

KY 92 Williamsburg
Programming Study
Whitley County

Traffic Forecast Report



TABLE OF CONTENTS

1.0	PROJECT DESCRIPTION.....	1
2.0	DATA COLLECTION EFFORTS	2
3.0	NO BUILD TRAFFIC	3
4.0	BUILD TRAFFIC	7
5.0	CALIBRATION OF EXISTING MICROSIMULATION MODEL.....	9

TABLES

Table 1: KSDC Whitley County Population Forecast	4
Table 2: Car-Following Model Adjustments.....	9
Table 3: Peak Hour Vehicle Compositions	9
Table 4: Light Vehicle Distribution	10
Table 5: Heavy Vehicle Distribution.....	10
Table 6: Comparison of Intersection Volumes.....	11
Table 7: Comparison of Travel Time	11

FIGURES

Figure 1: Study Area.....	1
Figure 2: Turning Movement County Locations.....	2
Figure 3: Miovision Classification Scheme	3
Figure 4: Proposed Gaming Facility	5
Figure 5: Penny Lane Extension Option 1	7
Figure 6: Penny Lane Extension Option 2	7
Figure 7: Right In / Right Out Penny Lane Configuration.....	8
Figure 8: KY 92 & Penny Lane Intersection Configuration.....	8
Figure 9: Speed Distributions.....	10
Figure 10: Travel Time Points.....	12

APPENDICES

Appendix A: Turning Movement Counts
Appendix B: 2020 Turning Movement Forecast
Appendix C: Casino Trip Generation & Trip Distribution
Appendix D: 2045 No-Build Turning Movement Forecasts
Appendix E: 2045 Build Turning Movement Forecasts
Appendix F: Vissim Results

1.0 PROJECT DESCRIPTION

The Kentucky Transportation Cabinet (KYTC) assigned Qk4 a programming study for transportation improvements to support a proposed development along Penny Lane in Williamsburg, Whitley County. **Figure 1** shows the proposed study area. Williamsburg lies within the Cumberland Valley Area Development District (CVADD). The proposed development illustrated in **Figure 1** is expected to include a gaming facility with an estimated 1,800 visitors per day. This study will focus on the KY 92 intersections with the Interstate 71 Ramp Terminals, Penny Lane, and a proposed Connector Road that will intersect KY 92 east of Waterpark Way.

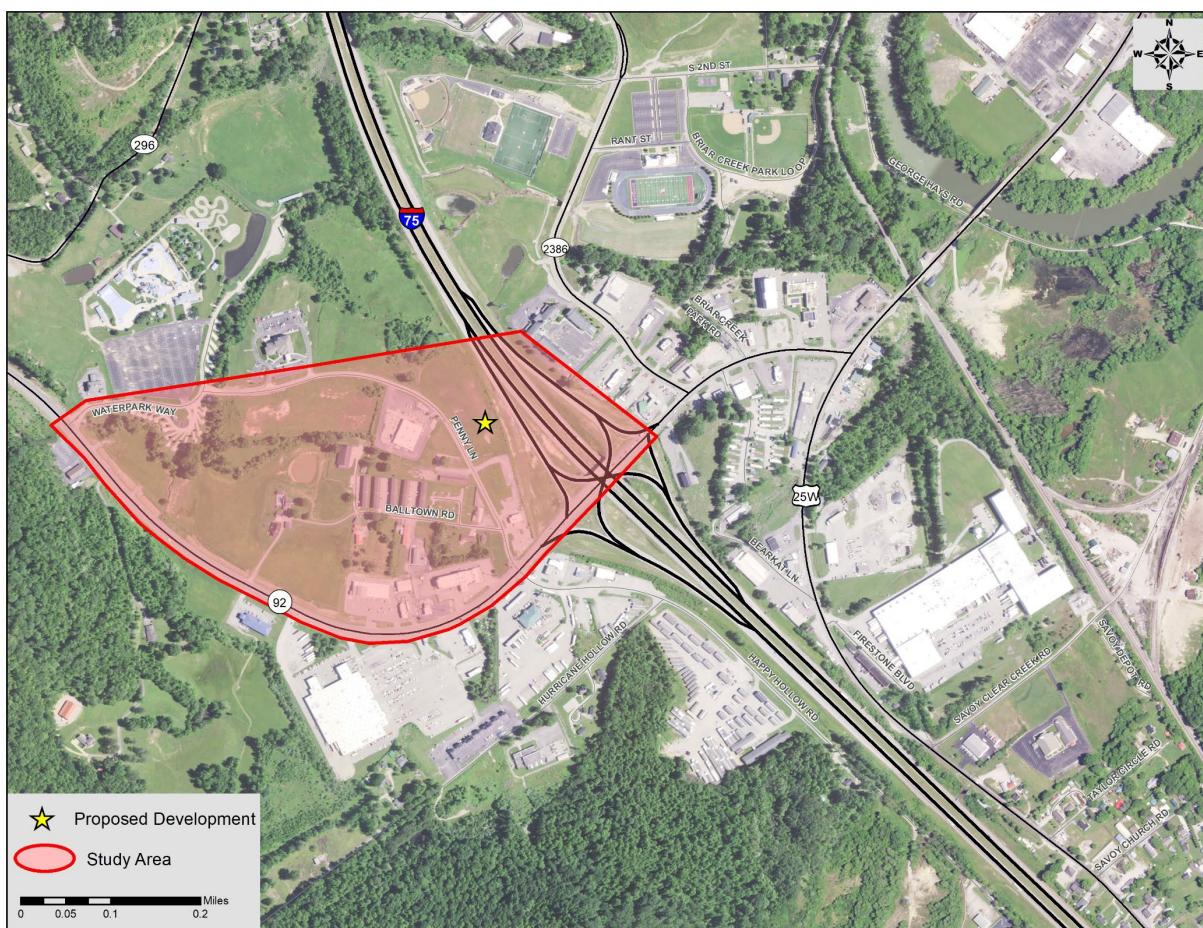


Figure 1: Study Area

This report summarizes methodologies and procedures associated with the development of future traffic analyses to support the programming study.

2.0 DATA COLLECTION EFFORTS

Qk4 collected turning movement counts in September 2021 at the study area intersections shown on **Figure 2**. Counts were used to define existing traffic including daily, AM, and PM peak hour volumes. Twelve-hour Miovision turning movement counts were conducted, classifying vehicles into one of five categories: motorcycles, cars & light good vehicles, buses, single unit trucks, and articulated trucks as seen on **Figure 3**.

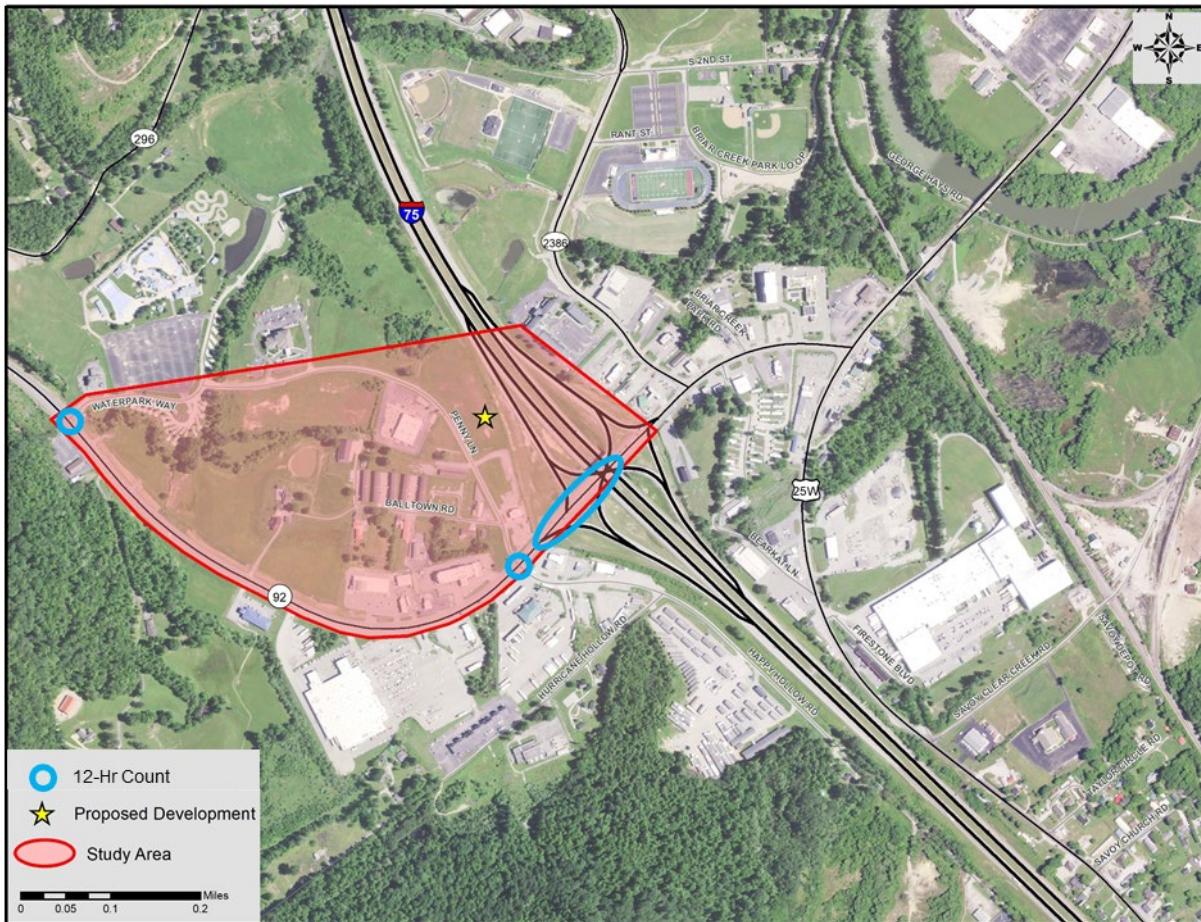


Figure 2: Turning Movement Count Locations

Motorbike
All motorcycles, mopeds, motor-powered bicycles, and three-wheel motorcycles.
Relevant FHWA Class – 1: MotorcyclesTypical Vehicle Length: 3.15 - 7.61 feet (0.96 - 2.32 m)
Car
All passenger-carrying vehicles, including those that pull light trailers: sedans, coupes, station wagons, SUVs, vans, limos, campers, motor homes, small ambulances, etc.
Relevant FHWA Classes - 2: Passenger Cars and Other Two-Axle, Four-Tire Single Unit Passenger VehiclesTypical Vehicle Length: 13.06 - 22.45 feet (3.98 - 6.84 m)
Light Goods Vehicle
All light goods-carrying vehicles, including those that pull light trailers: pickups, panel vans, tow trucks, etc.
Relevant FHWA Classes: 3: 2 Axles, 4-Tire Single Units, Pickup or Van (With 1- or 2-Axle Trailers)5: Two-Axle, Six-Tire, Single-Unit Trucks. All vehicles on a single frame, including trucks, camping and recreational vehicles, motor homes, etc., with two axles and dual rear wheelsTypical Vehicle Length: 13.06 - 22.45 feet (3.98 - 6.84 m)
Single-Unit Truck
All rigid vehicles over 3.5 tonnes gross vehicle weight.
All large vehicles on a single frame: trucks, tow trucks, campers, motor homes, large ambulances, and so on, including passenger-carrying vehicles from this category pulling trailers. Also includes all buses if the separate Bus class is not selected.
Relevant FHWA Classes – 4: Buses; 5-7: Two-Axle, Six-Tire, Single Unit Trucks and Three or More Axle Single Unit TrucksTypical Vehicle Length: 20.23 - 34.44 feet (6.17 - 10.50 m)
Bus
All passenger-carrying buses, including school buses and articulated buses.
*Note: if buses are not selected as a separate class, buses will be documented as either Other Vehicles or as Medium class, depending on the classification scheme you select.
Relevant FHWA Class – 4: BusesTypical Vehicle Length: 31.19 - 44.93 feet (9.51 - 13.69 m)
Articulated Trucks
All articulated vehicles, except for articulated buses.
All multi-unit goods-carrying vehicles with a tractor or straight truck power unit, including goods-carrying rigid trucks pulling trailers.
Relevant FHWA Classes – 8-13: Three or More Axle Trailer or Multi Trailer TrucksTypical Vehicle Length: 31.19 - 77.59 feet (9.51 - 23.65 m)

Figure 3: Miovision Classification Scheme

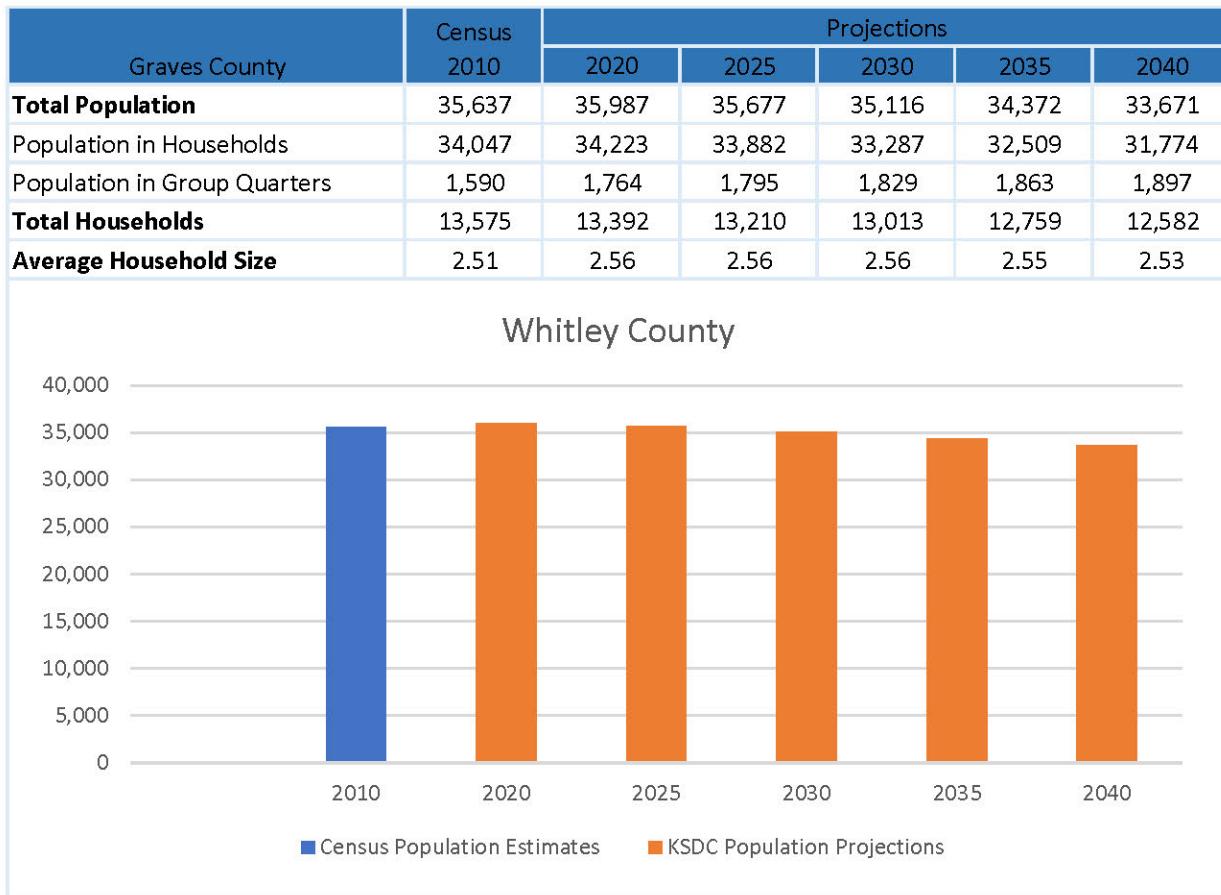
Unadjusted turning movement counts are presented in **Appendix A**. Turning movement forecasts for the 2020 Existing scenario are presented in **Appendix B** for each of the counted intersections.

3.0 NO BUILD TRAFFIC

To project future year traffic forecasts, KYTC's Kentucky Statewide Travel Demand Model (STDM), version 20210304 was applied. The year 2020 served as the “existing” baseline scenario. Future year 2045 No-Build and Build forecasts were also developed. As a basis for these forecasts a baseline area-wide growth rate was found from the KYSTM. In addition to this growth, trips were generated and distributed for the proposed gaming facility that is under construction along Penny Lane.

Table shows the county's overall population increased slightly from 2010 to 2020 but is projected to gradually decrease from 2020 to 2040. Future year estimates are from the Kentucky State Data Center.

Table 1: KSDC Whitley County Population Forecasts



3.1 KYTSTM Results

Results of the STDM analysis of the study area showed an annual growth rate of 0.8%. This growth rate was applied on all study area turning movements to determine future year 2045 No-Build base traffic. Additional traffic was added to this to account for a proposed gaming facility along Penny Lane.

3.2 Gaming Facility Traffic

The proposed gaming facility is to be located along Penny Lane adjacent to Interstate 75 as seen on **Figure 4** on the next page. This facility will encompass 57,000 square feet including a casino (17,970 sf), sports bar/lounge, grill and offices. Per the developer, it is expected to attract 1,800 visitors per day and will employ 150 full time staff.

The 11th edition of the ITE *Trip Generation Manual* was used to generate trips for the proposed casino. ITE site code 473: Casino was used to generate daily, AM peak and PM peak trips using square footage as the independent variable. ITE trip generation spreadsheets can be found in **Appendix C**.

It has been projected by operators that 80% of traffic accessing the facility will originate from out-of-town. The 20% local trips were distributed based on existing roadway patterns and the remaining 80% were distributed to Interstate 75 north or south based on the magnitude of existing traffic for these roadway sections. Trip distribution percentages and distributed traffic can also be found in **Appendix C**.

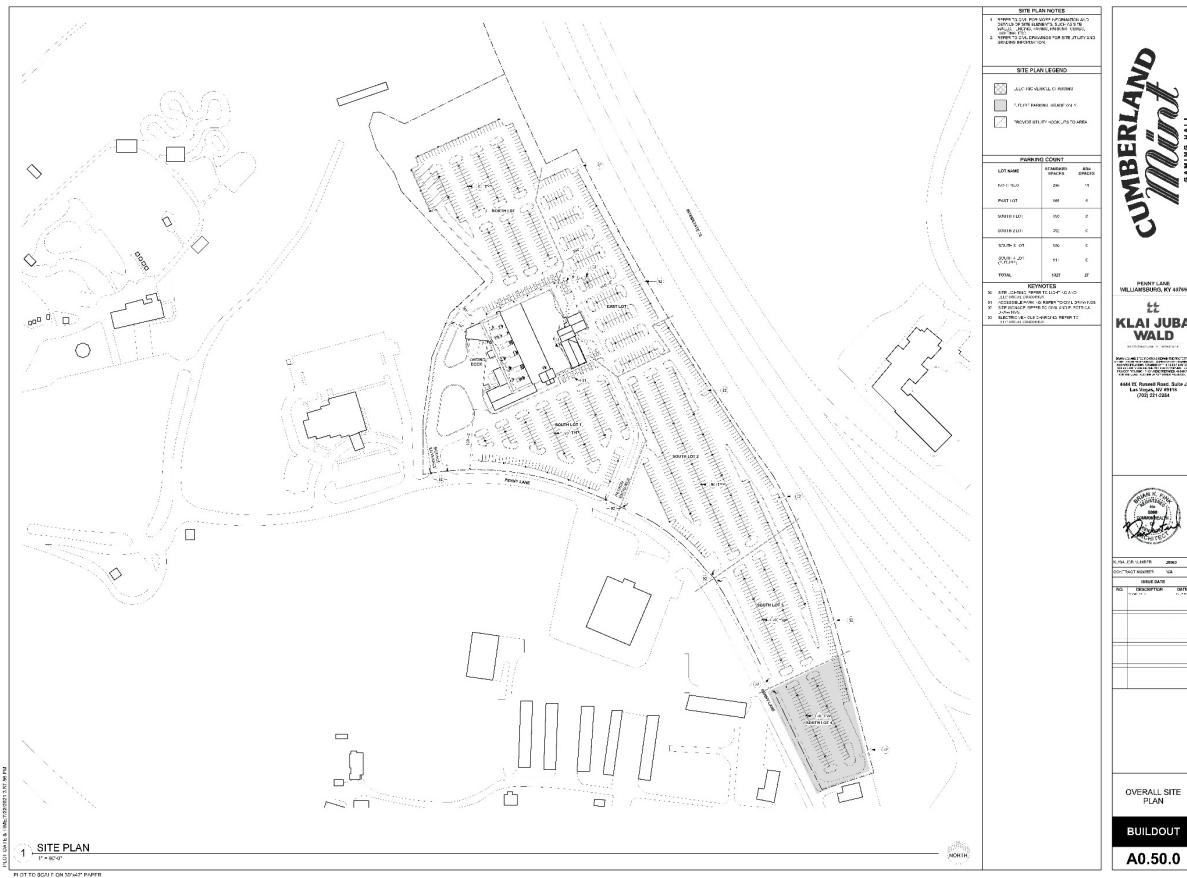


Figure 4: Proposed Gaming Facility

3.3 2045 No-Build Traffic Projections

No-build traffic was found by adding base year 2045 traffic with traffic generated by the casino. No-build turning movements for study area intersections can be found in **Appendix D**.

4.0 BUILD TRAFFIC

All future year build scenarios include one of two concepts for a Penny Lane extension. Option 1 would tee into Penny Lane across from the Health Department—creating a four-leg intersection at the north end of the new connector—and continue south intersecting KY 92. Option 2 would extend Penny Lane directly to KY 92 with a sweeping curve and close the existing Penny Lane west to Waterpark Way to vehicular traffic. **Figures 5 and 6** on the following page present a sketch of these build scenarios.

Complementary to Options 1-2 above, several treatments are being considered to limit the amount of traffic the proposed casino would have on the existing Penny Lane intersection with KY 92. Each treatment would limit Penny Lane traffic to one-way (northbound only) north of Balltown Road/Dairy Queen, forcing traffic to the new connector road to return to KY 92. Turn restrictions at the existing KY 92/Penny Lane intersection define the difference between Options A, B, and C.

Three forecast scenarios were used to analyze different combinations of the improvement alternatives listed above.

- **Forecast Option A** would construct the Penny Lane Extension (either Option 1 or 2). Penny Lane would be converted to one-way North/Westbound only, north of the existing Dairy Queen. There would be no changes to the KY 92 & Penny Lane intersection.
- **Forecast Option B** would construct the Penny Lane Extension (either Option 1 or 2). Penny Lane would be converted to right in / right out only operations at the KY 92 intersection, as shown in **Figure 7** (page 9).
- **Forecast Option C** would construct the Penny Lane Extension (either Option 1 or 2). A median island would be constructed to limit all left turns at the KY 92 & Penny Lane / Happy Hollow Road intersection with the exception of the Westbound left onto Happy Hollow Road. This scenario is shown in **Figure 8** (page 9).

Build turning movement forecasts for these three alternatives can be found in **Appendix E**.

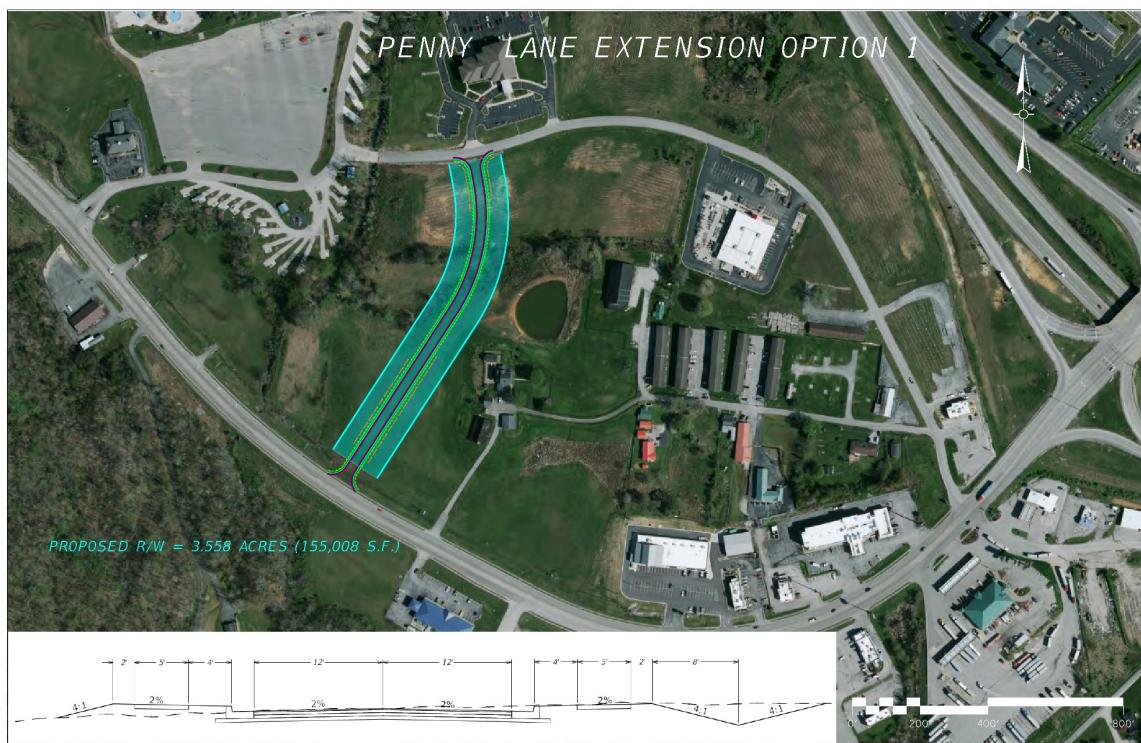


Figure 5: Penny Lane Extension Option 1

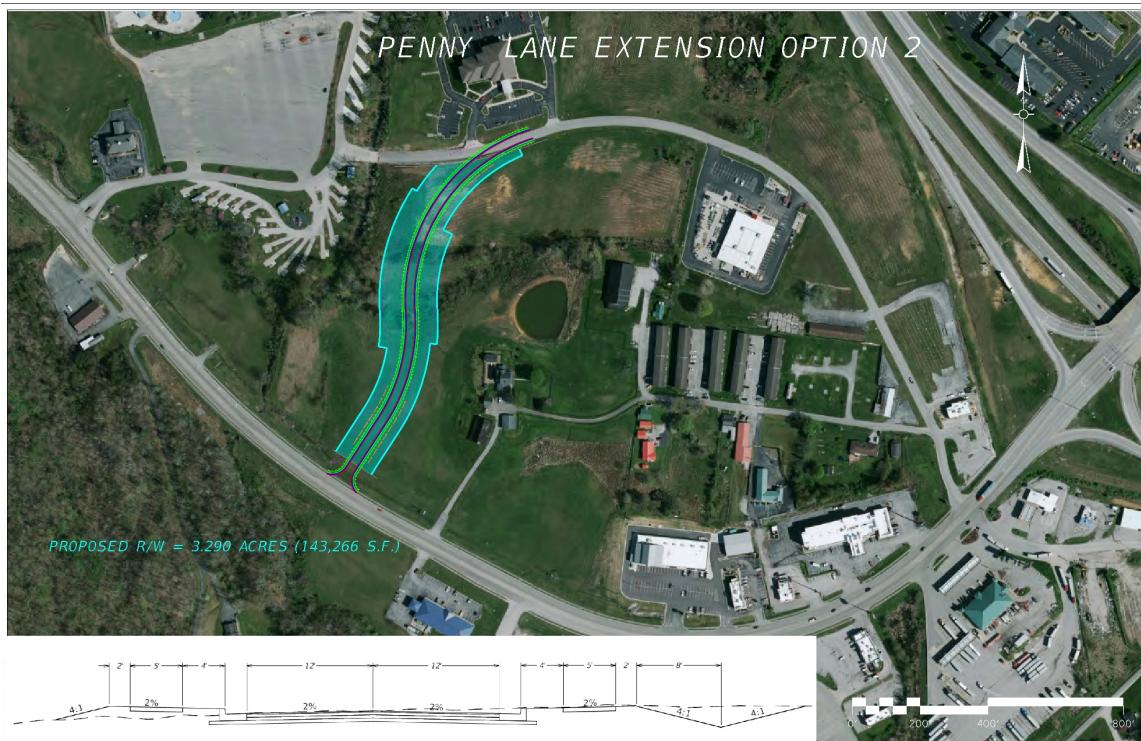


Figure 6: Penny Lane Extension Option 2



Figure 7: Right In / Right Out Penny Lane Configuration (Option B)



Figure 8: Proposed KY 92 & Penny Lane Intersection Configuration (Option C)

5.0 CALIBRATION OF EXISTING MICROSIMULATION MODEL

Microsimulation models using the Vissim software package¹ were developed for the AM and PM peak period operations during each scenario. The AM peak simulated operations 10:30 AM-12:30 PM; the PM peak simulated operations 2:30-4:30 PM. The year 2021 scenario was calibrated using collected existing conditions data to ensure models replicate existing performance. Default variables were adjusted as appropriate to reflect Kentucky driver behaviors as discussed below.

5.1 Vissim Inputs for Calibration

AM and PM Vissim models were built to evaluate traffic operations under the Existing, No-Build, and Build scenarios. To ensure accuracy of these models, AM and PM Existing models were calibrated by 15-minute volumes on links, peak travel speeds, and vehicle types.

The Wiedemann 74 car-following model was used to replicate local driver behavior patterns, KYTC standards were used for these values where possible. An average standstill distance of nine feet was used in lieu of KYTC's standard distributions. Adjustments are shown in **Table 2**.

Table 1: Car-Following Model Adjustments

Parameter	Original
Average Standstill Distance	9.00 ft
Additive Part of Safety Distance	2.00
Multiplicative Part of Safety Distance	3.00

Vehicle compositions were found for each entry node from classification data in the traffic counts. **Table 3** summarizes this information.

Table 2: Peak Hour Vehicle Composition

Vehicle Entry Point	AM Truck %	PM Truck %
Happy Hollow Road Northbound	4.6%	5.3%
Penny Lane Southbound	0.9%	1.8%
KY 92 Eastbound	2.3%	0.1%
Southbound I75 Off Ramp	12.9%	14.9%
Northbound I75 Off Ramp	26.8%	29.6%
KY 92 Westbound	17.8%	1.3%

¹ PTV Vissim 10.00 – 16 [79178]

Vehicle fleet compositions for cars and heavy vehicles were also assigned by KYTC standards. **Tables 4** and **5** below summarize breakdowns for both cars and heavy vehicles.

Table 4: Light Vehicle Distribution

Car Type	Percentage
Honda Accord	12.9%
Nissan Altima	6.0%
Nissan Quest	6.4%
Plymouth Voyager	5.5%
Toyota Avensis	13.5%
Ford Explorer	10.6%
GMC Yukon	5.0%
Jeep Grand Cherokee	5.8%
Ford F150	19.2%
Chevrolet Silverado	15.1%

Table 5: Heavy Vehicle Distribution

Heavy Vehicle Type	Percentage
AASHTO WB-40	10.5%
AASHTO WB-50	60.5%
AASHTO WB-65	4.5%
AASHTO WB-67	4.5%
Flatbed	5.0%
EU 04	15.0%

KYTC's default desired speed distributions were used. The 35 mph urban arterial curve was used, shown in **Figure 9**.

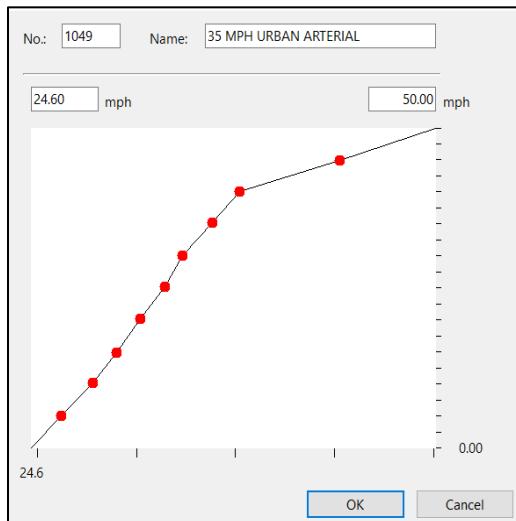


Figure 9: Speed Distributions

Applying these factors to the calibration process, the microsimulation results provided a reasonably accurate representation of existing conditions at each intersection. **Table 6** compares modeled intersection volumes to counted volumes. The results show a very close agreement between the two with a maximum difference less than four percent for both peak hours. **Table 7** compares travel times between the two points shown on **Figure 10**. The results of this comparison between modeled and field collected travel times show a difference of less than eight percent for both peak hour in both directions.

Table 6: Comparison of Intersection Volumes

Intersection	Volumes		
	Collected	Modeled	Diff
AM Peak			
KY 92 & I75 Interchange	1223	1222	0.1%
KY 92 & Penny Lane	1153	1198	3.9%
PM Peak			
KY 92 & I75 Interchange	1756	1756	0.0%
KY 92 & Penny Lane	1634	1684	3.1%

Table 7: Comparison of Travel Time

Intersection	Volumes		
	Collected	Modeled	Diff
AM Peak			
Eastbound	31.7	29.3	7.5%
Westbound	17.3	18.3	5.8%
PM Peak			
Eastbound	28.8	26.6	7.6%
Westbound	17.8	18.3	2.8%

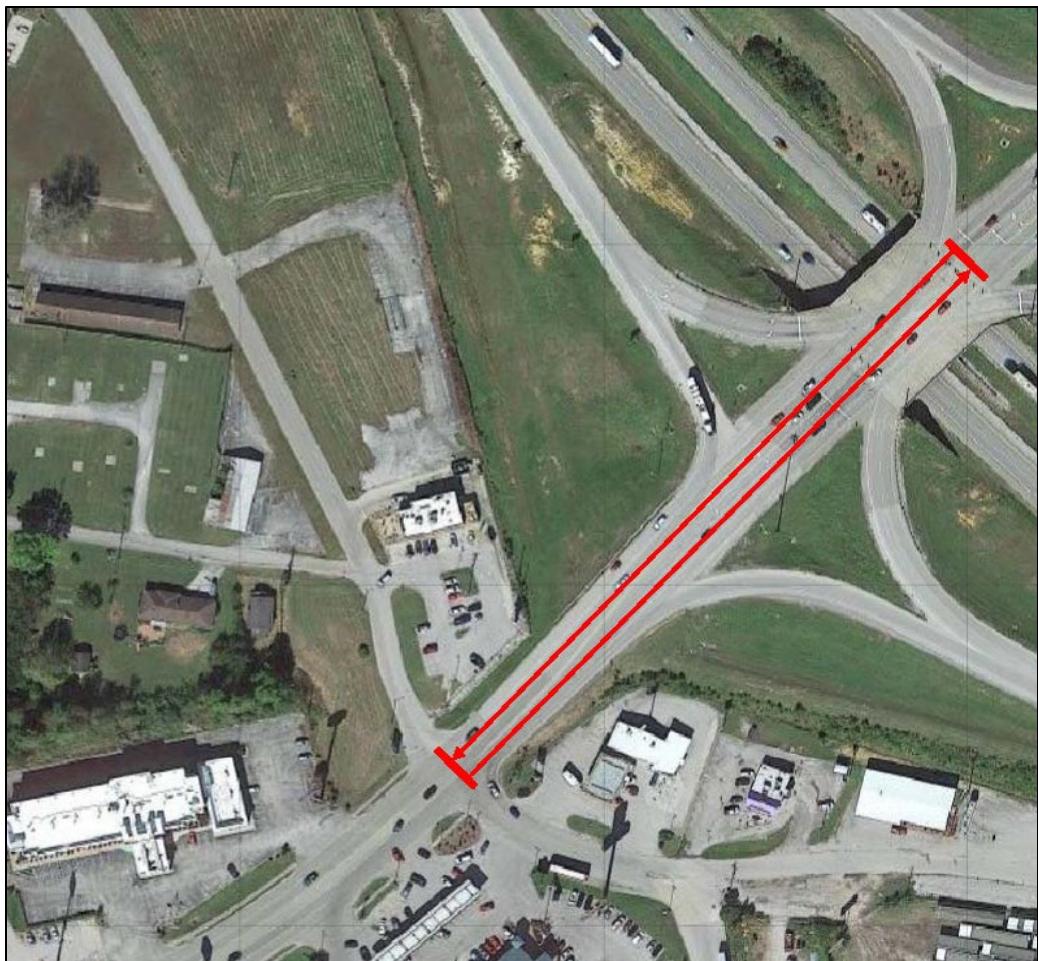


Figure 10: Travel Time Points

5.2 Vissim Outputs

Vissim outputs summarize volumes, queue lengths, level of service (LOS), and delay for individual turn movements in the existing scenario. Detailed Vissim output for all scenarios can be found in **Appendix F**.

Appendix A

Turning Movement Count Data

Appendix B

2021 Turning Movement Forecast

PROJECT: Williamsburg Planning Study

ITEM NUMBER: 0

MARS NUMBER: 0

REQUEST DATE: Saturday, January 0, 1900

ANALYST: 0

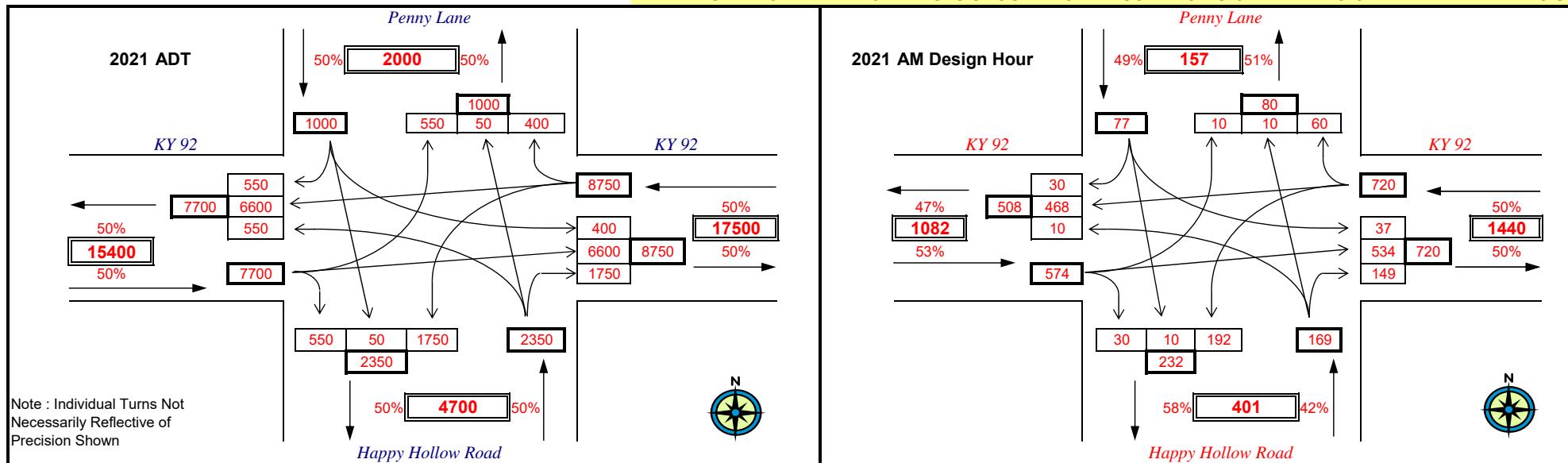
YEAR: 2021 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Penny Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2021 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2021)

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



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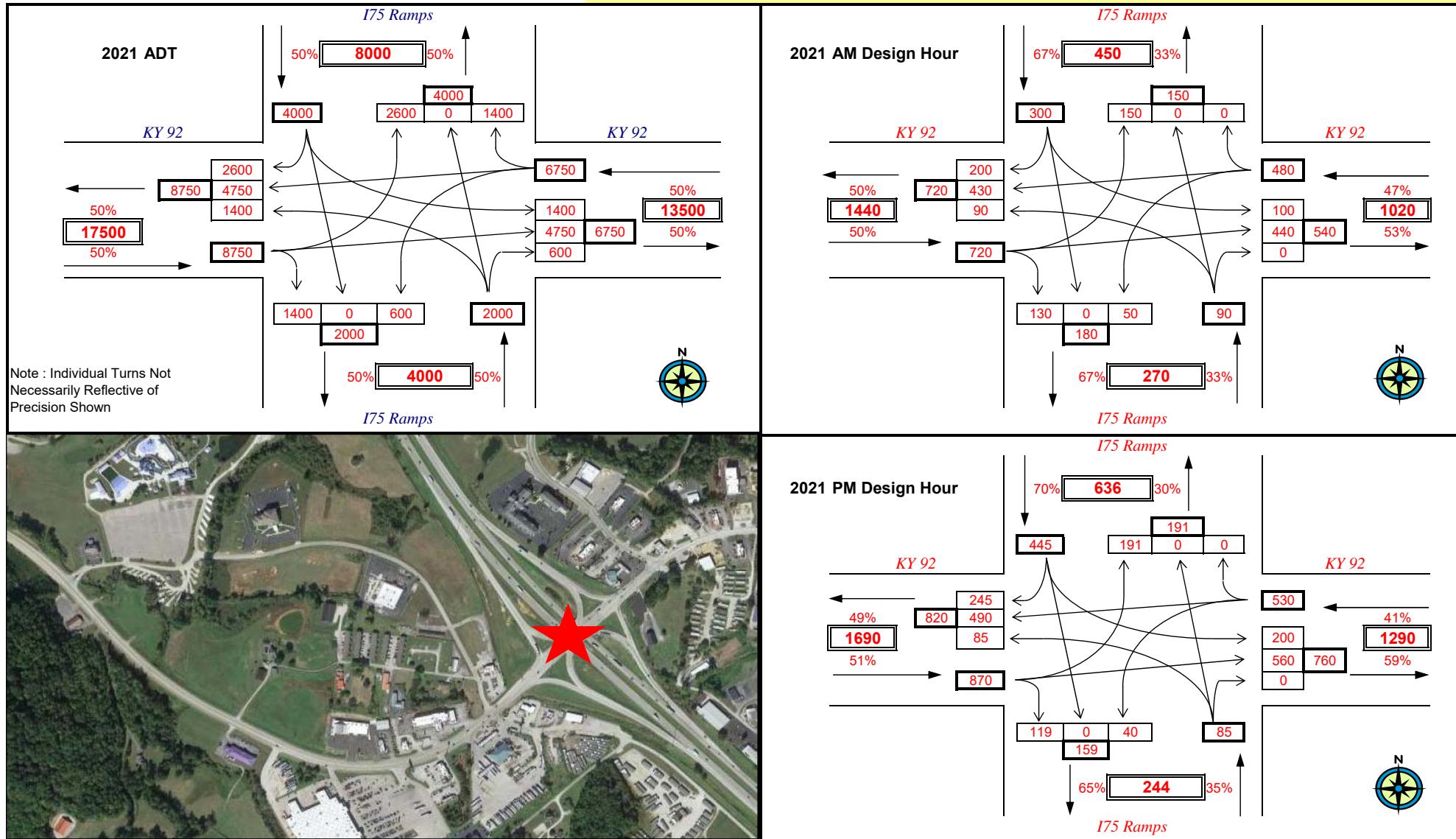
YEAR: 2021 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Interstate 75 Ramps

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2021 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

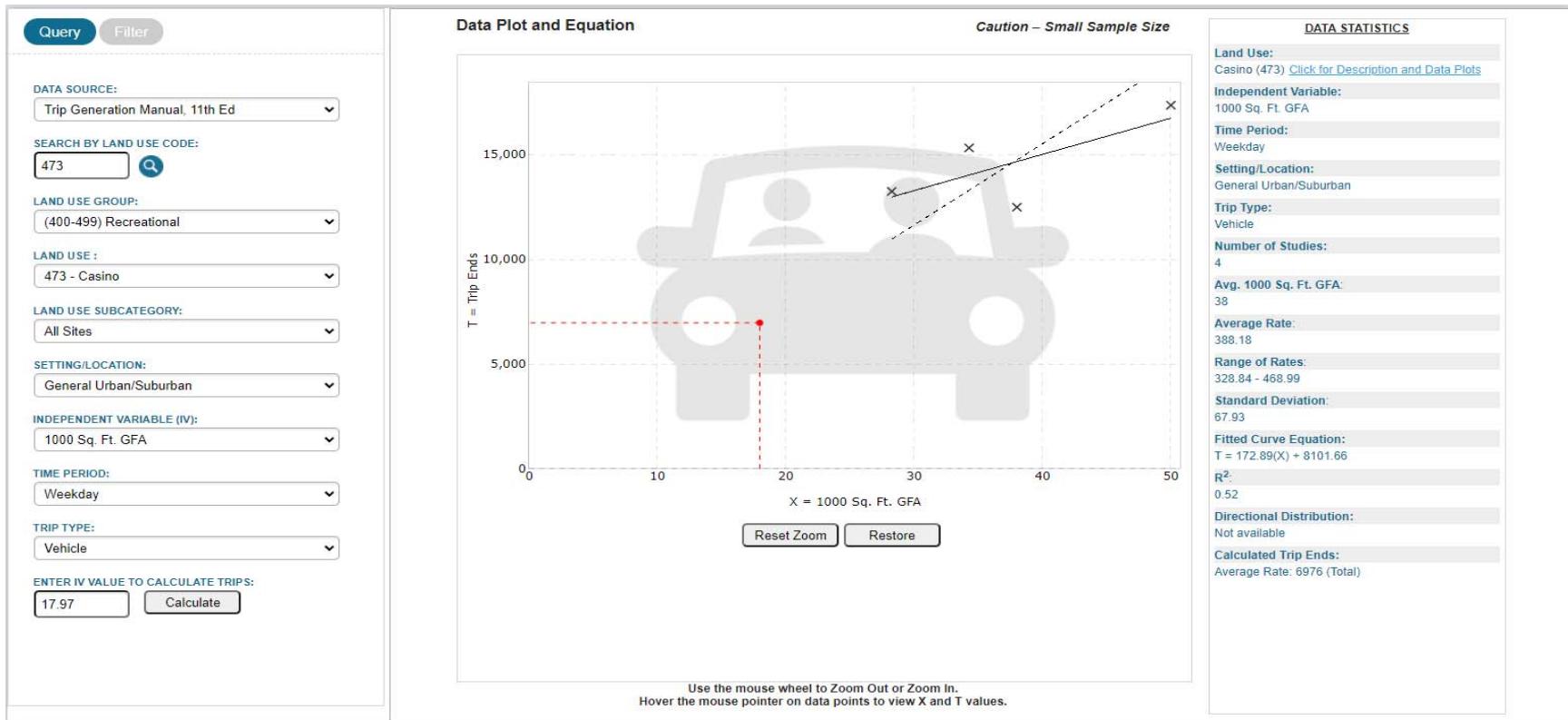
TURN MOVEMENT 1 (2021)

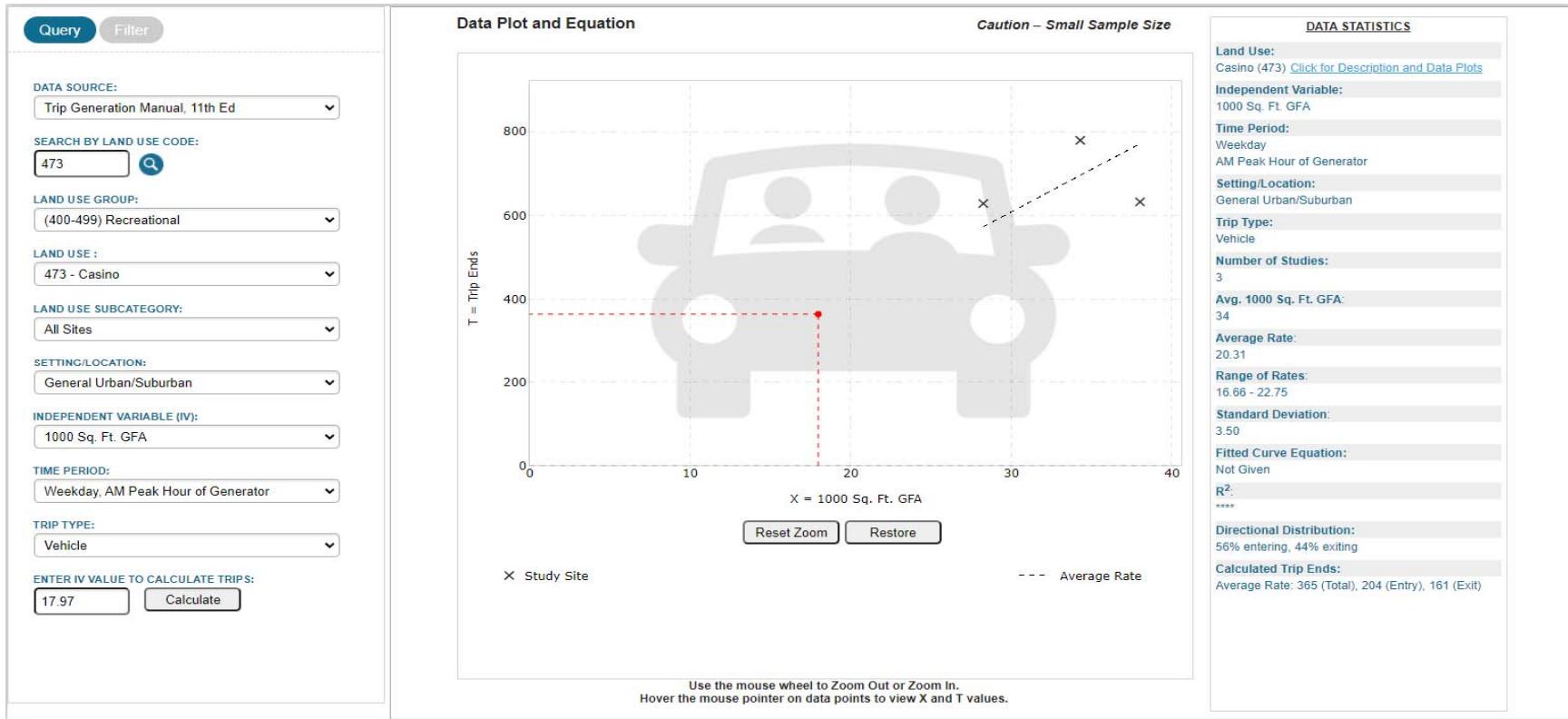
**DHV TURN MOVEMENT FORECASTS SHOULD NOT BE USED FOR SIGNAL TIMING OR WARRANT ANALYSIS

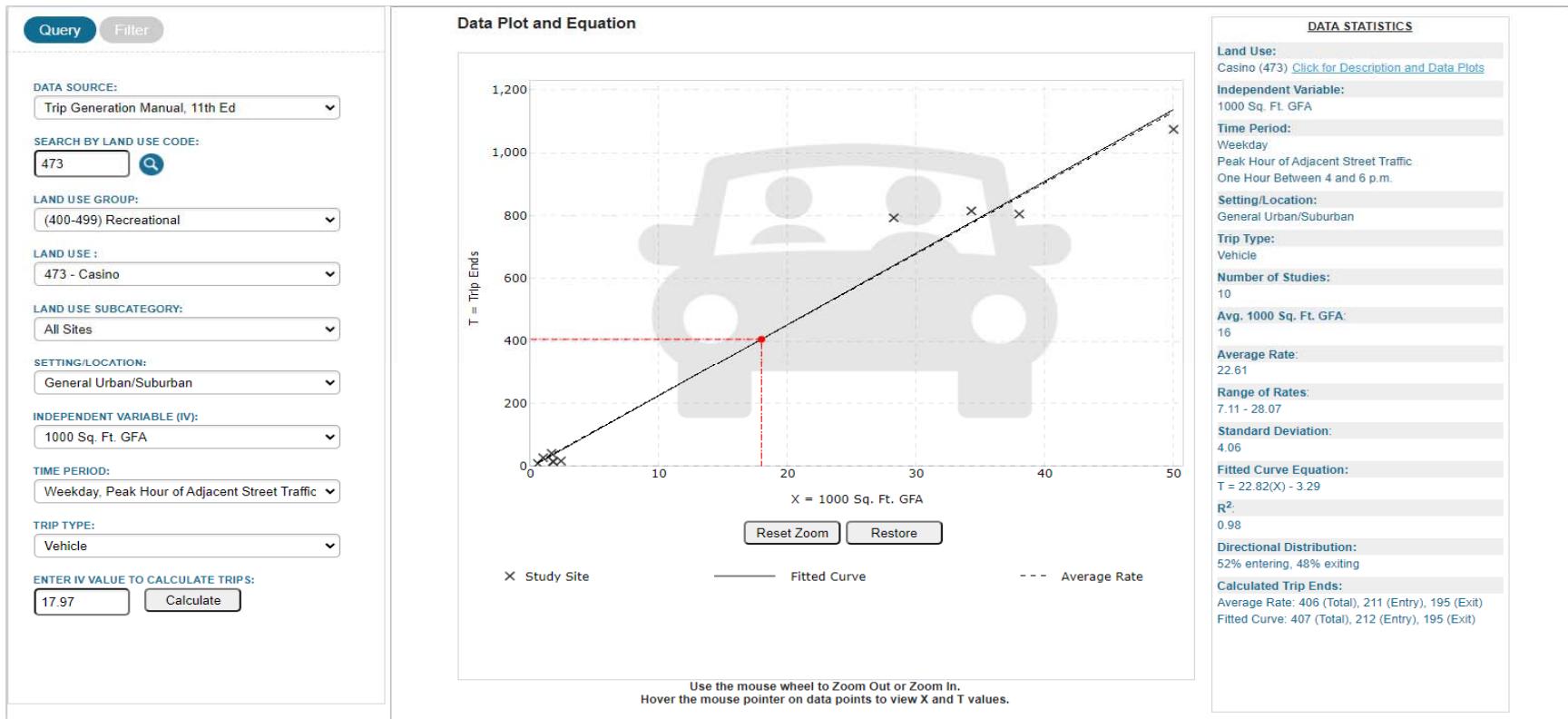


Appendix C

Casino Trip Generation and Trip Distribution



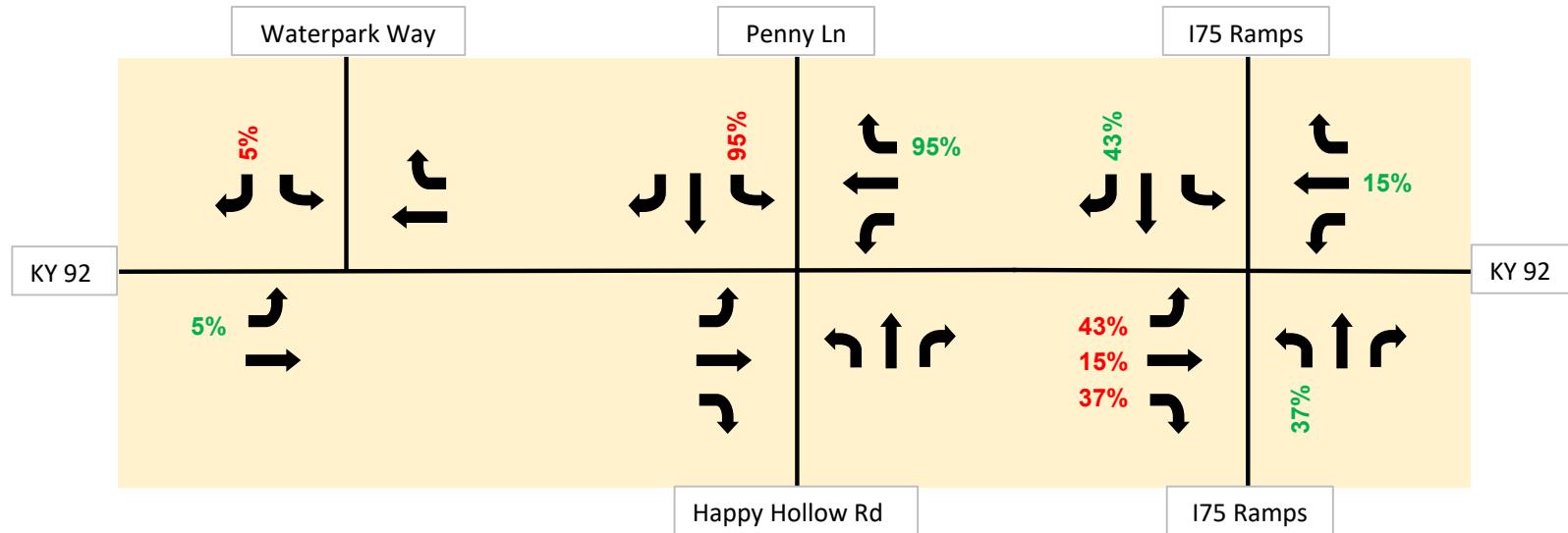




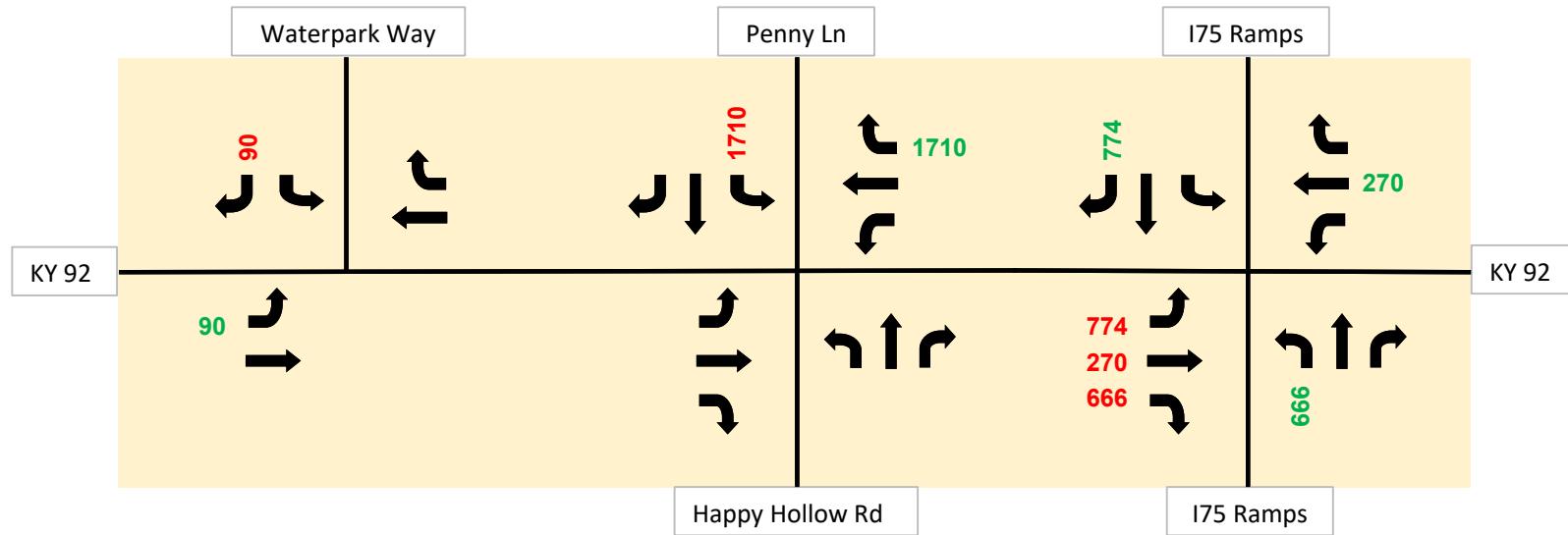
TRIP DISTRIBUTION

Inbound

Outbound

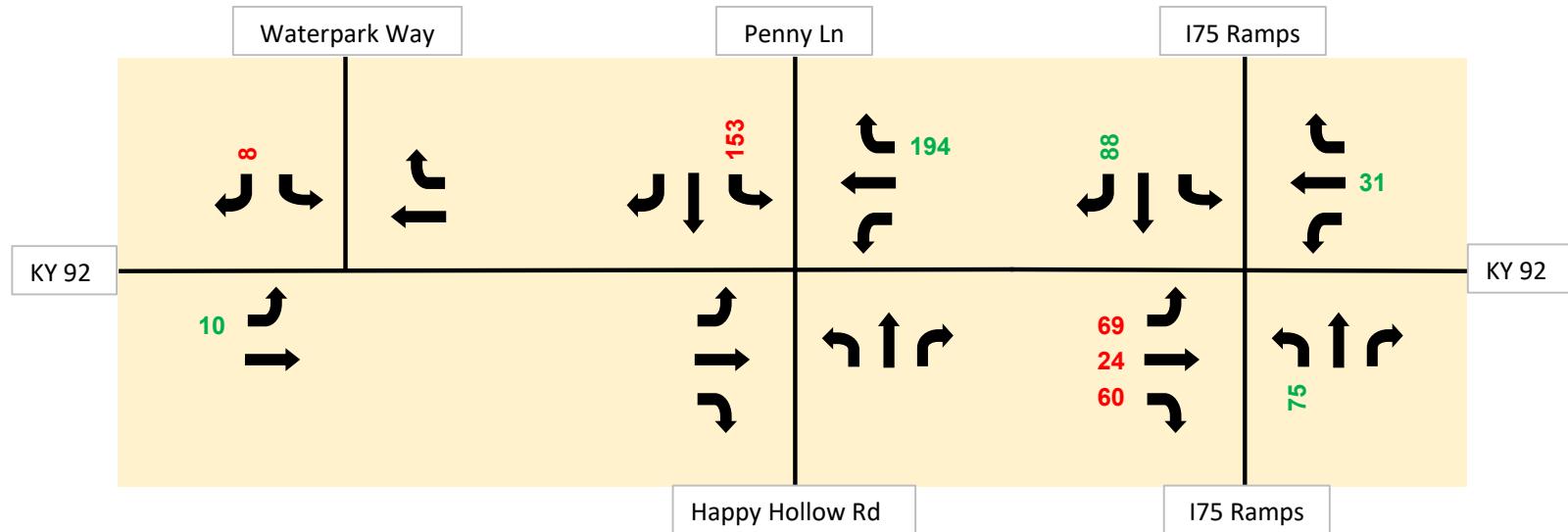


DAILY
TRIP DISTRIBUTION
Inbound 1800
Outbound 1800



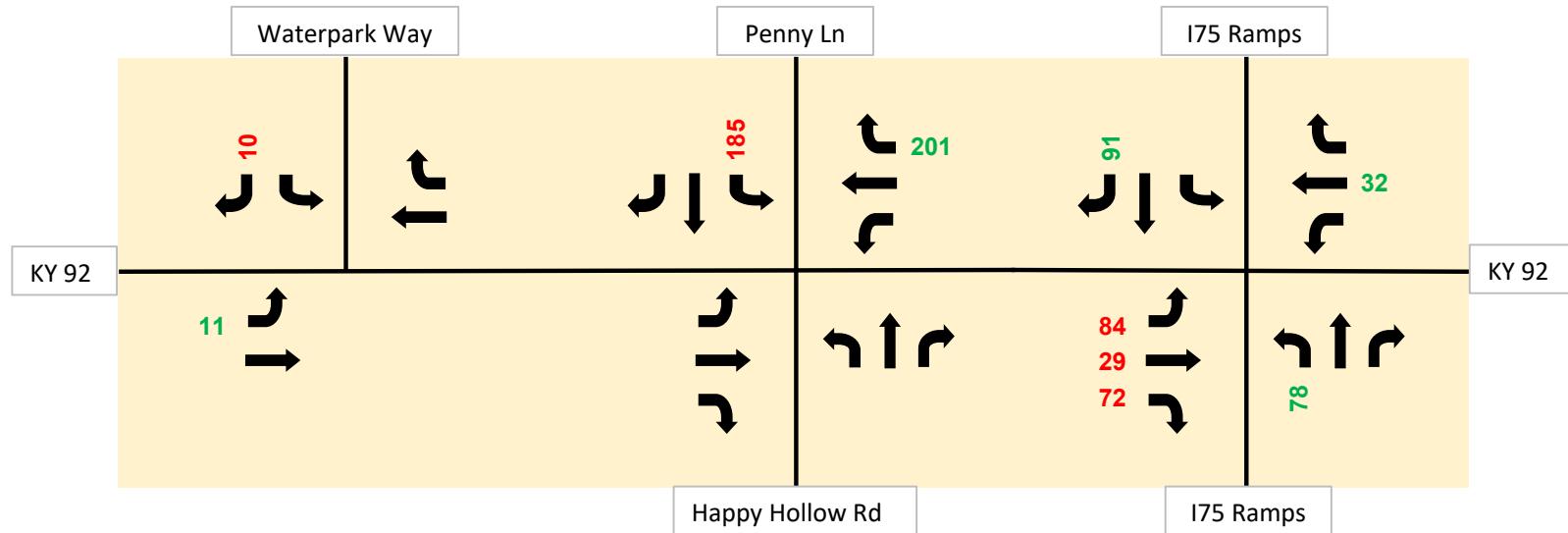
AM PEAK HOUR

Inbound 204
Outbound 161



PM PEAK HOUR

Inbound 212
Outbound 195



Appendix D

No-Build Turning Movement Forecast

PROJECT: Williamsburg Planning Study

ITEM NUMBER: 0

MARS NUMBER: 0

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ANALYST: 0

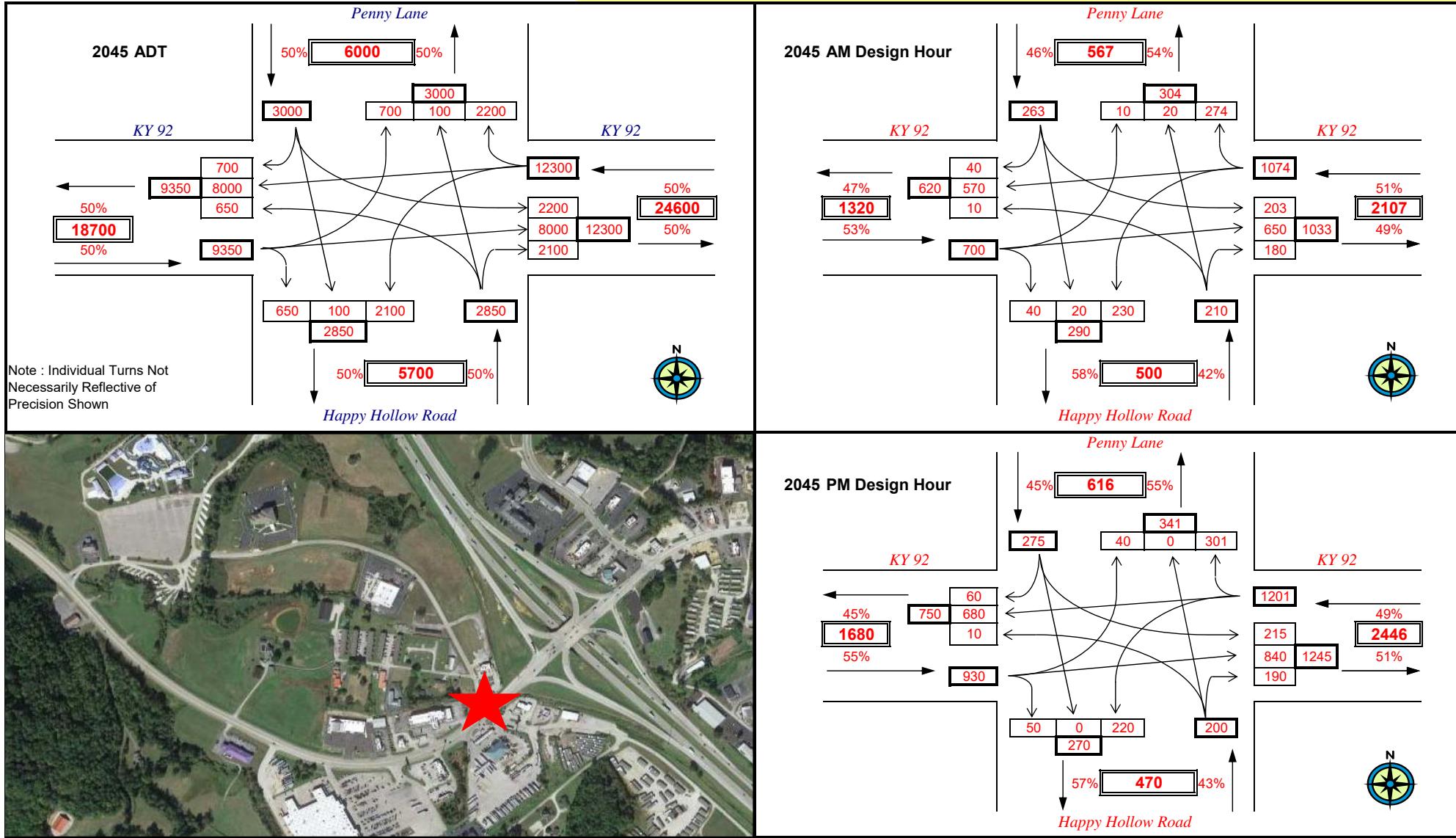
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Penny Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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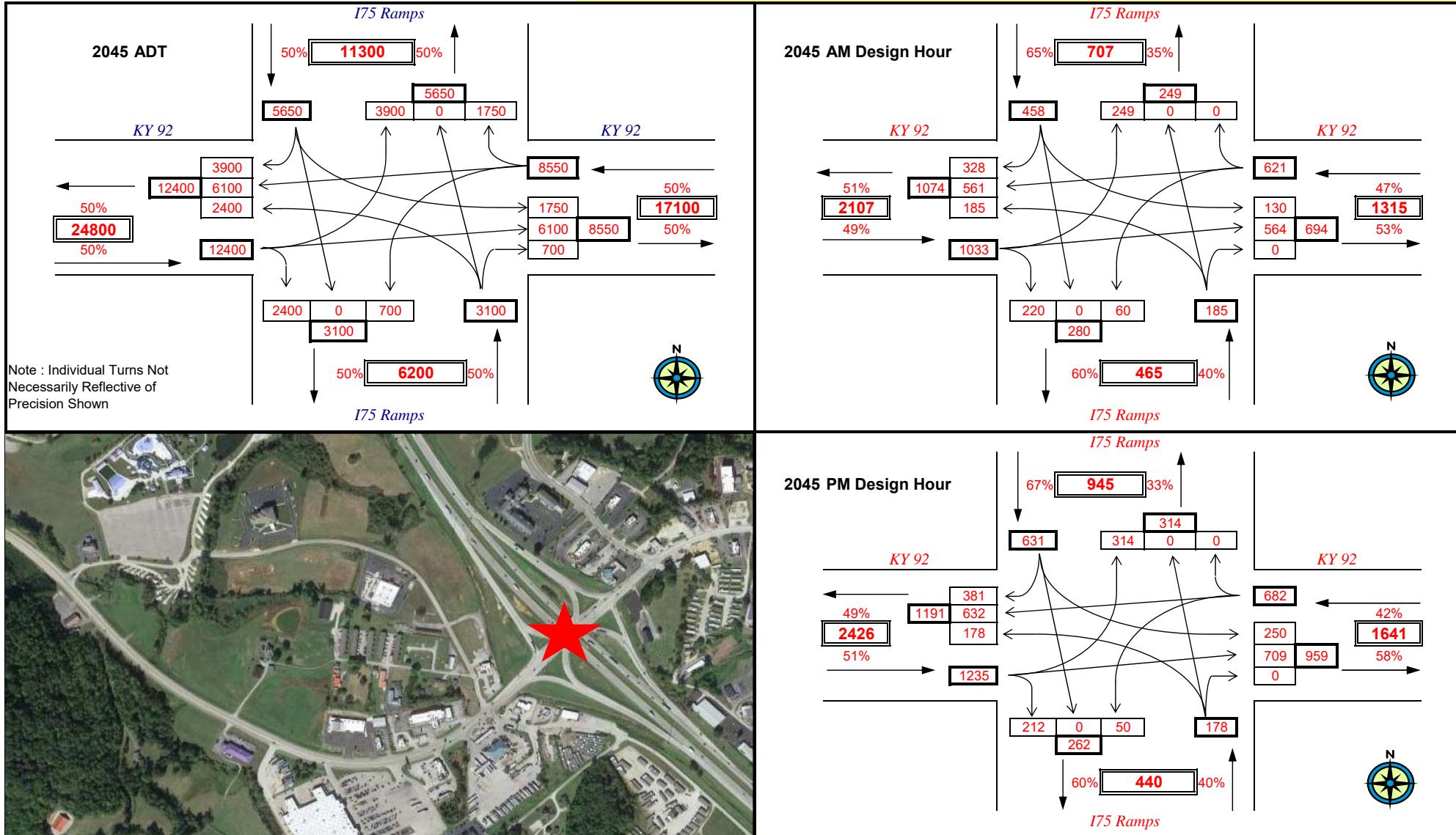
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Interstate 75 Ramps

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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



Appendix E

2045 Build Turning Movement Forecasts

PROJECT: Williamsburg Planning Study Option A

ITEM NUMBER: 0

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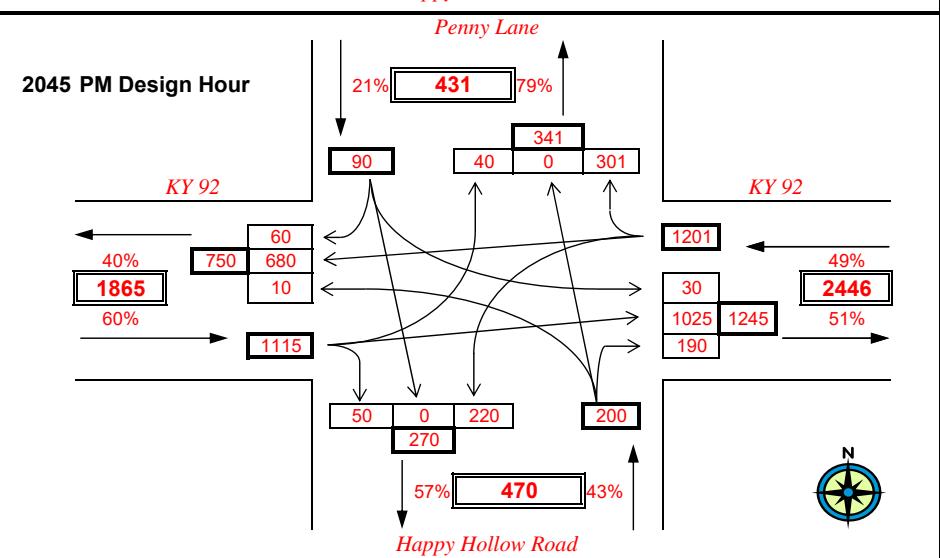
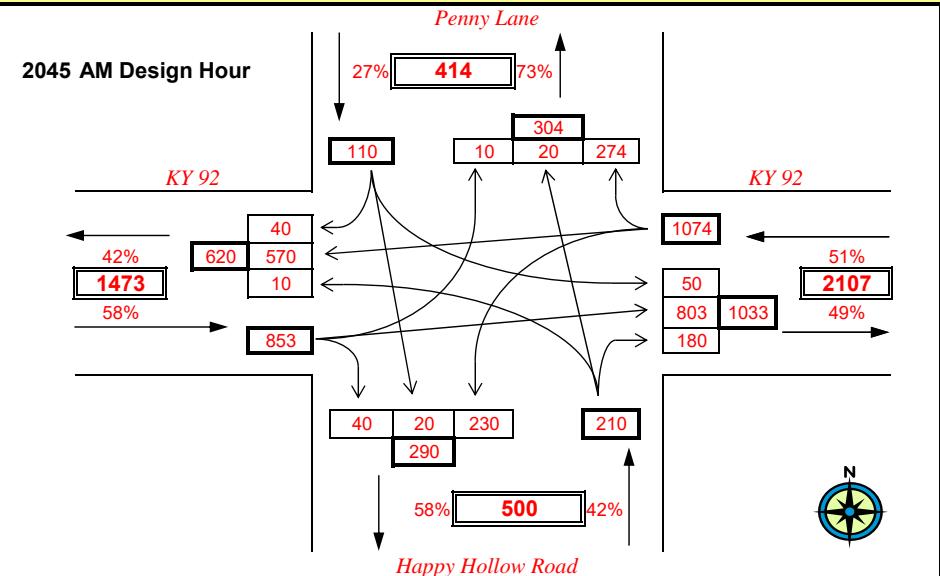
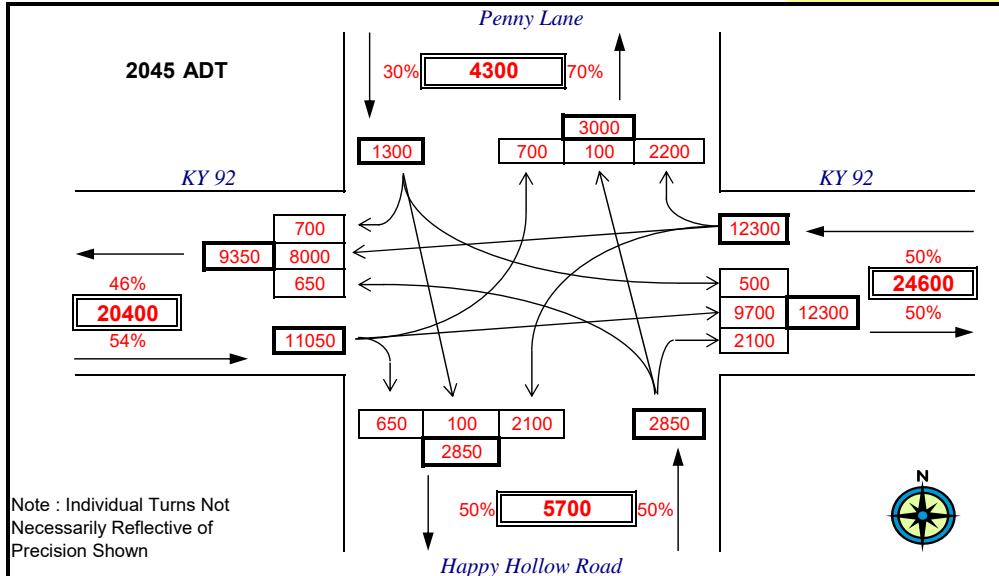
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Penny Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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PROJECT: Williamsburg Planning Study Option A

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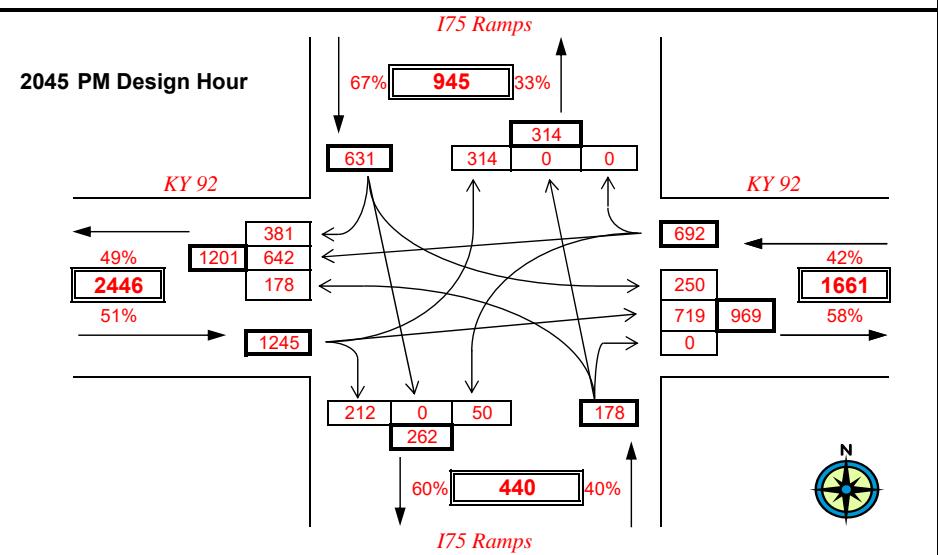
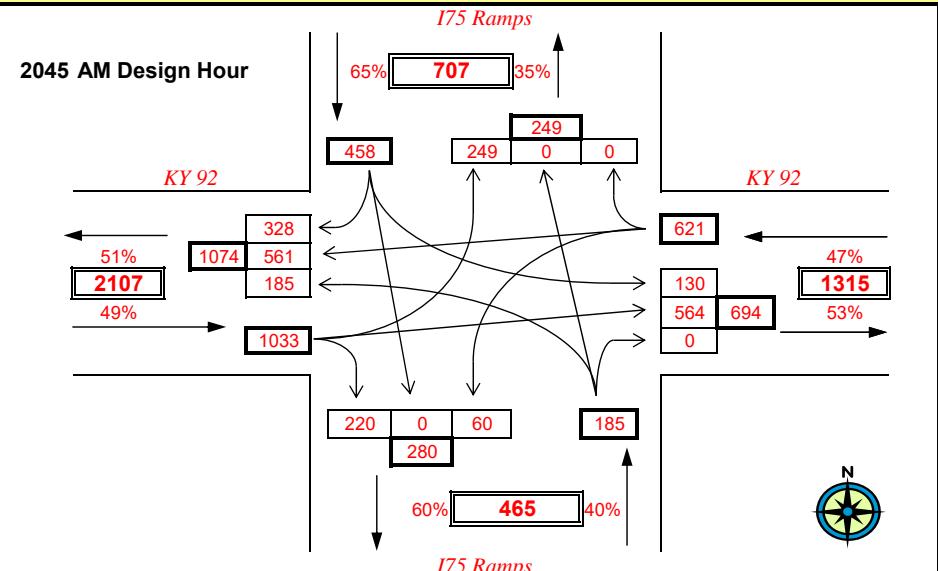
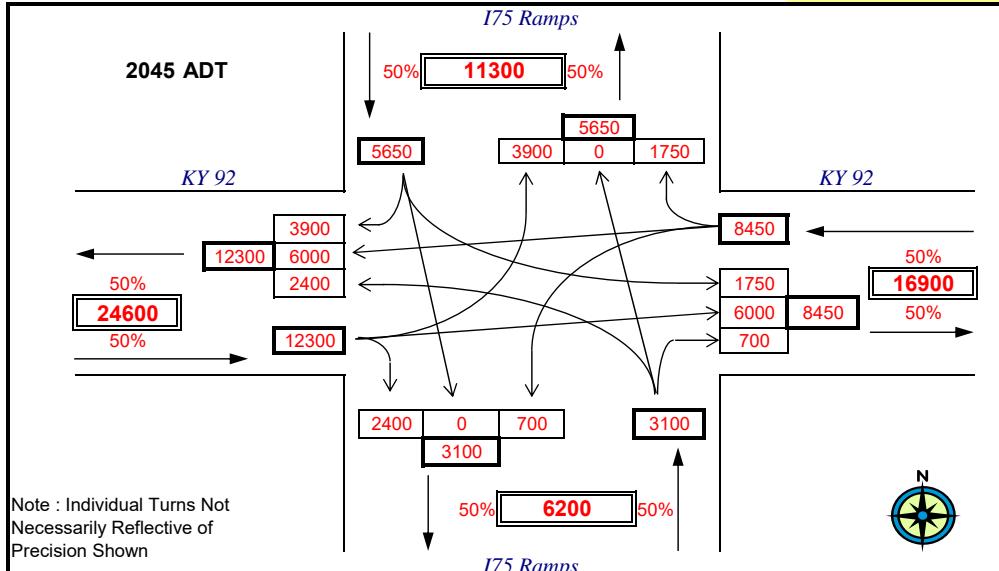
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Penny Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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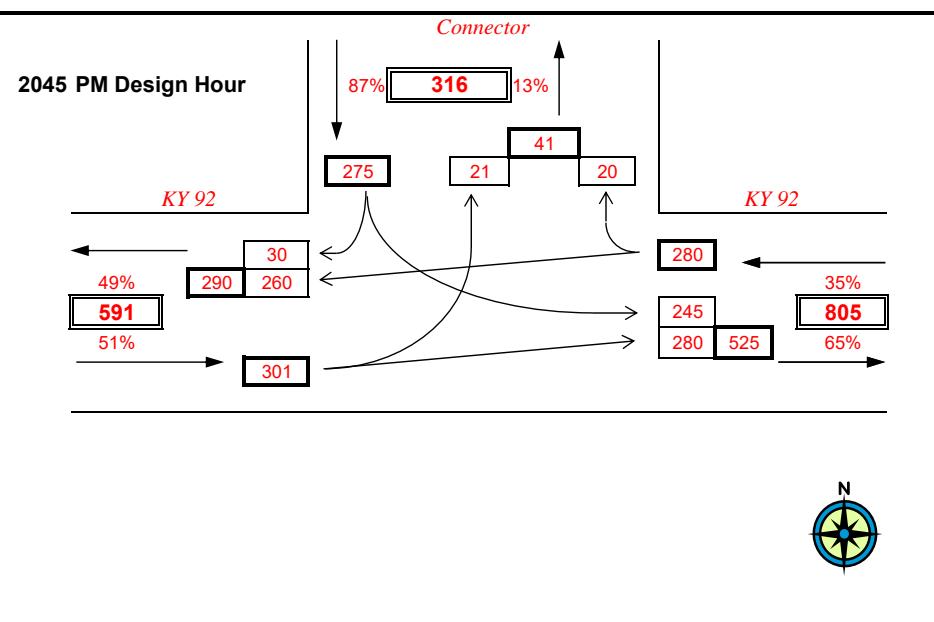
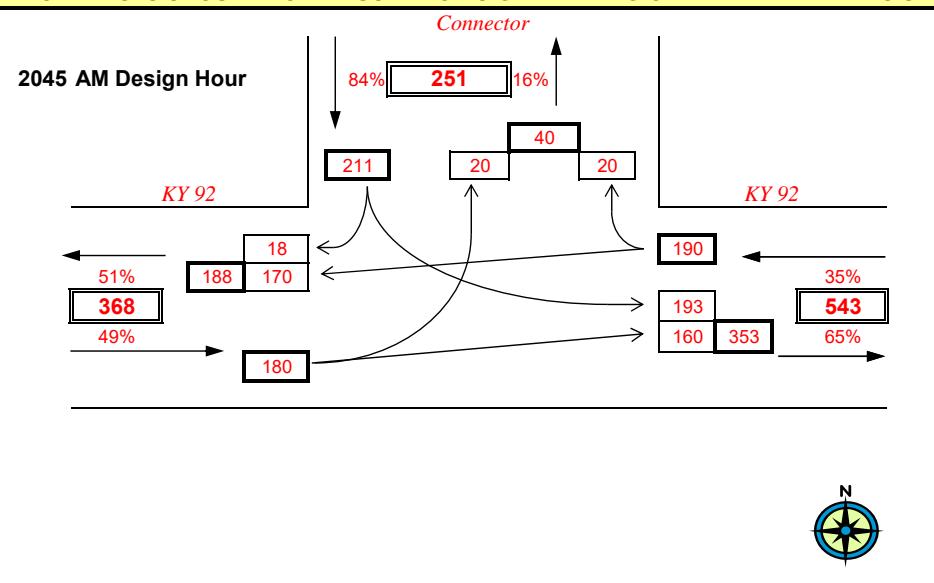
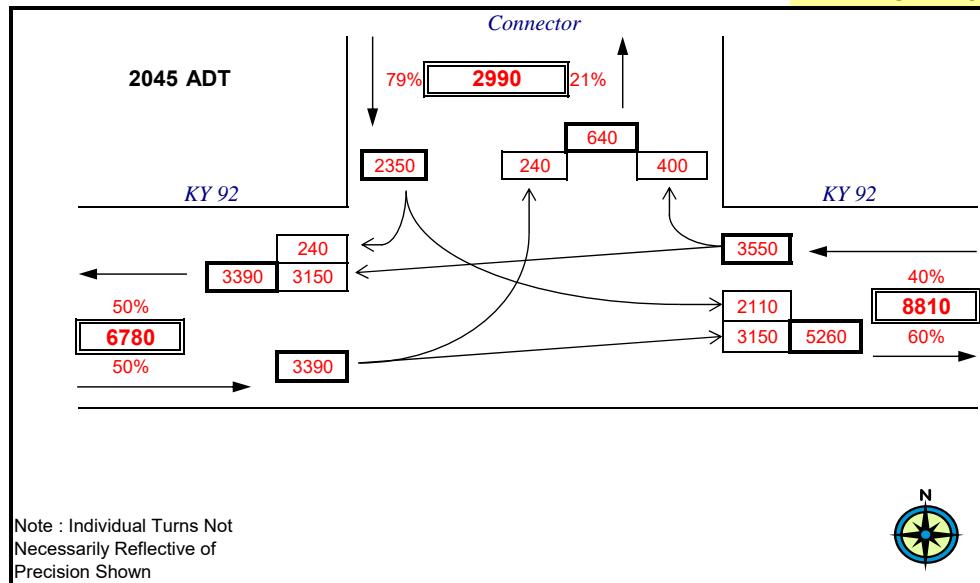
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Connector Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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



PROJECT: Williamsburg Planning Study Option B

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REQUEST DATE: Saturday, January 0, 1900

ANALYST: 0

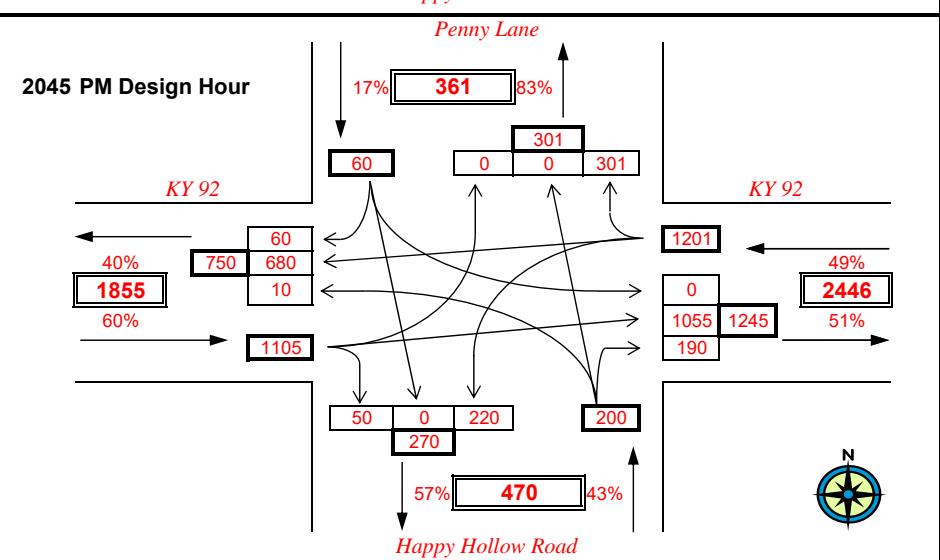
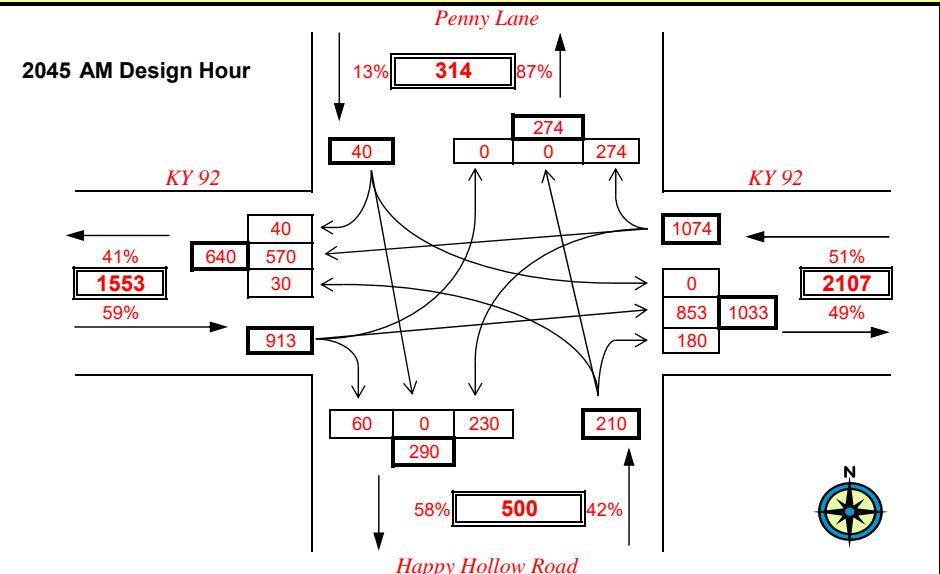
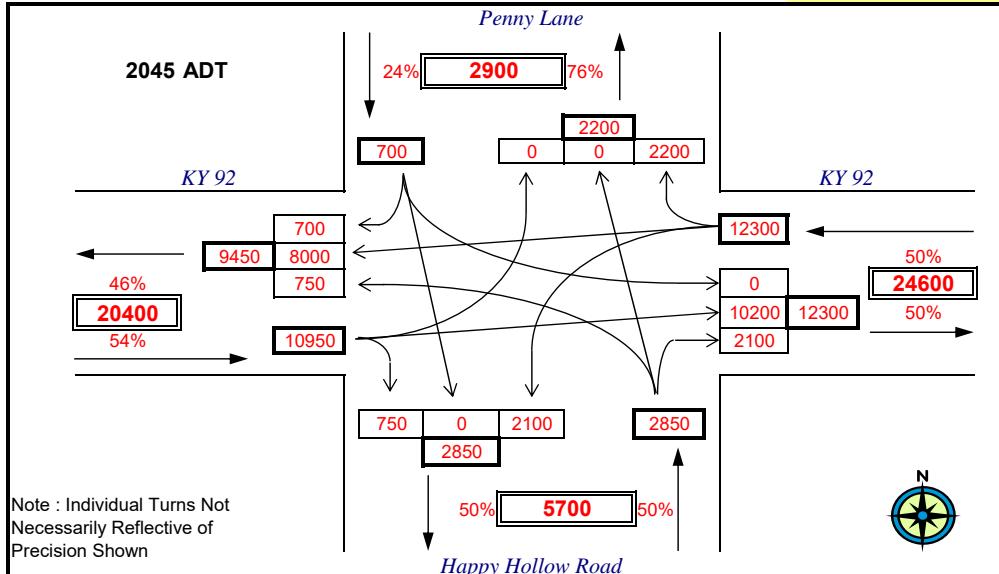
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Penny Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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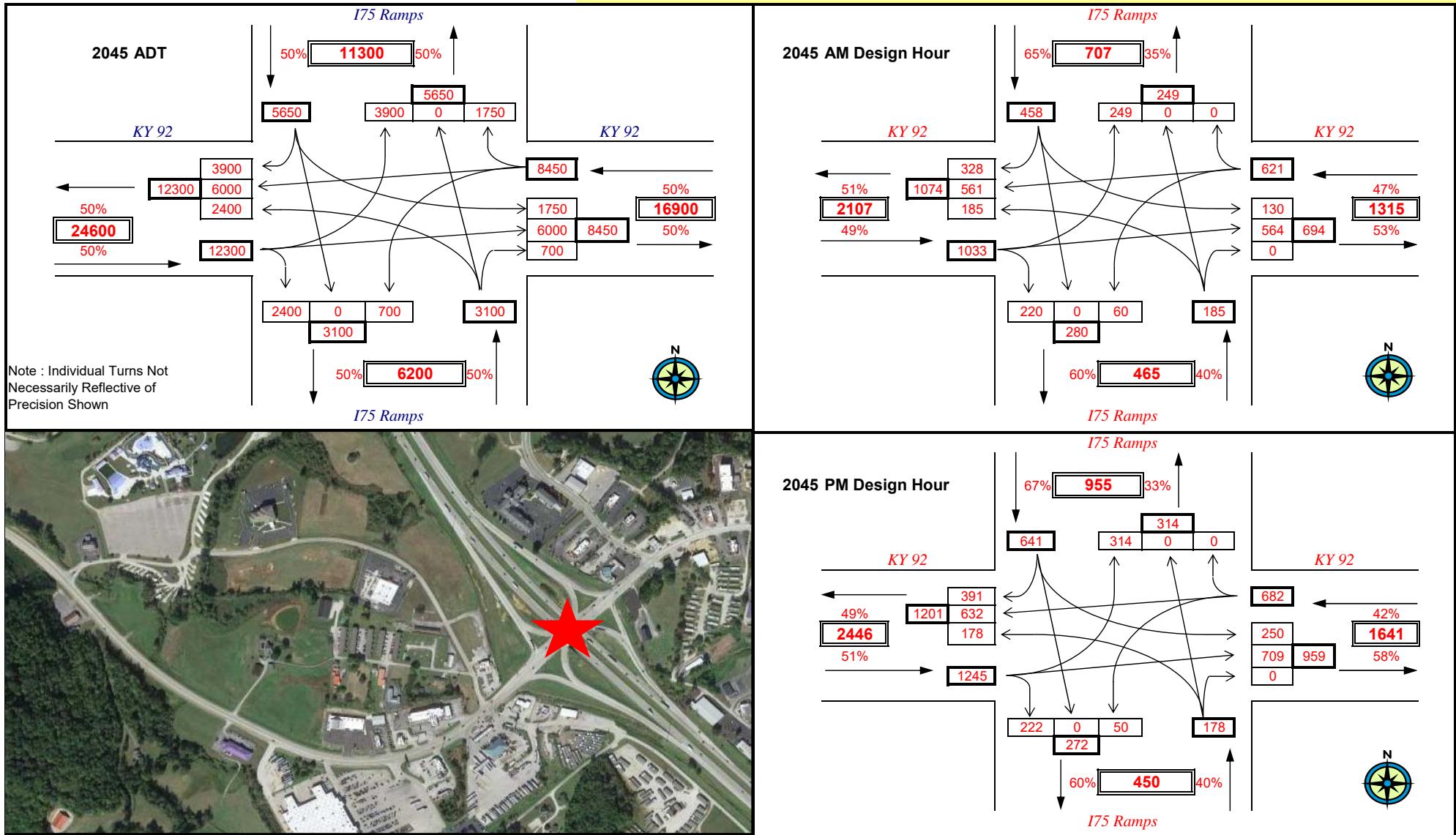
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Interstate 75 Ramps

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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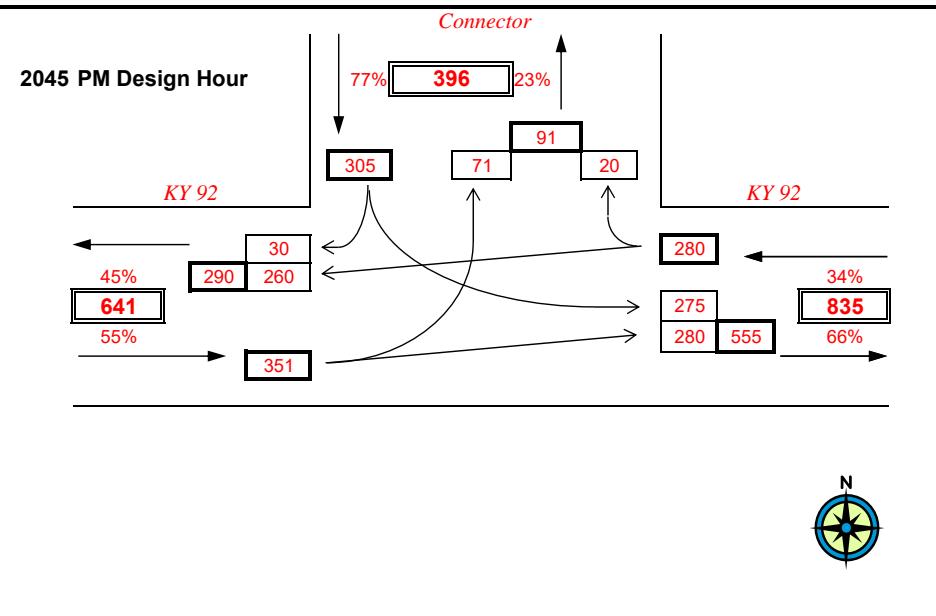
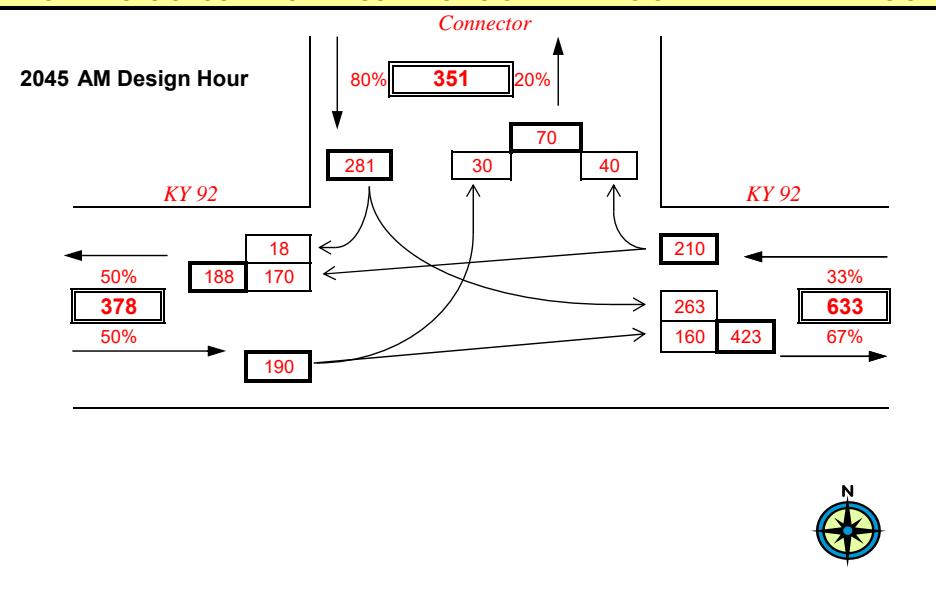
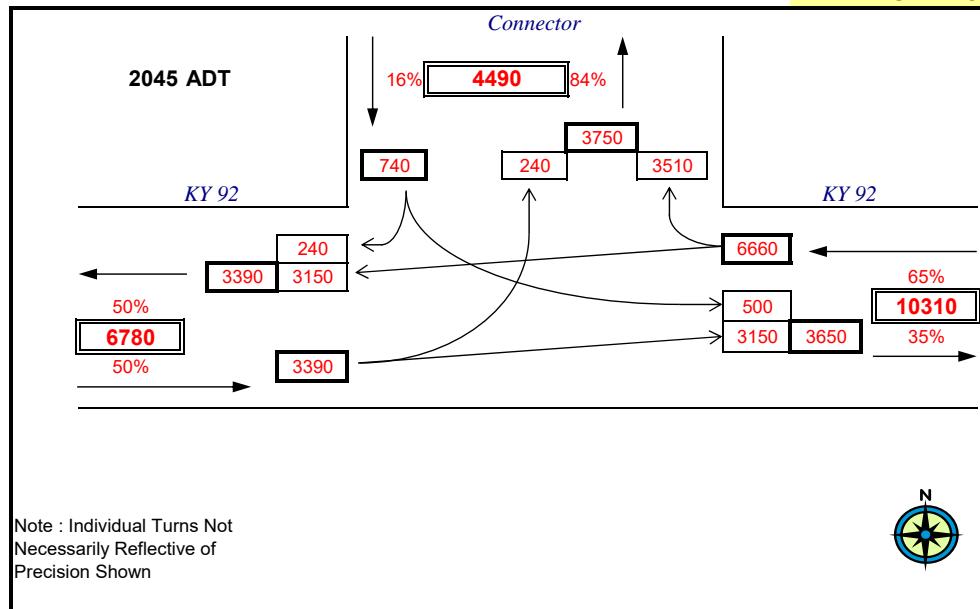
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Connector Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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



PROJECT: Williamsburg Planning Study Option C

ITEM NUMBER: 0

MARS NUMBER: 0

REQUEST DATE: Saturday, January 0, 1900

ANALYST: 0

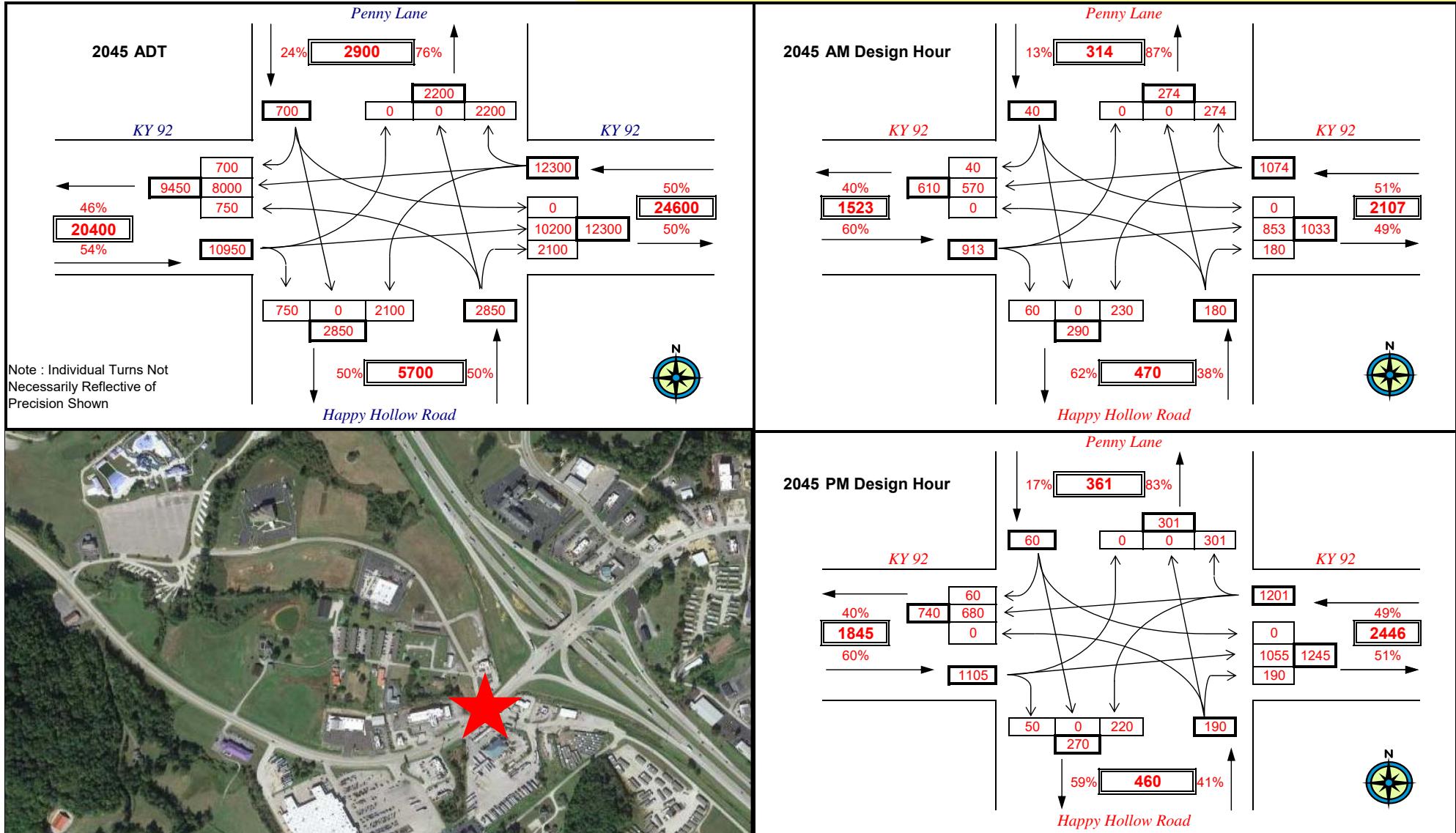
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Penny Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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



PROJECT: Williamsburg Planning Study Option C

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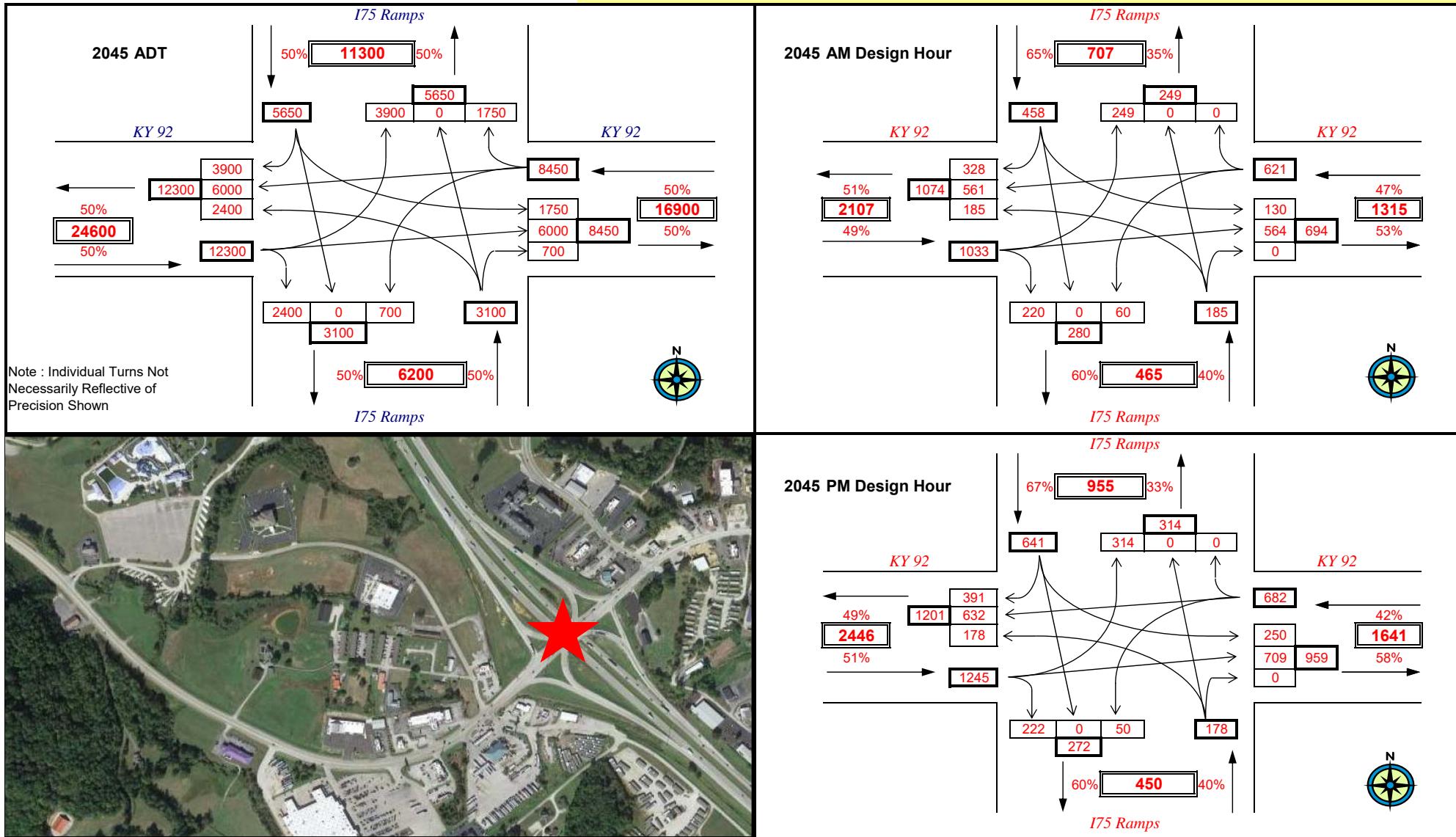
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Interstate 75 Ramps

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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PROJECT: Williamsburg Planning Study Option C

ITEM NUMBER: 0

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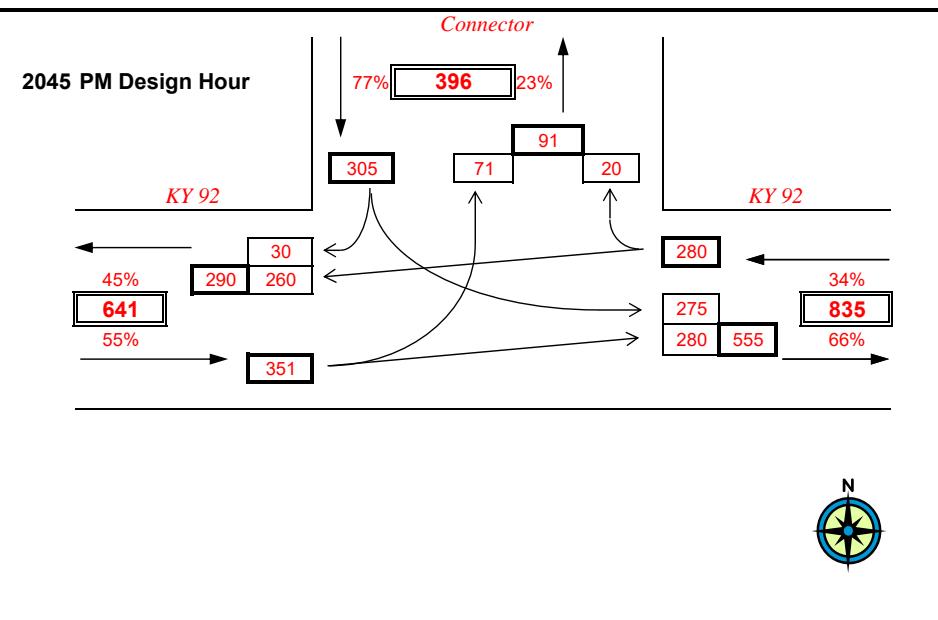
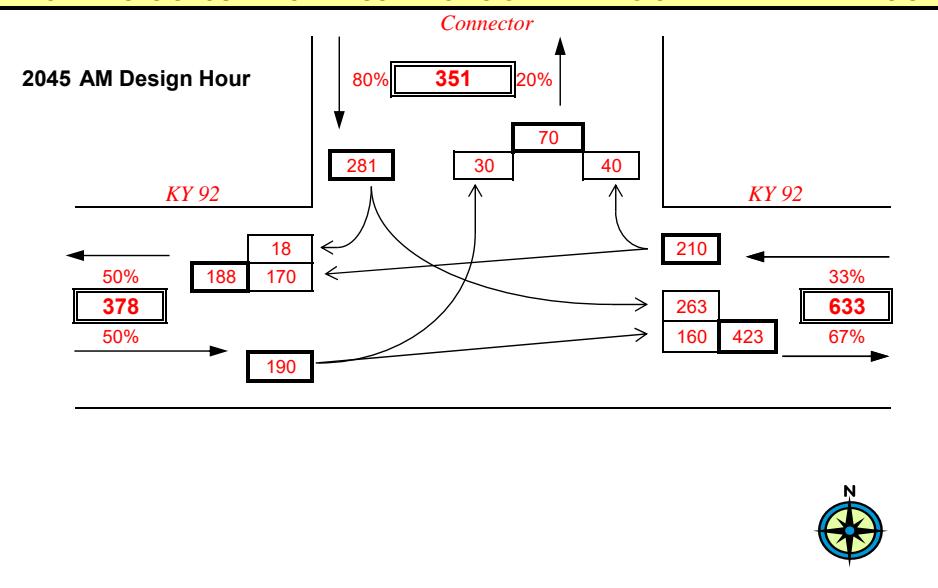
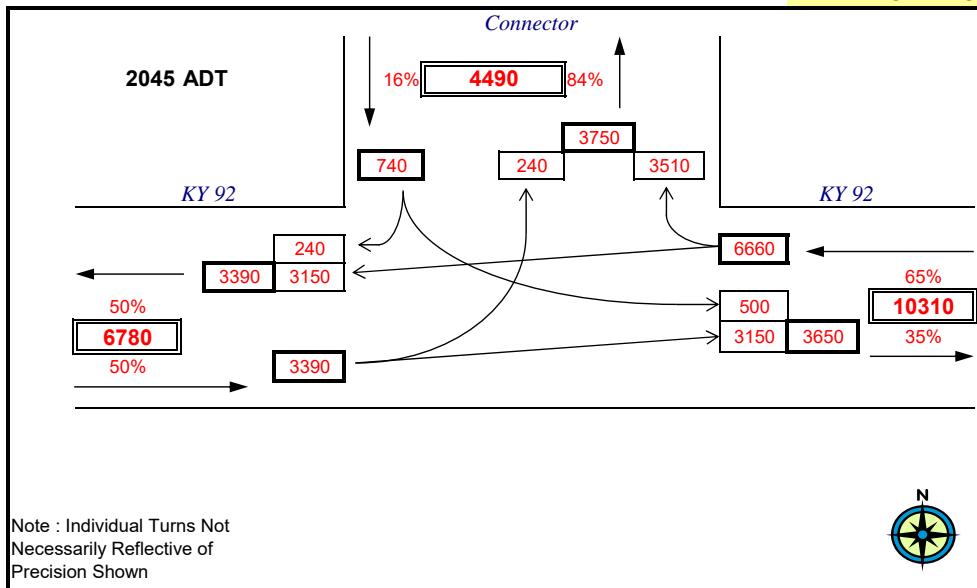
YEAR: 2045 ADT and Design Hour Volumes

INTERSECTION: KY 92 & Connector Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2045 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2045)

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



Appendix F

Vissim Results

AM Existing Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	0	0	407	LOS_A	0
	EB Right	0	0	14	LOS_A	1
	EB Left	0	31	10	LOS_A	2
	WB Thru	0	0	400	LOS_A	0
	WB Left	2	91	147	LOS_A	4
	WB Right	0	0	51	LOS_A	1
	SB Left	1	48	17	LOS_A	9
	SB Right	1	80	27	LOS_A	7
	SB Thru	1	48	11	LOS_B	11
	NB Right	6	91	101	LOS_A	9
	NB Left	6	93	7	LOS_B	12
	NB Thru	7	94	6	LOS_C	22
	Intersection	3	94	1198	LOS_A	2
KY 92 & Interstate 75	EB Thru	11	159	311	LOS_A	9
	EB Right	0	0	104	LOS_A	0
	EB Left	35	162	111	LOS_D	53
	WB Thru	15	145	361	LOS_B	12
	WB Left	10	53	28	LOS_E	68
	NB Left	16	135	52	LOS_D	45
	SB Left	18	73	71	LOS_D	49
	SB Right	1	82	184	LOS_A	4
	Intersection	13	162	1222	LOS_B	17

PM Existing Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	15	199	622	LOS_A	2
	EB Right	15	199	30	LOS_A	1
	EB Left	0	31	21	LOS_A	4
	WB Thru	0	50	560	LOS_A	1
	WB Left	13	251	168	LOS_B	11
	WB Right	0	50	75	LOS_A	1
	SB Left	1	48	10	LOS_B	10
	SB Right	2	80	46	LOS_A	8
	SB Thru	0	48	0	LOS_A	
	NB Right	11	113	144	LOS_B	10
	NB Left	10	115	3	LOS_C	18
	NB Thru	10	116	5	LOS_E	36
	Intersection	6	251	1684	LOS_A	3
KY 92 & Interstate 75	EB Thru	16	213	426	LOS_B	11
	EB Right	0	39	171	LOS_A	0
	EB Left	49	288	182	LOS_D	48
	WB Thru	26	194	490	LOS_B	16
	WB Left	14	74	52	LOS_E	58
	NB Left	21	138	69	LOS_D	49
	SB Left	28	162	126	LOS_D	51
	SB Right	5	212	240	LOS_A	6
	Intersection	20	288	1756	LOS_C	20

AM No Build Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	0	0	407	LOS_A	0
	EB Right	0	0	14	LOS_A	1
	EB Left	0	31	10	LOS_A	2
	WB Thru	0	0	400	LOS_A	0
	WB Left	2	91	147	LOS_A	4
	WB Right	0	0	51	LOS_A	1
	SB Left	1	48	17	LOS_A	9
	SB Right	1	80	27	LOS_A	7
	SB Thru	1	48	11	LOS_B	11
	NB Right	6	91	101	LOS_A	9
	NB Left	6	93	7	LOS_B	12
	NB Thru	7	94	6	LOS_C	22
	Intersection	3	94	1198	LOS_A	2
KY 92 & Interstate 75	EB Thru	11	159	311	LOS_A	9
	EB Right	0	0	104	LOS_A	0
	EB Left	35	162	111	LOS_D	53
	WB Thru	15	145	361	LOS_B	12
	WB Left	10	53	28	LOS_E	68
	NB Left	16	135	52	LOS_D	45
	SB Left	18	73	71	LOS_D	49
	SB Right	1	82	184	LOS_A	4
	Intersection	13	162	1222	LOS_B	17

PM No Build Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	28	214	842	LOS_A	3
	EB Right	28	214	46	LOS_A	1
	EB Left	4	58	33	LOS_C	17
	WB Thru	8	325	661	LOS_A	1
	WB Left	64	672	235	LOS_D	30
	WB Right	8	325	318	LOS_A	2
	SB Left	425	528	152	LOS_F	296
	SB Right	436	540	39	LOS_F	286
	SB Thru	434	537	0	LOS_A	
	NB Right	16	110	188	LOS_B	12
	NB Left	15	112	11	LOS_C	21
	NB Thru	16	114	0	LOS_A	
	Intersection	145	672	2525	LOS_D	28
KY 92 & Interstate 75	EB Thru	30	240	627	LOS_B	15
	EB Right	0	34	238	LOS_A	0
	EB Left	75	404	327	LOS_D	49
	WB Thru	49	262	635	LOS_C	25
	WB Left	17	106	49	LOS_E	61
	NB Left	42	192	177	LOS_D	49
	SB Left	51	227	229	LOS_D	46
	SB Right	31	394	404	LOS_B	13
	Intersection	37	404	2686	LOS_C	26

AM Option A Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	0	0	765	LOS_A	1
	EB Right	0	0	32	LOS_A	1
	EB Left	1	63	12	LOS_A	10
	WB Thru	18	441	527	LOS_A	1
	WB Left	100	788	317	LOS_D	28
	WB Right	18	441	234	LOS_A	2
	SB Left	6	111	38	LOS_C	18
	SB Right	2	87	43	LOS_A	8
	SB Thru	5	111	26	LOS_C	19
	NB Right	28	201	185	LOS_C	16
	NB Left	28	203	10	LOS_C	24
	NB Thru	28	204	10	LOS_E	40
	Intersection	22	788	2199	LOS_A	7
KY 92 & Interstate 75	EB Thru	28	257	482	LOS_B	15
	EB Right	0	87	246	LOS_A	1
	EB Left	63	236	253	LOS_D	47
	WB Thru	44	284	643	LOS_C	23
	WB Left	18	91	73	LOS_D	51
	NB Left	56	240	182	LOS_E	55
	SB Left	15	74	65	LOS_D	46
	SB Right	31	508	255	LOS_B	14
	Intersection	32	508	2199	LOS_C	25

PM Option A Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	41	230	1012	LOS_A	3
	EB Right	41	230	40	LOS_A	1
	EB Left	3	55	36	LOS_B	13
	WB Thru	27	436	661	LOS_A	2
	WB Left	146	783	234	LOS_F	58
	WB Right	27	436	318	LOS_A	2
	SB Left	8	135	20	LOS_F	79
	SB Right	5	152	68	LOS_A	8
	SB Thru	5	149	0	LOS_A	
	NB Right	16	110	187	LOS_B	12
	NB Left	16	111	11	LOS_D	25
	NB Thru	16	113	0	LOS_A	
	Intersection	28	783	2587	LOS_A	9
KY 92 & Interstate 75	EB Thru	29	213	644	LOS_B	14
	EB Right	0	100	260	LOS_A	0
	EB Left	78	426	324	LOS_D	51
	WB Thru	48	262	635	LOS_C	29
	WB Left	17	106	49	LOS_E	61
	NB Left	42	192	177	LOS_D	51
	SB Left	51	228	229	LOS_D	46
	SB Right	54	394	404	LOS_C	20
	Intersection	40	426	2722	LOS_C	28

AM Option B Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	0	0	817	LOS_A	1
	EB Right	0	0	45	LOS_A	1
	EB Left	0	0	0	LOS_A	
	WB Thru	36	482	517	LOS_A	1
	WB Left	168	829	308	LOS_E	44
	WB Right	36	482	231	LOS_A	2
	SB Left	0	0	0	LOS_A	
	SB Right	2	76	39	LOS_A	8
	SB Thru	0	0	0	LOS_A	
	NB Right	35	233	187	LOS_C	22
	NB Left	35	234	10	LOS_E	48
	NB Thru	35	236	12	LOS_E	48
	Intersection	31	829	2166	LOS_A	10
KY 92 & Interstate 75	EB Thru	28	260	488	LOS_B	15
	EB Right	0	96	260	LOS_A	0
	EB Left	60	225	258	LOS_D	47
	WB Thru	45	354	628	LOS_C	25
	WB Left	18	91	73	LOS_D	49
	NB Left	57	240	179	LOS_E	60
	SB Left	14	74	63	LOS_D	46
	SB Right	57	790	250	LOS_B	17
	Intersection	35	790	2199	LOS_C	26

PM Option B Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	33	230	1039	LOS_A	2
	EB Right	33	230	40	LOS_A	1
	EB Left	0	0	0	LOS_A	
	WB Thru	24	442	661	LOS_A	2
	WB Left	148	788	235	LOS_F	62
	WB Right	24	442	318	LOS_A	3
	SB Left	0	0	0	LOS_A	
	SB Right	3	103	59	LOS_A	7
	SB Thru	0	0	0	LOS_A	
	NB Right	28	247	187	LOS_C	21
	NB Left	28	249	11	LOS_E	49
	NB Thru	28	250	0	LOS_A	
	Intersection	29	788	2550	LOS_A	9
KY 92 & Interstate 75	EB Thru	32	234	647	LOS_B	15
	EB Right	0	73	267	LOS_A	0
	EB Left	68	302	320	LOS_D	46
	WB Thru	50	259	636	LOS_C	29
	WB Left	17	106	49	LOS_E	61
	NB Left	42	192	177	LOS_D	51
	SB Left	49	228	229	LOS_D	46
	SB Right	67	481	404	LOS_C	23
	Intersection	41	481	2729	LOS_C	28

AM Option C Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	0	0	818	LOS_A	1
	EB Right	0	0	45	LOS_A	1
	EB Left	0	0	0	LOS_A	
	WB Thru	33	486	527	LOS_A	1
	WB Left	165	832	310	LOS_E	42
	WB Right	33	486	233	LOS_A	2
	SB Left	0	0	0	LOS_A	
	SB Right	2	76	39	LOS_A	8
	SB Thru	0	0	0	LOS_A	
	NB Right	20	211	209	LOS_B	14
	NB Left	19	213	0	LOS_A	
	NB Thru	19	214	0	LOS_A	
Intersection	26	832	2181	LOS_A	8	
KY 92 & Interstate 75	EB Thru	29	256	507	LOS_B	15
	EB Right	0	95	265	LOS_A	0
	EB Left	60	219	255	LOS_D	46
	WB Thru	45	354	643	LOS_C	26
	WB Left	18	91	73	LOS_D	49
	NB Left	57	240	179	LOS_E	58
	SB Left	15	74	65	LOS_D	46
	SB Right	37	603	250	LOS_B	12
	Intersection	33	603	2237	LOS_C	25

PM Option B Results

Intersection	Movement	Average Queue	Max Queue	Modeled Volume	LOS	Delay
KY 92 & Penny Lane	EB Thru	33	230	1039	LOS_A	2
	EB Right	33	230	40	LOS_A	1
	EB Left	0	0	0	LOS_A	
	WB Thru	24	442	661	LOS_A	2
	WB Left	148	788	235	LOS_F	62
	WB Right	24	442	318	LOS_A	3
	SB Left	0	0	0	LOS_A	
	SB Right	3	103	59	LOS_A	7
	SB Thru	0	0	0	LOS_A	
	NB Right	28	247	187	LOS_C	21
	NB Left	28	249	11	LOS_E	49
	NB Thru	28	250	0	LOS_A	
	Intersection	29	788	2550	LOS_A	9
KY 92 & Interstate 75	EB Thru	32	234	647	LOS_B	15
	EB Right	0	73	267	LOS_A	0
	EB Left	68	302	320	LOS_D	46
	WB Thru	50	259	636	LOS_C	29
	WB Left	17	106	49	LOS_E	61
	NB Left	42	192	177	LOS_D	51
	SB Left	49	228	229	LOS_D	46
	SB Right	67	481	404	LOS_C	23
	Intersection	41	481	2729	LOS_C	28