

KY 52 Lancaster to Danville: Traffic Forecast Methodology Report

ITEM NO. 7-104 IN BOYLE AND GARRARD COUNTIES

Prepared for:



By:



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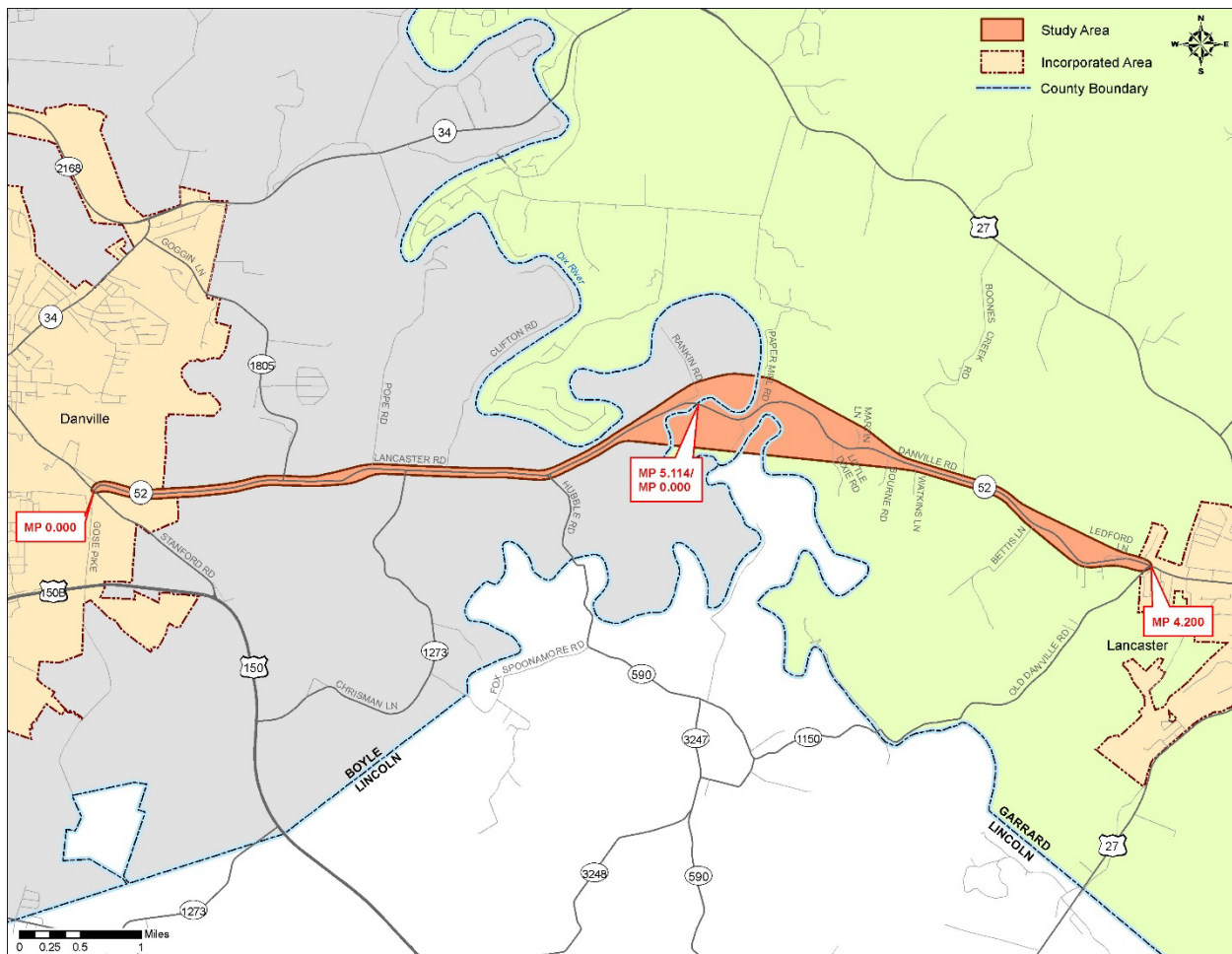
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1. Introduction

To support the KY 52 Planning Study (KYTC Item No. 7-104), Qk4 was tasked with preparing existing (2020) and future year (2045) traffic forecasts. The study area (**Figure 1**) covers approximately 9.3 miles: including milepoints (MP) 0.000-5.114 in Boyle County and MP 0.000 to 4.200 in Garrard County. The corridor is a narrow two-lane rural minor arterial connecting Danville and Lancaster.



Current traffic counts were conducted at three intersections along the route. Growth rates from the Statewide Travel Demand Model (version v7_KYSTMV19), recent traffic data from KYTC stations, and background socioeconomic growth assumptions were used to develop the forecasts. The following sections summarize these efforts.

2. Traffic Data Collection

During September 2020, 12-hour turning movement counts were conducted on three study area intersections: the KY 52 intersections with US 150 at the western study limits, KY 1805 (Goggin Lane), and KY 1150 (Old Danville Road) at the eastern study limits. Twelve-hour Miovision turning movement counts were conducted, classifying vehicles into one of five categories: motorcycles, cars, buses, single unit trucks, and articulated trucks. Raw volumes from turning movement counts are presented in **Appendix A**. A subsequent turning movement count at the KY 52/US 150 intersection in December 2020 for a different project resulted in lower turning movement counts, which were more consistent with historic trends. Existing scenario forecasts, which account for both September and December observations, at each study intersection are presented in **Appendix B**.

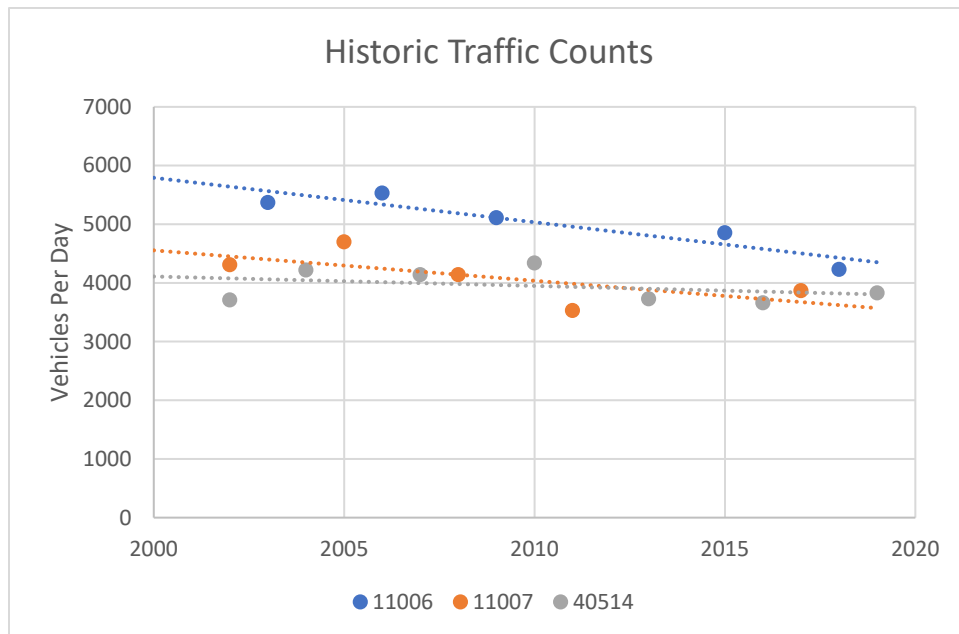
Trends from Historic KYTC Counts

KYTC provided Qk4 with available existing traffic volumes for study area roadways, including truck percentages, K factors, and peak hour directional distributions as available. Three count stations cover the corridor:

- Station 11006 near MP 1.0 in Boyle County
- Station 11007 near MP 2.4 in Boyle County
- Station 40514 at the county line

Available ADT counts since 2000 at each are summarized in **Figure 2**. As shown, volumes have steadily declined during this period.

Figure 2: Historic Traffic Counts along Study Corridor



Trends from Population Statistics

County-level population statistics provide another measure to gage potential traffic growth. Future forecasts are presented from the Kentucky State Data Center. The overall projected population growth in Boyle County (**Figure 3**) shows a marginal increase while Garrard County (**Figure 4**) is projected to peak in the next few years and begin to decline.

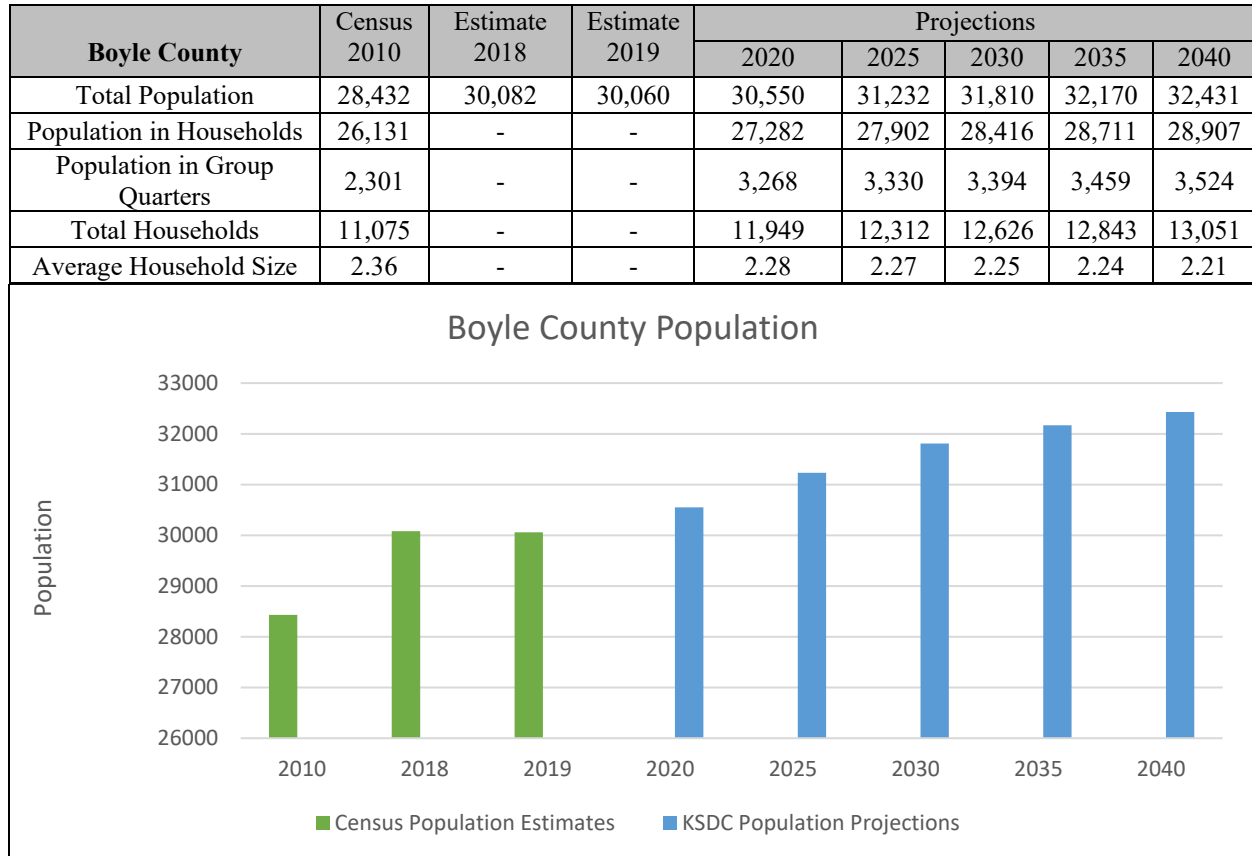


Figure 3: Boyle County Population Forecasts

Garrard County	Census 2010	Estimate 2018	Estimate 2019	Projections				
				2020	2025	2030	2035	2040
Total Population	16,912	17,519	17,666	17,476	17,571	17,543	17,419	17,170
Population in Households	16,803	-	-	17,366	17,460	17,431	17,306	17,056
Population in Group Quarters	109	-	-	110	111	112	113	114
Total Households	6,668	-	-	7,254	7,484	7,654	7,746	7,742
Average Household Size	2.52	-	-	2.39	2.33	2.28	2.23	2.20

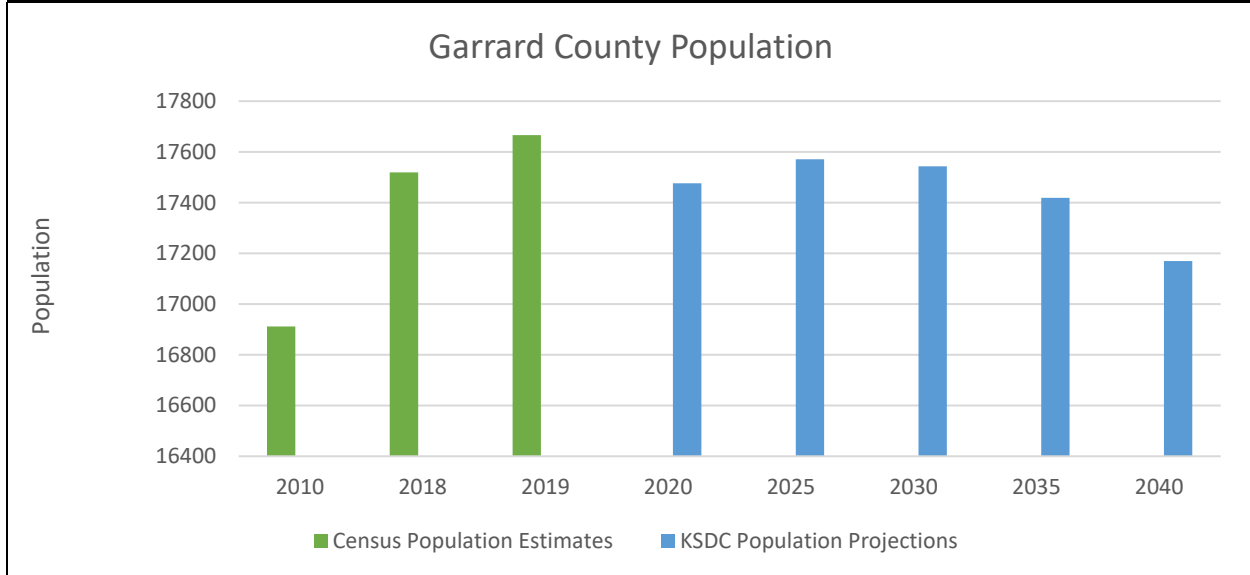


Figure 4: Garrard County Population Forecasts

3. Kentucky Statewide Travel Demand Model

To project future year traffic forecasts, KYTC's Statewide Travel Demand Model (STDM), v7_KYSTMv19 was applied. The year 2020 served as the existing baseline scenario. Future year 2045 No-Build and Build forecasts were also developed. The KYTC model runs in TransCAD7 and is a 24-hour model, with no time-of-day components. Existing traffic analysis zone (TAZ) boundaries were maintained for the analysis with no refinements.

Socioeconomic Growth Assumptions

Socioeconomic assumptions in the existing model were reviewed and adjusted to reflect current development patterns and background growth assumptions. **Figure 5** summarizes anticipated household growth between 2020 and 2045 model scenarios. As shown, growth is minimal along the rural corridor, concentrated in Danville and southwest of Lancaster. **Figure 6** summarizes anticipated changes in employment between 2020 and 2045 model scenarios. As shown, projected growth is concentrated in the adjacent cities.

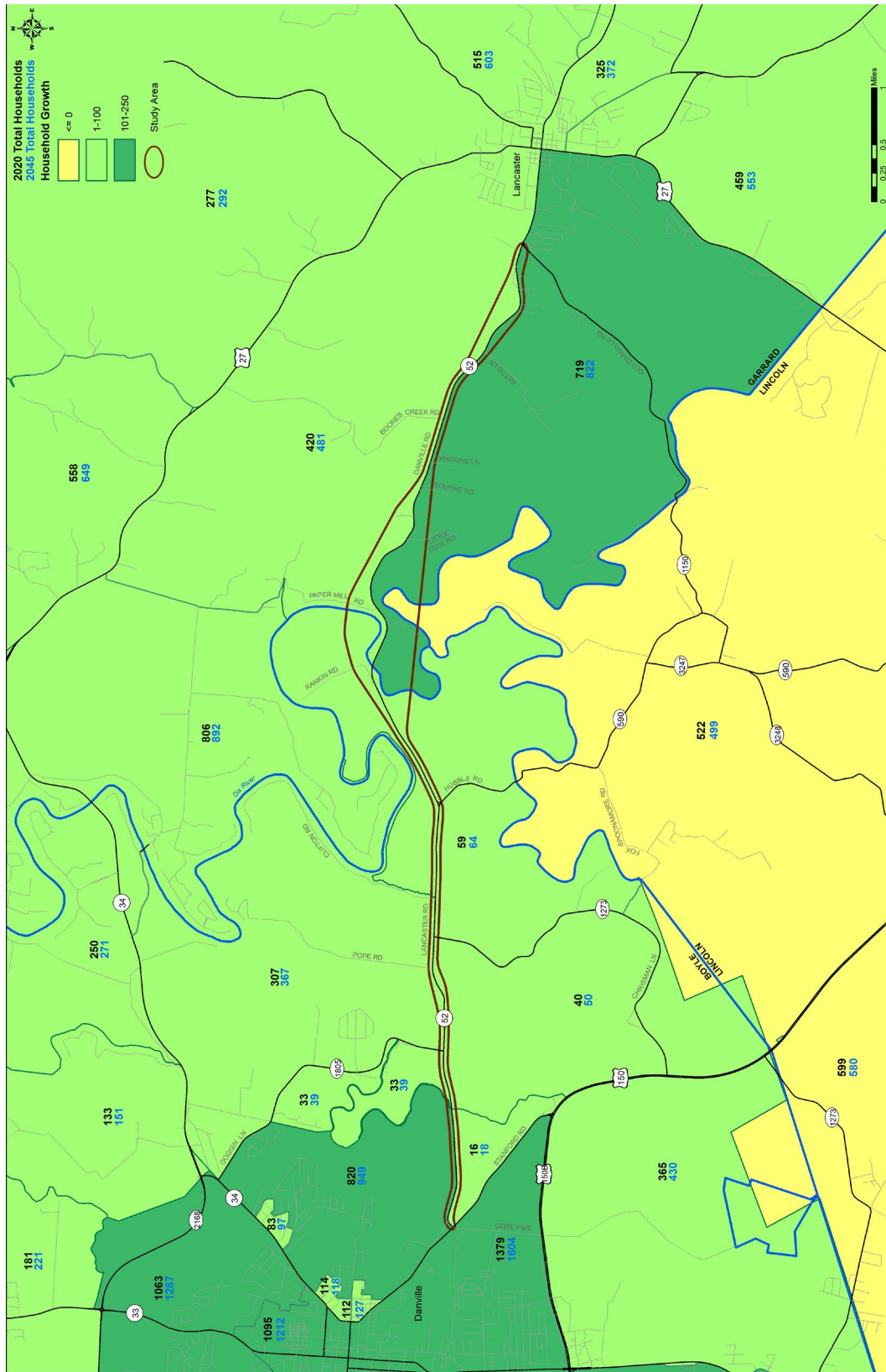


Figure 5: Projected Household Growth, 2020 to 2045

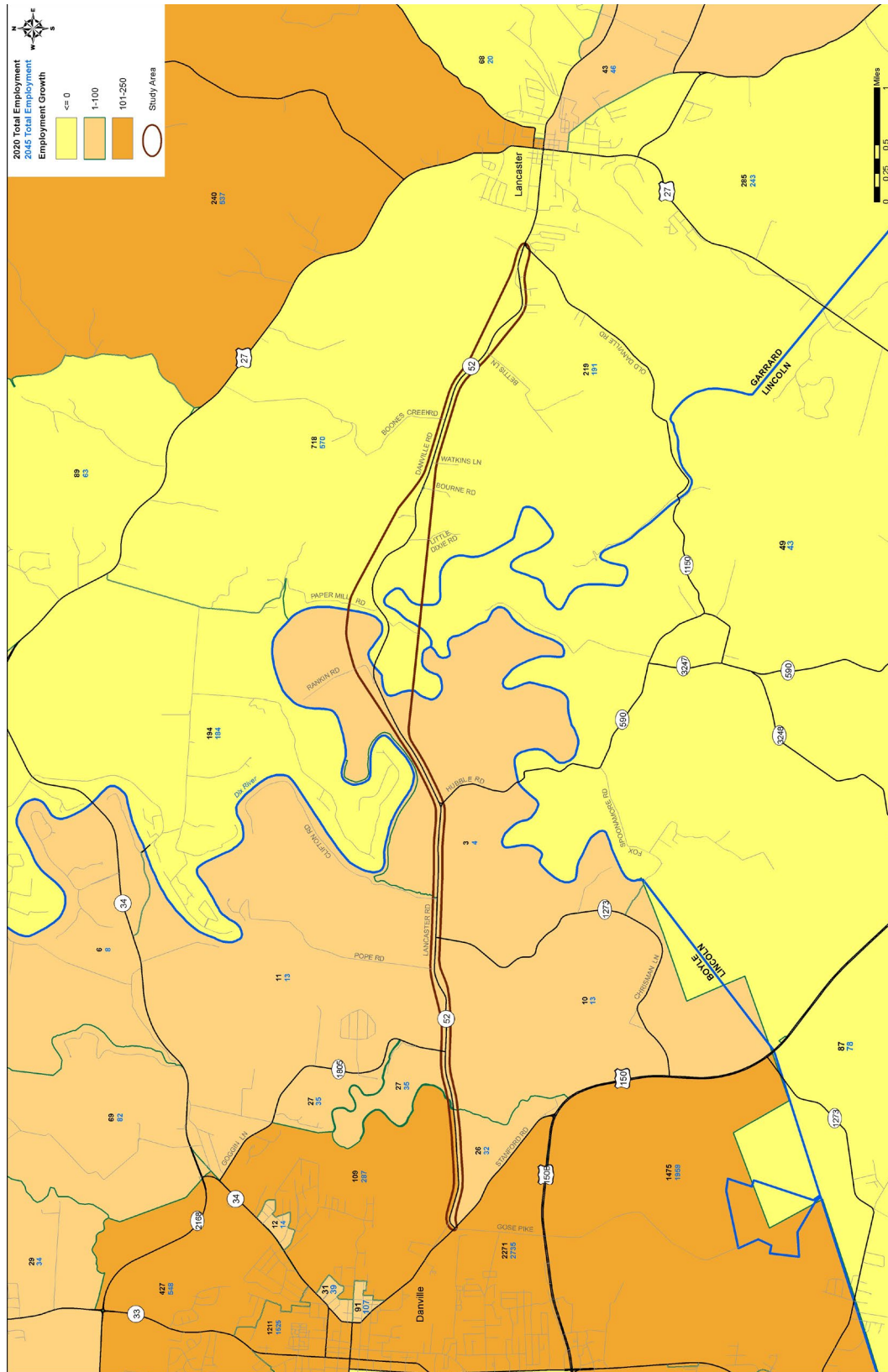


Figure 6: Projected Employment Growth, 2020 to 2045

Near the western project limits, a new tourist attraction is proposed. In 2017, Luca Mariano Distillery purchased a 300-acre historic farmstead with plans to create a fully functioning distillery, a visitor's center, multiple rickhouses for barrel aging, and an entertainment pavilion. An additional 50 retail and 100 non-retail employees were attributed to Zone 3011391 to reflect future operations associated with the attraction.

E+C Projects

Two existing or committed highway projects in the vicinity (**Figure 7**) were assumed to be constructed as part of the 2045 No-Build scenario:

- The East Danville Connector, Item No. 7-80000, will begin preliminary design investigations in 2021 to identify an alignment for improvement.
- US 27 reconstruction, including a West Lancaster Bypass on new alignment, Item No. 7-196. The FY2020-2016 Highway Plan includes 2021 design funds for both sections with right-of-way funding in 2022.

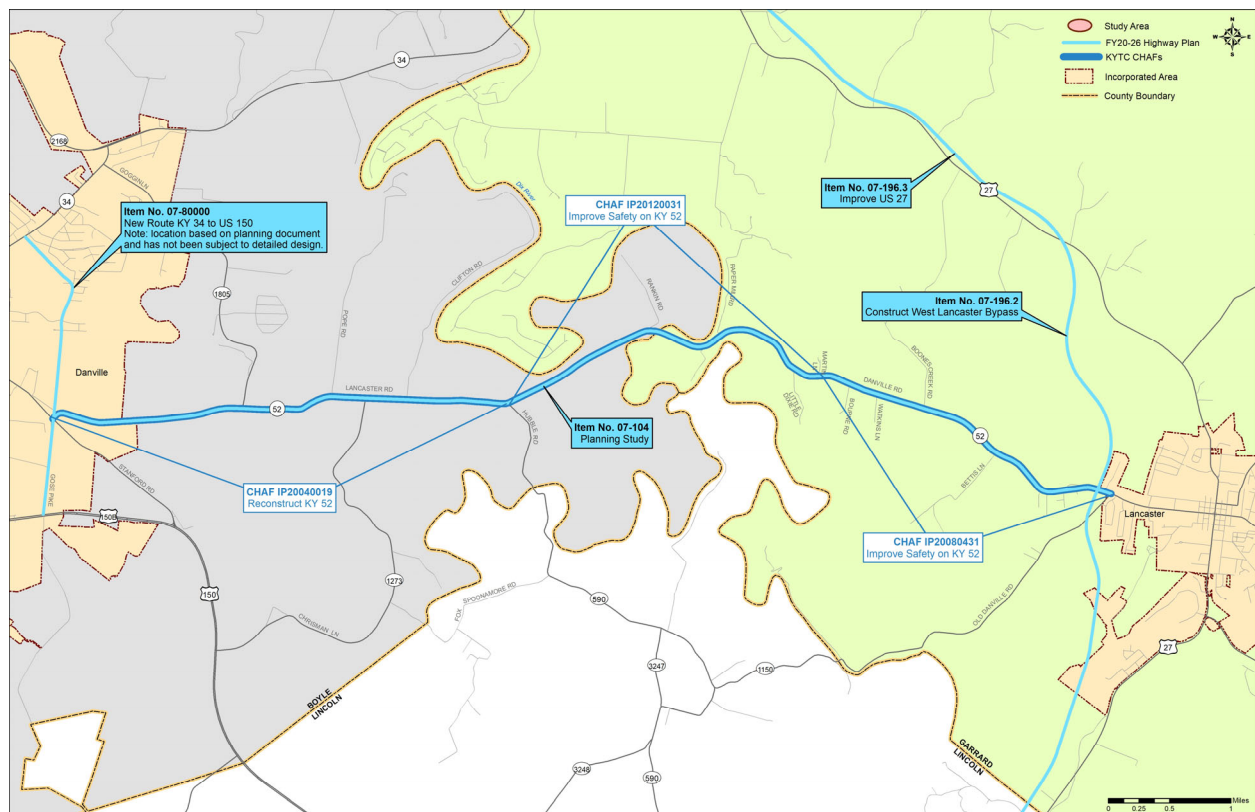


Figure 7: Potential Transportation Projects in Vicinity, including E+C

4. Future Year No-Build Projections

Considering historic traffic growth rates, population projections, anticipated development, and STDM projections for both the 7-104 and 7-80000 projects, a growth rate was applied to the 2020 Existing scenario to project future 2045 No-Build traffic. An annual growth rate of 3% was applied at the US 150 intersection versus 1% for the remaining rural portion of the corridor.

Future year 2045 No-Build forecasts at the three study intersections are included in **Appendix C**. **Table 1** presents a side-by side comparison of key traffic data for highway segments. Year 2020 ADTs reflect 2020 data collection; truck percentages are applied from KYTC class counts.

Table 1: Comparison of Segment Volumes between Scenarios

Segment	2020 Existing				2045 No-Build		
	ADT	% Trucks	AM Peak	PM Peak	ADT	AM Peak	PM Peak
US 150 (MP 0.000) to KY 1805 (MP 1.586)	4,200	4.3	360	490	7,000	580	780
KY 1805 (MP 1.586) to KY 590 (MP 3.773)	4,100	4.3	330	500	5,300	410	640
KY 590 (MP 3.773) to KY 1150 (MP 4.231*)	4,100	11.8	300	490	5,300	380	620

* Garrard County

5. Future Year Build Projections

For the study, seven improvement concepts were developed (**Figure 8**), most of which are small-scale spot improvements that will have negligible impacts on traffic volumes using the corridor.

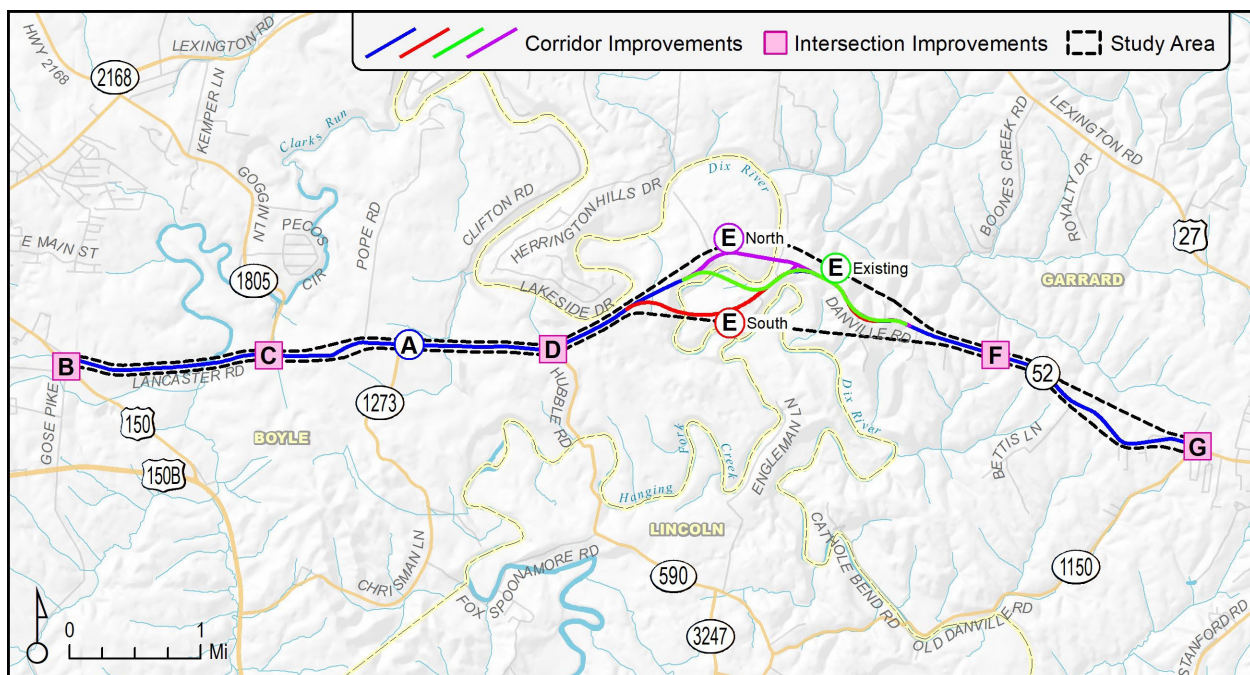


Figure 8: Range Improvement Concepts

Concept A widens the existing alignment to 25 feet, the minimum standard required to install edgeline and centerline rumble strips.

Concept E realigns 2.9 miles of KY 52 near the Dix River, characterized by substandard geometrics and elevated crash rates. Representative north and south options within Concept E were developed; either option creates a new Dix River crossing and realigns the curve near Martin Lane. A third Existing option generally follows the existing footprint to minimize costs and impacts. It adds wider pavement through the curve at Hanging Fork Road, softens the curve east of Paper Mill Road, and softens the curves near Little Dixie Road. Each option is shown in Figure 9.

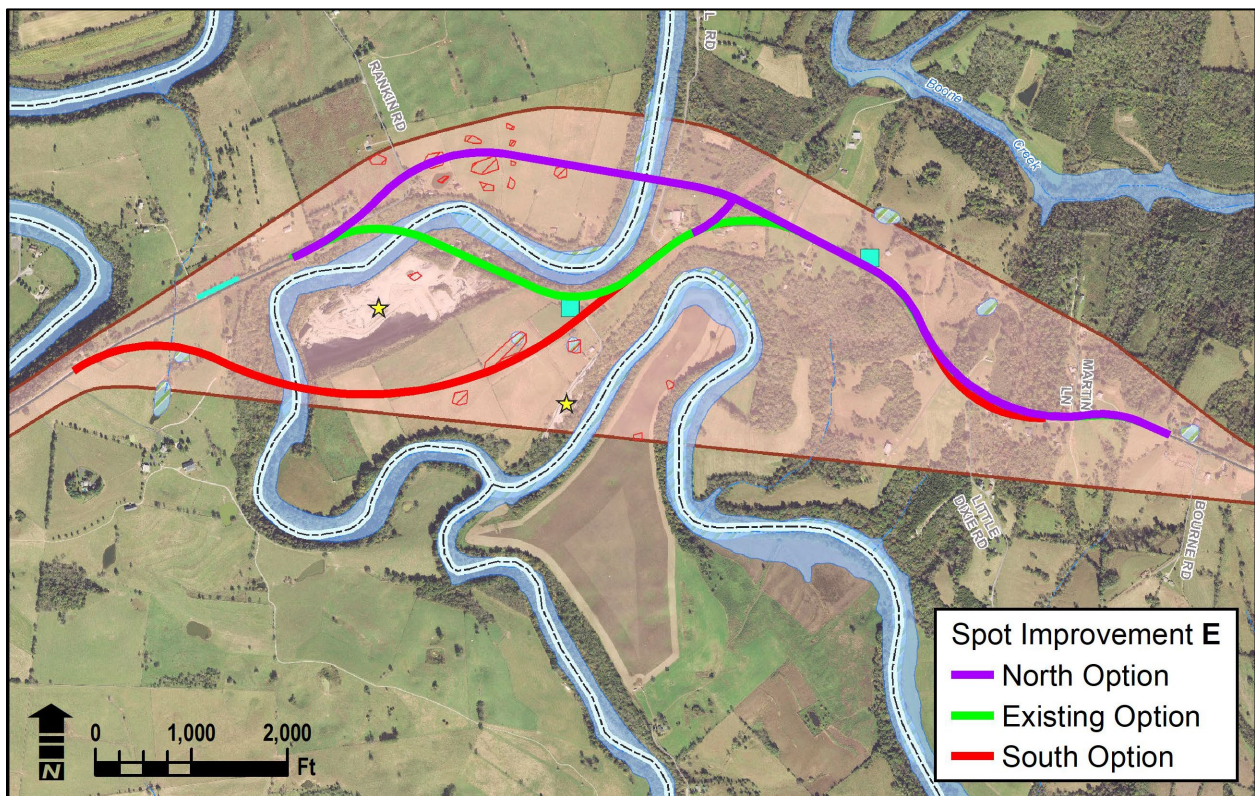


Figure 9: Representative Options within Concept E

Concepts A, E North, and E South were coded into the 2045 No-Build scenario model. Each resulted in around a 5% increase in traffic compared to No-Build volumes. Forecast spreadsheets for each study intersection are included in **Appendix D**.

Table 2: Comparison of Segment Volumes between Scenarios

Segment	2020	2045 No-Build			2045 Build		
	% Trucks	ADT	AM	PM	ADT	AM Peak	PM Peak
US 150 (MP 0.000) to KY 1805 (MP 1.586)	4.3	7,000	580	780	7,300	600	810
KY 1805 (MP 1.586) to KY 590 (MP 3.773)	4.3	5,300	410	640	5,620	430	670
KY 590 (MP 3.773) to KY 1150 (MP 4.231*)	11.8	5,300	380	620	5,600	410	650

* Garrard County

Appendix A

Sept 2020 Turning Movement Counts

Study Name US 150 & KY 52

Start Date 09/30/2020

Start Time 7:00 AM

Classification Cars & Light Goods

Start Time	US 150 Southbound				KY 52 Westbound				US 150 Northbound				KY 52 Eastbound			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	9	13	7	0	13	24	0	0	0	26	3	0	5	15	8	0
7:15 AM	12	25	7	0	19	18	1	0	0	30	0	0	1	21	10	0
7:30 AM	18	15	19	0	26	32	0	0	0	49	1	0	2	15	15	0
7:45 AM	23	24	6	0	30	27	1	0	0	72	3	0	3	19	32	0
8:00 AM	21	11	9	0	19	25	2	0	2	41	7	0	2	16	21	0
8:15 AM	20	15	8	0	14	28	1	0	2	34	4	0	0	14	19	0
8:30 AM	15	16	9	0	18	28	1	0	4	32	3	0	2	14	17	0
8:45 AM	22	18	7	0	18	15	1	0	0	23	3	0	2	16	11	0
9:00 AM	17	16	7	0	14	27	1	0	2	21	2	0	1	20	13	0
9:15 AM	17	16	10	0	14	21	1	0	3	23	1	0	1	11	9	0
9:30 AM	17	15	12	0	11	22	1	0	1	19	1	0	3	14	13	0
9:45 AM	22	12	10	0	12	16	0	0	2	14	2	0	1	19	17	0
10:00 AM	16	15	10	0	23	14	0	0	2	12	0	0	0	18	13	0
10:15 AM	29	8	11	0	16	23	0	0	0	13	2	0	3	16	11	0
10:30 AM	30	14	10	0	10	24	1	0	0	18	5	0	0	19	20	0
10:45 AM	22	10	13	0	10	30	0	0	1	19	4	0	1	16	20	0
11:00 AM	29	23	10	0	11	22	3	0	0	9	1	0	3	26	14	0
11:15 AM	21	23	17	0	10	26	1	0	0	27	5	0	0	17	14	0
11:30 AM	24	13	11	0	13	21	1	0	0	16	3	0	3	19	25	0
11:45 AM	35	12	8	0	8	27	0	0	1	26	5	0	3	22	25	0
12:00 PM	22	13	5	0	12	28	0	0	1	25	5	0	3	23	22	0
12:15 PM	27	24	20	0	9	17	2	0	1	15	1	0	3	25	24	0
12:30 PM	29	16	12	0	21	21	2	0	1	19	2	0	3	22	21	0
12:45 PM	34	18	9	0	7	26	1	0	1	17	2	0	2	22	23	0
1:00 PM	24	26	8	0	14	26	0	0	1	21	1	0	5	23	29	0
1:15 PM	25	12	11	0	15	21	1	0	1	17	4	0	1	18	18	0
1:30 PM	21	25	8	0	14	31	0	0	0	16	2	0	4	34	22	0
1:45 PM	27	19	11	0	19	23	2	0	0	29	4	0	0	28	15	0
2:00 PM	22	19	17	0	13	15	0	0	3	29	1	0	1	32	15	0
2:15 PM	28	19	18	0	19	10	1	0	2	28	1	0	1	19	22	0
2:30 PM	29	32	11	0	17	22	1	0	0	27	0	0	2	23	18	0
2:45 PM	21	26	19	0	16	25	1	0	2	29	6	0	2	21	15	0
3:00 PM	29	29	14	0	16	27	1	0	2	19	5	0	1	36	19	0
3:15 PM	23	29	15	0	18	17	2	0	0	27	1	0	3	22	29	0
3:30 PM	34	50	22	0	12	28	0	0	4	15	5	0	1	23	26	0
3:45 PM	45	22	20	0	17	28	2	0	1	28	1	0	3	41	34	0
4:00 PM	38	42	33	0	12	27	1	0	2	32	1	0	2	38	33	0
4:15 PM	47	34	21	0	14	23	3	0	4	25	1	0	0	31	12	0
4:30 PM	27	40	27	0	21	26	3	0	3	29	6	0	1	38	21	0
4:45 PM	32	40	20	0	14	25	1	0	1	26	4	0	0	35	18	0
5:00 PM	40	54	27	0	14	13	1	0	3	19	7	0	9	45	33	0
5:15 PM	44	34	29	0	17	36	0	0	3	30	0	0	0	28	21	0
5:30 PM	29	35	25	0	9	25	0	0	0	26	1	0	1	35	15	0
5:45 PM	31	23	22	0	12	30	3	0	0	15	0	0	1	33	32	0
6:00 PM	17	21	9	0	15	28	1	0	1	24	2	0	1	25	21	0
6:15 PM	32	24	20	0	14	21	0	0	0	24	1	0	0	28	13	0
6:30 PM	29	28	14	0	15	26	0	0	2	27	0	0	1	32	21	0
6:45 PM	23	19	8	0	15	20	2	0	1	16	0	0	0	25	15	0

Study Name US 150 & KY 52

Start Date 09/30/2020

Start Time 7:00 AM

Classification Totals

	US 150 Southbound				KY 52 Westbound				US 150 Northbound				KY 52 Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	9	13	7	0	13	24	0	0	0	26	3	0	6	15	8	0
7:15 AM	12	26	8	0	19	19	1	0	0	31	2	0	2	21	10	0
7:30 AM	18	16	20	0	26	32	0	0	0	49	2	0	3	15	15	0
7:45 AM	23	25	6	0	32	27	1	0	0	72	5	0	5	19	33	0
8:00 AM	21	11	9	0	19	28	2	0	2	42	8	0	2	16	21	0
8:15 AM	21	17	8	0	14	28	1	0	2	36	5	0	2	14	20	0
8:30 AM	16	16	9	0	18	28	1	0	4	34	3	0	2	16	17	0
8:45 AM	23	19	7	0	18	15	1	0	0	28	4	0	2	16	11	0
9:00 AM	17	19	8	0	15	28	1	0	2	21	3	0	3	22	15	0
9:15 AM	19	18	13	0	14	23	1	0	3	25	3	0	2	12	10	0
9:30 AM	18	19	15	0	11	23	1	0	1	20	1	0	5	17	13	0
9:45 AM	22	14	10	0	13	17	0	0	3	17	2	0	1	19	19	0
10:00 AM	17	18	11	0	24	14	0	0	2	13	2	0	2	18	13	0
10:15 AM	31	11	11	0	16	24	0	0	1	16	3	0	3	16	11	0
10:30 AM	30	17	10	0	10	25	2	0	0	20	11	0	2	19	20	0
10:45 AM	23	12	15	0	10	31	0	0	2	22	5	0	1	18	22	0
11:00 AM	29	25	10	0	11	22	4	0	0	10	2	0	4	27	14	0
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11:45 AM	35	14	8	0	10	27	0	0	1	27	5	0	3	22	26	0
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6:30 PM	29	30	14	0	15	26	1	0	2	28	0	0	1	33	22	0
6:45 PM	23	19	8	0	15	20	2	0	1	16	0	0	0	25	15	0

Study Name KY 52 & KY 1805

Start Date 09/30/2020

Start Time 7:00 AM

Classification Cars & Light Goods

Start Time	KY 1805 Southbound				KY 52 Westbound				KY 52 Eastbound			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	6		3	0	7	32		0	17	6		0
7:15 AM	3		4	0	5	35		0	21	5		0
7:30 AM	9		7	0	9	55		0	24	7		0
7:45 AM	7		4	0	8	55		0	24	6		0
8:00 AM	4		1	0	3	38		0	21	5		0
8:15 AM	10		2	0	5	34		0	19	5		0
8:30 AM	9		1	0	2	36		0	21	3		0
8:45 AM	11		4	0	8	20		0	16	5		0
9:00 AM	8		2	0	6	34		0	20	9		0
9:15 AM	8		6	0	4	23		0	25	4		0
9:30 AM	3		3	0	6	26		0	20	6		0
9:45 AM	1		4	0	5	34		0	19	12		0
10:00 AM	7		4	0	3	28		0	23	5		0
10:15 AM	7		4	0	4	30		0	26	6		0
10:30 AM	6		2	0	3	28		0	20	5		0
10:45 AM	4		1	0	2	35		0	23	12		0
11:00 AM	8		3	0	1	26		0	35	3		0
11:15 AM	3		3	0	4	26		0	27	3		0
11:30 AM	7		2	0	5	32		0	26	6		0
11:45 AM	5		3	0	4	30		0	30	5		0
12:00 PM	3		7	0	4	37		0	17	10		0
12:15 PM	8		2	0	4	34		0	37	3		0
12:30 PM	5		8	0	3	35		0	33	8		0
12:45 PM	5		2	0	8	30		0	30	5		0
1:00 PM	8		9	0	8	29		0	30	1		0
1:15 PM	11		4	0	5	28		0	23	5		0
1:30 PM	8		4	0	9	36		0	37	5		0
1:45 PM	7		8	0	2	35		0	38	7		0
2:00 PM	4		2	0	8	21		0	40	10		1
2:15 PM	3		1	0	4	26		0	33	7		0
2:30 PM	7		3	0	4	33		0	36	6		0
2:45 PM	8		4	0	4	42		0	34	4		0
3:00 PM	13		6	0	7	32		0	46	5		0
3:15 PM	3		7	0	4	30		0	39	5		0
3:30 PM	8		7	0	11	34		0	38	8		0
3:45 PM	6		7	0	5	35		0	50	10		0
4:00 PM	10		6	0	4	39		0	57	19		0
4:15 PM	10		4	0	7	33		0	45	9		0
4:30 PM	10		11	0	5	27		0	54	9		0
4:45 PM	7		3	0	7	38		0	52	12		0
5:00 PM	6		11	0	3	22		0	54	14		0
5:15 PM	13		8	0	3	40		0	53	10		0
5:30 PM	6		7	0	5	20		0	57	13		0
5:45 PM	7		15	0	5	38		0	46	9		0
6:00 PM	12		15	0	8	38		0	33	6		0
6:15 PM	11		8	0	4	20		0	38	9		0
6:30 PM	7		13	0	8	37		0	34	7		0
6:45 PM	5		11	0	1	30		0	30	7		0

Study Name KY 52 & KY 1805

Start Date 09/30/2020

Start Time 7:00 AM

Classification Totals

Start Time	KY 1805 Southbound				KY 52 Westbound				KY 52 Eastbound			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	6		3	0	7	33		0	17	6		0
7:15 AM	3		5	0	5	35		0	22	5		0
7:30 AM	9		7	0	9	55		0	24	7		0
7:45 AM	7		4	0	11	58		0	26	6		0
8:00 AM	4		1	0	3	40		0	21	5		0
8:15 AM	10		2	0	5	34		0	20	5		0
8:30 AM	9		1	0	3	36		0	22	3		0
8:45 AM	11		6	0	9	20		0	16	5		0
9:00 AM	8		5	0	7	36		0	23	9		0
9:15 AM	9		6	0	4	24		0	27	4		0
9:30 AM	3		4	0	7	27		0	26	6		0
9:45 AM	1		4	0	5	36		0	20	12		0
10:00 AM	7		4	0	4	30		0	25	5		0
10:15 AM	7		6	0	4	31		0	27	7		0
10:30 AM	7		2	0	3	28		0	20	5		0
10:45 AM	4		1	0	2	35		0	27	12		0
11:00 AM	8		4	0	1	27		0	36	5		0
11:15 AM	3		4	0	4	26		0	28	3		0
11:30 AM	7		2	0	5	33		0	26	6		0
11:45 AM	5		3	0	5	32		0	30	5		0
12:00 PM	3		7	0	4	41		0	19	10		0
12:15 PM	8		2	0	5	35		0	38	3		0
12:30 PM	5		9	0	3	39		0	34	9		0
12:45 PM	6		3	0	9	31		0	30	5		0
1:00 PM	8		10	0	8	31		0	31	1		0
1:15 PM	11		4	0	6	31		0	28	5		0
1:30 PM	8		4	0	10	38		0	37	5		0
1:45 PM	7		8	0	3	36		0	40	8		0
2:00 PM	6		2	0	10	25		0	41	11		1
2:15 PM	3		3	0	4	31		0	35	7		0
2:30 PM	7		4	0	4	35		0	40	6		0
2:45 PM	8		5	0	5	43		0	37	4		0
3:00 PM	14		7	0	7	36		0	50	5		0
3:15 PM	3		7	0	5	30		0	39	6		0
3:30 PM	8		7	0	12	36		0	38	9		0
3:45 PM	7		7	0	6	37		0	50	11		0
4:00 PM	10		7	0	4	40		0	57	20		0
4:15 PM	11		4	0	7	34		0	46	9		0
4:30 PM	10		11	0	5	28		0	56	9		0
4:45 PM	7		3	0	8	39		0	52	12		0
5:00 PM	6		11	0	4	23		0	56	14		0
5:15 PM	13		8	0	3	40		0	53	10		0
5:30 PM	6		7	0	6	21		0	58	13		0
5:45 PM	7		16	0	6	39		0	46	9		0
6:00 PM	12		15	0	9	38		0	33	6		0
6:15 PM	12		8	0	5	20		0	39	9		0
6:30 PM	7		14	0	8	38		0	35	7		0
6:45 PM	5		11	0	1	30		0	30	7		0

Study Name KY 52 & Old Danville Rd**Start Date 09/30/2020****Start Time 7:00 AM****Classification Cars & Light Goods**

Start Time	KY 52 Westbound				Old Danville Rd Northbound				KY 52 Eastbound			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM		33	1	0	5		0	0	0	28		0
7:15 AM		33	0	0	5		0	0	0	33		0
7:30 AM		66	3	0	3		5	0	0	28		0
7:45 AM		48	6	0	7		0	0	0	45		0
8:00 AM		45	5	0	7		0	0	0	24		0
8:15 AM		40	1	0	3		0	0	1	25		0
8:30 AM		23	1	0	2		0	0	0	18		0
8:45 AM		26	0	0	0		0	0	0	24		0
9:00 AM		28	2	0	0		2	0	0	19		0
9:15 AM		24	2	0	1		0	0	0	25		0
9:30 AM		26	1	0	1		2	0	2	20		0
9:45 AM		35	2	0	3		0	0	0	33		0
10:00 AM		33	2	0	2		0	0	0	29		0
10:15 AM		13	3	0	3		0	0	0	31		0
10:30 AM		40	1	0	3		0	0	1	19		0
10:45 AM		25	3	0	3		0	0	0	29		0
11:00 AM		22	3	0	2		0	0	1	32		0
11:15 AM		41	1	0	1		0	0	1	29		0
11:30 AM		32	3	0	0		0	0	0	34		0
11:45 AM		39	1	0	4		0	0	0	31		0
12:00 PM		31	8	0	2		0	0	1	30		0
12:15 PM		47	0	0	2		0	0	1	29		0
12:30 PM		27	3	0	4		0	0	1	35		0
12:45 PM		39	3	0	2		0	0	1	35		0
1:00 PM		16	2	0	3		0	0	2	25		0
1:15 PM		39	1	0	4		0	0	0	29		0
1:30 PM		40	4	0	0		0	0	0	35		0
1:45 PM		24	4	0	3		0	0	0	31		0
2:00 PM		24	4	0	3		0	0	1	51		0
2:15 PM		37	3	0	6		0	0	1	39		0
2:30 PM		48	6	0	4		0	0	1	26		0
2:45 PM		35	4	0	4		0	0	0	33		0
3:00 PM		39	1	0	2		0	0	1	47		0
3:15 PM		48	3	0	9		0	0	1	61		0
3:30 PM		48	3	0	4		0	0	0	41		0
3:45 PM		42	4	0	4		0	0	0	48		0
4:00 PM		27	4	0	2		0	0	0	55		0
4:15 PM		45	5	0	3		0	0	1	56		0
4:30 PM		34	1	0	6		0	0	3	46		0
4:45 PM		42	3	0	3		0	0	0	67		0
5:00 PM		44	8	0	7		0	0	0	49		0
5:15 PM		41	5	0	3		0	0	1	68		0
5:30 PM		45	6	0	2		0	0	0	53		0
5:45 PM		35	5	0	3		0	0	0	59		0
6:00 PM		40	2	0	5		0	0	0	41		0
6:15 PM		34	4	0	3		1	1	0	43		0
6:30 PM		31	2	0	2		0	0	0	40		0
6:45 PM		31	2	0	4		0	0	1	28		0

Study Name KY 52 & Old Danville Rd

Start Date 09/30/2020

Start Time 7:00 AM

Classification Totals

Start Time	KY 52 Westbound				Old Danville Rd Northbound				KY 52 Eastbound			
	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM		36	1	0	5		0	0	0	29		0
7:15 AM		36	0	0	6		0	0	0	34		0
7:30 AM		69	3	0	3		5	0	0	30		0
7:45 AM		49	6	0	7		0	0	0	46		0
8:00 AM		45	5	0	7		0	0	0	24		0
8:15 AM		41	1	0	3		0	0	1	27		0
8:30 AM		23	1	0	2		0	0	0	21		0
8:45 AM		26	0	0	0		0	0	0	24		0
9:00 AM		30	2	0	0		2	0	0	21		0
9:15 AM		27	2	0	1		0	0	0	27		0
9:30 AM		26	1	0	1		2	0	2	30		0
9:45 AM		37	2	0	3		0	0	0	35		0
10:00 AM		37	2	0	2		0	0	0	32		0
10:15 AM		17	3	0	3		0	0	0	33		0
10:30 AM		44	1	0	3		0	0	1	21		0
10:45 AM		26	3	0	3		0	0	0	34		0
11:00 AM		23	3	0	2		0	0	1	35		0
11:15 AM		47	1	0	1		0	0	1	34		0
11:30 AM		32	4	0	0		0	0	0	36		0
11:45 AM		43	1	0	4		0	0	0	33		0
12:00 PM		36	8	0	2		0	0	1	30		0
12:15 PM		51	0	0	2		0	0	1	33		0
12:30 PM		31	3	0	4		0	0	1	35		0
12:45 PM		42	3	0	2		0	0	1	37		0
1:00 PM		22	2	0	3		0	0	2	30		0
1:15 PM		46	1	0	4		0	0	0	34		0
1:30 PM		43	4	0	0		0	0	0	40		0
1:45 PM		27	5	0	3		0	0	0	33		0
2:00 PM		29	4	0	3		0	0	1	52		0
2:15 PM		42	3	0	6		0	0	1	44		0
2:30 PM		50	6	0	4		0	0	1	26		0
2:45 PM		38	5	0	4		0	0	0	37		0
3:00 PM		41	1	0	2		0	0	1	53		0
3:15 PM		51	3	0	9		0	0	1	63		0
3:30 PM		50	3	0	4		0	0	1	41		0
3:45 PM		43	4	0	5		0	0	0	48		0
4:00 PM		29	5	0	4		0	0	0	55		0
4:15 PM		46	5	0	3		0	0	1	57		0
4:30 PM		36	1	0	6		0	0	3	47		0
4:45 PM		42	4	0	4		0	0	0	68		0
5:00 PM		45	9	0	9		0	0	0	50		0
5:15 PM		43	5	0	3		0	0	1	69		0
5:30 PM		46	6	0	2		0	0	0	55		0
5:45 PM		36	5	0	3		0	0	0	59		0
6:00 PM		41	2	0	5		0	0	0	41		0
6:15 PM		36	4	0	3		1	1	0	43		0
6:30 PM		31	2	0	2		0	0	0	41		0
6:45 PM		32	2	0	4		0	0	1	29		0

Appendix B

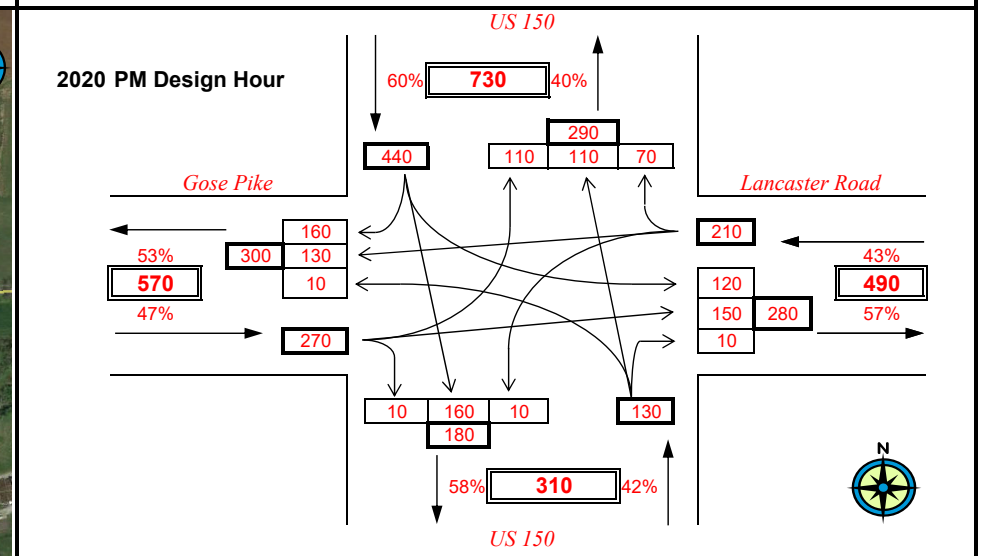
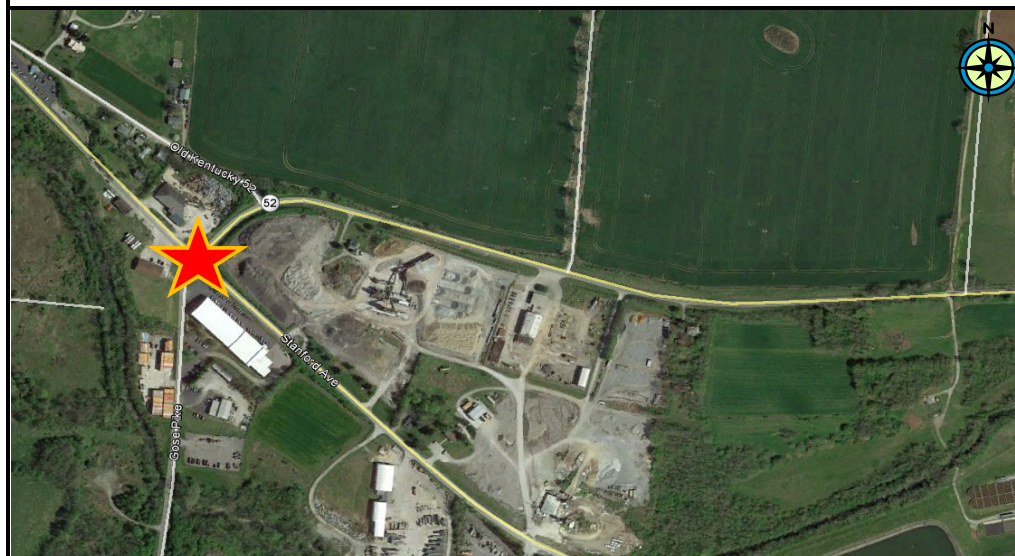
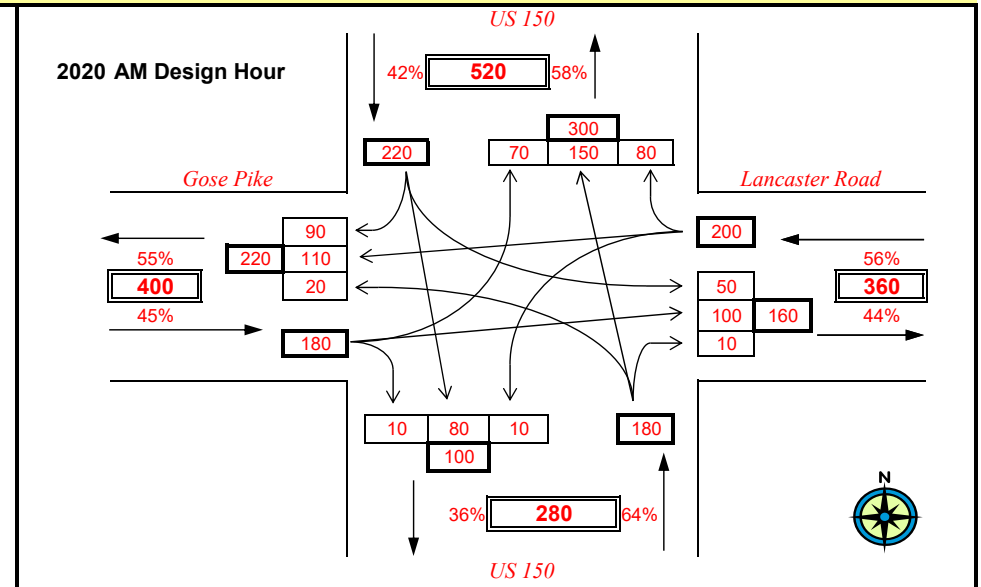
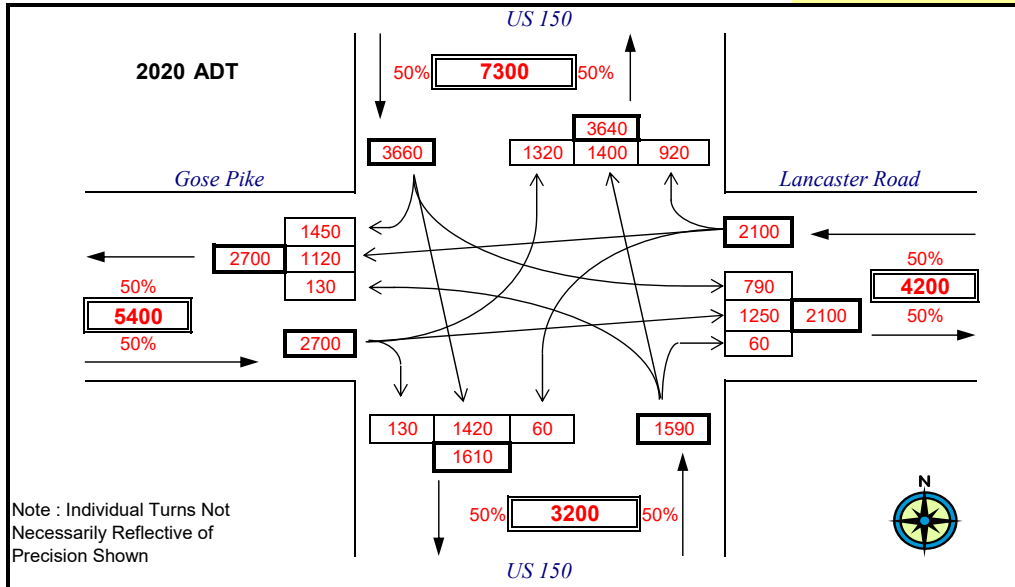
2020 Forecasts

PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: R. Hammond/R. Thompson
 YEAR: 2020 ADT and Design Hour Volumes
 INTERSECTION: KY 52 & US 150

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2020 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 1 (2020)

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

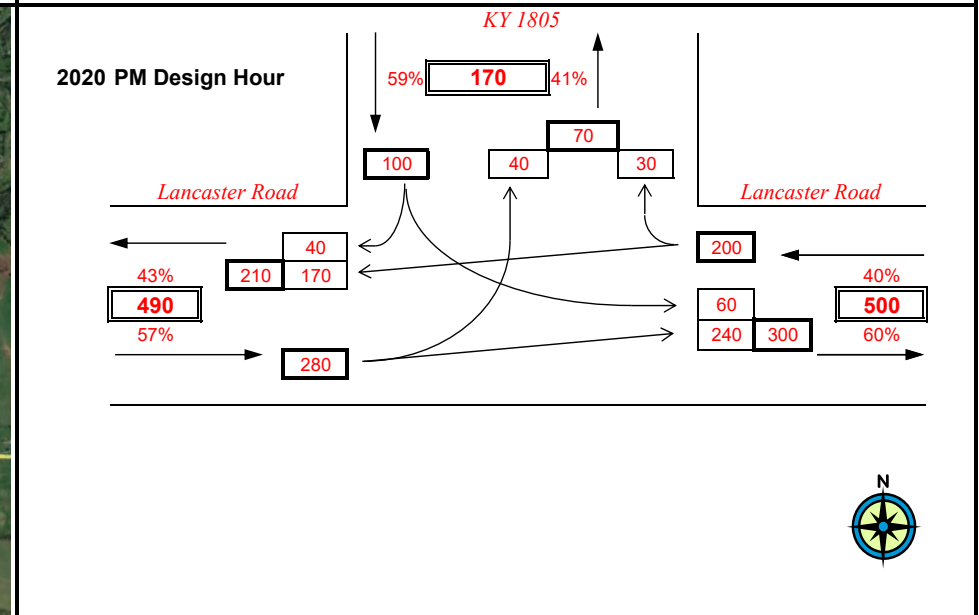
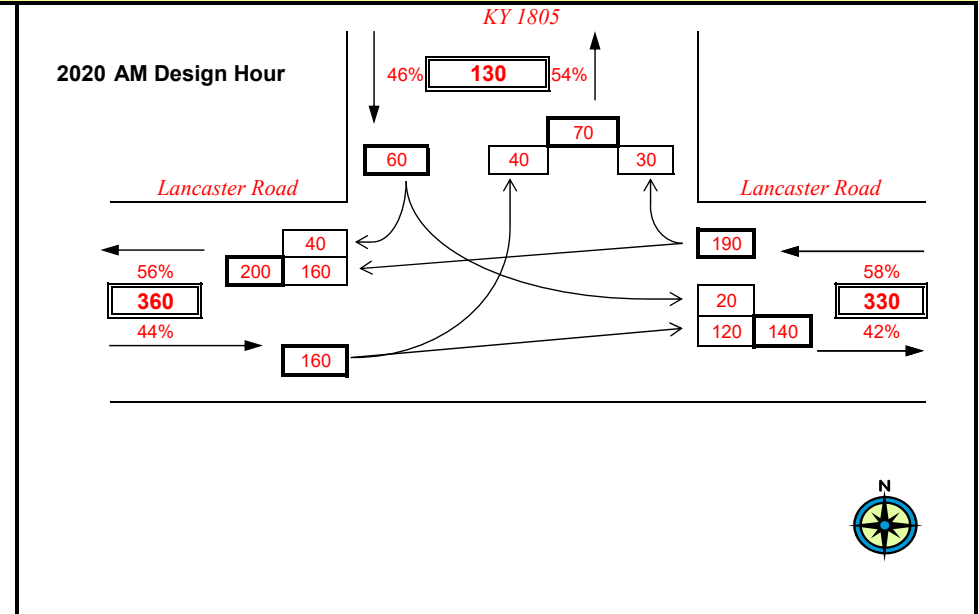
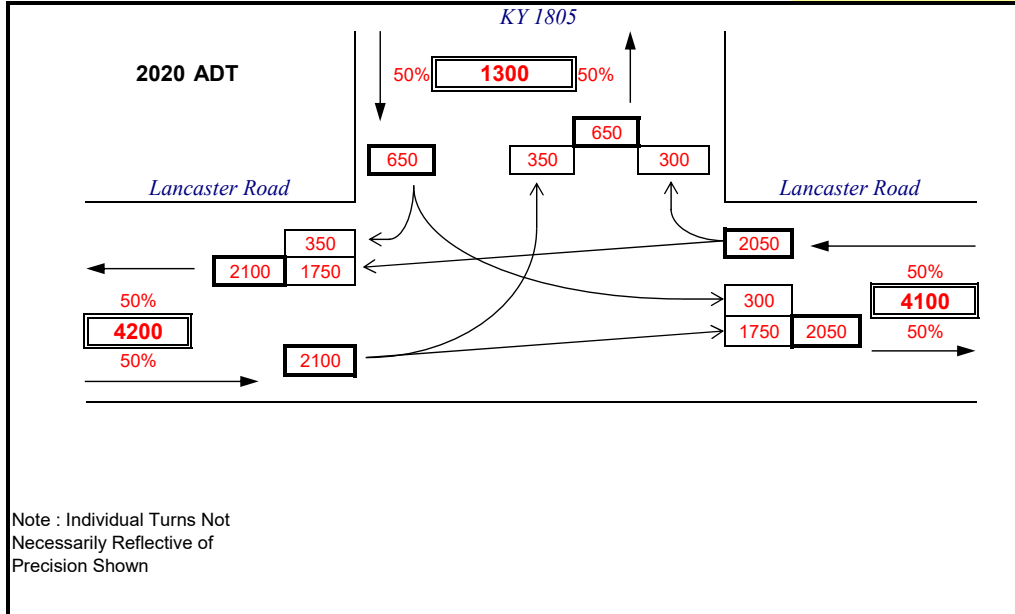


PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: R. Hammond/R. Thompson
 YEAR: 2020 ADT and Design Hour Volumes
 INTERSECTION: KY 52 & KY 1805 Goggin Ln

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2020 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

TURN MOVEMENT 2 (2020)

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



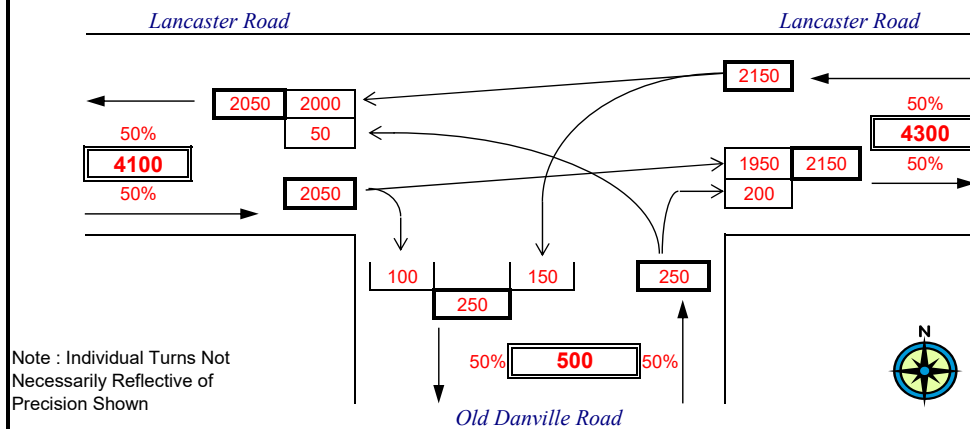
PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: Rebecca Hammond
 YEAR: 2020 ADT and Design Hour Volumes
 INTERSECTION: KY 52 & Old Danville Rd

NOTE: K-Factors, Directional Distributions, and Peak Hour Factors were determined from a 2020 Turning Movement Count. AM and PM DHVs represent 30th highest hour estimates for each turn maneuver.

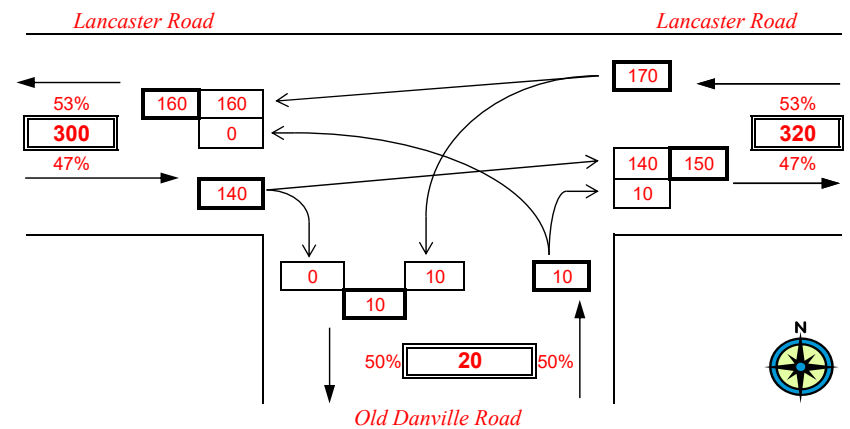
TURN MOVEMENT 3 (2020)

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

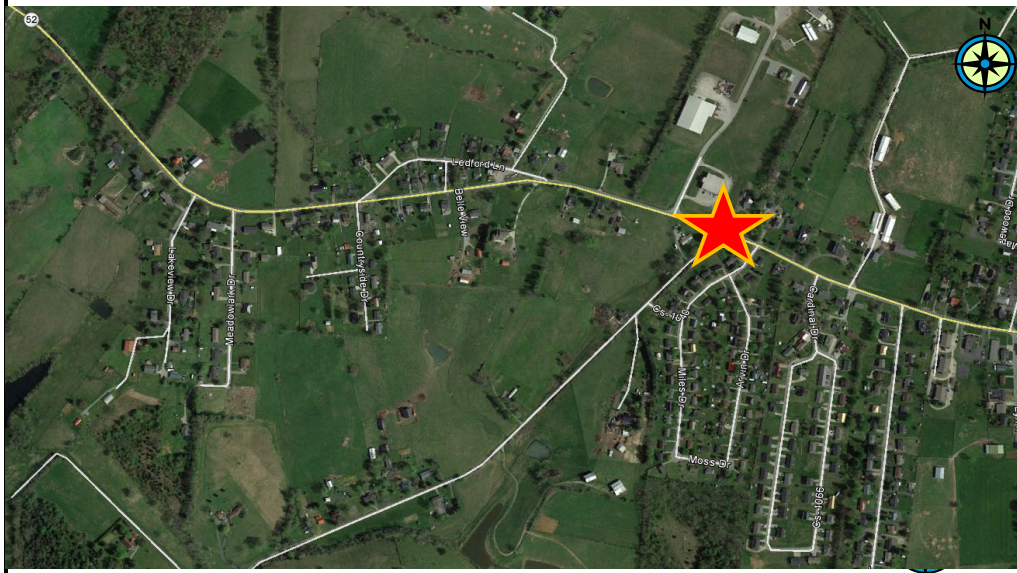
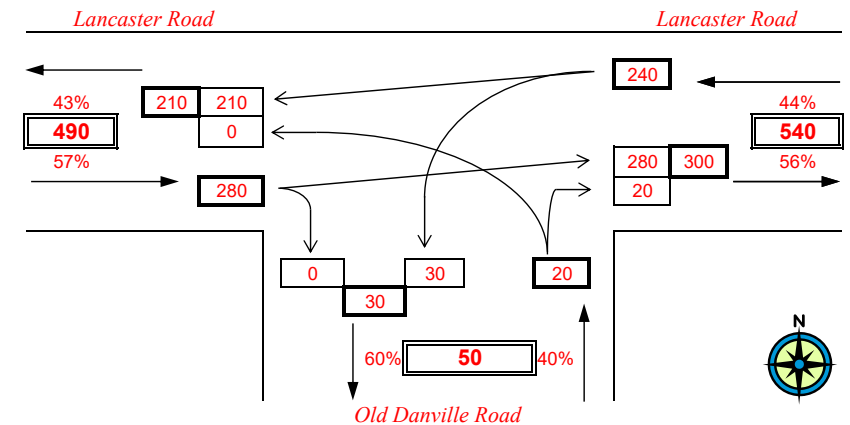
2020 ADT



2020 AM Design Hour



2020 PM Design Hour



Appendix C

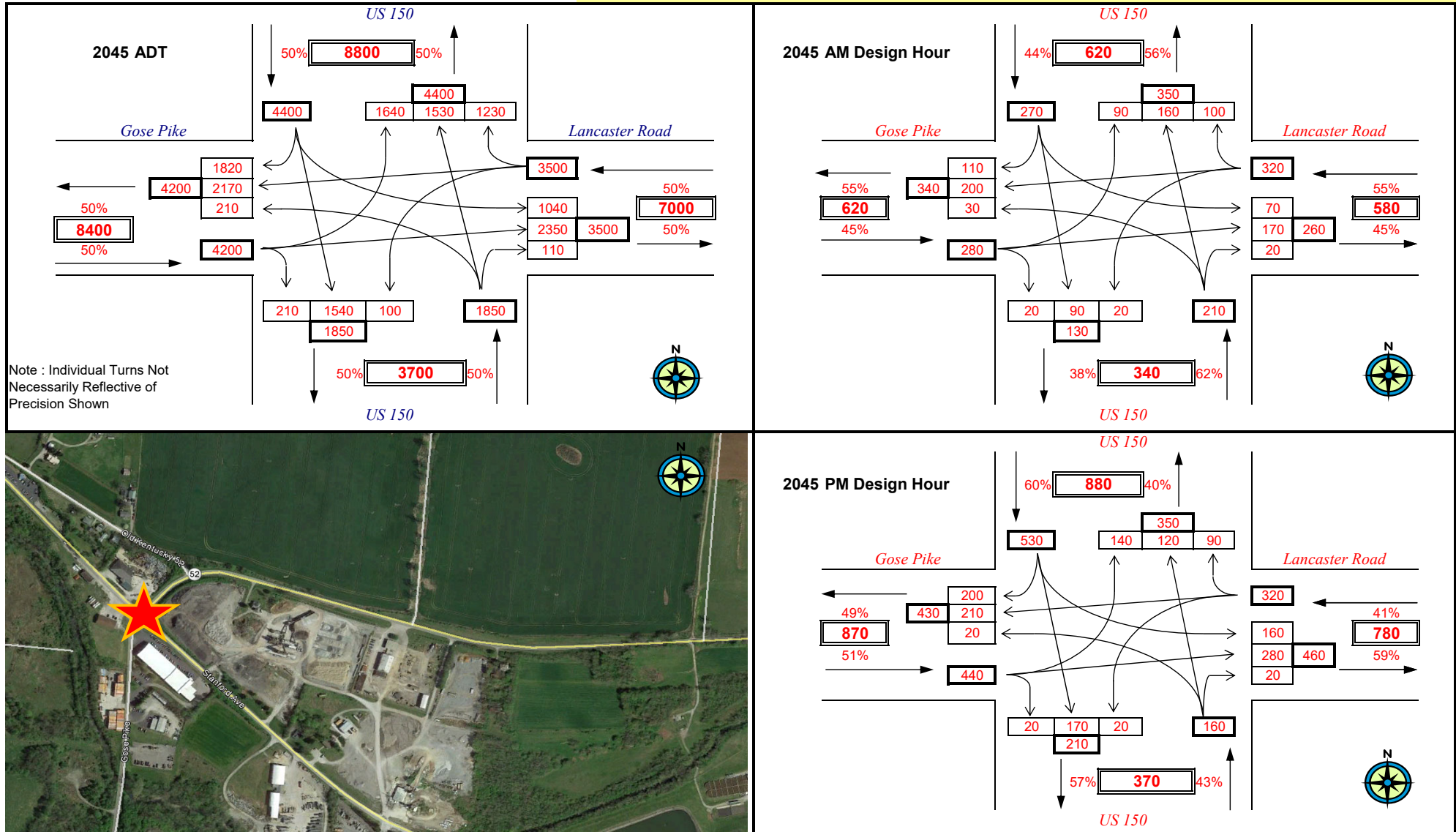
2045 No-Build Forecasts

PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: R. Hammond/R. Thompson
 YEAR: **2045** **ADT and Design Hour Volumes**
 INTERSECTION: KY 52 & US 150

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**

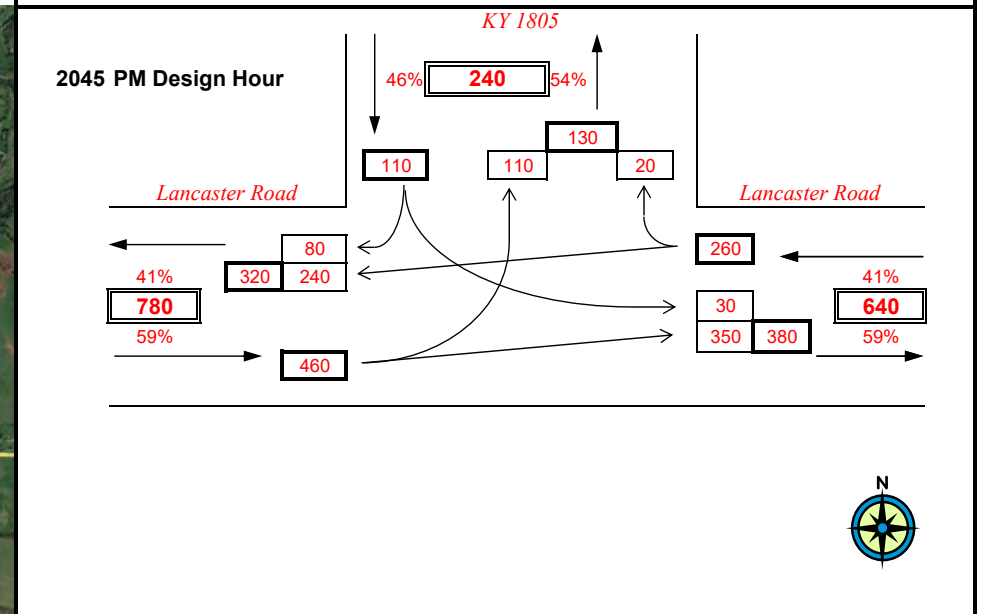
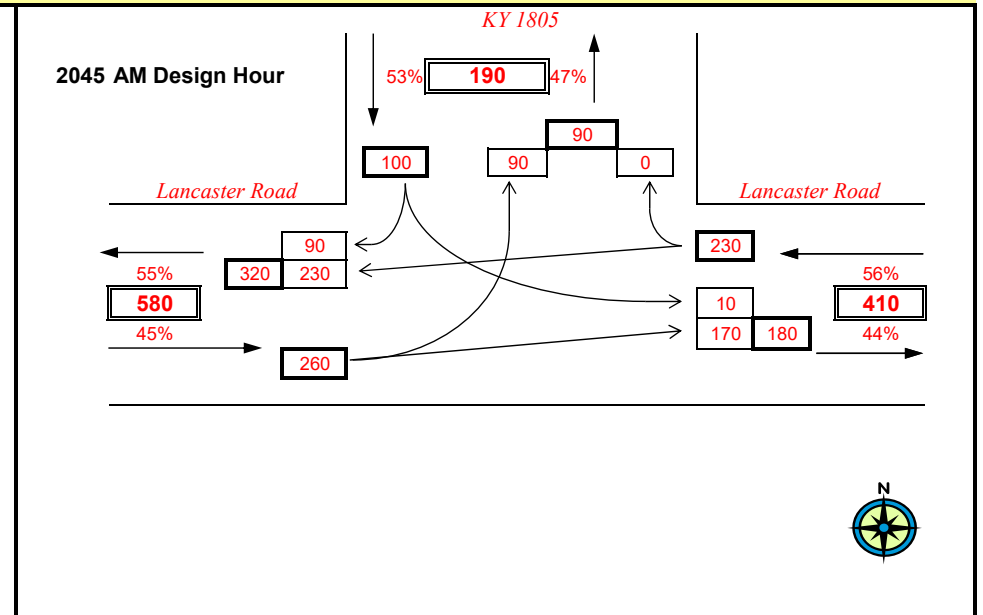
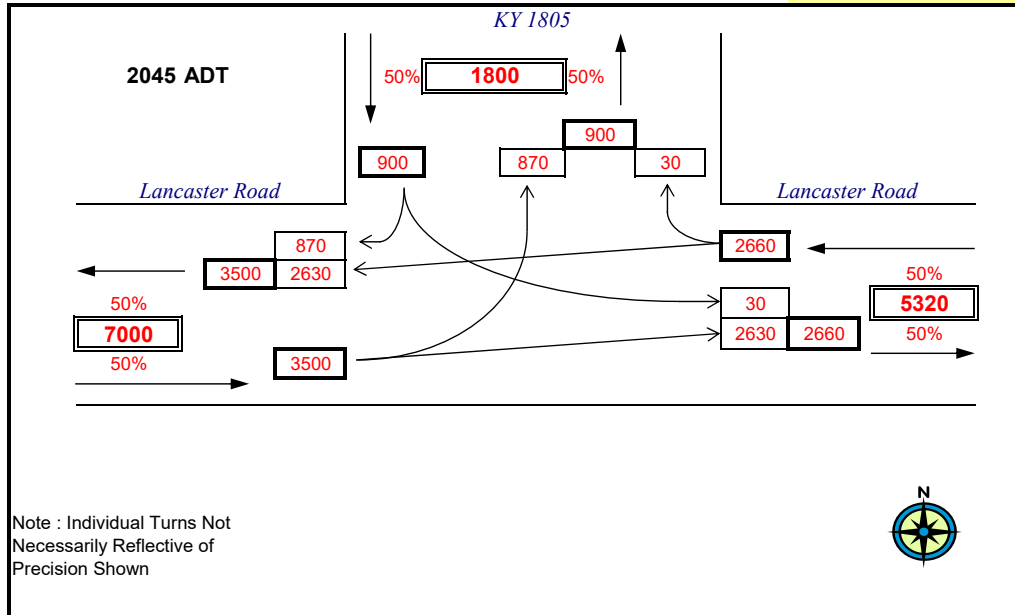


PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: R. Hammond/R. Thompson
 YEAR: **2045** **ADT and Design Hour Volumes**
 INTERSECTION: KY 52 & KY 1805 Goggin Ln

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 2 (2045)

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



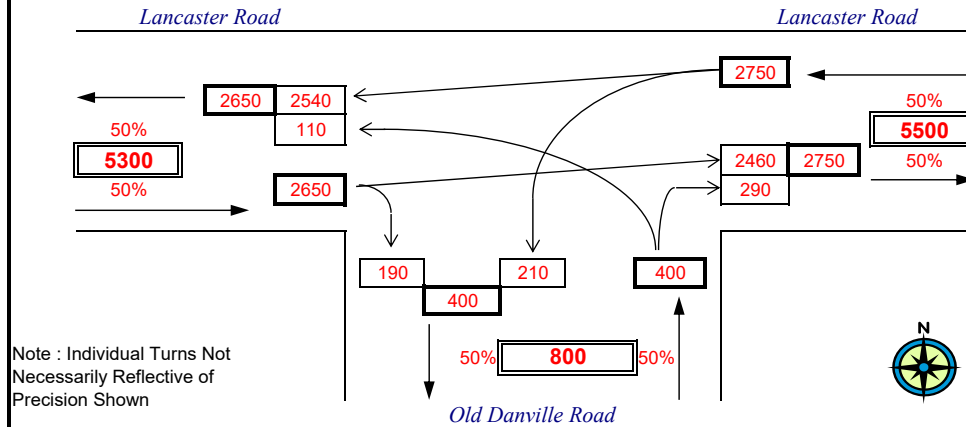
PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: Rebecca Hammond
 YEAR: 2045 ADT and Design Hour Volumes
 INTERSECTION: KY 52 & Old Danville Rd

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.

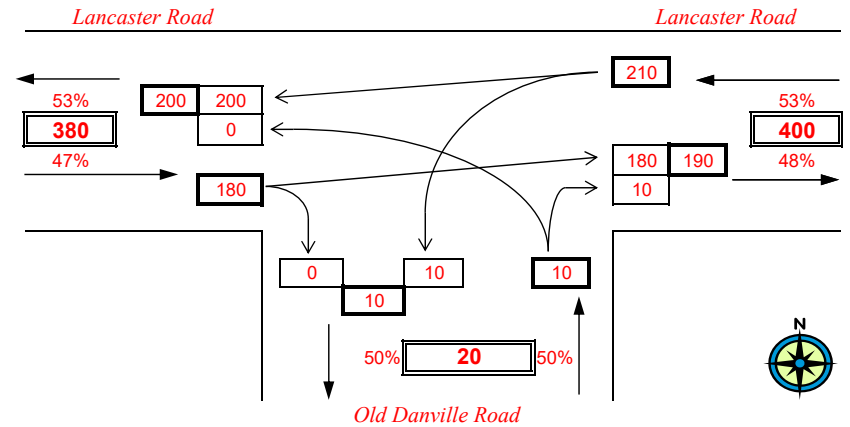
TURN MOVEMENT 3 (2045)

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

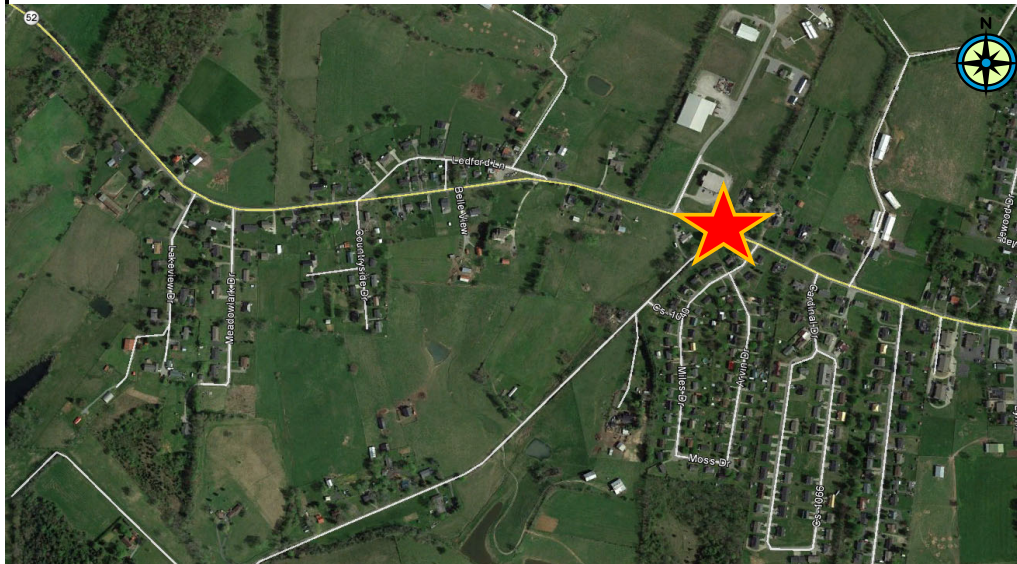
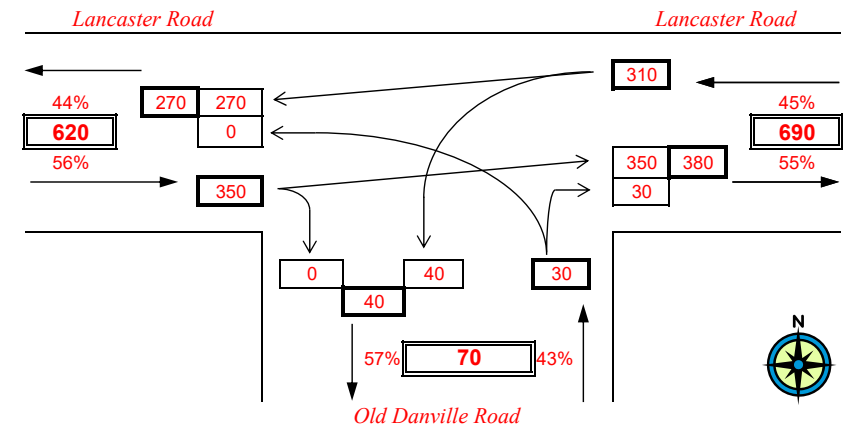
2045 ADT



2045 AM Design Hour



2045 PM Design Hour



Appendix D

2045 Build Forecasts

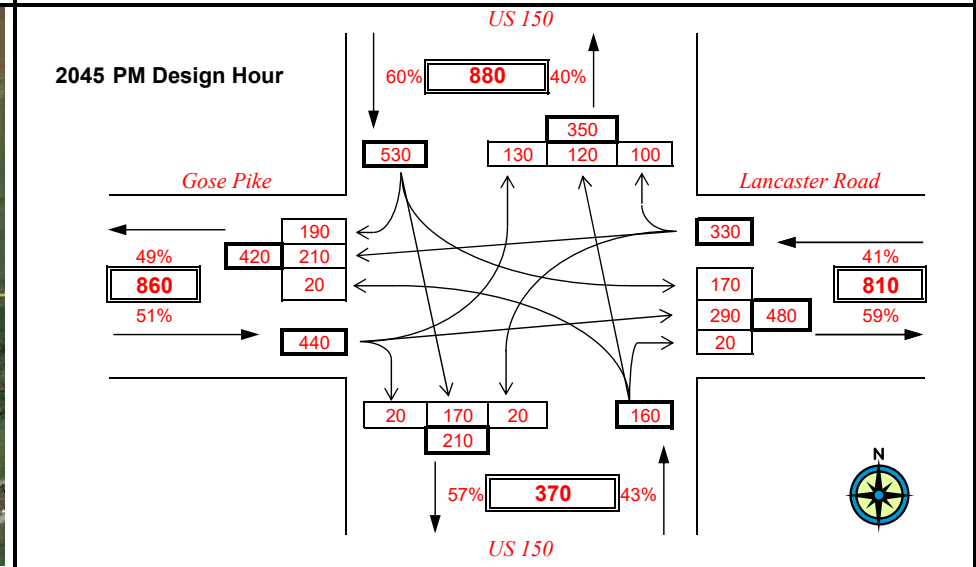
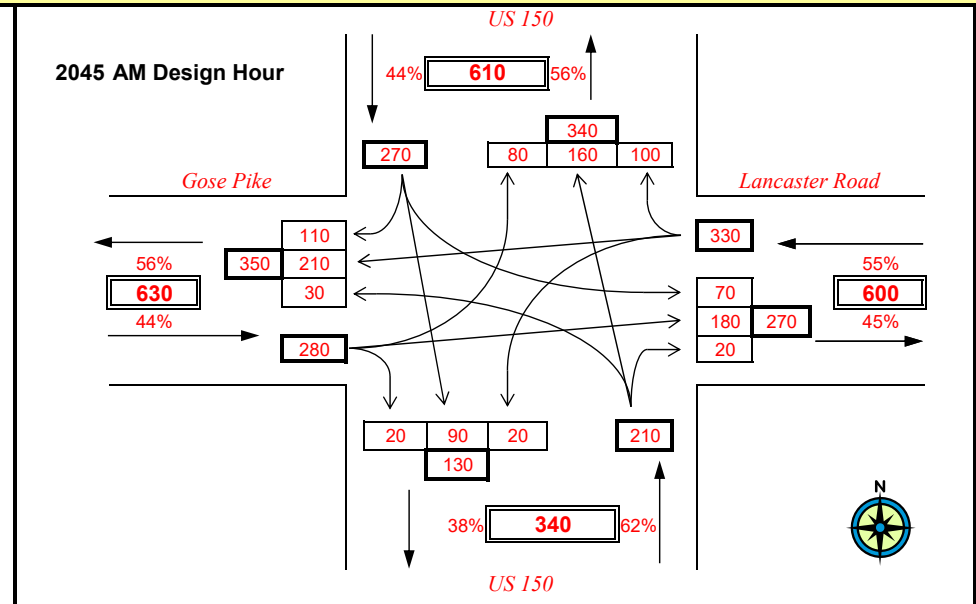
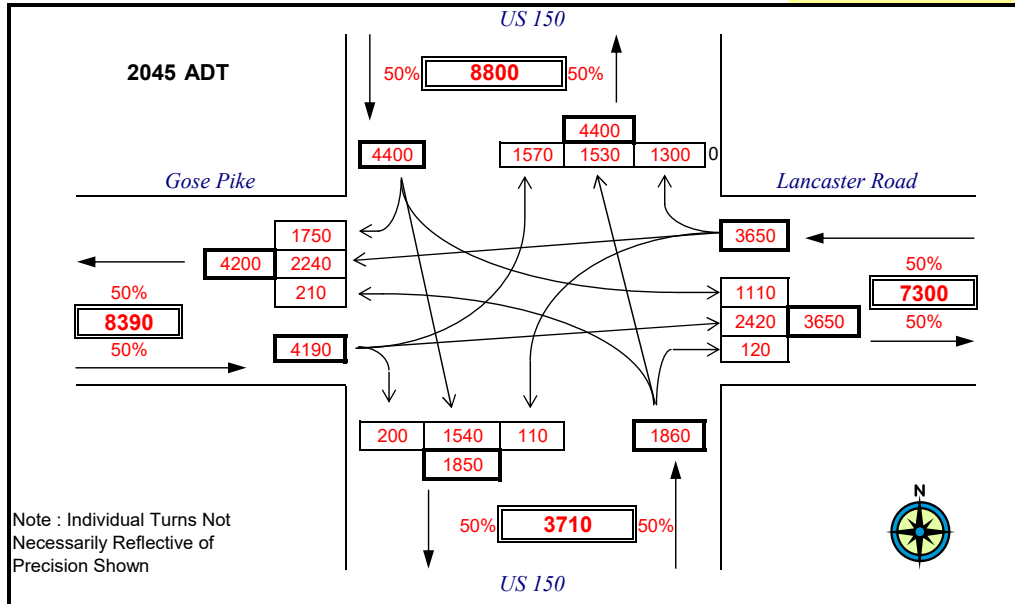
(Applies to Concepts A, E North, and E South)

PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: R. Hammond/R. Thompson
 YEAR: **2045** **ADT and Design Hour Volumes**
 INTERSECTION: KY 52 & US 150

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**

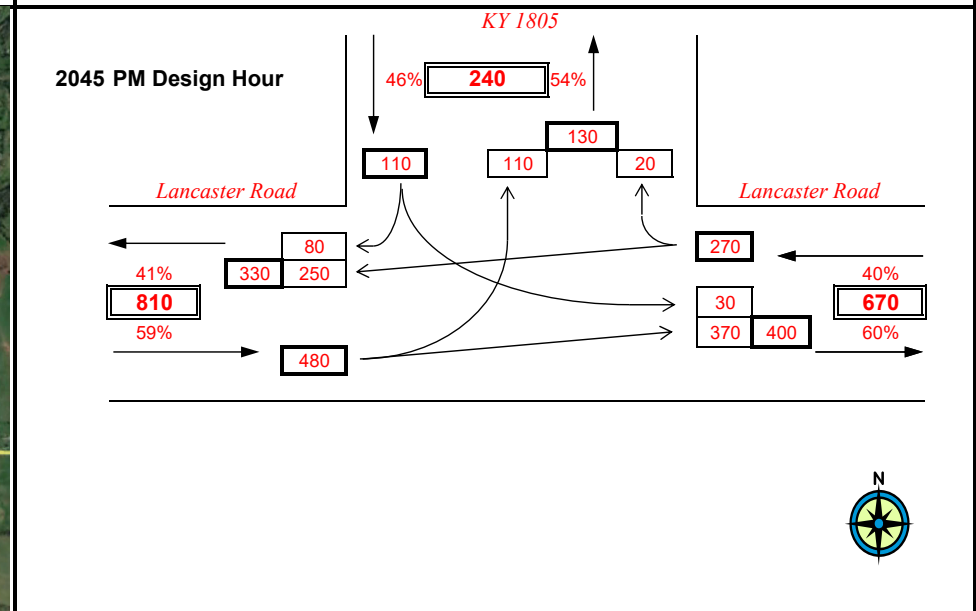
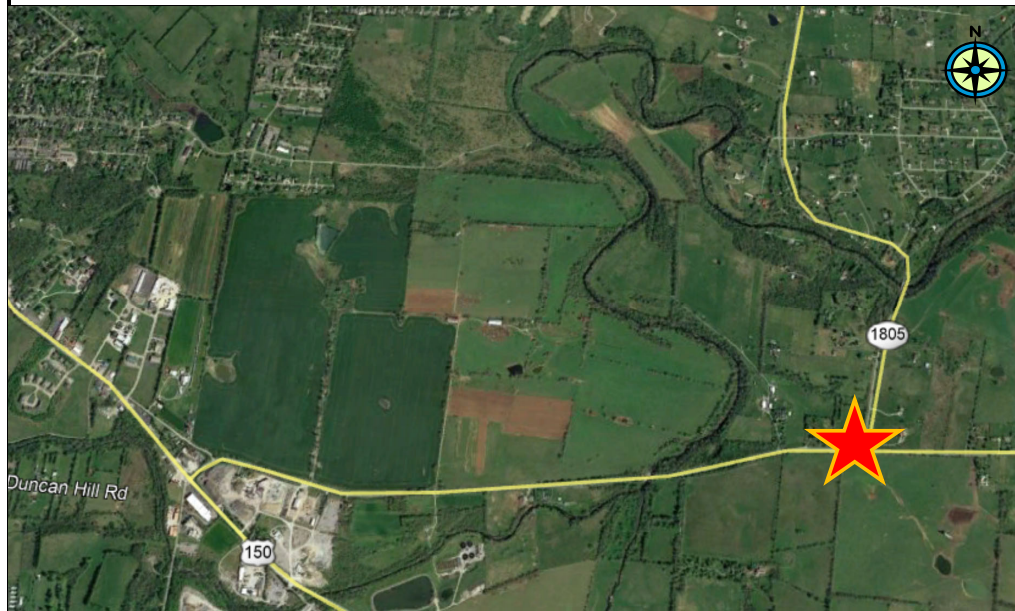
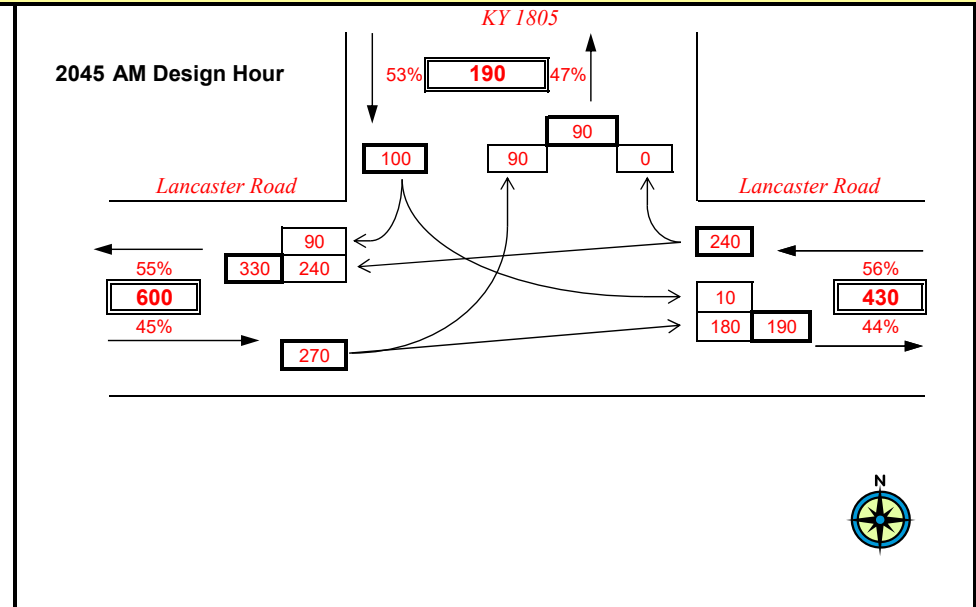
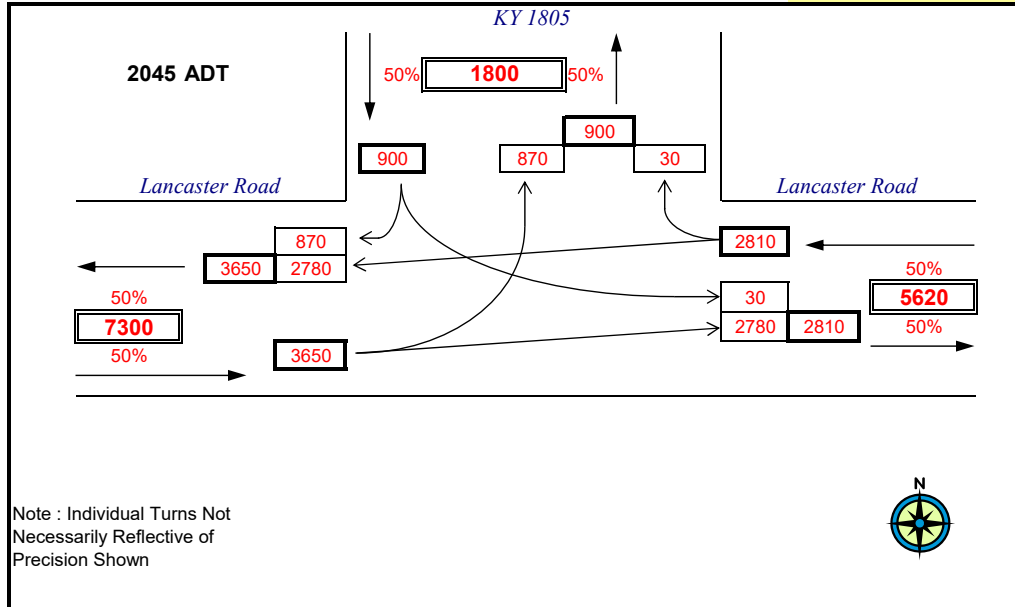


PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: R. Hammond/R. Thompson
 YEAR: **2045** **ADT and Design Hour Volumes**
 INTERSECTION: KY 52 & KY 1805 Goggin Ln

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 2 (2045)

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



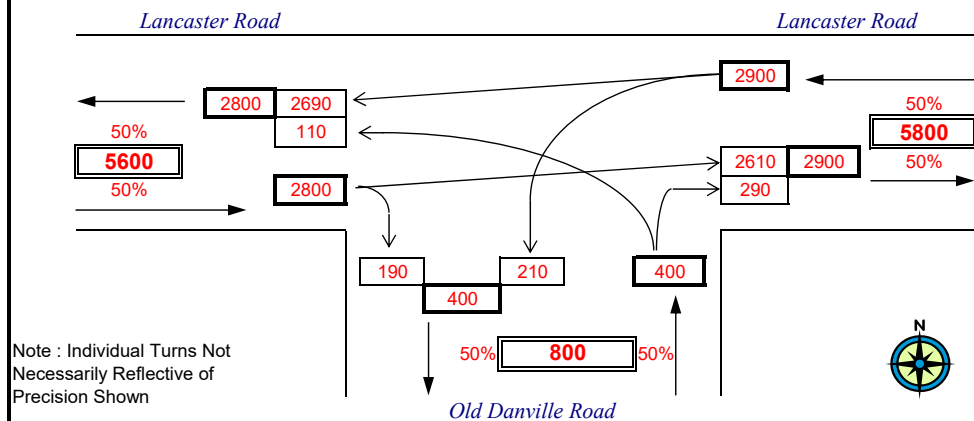
PROJECT: SW Planning - LA1 KY52
 ITEM NUMBER: 7-104
 MARS NUMBER: 0
 REQUEST DATE: Monday, October 19, 2020
 ANALYST: Rebecca Hammond
 YEAR: 2045 ADT and Design Hour Volumes
 INTERSECTION: KY 52 & Old Danville Rd

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.

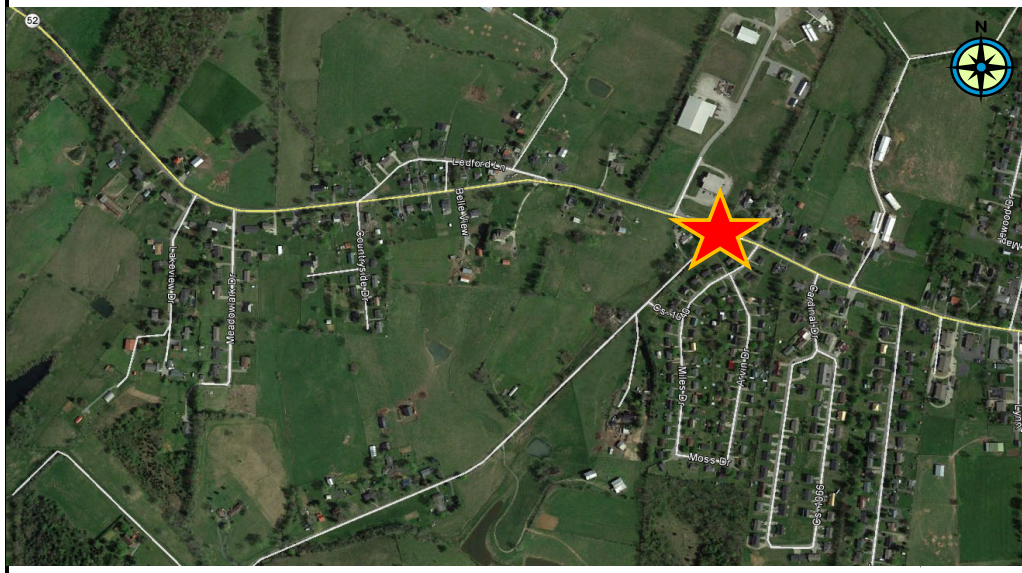
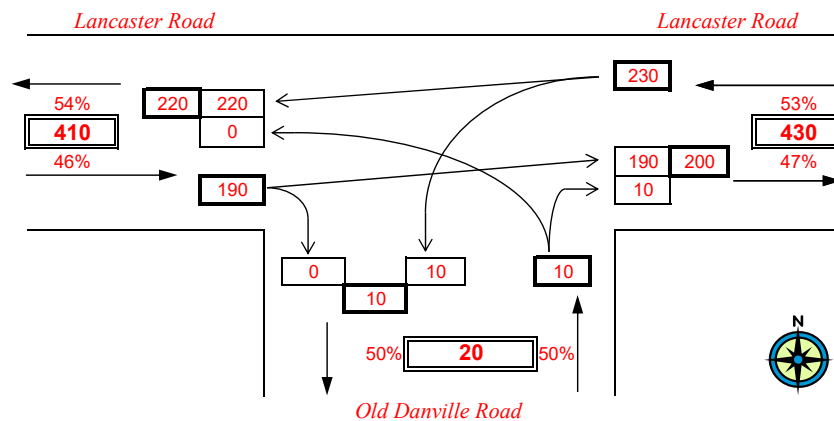
TURN MOVEMENT 3 (2045)

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

2045 ADT



2045 AM Design Hour



2045 PM Design Hour

