6" gas main			0	N/A	Minimal	No	No	No	No	Puts more separation between entrances on KY 321	Loss of Kmart parking spaces, longer left turn signal at Wal-Mart
5	**FOUR LANE KY 321 FROM KY 2378/JAMES TRIMBLE BOULEVARD TO KY 321X**	0.65 mile	$3,955,000	Steep cut slopes 100 year floodplain floodway	·12 businesses ·1 church ·8 residential ·8" and 12" water main ·2" and 4" gas main ·8" wastewater main ·5 USTs ·2 fire hydrants ·overhead utilities	12600	16280	3	Yes 25%	Yes South of James Trimble Boulevard	No	No	Yes	No	Improves congestion and safety along KY 321 South of James Trimble Boulevard	business and residential impacts, very steep cuts along the southbound side of KY 321, right of way and utility costs will most likely be high
6	**CONNECTOR FROM KY 2378/JAMES TRIMBLE BOULEVARD TO US 23**	1.34 miles	$46,845,000	Steep cut slopes 100 year floodplain 1 wetland	·2 residential, ·1 school, ·12" water main ·pipeline	3700	4700	22	N/A	Yes North of schools 3000-3500 vpd	No	Yes	Yes	No	Routes through traffic around congested portion of KY 321 and diverts the most traffic from KY 321	Added system mileage, very costly, and has steep cuts
7* **	**CONNECTOR FROM KY 321 AROUND MILL BRANCH ROAD TERMINATING AT WAL-MART CIRCULATOR ROAD**	1.61 miles	$56,479,000	Crosses streams 1 wetland Coal seams 100 year floodplain	·20 residential · pipeline ·8" water and wastewater main, ·2" gas main ·archaeological ·1 wetland	1800	2300	19	N/A	Yes North of James Trimble Boulevard 2100 vpd	No	Yes	No	No	Through traffic bypasses commercial strip, diverts traffic from KY 321	Added system mileage; high costly, requires a very long bridge because of the floodplain
8* **	**CONNECTOR FROM KY 40 TO WAL-MART CIRCULATOR ROAD WITH BRIDGE OVER PAINT CREEK AND TRAFFIC SIGNAL ON KY 40**	0.16 mile	$16,600,000	Crosses stream 100 year floodplain floodway	·2 businesses, ·6" gas main ·8" water main ·3 fire hydrants · archaeological	3100	4000	7	N/A	Yes	No	No	No	No	Provides another entrance to a major traffic generator	Added system mileage, serves a small portion of the KY 321corridor; and adds a new traffic signal on KY 40
9	**PEDESTRIAN OPPORTUNITIES FOR KY 2378 TO KY 321 AND HOSPITAL and to TEAYS BRANCH ROAD**	0.04	$280,000-$430,000 per bridge	Crosses stream 100 year floodplain floodway	·1 hospital, ·1 business, ·12" water main ·8" wastewater main ·archaeological	4300 (KY 2378)	5900 (KY 2378)	0	Yes Up to 65% less likelihood of pedestrian crashes	No	No	No	Yes - Pedestrian	Yes	Low cost improvements for non-vehicular traffic	No improved vehicular connection to Teays Branch Road
10	**WIDEN KY 40 FROM KY 321 TO EITHER ALTERNATIVE 3A OR 3B WITH SIDEWALK ON PAINT CREEK SIDE**	1.13 miles	$8,306,000	Steep cut slopes 100 year floodplain floodway	·4 businesses ·cemetery ·overhead utilities	7000	10000	0	Yes Up to 65% less likelihood of pedestrian crashes	No	Yes	Yes (if coupled with a connector)	Yes	Yes	Improves safety on KY 40 and provides for pedestrian movements	Still leaves KY 321 congested

*At McCloud Drive
**Not shown on exhibit
***Eliminated from further consideration does not relieve congestion from KY 321
****Does not include R/W and Utilities
+Taken from KYTC 2012-2018 Highway Plan

QUESTIONNAIRES

COMMENT FORM
STAKEHOLDERS' MEETING 2
March 13, 2012

KY 321
between KY 40 and KY 321X
Johnson County
Programming Study

We need your help! You can help us by completing this comment form. The Kentucky Transportation Cabinet (KYTC) has initiated a programming study designed to develop and evaluate potential improvements to relieve congestion and improve safety on KY 321 between KY 40 and KY 321X in Johnson County. As part of the study, KYTC would like you to let us know which alternative improvements are important to you. Please complete this form and return it either the consultant or the Transportation Cabinet staff here today. We appreciate your participation and value your comments! Each person should complete a separate comment form.

Name: Harry Burchett

Representing (title, agency, organization, if applicable): Johnson County Schools

Address: 253 North Mayo Trail

Paintsville, KY 41240

Phone (optional): 606-789-2530 **Date:** 3-13-2012

Email (optional): harry.burchett@johnson.kyschools.us

The objective of the following form is to solicit your views on alternatives and their priorities in this study. Each form will be read and tabulated by the project team. All comments are welcome! We appreciate your participation!

Please discuss any other suggestions for you would like to have considered in this study, any environmental, cemeteries, or community features in the study area which we should be aware of, and any additional comments you may have regarding the study.

To meet the top priority goal of the Transportation Cabinet of alleviating traffic congestion on KY 321, Alternates 4 & 5 best accomplish this goal. If financial restrictions limit the scope of the project it could be viewed in phases beginning with the five lane of KY 321 from the school/high school exit at McDonalds to the Paint Creek bridge at KY 321 & KY 40.

Use additional pages if necessary. If you fail to receive a postage-paid envelope, you may send your written comments to:

For further information contact:

Keith Damron, P.E.
Director, Division of Planning
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor
Frankfort, KY 40622
Phone (502) 564-7183
E-Mail: Keith.Damron@ky.gov

OR CONTACT

Willard Cuzzort, Project Manager
District 12
Kentucky Transportation Cabinet
109 Loraine Street
Pikeville, KY
Phone (606) 433-7791
E-Mail: Willard.Cuzzort@ky.gov

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KY 321 ALTERNATIVES SURVEY

ALTERNATIVE NUMBER	DESCRIPTION	LENGTH	COST ESTIMATE ****	Least Important		Important		Very Important
DO NOTHING	NO BUILD		$0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1	LEFT TURN LANE AT TEAYS BRANCH ROAD	0.30	$1,187,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
**1A	Improve KY 40 from the Left Turn Lane (ALT 1) to KY 321	0.30	$1,339,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1B	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF LOWES TERMINATING AT TEAYS BRANCH ROAD	0.24 mile	$4,260,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1C	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE NORTH SIDE OF LOWES with Bridge	0.18 mile	$4,149,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1D	Improve KY 40 from the Connector North of Lowes (1C) to KY 321/KY 40 Intersection	0.15 mile	$644,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
2	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF JOHNSON CENTRAL SCHOOLS	0.25 mile	$6,996,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
**2B	Left Turn Lane on KY 40 for Alt 2	0.28 mile	$793,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
2A	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
2A-1	SHORTENED KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS	0.17 mile	$4,440,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
**2A-1 KY 40	Left Turn Lane on KY 40 at Connector 2A-1	0.30 mile	$1,585,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
3A	IMPROVE KY 40 SHARP CURVE ON NEW ALIGNMENT	0.26	$3,000,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
3B	IMPROVE KY 40 SHARP CURVE TO PAUL HALL HOSPITAL	0.27 mile	$1,100,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
4	FIVE LANE KY 321 FROM KY 40 TO KY 2378 / JAMES TRIMBLE BOULEVARD	1.01 mile	$9,477,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☑
* **4A	Right In/Right Out Scenarios	N/A	$200,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
4B, 4B-1, 4B-2	Access Road that parallels KY 321 (Restriping, Purchase of Business, and Restriping and purchase of some of Lowes Parking Lot)	0.50 mile	$500,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
**4C	Right Turn Lanes at Johnson County Middle School, Johnson Central High School, Appletree Plaza, Mayo (McDonalds Intersection), Kmart Walmart (shared through right lane)	0.33	$2,400,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
4D	Carry additional KY 321 SB lane and Turn Lane from Paint Creek Bridge SB past Wal-Mart entrance dropping at Kmart Entrance	0.31 mile	$1,845,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
4E	Connects the entrances of Wal-Mart and K-Mart and would close the K-mart entrance	0.04 mile	$87,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
5	FOUR LANE KY 321 FROM KY 2378/JAMES TRIMBLE BOULEVARD TO KY 321X	0.65 mile	$4,747,000	1 ☐	2 ☐	3 ☑	4 ☐	5 ☐
6	CONNECTOR FROM KY 2378/JAMES TRIMBLE BOULEVARD TO US 23	1.34 miles	$46,845,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
7***	CONNECTOR FROM KY 321 AROUND MILL BRANCH ROAD TERMINATING AT WAL-MART CIRCULATOR ROAD	1.61 miles	$56,479,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
8***	CONNECTOR FROM KY 40 TO WAL-MART CIRCULATOR ROAD WITH BRIDGE OVER PAINT CREEK AND TRAFFIC SIGNAL ON KY 40	0.16 mile	$16,600,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
9	PEDESTRIAN OPPORTUNITIES FOR KY 2378 TO KY 321 AND HOSPITAL and to TEAYS BRANCH ROAD	0.08	$280,000-$430,000 per bridge	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
10	WIDEN KY 40 FROM KY 321 TO ALTERNATIVE 3A OR 3B INCLUDING SIDEWALK ON PAINT CREEK SIDE	1.13 miles	$8,306,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

*At McCloud Drive
**Not shown on exhibit
***Eliminated from further consideration does not relieve congestion from KY 321
****Does not include R/W and Utilities

KENTUCKY TRANSPORTATION CABINET

QK4 Architecture Engineering Planning

Groundbreaking by Design.

COMMENT FORM
STAKEHOLDERS' MEETING 2
March 13, 2012

KY 321
between KY 40 and KY 321X
Johnson County
Programming Study

We need your help! You can help us by completing this comment form. The Kentucky Transportation Cabinet (KYTC) has initiated a programming study designed to develop and evaluate potential improvements to relieve congestion and improve safety on KY 321 between KY 40 and KY 321X in Johnson County. As part of the study, KYTC would like you to let us know which alternative improvements are important to you. Please complete this form and return it either the consultant or the Transportation Cabinet staff here today. We appreciate your participation and value your comments! Each person should complete a separate comment form.

Name: R.T. DANIEL

Representing (title, agency, organization, if applicable): JOHNSON COUNTY FISCAL COURT

Address: PO Box 868
PAINTSVILLE, KY 41240

Phone (optional): 606-789-2550 **Date:** 3-13-12

Email (optional): _____

The objective of the following form is to solicit your views on alternatives and their priorities in this study. Each form will be read and tabulated by the project team. All comments are welcome! We appreciate your participation!

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ALT 4 Seems to be the best Alternative to really Impacting Traffic flow on Rt 321. 5 LANES - BEST VALUE COST WISE.

Obviously ALT 5 should be Constructed in Conjunction with ALT 4 TO Complete the entire project AND NOT Leave bottlenecks.

Use additional pages if necessary. If you fail to receive a postage-paid envelope, you may send your written comments to:

For further information contact:

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Director, Division of Planning
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor
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Name: Denny Dorton

Representing (title, agency/organization, if applicable): Citizens Nat. Bank, Paintsville/Jo Co. Chamber

Address: Home 719 Twin Oak Dr. Paintsville, KY. 41240

Phone (optional): 606-789-8735 **Date:** 3-13-12

Email (optional): ddorton@cnbonline.com

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**1A	Improve KY 40 from the Left Turn Lane (ALT 1) to KY 321	0.30	$1,339,000	1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
1B	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF LOWES TERMINATING AT TEAYS BRANCH ROAD	0.24 mile	$4,260,000	1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
1C	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE NORTH SIDE OF LOWES with Bridge	0.18 mile	$4,149,000	1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
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KENTUCKY TRANSPORTATION CABINET

QK4
Architecture Engineering Planning
Groundbreaking by Design.

COMMENT FORM
STAKEHOLDERS' MEETING 2
March 13, 2012

KY 321
between KY 40 and KY 321X
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Name: Mark McKenzie

Representing (title, agency, organization, if applicable): Mayo Plaza

Address: 7766 Rt 321 South

Hager Hill, KY 41222

Phone (optional): (606) 789-3279 **Date:** 3/13/12

Email (optional): mem41240@yahoo.com

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Please discuss any other suggestions for you would like to have considered in this study, any environmental, cemeteries, or community features in the study area which we should be aware of, and any additional comments you may have regarding the study.

Please give consideration to any proposed entrance clearance to being at least Right In/Right out. Also, North bound access from new Wendy's needs to be maintained.

Use additional pages if necessary. If you fail to receive a postage-paid envelope, you may send your written comments to:

For further information contact:

Keith Damron, P.E.
Director, Division of Planning
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor
Frankfort, KY 40622
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KY 321 ALTERNATIVES SURVEY

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1D	Improve KY 40 from the Connector North of Lowes (1C) to KY 321/KY 40 Intersection	0.15 mile	$644,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
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2A	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
2A-1	SHORTENED KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS	0.17 mile	$4,440,000	1 ☐	2 ☑	3 ☐	4 ☐	5 ☐
**2A-1 KY 40	Left Turn Lane on KY 40 at Connector 2A-1	0.30 mile	$1,585,000	1 ☐	2 ☑	3 ☐	4 ☐	5 ☐
3A	IMPROVE KY 40 SHARP CURVE ON NEW ALIGNMENT	0.26	$3,000,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
3B	IMPROVE KY 40 SHARP CURVE TO PAUL HALL HOSPITAL	0.27 mile	$1,100,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
4	FIVE LANE KY 321 FROM KY 40 TO KY 2378 / JAMES TRIMBLE BOULEVARD	1.01 mile	$9,477,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☑
*, **4A	Right In/Right Out Scenarios	N/A	$200,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
4B, 4B-1, 4B-2	Access Road that parallels KY 321 (Restriping, Purchase of Business, and Restriping and purchase of some of Lowes Parking Lot)	0.50 mile	$500,000	1 ☐	2 ☐	3 ☑	4 ☐	5 ☐
**4C	Right Turn Lanes at Johnson County Middle School, Johnson Central High School, Appletree Plaza, Mayo (McDonalds Intersection), Kmart Walmart (shared through right lane)	0.33	$2,400,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
4D	Carry additional KY 321 SB lane and Turn Lane from Paint Creek Bridge SB past Wal-Mart entrance dropping at Kmart Entrance	0.31 mile	$1,845,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☑
4E	Connects the entrances of Wal-Mart and K-Mart and would close the K-mart entrance	0.04 mile	$87,000	1 ☐	2 ☐	3 ☑	4 ☐	5 ☐
5	FOUR LANE KY 321 FROM KY 2378/JAMES TRIMBLE BOULEVARD TO KY 321X	0.65 mile	$4,747,000	1 ☐	2 ☑	3 ☐	4 ☐	5 ☐
6	CONNECTOR FROM KY 2378/JAMES TRIMBLE BOULEVARD TO US 23	1.34 miles	$46,845,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
7***	CONNECTOR FROM KY 321 AROUND MILL BRANCH ROAD TERMINATING AT WAL-MART CIRCULATOR ROAD	1.61 miles	$56,479,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
8***	CONNECTOR FROM KY 40 TO WAL-MART CIRCULATOR ROAD WITH BRIDGE OVER PAINT CREEK AND TRAFFIC SIGNAL ON KY 40	0.16 mile	$16,600,000	1 ☑	2 ☐	3 ☐	4 ☐	5 ☐
9	PEDESTRIAN OPPORTUNITIES FOR KY 2378 TO KY 321 AND HOSPITAL and to TEAYS BRANCH ROAD	0.08	$280,000-$430,000 per bridge	1 ☐	2 ☑	3 ☐	4 ☐	5 ☐
10	WIDEN KY 40 FROM KY 321 TO ALTERNATIVE 3A OR 3B INCLUDING SIDEWALK ON PAINT CREEK SIDE	1.13 miles	$8,306,000	1 ☐	2 ☑	3 ☐	4 ☐	5 ☐

*At McCloud Drive
**Not shown on exhibit
***Eliminated from further consideration does not relieve congestion from KY 321
****Does not include R/W and Utilities

KENTUCKY TRANSPORTATION CABINET

QK4 Architecture Engineering Planning

Groundbreaking by Design.

COMMENT FORM
STAKEHOLDERS' MEETING 2
March 13, 2012

KY 321
between KY 40 and KY 321X
Johnson County
Programming Study

We need your help! You can help us by completing this comment form. The Kentucky Transportation Cabinet (KYTC) has initiated a programming study designed to develop and evaluate potential improvements to relieve congestion and improve safety on KY 321 between KY 40 and KY 321X in Johnson County. As part of the study, KYTC would like you to let us know which alternative improvements are important to you. Please complete this form and return it either the consultant or the Transportation Cabinet staff here today. We appreciate your participation and value your comments! Each person should complete a separate comment form.

Name: Jamie Finson

Representing (title, agency, organization, if applicable): Regional Transportation Planner, Big Sandy ADD

Address: 110 Resource Court

Prestonsburg, KY 41653

Phone (optional): 606-886-2374, Ext. 308 **Date:** 3/12/12

Email (optional): jamie.finson@bigsandy.org

The objective of the following form is to solicit your views on alternatives and their priorities in this study. Each form will be read and tabulated by the project team. All comments are welcome! We appreciate your participation!

Please discuss any other suggestions for you would like to have considered in this study, any environmental, cemeteries, or community features in the study area which we should be aware of, and any additional comments you may have regarding the study.

In a perfect, non-fiscally constrained world, Alt. 6 in conjunction with 2, and/or improvements on 40; otherwise, in my opinion Alt. 4b, the "frontage road" (access-controlled), would alleviate some of the turning movements/intersection issues. Adding capacity, as in Alt. 4 or 5, would also increase volume, which might just compound the original issue? Disruptions to traffic & travel patterns would be great in the most congested area, I would think. Most of the alternatives would benefit greatly with right-turn lanes/right-turn only lane & and left/U-turn abilities at signalized intersections.
(If majority is local and not thru; then adding capacity would help.)

Use additional pages if necessary. If you fail to receive a postage-paid envelope, you may send your written comments to:

For further information contact:

Keith Damron, P.E.
Director, Division of Planning
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor
Frankfort, KY 40622
Phone (502) 564-7183
E-Mail: Keith.Damron@ky.gov

OR CONTACT

Willard Cuzzort, Project Manager
District 12
Kentucky Transportation Cabinet
109 Loraine Street
Pikeville, KY
Phone (606) 433-7791
E-Mail: Willard.Cuzzort@ky.gov

Please note: Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

KY 321 ALTERNATIVES SURVEY

ALTERNATIVE NUMBER	DESCRIPTION	LENGTH	COST ESTIMATE ****	Least Important		Important		Very Important
DO NOTHING	NO BUILD		$0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1	LEFT TURN LANE AT TEAYS BRANCH ROAD	0.30	$1,187,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
**1A	Improve KY 40 from the Left Turn Lane (ALT 1) to KY 321	0.30	$1,339,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1B	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF LOWES TERMINATING AT TEAYS BRANCH ROAD	0.24 mile	$4,260,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1C	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE NORTH SIDE OF LOWES with Bridge	0.18 mile	$4,149,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1D	Improve KY 40 from the Connector North of Lowes (1C) to KY 321/KY 40 Intersection	0.15 mile	$644,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
2	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF JOHNSON CENTRAL SCHOOLS	0.25 mile	$6,996,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
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**4C	Right Turn Lanes at Johnson County Middle School, Johnson Central High School, Appletree Plaza, Mayo (McDonalds Intersection), Kmart Walmart (shared through right lane)	0.33	$2,400,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
4D	Carry additional KY 321 SB lane and Turn Lane from Paint Creek Bridge SB past Wal-Mart entrance dropping at Kmart Entrance	0.31 mile	$1,845,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
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KENTUCKY TRANSPORTATION CABINET

Architecture Engineering Planning

Groundbreaking by Design.

COMMENT FORM
STAKEHOLDERS' MEETING 2
March 13, 2012

KY 321
between KY 40 and KY 321X
Johnson County
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Name: Tim Spencer

Representing (title, agency, organization, if applicable): KYTC

Address: _____

_____

Phone (optional): _____ **Date:** 3-13-12

Email (optional): _____

The objective of the following form is to solicit your views on alternatives and their priorities in this study. Each form will be read and tabulated by the project team. All comments are welcome! We appreciate your participation!

Please discuss any other suggestions for you would like to have considered in this study, any environmental, cemeteries, or community features in the study area which we should be aware of, and any additional comments you may have regarding the study.

Go ahead and extend ALT. 4D to McDonalds intersection both sides and extend the north side to Johnson Central Entrance

Use additional pages if necessary. If you fail to receive a postage-paid envelope, you may send your written comments to:

For further information contact:

Keith Damron, P.E.
Director, Division of Planning
Kentucky Transportation Cabinet
200 Mero Street, 5th Floor
Frankfort, KY 40622
Phone (502) 564-7183
E-Mail: Keith.Damron@ky.gov

OR CONTACT

Willard Cuzzort, Project Manager
District 12
Kentucky Transportation Cabinet
109 Loraine Street
Pikeville, KY
Phone (606) 433-7791
E-Mail: Willard.Cuzzort@ky.gov

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KENTUCKY TRANSPORTATION CABINET

QK4 Architecture Engineering Planning

Groundbreaking by Design.

Architecture
Engineering
Construction

MEETING MINUTES

Project:	KY 321 Johnson County
Purpose:	Stakeholders' Meeting #2
Place:	Johnson County Board of Education Paintsville
Meeting Date:	March 13, 2012
Prepared By:	Annette Coffey

Attendance:

Willard Cuzzort	KYTC, District 12
James D. Wright	KYTC, District 12
Mark Westfall	KYTC, District 12
Sam Hale	KYTC, District 12
Ron Slone	KYTC, District 12
Greg Couch	KYTC, District 12
Chris James	KYTC, District 12
Tim Spencer	KYTC, District 12, Paintsville Section
Mark McKenzie	Mayo Plaza
Mikael Pelfrey	KYTC, CO Planning
Keith Damron	KYTC, CO Planning
Jaime Pinson	Big Sandy ADD
Denise Thomas	Big Sandy ADD
Joe Keaton	City of Paintsville
Denny Dorton	Citizens National Bank/Chamber
Dewey Bocook	Bocook Engineering
Tom Salyer	Johnson County Schools
Harry Burchett	Johnson County Schools
Jeremy Lukat	Qk4
Annette Coffey	Qk4

Following introductions, Willard Cuzzort, District 12, provided a project history. Relieving congestion on KY 321 has been on the Unscheduled Needs List for six to eight years and has consistently ranked in the top 10 priorities for District 12 and the Area Development District but has not progressed to the Transportation Cabinet's Six-Year Plan. The draft Highway Plan contains a left turn lane for Teays Branch Road and is scheduled for design in 2013. In June 2011, the Kentucky Transportation Cabinet contracted with Qk4 to perform a Programming Study to examine alternatives to relieve congestion on KY 321. Mr. Cuzzort emphasized that we are in the study phase and are not close to starting construction and again only, the turn lane at Teays Branch Road has been funded. This is the second Stakeholders' Meeting (the first in July 2011), and Qk4 has alternatives and information about those alternatives to present to the group. The presence and extent of the floodplain/floodway shown in the display maps caused us to take a second look at alternatives.

Annette Coffey with Qk4 began her presentation by reminding everyone of the current issues on KY 321: congestion, crash issues, dense development, terrain, and the presence of the 100-year floodplain and designated floodway that have a direct effect on alternatives. The purpose of the meeting today was to tell the group what work Qk4 has performed since the first stakeholders' meeting, and to capture their concerns regarding the solution ideas. Qk4 examined solutions both short and long term that minimize congestion and improve safety, studied the effects of a proposed new bridge over Paint Creek from KY 321 to KY 40, and studied the effects of the new pharmacy school on KY 40 and studied minimal cost options to make the situation better," because smaller projects have a better chance of being funded.

The following alternatives were addressed individually with the advantages and disadvantages of each. The attached alternatives matrix was distributed to each attendee.

ALTERNATIVE		DESCRIPTION	KY 321 CONGESTION RELIEF
1		Construct a left turn lane on eastbound KY 40 at Teay's Branch Road	NONE
1A		Improve KY 40 between the existing improvements associated with the KY 321 intersection and those that would be associated with the proposed left-turn lane at Teay's Branch Road (Alternative 1)	NONE except when coupled with Alternative 1B
1B		Construct a connector from KY 321 near the present Hardee's/Big Sandy Superstore entrance to KY 40 at its intersection with Teay's Branch Road (south of Lowes)	Reduces congestion on KY 321 by 1800 to 2500 vpd
1C		Construct a connector route from KY 321 opposite the present Wal-mart entrance to KY 40 between KY 321 and Teay's Branch Road (north of Lowes)	Reduces congestion on KY 321 by 1170 to 2050 vpd

ALTERNATIVE		DESCRIPTION	KY 321 CONGESTION RELIEF
1D		Improve KY 40 between the existing improvements associated with the KY 321 intersection and those that would be associated with the proposed new connector between KY 321 north of Lowe's (Alternative 1C).	NONE except when coupled with Alternative 1C
2		Construct a connector from KY 321 opposite the Post Office entrance to KY 40 near W H Dixon Boulevard	Reduces congestion on KY 321 by 850 to 1100 vpd and must be coupled with Alternative 3A or 3B to achieve that reduction
2A		Construct a connector from KY 321 just south of McDonald's to KY 40 between Teay's Branch Road and W H Dixon Boulevard	Not analyzed because it would not tie into the school internal circulation
2A-1		Construct a connector from the shopping complex behind McDonald's on the north side of KY 321 to KY 40 between Teay's Branch Road and W H Dixon Boulevard	Reduces congestion on KY 321 by 440 to 650 vpd
2A-1 KY 40		Construct geometric improvements to KY 40, including a left-turn lane northbound and a right-turn lane southbound, near the connector route proposed in Alternatives 2A and 2A-1	NONE except when coupled with Alternative 2A-1
3A		Reconstruct KY 40 on new alignment north of the hospital	NONE, except in conjunction with Alternative 2
3B		Construct geometric improvements to KY 40 in the vicinity of the hospital	NONE, , except in conjunction with Alternative 2
4		Reconstruct KY 321 to five lanes from James Trimble Boulevard north to the bridge over Paint Creek near KY 40	Improves congestion by adding lanes
4A		Convert existing intersection of KY 321 and McCloud Drive to right in/right out only	NONE
4B		Implement a frontage road north of KY 321 opposite K-Mart and Walmart through striping and traffic control modifications	MINIMAL
4C		Construct right turn lanes on KY 321 at six locations (Appletree Plaza, Middle School, High School, Mayo {McDonald's}, K-Mart, and Walmart)	Improves congestion at 11 KY 321 intersection legs
4D		Construct an additional southbound lane and exclusive right turn lane on KY 321 from Paint Creek bridge to K-Mart entrance	Improves congestion for 1 KY 321 intersection leg (Walmart SB through)

ALTERNATIVE		DESCRIPTION	KY 321 CONGESTION RELIEF
4E		Close separate entrance to K-Mart near MP 8.4 and connect exiting K-Mart traffic to Walmart entrance at the top of the hill.	NONE
5		Reconstruct KY 321 to four lanes from James Trimble Boulevard south to KY 321X. The three-lane transition would begin at Southside Drive.	Improves congestion for 32 KY 321 intersection legs
6		Construct a new route between KY 321 at its intersection with James Trimble Boulevard and US 23 in the vicinity of Milepoint 6.0	Reduces congestion on KY 321 by 2950 to 3540 vpd from the schools North only
7		Construct a new route from KY 321 around Mill Branch Road terminating at Walmart circulator road	Reduces congestion on KY 321 by 2100 vpd North of James Trimble Boulevard
8		Construct a new route from KY 40 to Walmart circulator road with a bridge over Paint Creek and a traffic signal on KY 40	Reduces congestion on KY 321 by 3250 vpd just North of Walmart only
9		Construct pedestrian opportunities on James Trimble Blvd at KY 321 and across Paint Creek just south of Teays Branch Road	NONE
10		Widen KY 40 from KY 321 intersection to either Alternative 3A or 3B including sidewalk on south side of KY 40	NONE

In summary, any KY 321/KY 40 Connector that is constructed, still leaves congestion on KY 321. Based on traffic modeling, impacts to the floodplain/floodway, cost, measures of congestion, and general impacts, Alternative 1B appears to be the best "connector" solution to relieve congestion on KY 321but Alternatives 4 and 5 are the most effective overall solution to relieve congestion on KY 321. Alternative 4D which is construction of an additional southbound lane and exclusive right turn lane on KY 321 from Paint Creek bridge to the first K-Mart entrance does relieve congestion in one of the most congested areas and could be considered a short-term improvement. Lastly, construction of right turn lanes on KY 321 at six locations (Appletree Plaza, Middle School, High School, Mayo {McDonald's}, K-Mart, and Walmart) would improve the operation of those intersections and any of those right turns could be considered a short-term alternative.

Jeremy Lukat, Traffic Engineer for Qk4, demonstrated the build and no build traffic scenarios for several alternatives using traffic simulations.

At the conclusion of the presentation, Ms Coffey led a stakeholder in a discussion regarding their preferences, issues or concerns with the alternatives presented. Each stakeholder was also given a questionnaire to complete rating the importance of each

alternative on a scale of least important to most important. The following bullets capture the results of that discussion.

SUGGESTIONS/COMMENTS

- Prohibit left turns at unsignalized intersections
- If funding is an issue, could Alternative 4 widening broken into two sections with the first section being from the school exit for busses north to the project terminus.
- Consideration should be given to right in/right out scenarios rather than completely closing an entrance
- Another point that was brought to the group's attention is the BB & T bank retaining wall should be avoided if possible, for the stability of the bank building
- An additional 3 acres of development around the northern terminus of the project around the current Marathon/Wendys development is probable and should be considered as entrance closings are considered.
- It may be desirable to add Alternative 4B, 4B-1, and 4B-2 to Alternative 4.

SUMMARY OF QUESTIONNAIRES

Seven completed questionnaires were returned during the meeting and the results were tabulated afterwards. One respondent simply articulated a preference for Alternative 4 and, ultimately, Alternative 5. Another ideally preferred a combination of Alternates 2, 4D, and 6 but recognized the fiscal difficulties with that scenario and preferred Alternative 4B as a cost-effective solution. The remaining five respondents scored alternatives with a score of 5 being "very important" and 1 being "least important". (Not all respondents scored every alternative. Shown below is the average of the scores designated for each alternative.)

ALTERNATIVE		DESCRIPTION	ESTIMATED CONSTRUCTION COST (MILLIONS)	AVERAGE SCORE
Do Nothing		No build	$0	3.50
1		Construct a left turn lane on eastbound KY 40 at Teay's Branch Road	$1.187	4.50
1A		Improve KY 40 between the existing improvements associated with the KY 321 intersection and those that would be associated with the proposed left-turn lane at Teay's Branch Road (Alternative 1).	$1.339	3.67
1B		Construct a connector from KY 321 near the present Hardee's/Big Sandy Superstore entrance to KY 40 at its intersection with Teay's Branch Road (south of Lowes)	$4.260	2.25

ALTERNATIVE		DESCRIPTION	ESTIMATED CONSTRUCTION COST (MILLIONS)	AVERAGE SCORE
1C		Construct a connector route from KY 321 opposite the present Wal-mart entrance to KY 40 between KY 321 and Teay's Branch Road (north of Lowes)	$4.149	1.50
1D		Improve KY 40 between the existing improvements associated with the KY 321 intersection and those that would be associated with the proposed new connector between KY 321 north of Lowe's (Alternative 1C).	$0.644	1.50
2		Construct a connector from KY 321 opposite the Post Office entrance to KY 40 near W H Dixon Boulevard	$6.996	1.75
2A		Construct a connector from KY 321 just south of McDonald's to KY 40 between Teay's Branch Road and W H Dixon Boulevard	N/A	1.50
2A-1		Construct a connector from the shopping complex behind McDonald's on the north side of KY 321 to KY 40 between Teay's Branch Road and W H Dixon Boulevard	$4.400	1.75
2A-1 KY 40		Construct geometric improvements to KY 40, including a left-turn lane northbound and a right-turn lane southbound, near the connector route proposed in Alternatives 2A and 2A-1	$1.585	1.75
2B		Construct left-turn lanes on KY 40 for Alternative 2	$0.793	1.75
3A		Reconstruct KY 40 on new alignment north of the hospital	$3.000	1.75
3B		Construct geometric improvements to KY 40 in the vicinity of the hospital	$1.100	2.50
4		Reconstruct KY 321 to five lanes from James Trimble Boulevard north to the bridge over Paint Creek near KY 40	$8.236	5.00
4A		Convert existing intersection of KY 321 and McCloud Drive to right in/right out only	$0.200	3.75
4B		Implement a frontage road north of KY 321 opposite K-Mart and Walmart through striping and traffic control modifications	$0.500	2.75
4C		Construct right turn lanes on KY 321 at six locations (Appletree Plaza, Middle School, High School, Mayo {McDonald's}, K-Mart, and Walmart)	$2.400	3.25

ALTERNATIVE		DESCRIPTION	ESTIMATED CONSTRUCTION COST (MILLIONS)	AVERAGE SCORE
4D		Construct an additional southbound lane and exclusive right turn lane on KY 321 from Paint Creek bridge to K-Mart entrance	$1.845	4.75
4E		Close separate entrance to K-Mart near MP 8.4 and connect exiting K-Mart traffic to Walmart entrance at the top of the hill.	$0.087	3.25
5		Reconstruct KY 321 to four lanes from James Trimble Boulevard south to KY 321X. The three-lane transition would begin at Southside Drive.	$3.995	3.80
6		Construct a new route between KY 321 at its intersection with James Trimble Boulevard and US 23 in the vicinity of Milepoint 6.0	$46.845	1.50
7		Construct a new route from KY 321 around Mill Branch Road terminating at Walmart circulator road	$56.479	1.25
8		Construct a new route from KY 40 to Walmart circulator road with a bridge over Paint Creek and a traffic signal on KY 40	$16.600	1.25
9		Construct pedestrian opportunities on James Trimble Blvd at KY 321 and across Paint Creek just south of Teays Branch Road	$350,000 each	3.75
10		Widen KY 40 from KY 321 intersection to either Alternative 3A or 3B including sidewalk on south side of KY 40	$8,306	3.00

The highest average score was achieved by Alternative 4 (5.00), followed by Alternative 4D (4.75), Alternative 1A (4.50), Alternative 5 (3.80), and Alternatives 4A and 9 (3.75). (Interestingly, the next highest scoring alternative was "do nothing"{3.50}.) Among the connectors between KY 321 and KY 40 providing service to vehicular traffic, the highest scoring was Alternative 1B (2.25); it should be noted that none of the connectors serving vehicular traffic scored especially high while a pedestrian crossing at Teays Branch Road (combined with pedestrian improvements to James Trimble Boulevard at KY 321) scored 3.75. Improvements to the existing KY 40 alignment outscored construction on a new alignment near the hospital, but none of the other KY 40 improvements – including those near the hospital -- scored nearly as high as the left-turn lane at Teays Branch Road and improvements from that point on KY 40 back to KY 321.

After a period for questions and answers, the participants were thanked for their participation, reminded of the project schedule, and the meeting adjourned.

COMMENT FORM
STAKEHOLDERS' MEETING 2
March 13, 2012

KY 321
between KY 40 and KY 321X
Johnson County
Programming Study

We need your help! You can help us by completing this comment form. The Kentucky Transportation Cabinet (KYTC) has initiated a programming study designed to develop and evaluate potential improvements to relieve congestion and improve safety on KY 321 between KY 40 and KY 321X in Johnson County. As part of the study, KYTC would like you to let us know which alternative improvements are important to you. Please complete this form and return it either the consultant or the Transportation Cabinet staff here today. We appreciate your participation and value your comments! Each person should complete a separate comment form.

Name: Denise Thomas

Representing (title, agency, organization, if applicable): BSADD

Address: 110 Resource ct., Prestonsburg, Ky 41653

Phone (optional): 606-886-2374 **Date:** 3/13/12

Email (optional): denise.thomas@bigsandy.org

The objective of the following form is to solicit your views on alternatives and their priorities in this study. Each form will be read and tabulated by the project team. All comments are welcome! We appreciate your participation!

Please discuss any other suggestions for you would like to have considered in this study, any environmental, cemeteries, or community features in the study area which we should be aware of, and any additional comments you may have regarding the study.

pedestrian travel should be included in any alternative that adds lanes thru Ky 321

Alt 4/5 preferred as primary
options for lower cost alt would be to add turning lanes on 321

Use additional pages if necessary. If you fail to receive a postage-paid envelope, you may send your written comments to:

For further information contact:

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Please note: Under KRS 516.030, falsely completing, making, or altering this document with the intent to defraud, deceive, or injure another is forgery in the second degree, a Class D felony.

KY 321 ALTERNATIVES SURVEY

ALTERNATIVE NUMBER	DESCRIPTION	LENGTH	COST ESTIMATE ****	Least Important		Important		Very Important
DO NOTHING	NO BUILD		$0	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
1	LEFT TURN LANE AT TEAYS BRANCH ROAD	0.30	$1,187,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
**1A	Improve KY 40 from the Left Turn Lane (ALT 1) to KY 321	0.30	$1,339,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1B	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF LOWES TERMINATING AT TEAYS BRANCH ROAD	0.24 mile	$4,260,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
1C	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE NORTH SIDE OF LOWES with Bridge	0.18 mile	$4,149,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
1D	Improve KY 40 from the Connector North of Lowes (1C) to KY 321/KY 40 Intersection	0.15 mile	$644,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
2	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON THE SOUTH SIDE OF JOHNSON CENTRAL SCHOOLS	0.25 mile	$6,996,000	1 ☐	2 ☒	3 ☐	4 ☐	5 ☐
**2B	Left Turn Lane on KY 40 for Alt 2	0.28 mile	$793,000	1 ☐	2 ☒	3 ☐	4 ☐	5 ☐
2A	KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	NOT FEASIBLE WITHOUT TOTALLY DISRUPTING SCHOOL TRAFFIC FLOW	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
2A-1	SHORTENED KY 321/KY 40 CONNECTOR WITH BRIDGE OVER PAINT CREEK ON NORTH SIDE OF JOHNSON CENTRAL SCHOOLS	0.17 mile	$4,440,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
**2A-1 KY 40	Left Turn Lane on KY 40 at Connector 2A-1	0.30 mile	$1,585,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
3A	IMPROVE KY 40 SHARP CURVE ON NEW ALIGNMENT	0.26	$3,000,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
3B	IMPROVE KY 40 SHARP CURVE TO PAUL HALL HOSPITAL	0.27 mile	$1,100,000	1 ☐	2 ☒	3 ☐	4 ☐	5 ☐
4	FIVE LANE KY 321 FROM KY 40 TO KY 2378 / JAMES TRIMBLE BOULEVARD	1.01 mile	$9,477,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
*, **4A	Right In/Right Out Scenarios	N/A	$200,000	1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
4B, 4B-1, 4B-2	Access Road that parallels KY 321 (Restriping, Purchase of Business, and Restriping and purchase of some of Lowes Parking Lot)	0.50 mile	$500,000	1 ☐	2 ☒	3 ☐	4 ☐	5 ☐
**4C	Right Turn Lanes at Johnson County Middle School, Johnson Central High School, Appletree Plaza, Mayo (McDonalds Intersection), Kmart Walmart (shared through right lane)	0.33	$2,400,000	1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
4D	Carry additional KY 321 SB lane and Turn Lane from Paint Creek Bridge SB past Wal-Mart entrance dropping at Kmart Entrance	0.31 mile	$1,845,000	1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
4E	Connects the entrances of Wal-Mart and K-Mart and would close the K-mart entrance	0.04 mile	$87,000	1 ☐	2 ☐	3 ☒	4 ☐	5 ☐
5	FOUR LANE KY 321 FROM KY 2378/JAMES TRIMBLE BOULEVARD TO KY 321X	0.65 mile	$4,747,000	1 ☐	2 ☐	3 ☐	4 ☐	5 ☒
6	CONNECTOR FROM KY 2378/JAMES TRIMBLE BOULEVARD TO US 23	1.34 miles	$46,845,000	1 ☐	2 ☒	3 ☐	4 ☐	5 ☐
7***	CONNECTOR FROM KY 321 AROUND MILL BRANCH ROAD TERMINATING AT WAL-MART CIRCULATOR ROAD	1.61 miles	$56,479,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
8***	CONNECTOR FROM KY 40 TO WAL-MART CIRCULATOR ROAD WITH BRIDGE OVER PAINT CREEK AND TRAFFIC SIGNAL ON KY 40	0.16 mile	$16,600,000	1 ☒	2 ☐	3 ☐	4 ☐	5 ☐
9	PEDESTRIAN OPPORTUNITIES FOR KY 2378 TO KY 321 AND HOSPITAL and to TEAYS BRANCH ROAD	0.08	$280,000-$430,000 per bridge	1 ☐	2 ☐	3 ☒	4 ☒	5 ☐
10	WIDEN KY 40 FROM KY 321 TO ALTERNATIVE 3A OR 3B INCLUDING SIDEWALK ON PAINT CREEK SIDE	1.13 miles	$8,306,000	1 ☐	2 ☒	3 ☐	4 ☐	5 ☐

*At McCloud Drive
**Not shown on exhibit
***Eliminated from further consideration does not relieve congestion from KY 321
****Does not include R/W and Utilities

KENTUCKY TRANSPORTATION CABINET

QK4 Architecture Engineering Planning

Groundbreaking by Design.