Prepared By:

PB Americas, Inc.

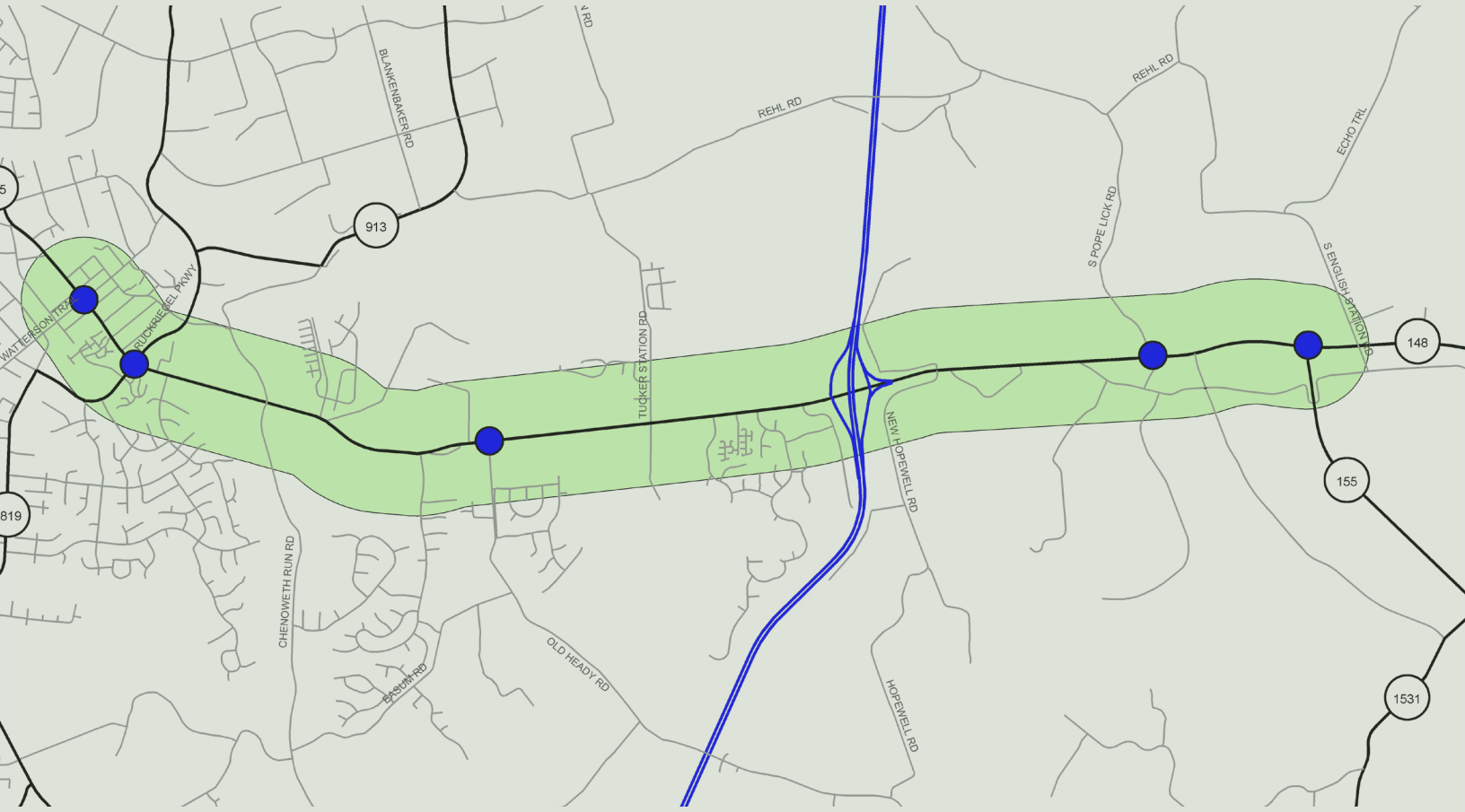
LOUISVILLE, KENTUCKY
JEFFERSON COUNTY

TAYLORSVILLE ROAD SCOPING STUDY

SUMMARY OF FINDINGS AND RECOMMENDATIONS

November 2007

FINAL REPORT



Prepared For:

Kentucky Transportation Cabinet (KYTC) – Division of Planning
Kentucky Transportation Cabinet (KYTC) – District 5

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1.0 INTRODUCTION

The Kentucky Transportation Cabinet (KYTC) initiated the Taylorsville Road (KY 155) Scoping Study to address various transportation issues along the Taylorsville Road corridor from the intersection of Taylorsville Road, Taylorsville Lake Road, and KY 148 to the intersection of Taylorsville Road and Watterson Trail in Jeffersontown. The study focused on short-term recommendations that can be quickly and effectively implemented at both an individual intersection level and on a corridor level. The study also sought to address long-term concerns by examining the future need for capacity and determining options for future improvements.

Members of the project team included: KYTC District 5, KYTC Central Office Division of Planning, and the Kentuckiana Regional Planning and Development Agency (KIPDA). KYTC selected the consulting firm of PB to lead the study effort.

1.1 Study Objectives

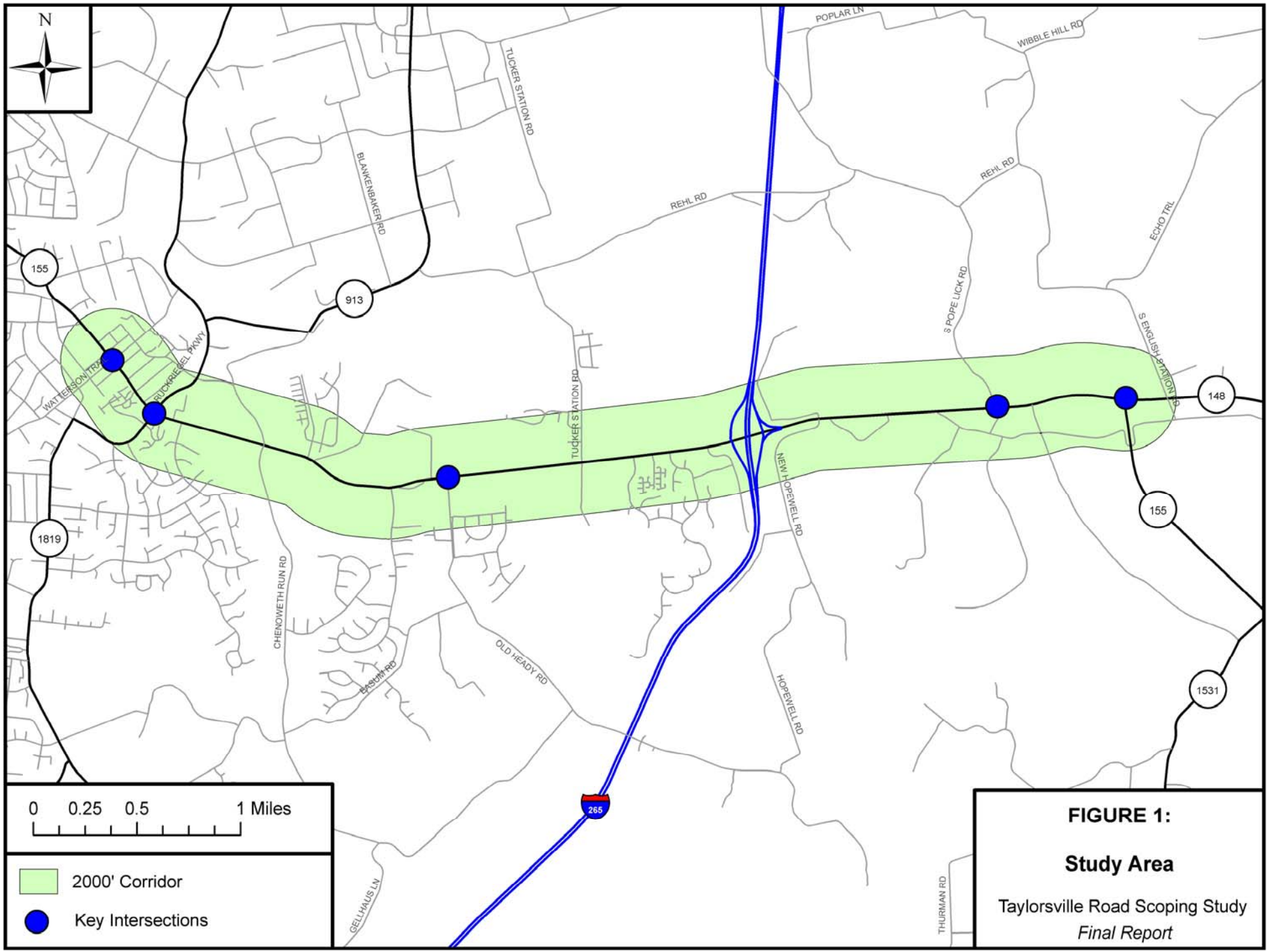
Based on the initial direction provided by the KYTC, six primary study objectives were developed as summarized below.

1. Examine existing traffic, highway, environment, and geotechnical conditions in the study area;
2. Determine where (or if) there are problems or deficiencies;
3. Define project purpose and need;
4. Develop a range of alternates to satisfy the project purpose and need and address the identified problems;
5. Evaluate and compare the proposed alternates, considering public input as well as transportation, community, environmental, and economic benefits and impacts; and
6. Recommend an alternate or set of alternates for implementation.

While KYTC has the ultimate responsibility for constructing and maintaining safe and efficient highways, KYTC desires to incorporate public and agency input into the evaluation and decision making process. Therefore, all six of these study objectives were completed in coordination with a comprehensive public and agency involvement program.

1.2 Project Location and Study Area

The study area begins at Taylorsville Lake Road / KY 148 in the east and ends at Watterson Trail in Jeffersontown in the west as shown in **Figure 1**.


N
POPLAR LN
WIBBLE HILL RD
TUCKER STATION RD
BLANKENBAKER RD
REHL RD
REHL RD
ECHO TRL
155
913
S POPE LICK RD
S ENGLISH STATION RD
148
WATTERSON TRL
BUCKREL HEEL PKWY
TUCKER STATION RD
NEW HOPEWELL RD
155
1819
CHENOWETH RUN RD
OLD HEADY RD
EASUM RD
HOPEWELL RD
1531
265
GELLHAUS LN
THURMAN RD
0 0.25 0.5 1 Miles
2000' Corridor
Key Intersections
FIGURE 1:
Study Area
Taylorsville Road Scoping Study
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Specific intersections are also included in the analysis along Taylorsville Road including:

- Taylorsville Road / Watterson Trail
- Taylorsville Road / Ruckriegel Parkway
- Taylorsville Road / Old Heady Road
- Taylorsville Road / South Pope Lick Road
- Taylorsville Road / Taylorsville Lake Road / KY 148

The study primarily focused on these intersections as well the highway segments in between these intersections.

1.3 Study Process

The study process used to evaluate potential alternates consisted of four major elements: 1) Define the purpose and need of the study, 2) Develop alternates, 3) Evaluate the alternates, and 4) Recommend an alternate(s).

The subsequent chapters in this report follow these steps, beginning with the development of the purpose and need for the study. The following five chapters contain the technical analysis and documentation used to confirm the purpose and need and then develop the alternates. These chapters include an analysis of existing and future No-Build highway conditions, a review of related studies, a summary of the human environment, a summary of the natural environment, and a geotechnical overview.

In addition to the technical analysis, public input and feedback was gathered throughout the study process. The framework for including the public in the study process is presented in the section following the technical analysis. Next, the discussion of the alternates development procedure and evaluation is presented. The final stage in the study process was to provide a recommendation, or set of recommendations, which is also the final section in this report.

2.0 PURPOSE AND NEED

It is important to establish the Purpose and Need for a project during the beginning stages of a study since it defines the actual reason(s) for doing the study and provides the basis for the development, evaluation, and comparison of alternates. According to current KYTC policy, there are three parts to a complete Purpose and Need statement: (1) the Purpose, (2) the Need, and (3) Goals and Objectives. The Purpose identifies the problem to be solved by the study and is supported by the Need. Goals and Objectives are other elements of the study that go beyond the transportation issues in the study and should be considered and addressed as part of a successful solution to the problem.

The Purpose and Need statement for this study was developed from issues identified in field reviews, the technical analysis, and through stakeholder and public input, as well as from deficiencies identified in the existing and future conditions analysis. A complete description of these project tasks is included in the following chapters of this report.

2.1 Purpose

The purpose of this study is to address various traffic access, safety, and operational issues along Taylorsville Road from Watterson Trail in Jeffersontown to the intersection of Taylorsville Road and KY 148.

2.2 Need

Supporting the study purpose above is the study need. From the existing and future conditions analysis, a documented need is shown below.

- **Poor Levels of Service –** All study intersections currently have poor levels of service, with several operating at LOS F during one or more peak periods.

- **Queuing Issues –** Queue lengths during peak periods exceed the available storage at the intersections of Ruckriegel Parkway, Watterson Trail, and KY 148 with Taylorsville Road for one or more turn movements.

- **High Crash Rates –** Ruckriegel Parkway to Watterson Trail along Taylorsville Road is a high crash rate area. Between 2004 and 2006, 75 reported crashes occurred along this segment. Both the intersections of Watterson Trail and Ruckriegel Parkway with Taylorsville Road were identified as high crash spots.

- **Limited Multimodal Facilities –** Currently there are no bicycle facilities or transit facilities along the corridor. Sidewalks are present but intermittent.

- **High Truck Percentages –** Along Taylorsville Road, there is a high percentage of truck traffic ranging from 6 – 13%. Based on data in the Traffic Forecasting

Report 2004 compiled by KYTC, the average truck percentage on roads functionally classified the same as Taylorsville Road within the study area (Urban Principal Arterial) is 6.9%

2.3 Goals and Objectives

In accordance with the Transportation Cabinet's policy on Purpose and Need statements, the following goals and objectives were developed to balance environmental and community issues with transportation issues.

- Consider low-cost, near-term solutions to address specific deficiencies as well as broader, more all-encompassing alternates to improve corridor wide operations.
- Consider noise and air quality concerns.

3.0 EXISTING AND FUTURE NO-BUILD CONDITIONS

To determine if there are deficiencies or problems with the existing highway, a detailed analysis was completed which examined the existing highway characteristics and geometrics, traffic volumes, truck traffic, speed, levels of service, crash rates, and other key issues. The analysis considered current and future traffic conditions assuming no changes to the existing highway. In support of the analysis, highway and traffic data was collected from a variety of sources including:

- KYTC Highway Information System database
- KYTC District 5 data sources
- Study area field reviews
- Peak period turning movement traffic counts
- 24-hour vehicle classification counts

3.1 Existing Highway Characteristics and Geometrics

Taylorsville Road was examined from KY 148 to Watterson Trail. The cross-section of the highway varies along the route. In the east, Taylorsville Road is a two-lane undivided highway. Near the Gene Snyder Freeway (I-265), Taylorsville Road is a four-lane divided highway with a raised mountable median. For a short section (MP 6.279 to MP 6.407), the highway is a 3-lane section with a raised mountable median. The remainder of Taylorsville Road is similar to the first section, a two-lane undivided highway. Along the entire length, the route is classified as an Urban Principal Arterial along rolling terrain. Shoulder widths along the majority of the route range from 4 feet to 12 feet. Near Jeffersontown, Taylorsville Road has a curbed shoulder with a width of 2 feet. The posted speed limit is 55 MPH from KY 148 to just west of Chenoweth Run Road where the speed limit drops to 35 MPH toward Jeffersontown. Refer to **Figure 2** for a graphic representation of the existing highway characteristics and geometrics.

3.2 Current and Historic Traffic Volumes

Current Traffic Volumes

The average daily traffic volumes used for this project included traffic counts provided by the KYTC. The counts provided by the KYTC were conducted during the years of 2005 – 2006, and included the following count stations (refer to **Figure 3** for the count station locations):

- Station 996: KY 148 to I-265 (2006)
- Station 253: I-265 to Tucker Station Road (2006)
- Station 348: Tucker Station Road to Chenoweth Run (2006)
- Station 346: Chenoweth Run to Ruckriegel Parkway (2006)
- Station 334: Ruckriegel Parkway to Watterson Trail (2005)

The count from 2005 was forecasted to a base year of 2006 using historical trends. **Figure 4** shows the current (2006) average daily traffic volumes.

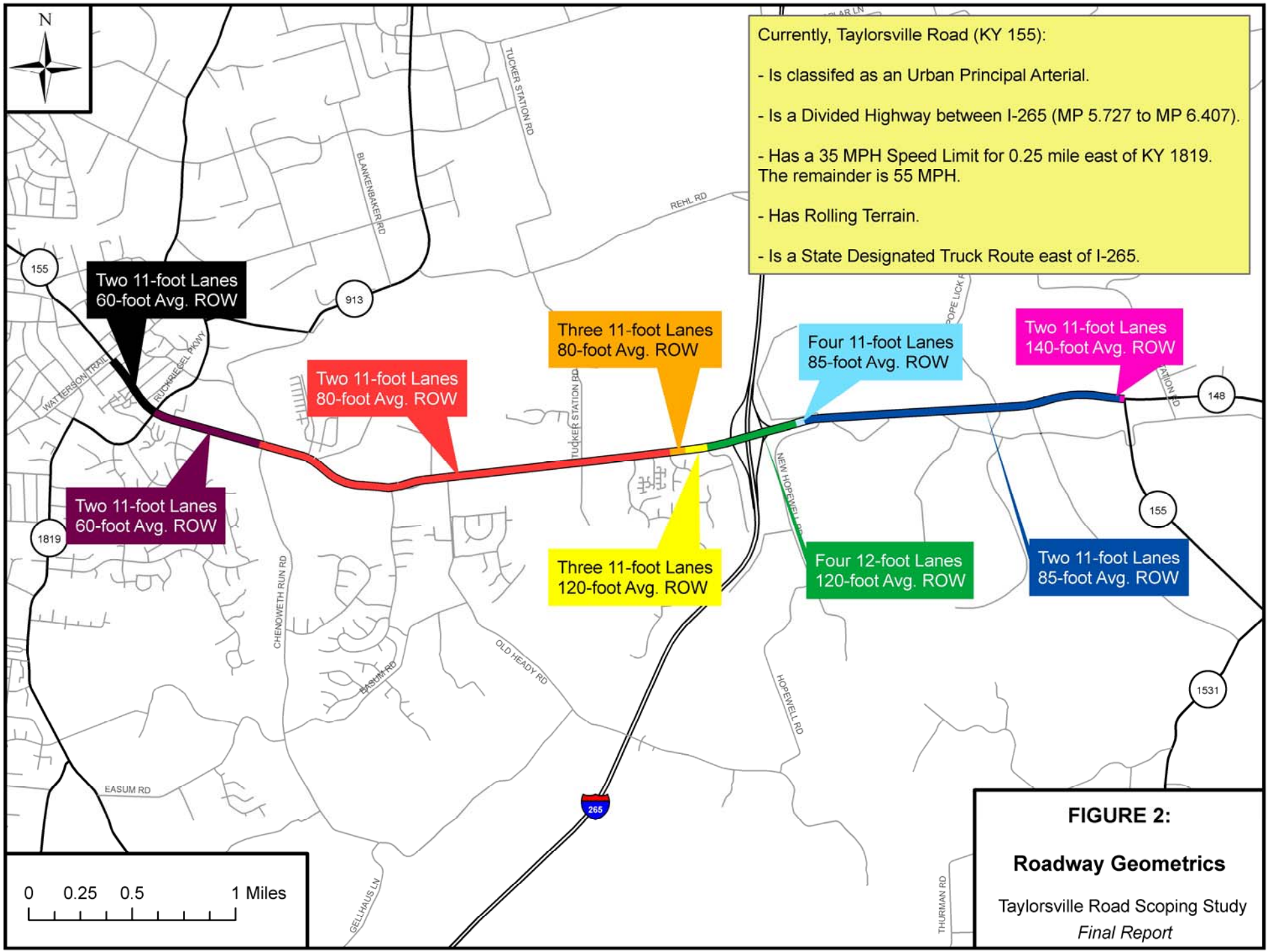

FIGURE 2:

Roadway Geometrics

Taylorsville Road Scoping Study

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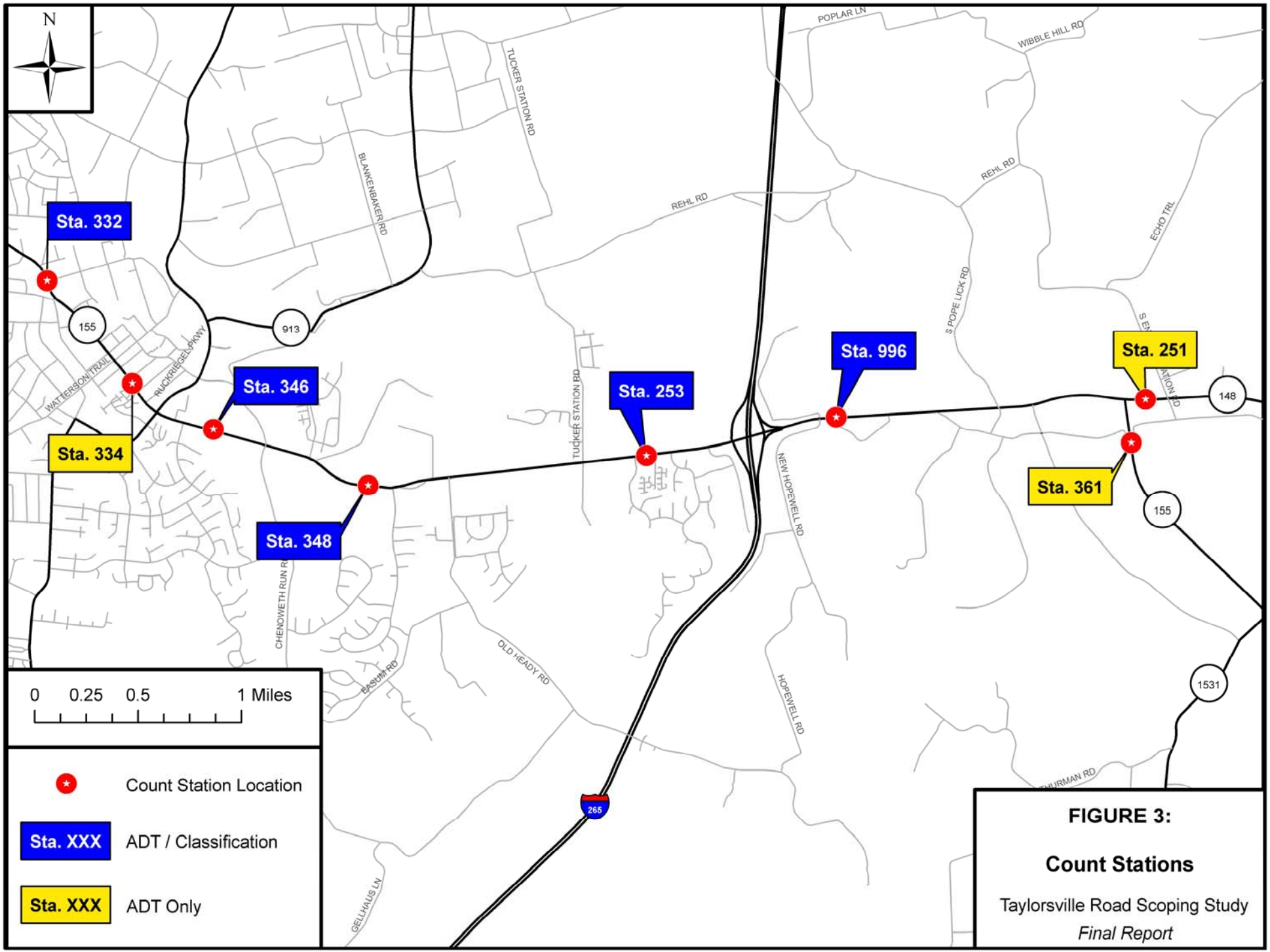
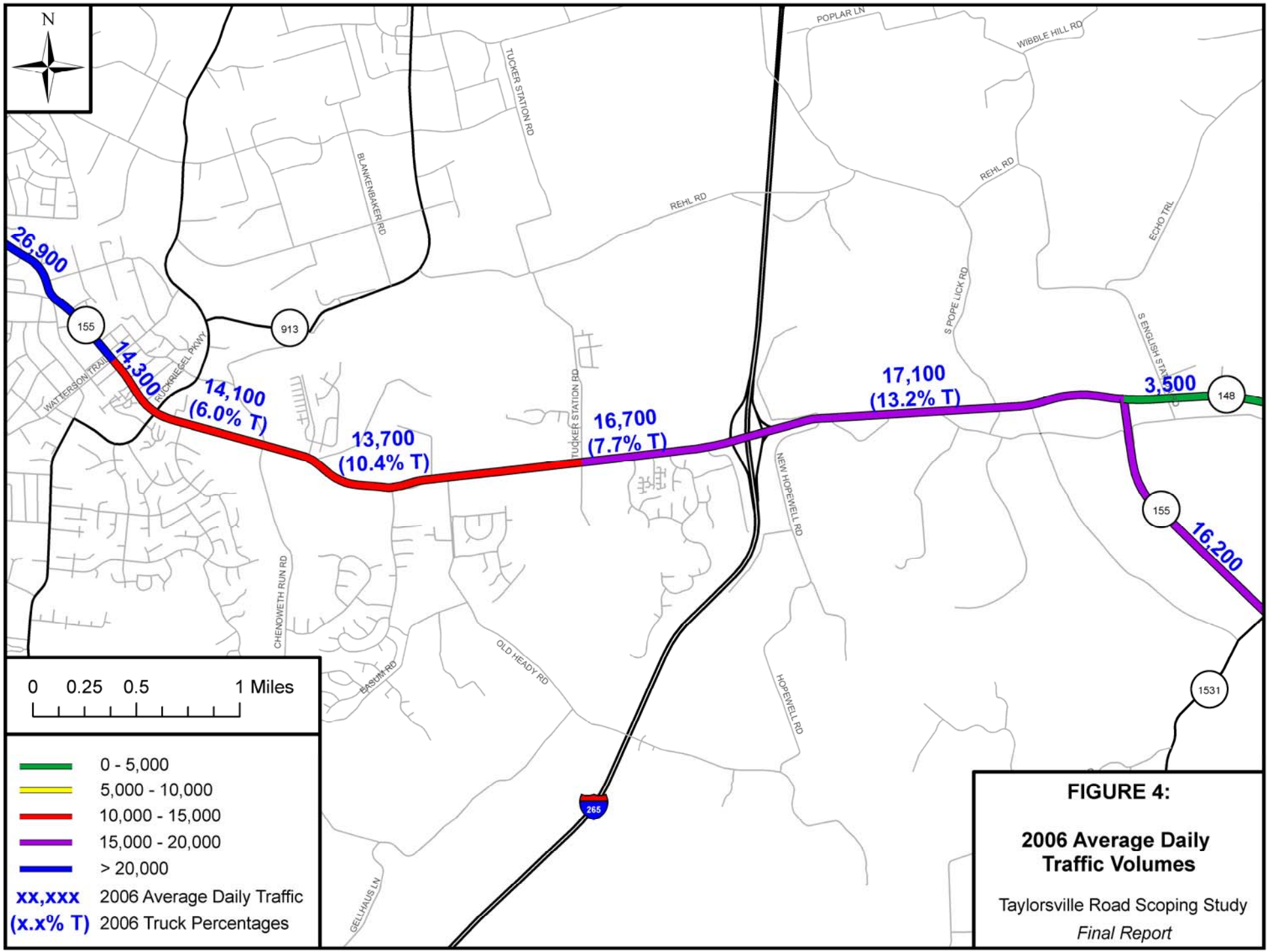


Source: KYTC Highway Information System / KYTC Traffic Counts System (CTS)



Source: KYTC Highway Information System / KYTC Traffic Counts System (CTS)

As shown in **Figure 4**, the average daily traffic (ADT) along Taylorsville Road within the study area ranges from 13,700 between Tucker Station Road to Chenoweth Run Road and 17,100 between KY 148 and the Gene Snyder Freeway (I-265).

In addition, KYTC provided turning movement counts at five key intersections within the study area during the AM peak (6:30 AM – 9:00 AM) and PM peak (4:00 PM – 6:00 PM) periods. These intersections included:

- Taylorsville Road / KY 148
- Taylorsville Road / South Pope Lick Road
- Taylorsville Road / Old Heady Road
- Taylorsville Road / Ruckriegel Parkway
- Taylorsville Road / Watterson Trail

The turn movement volumes were balanced as appropriate. The 2006 intersection volumes for the five intersections can be seen on **Figure 5**.

Historic Traffic Volumes and Growth Rates

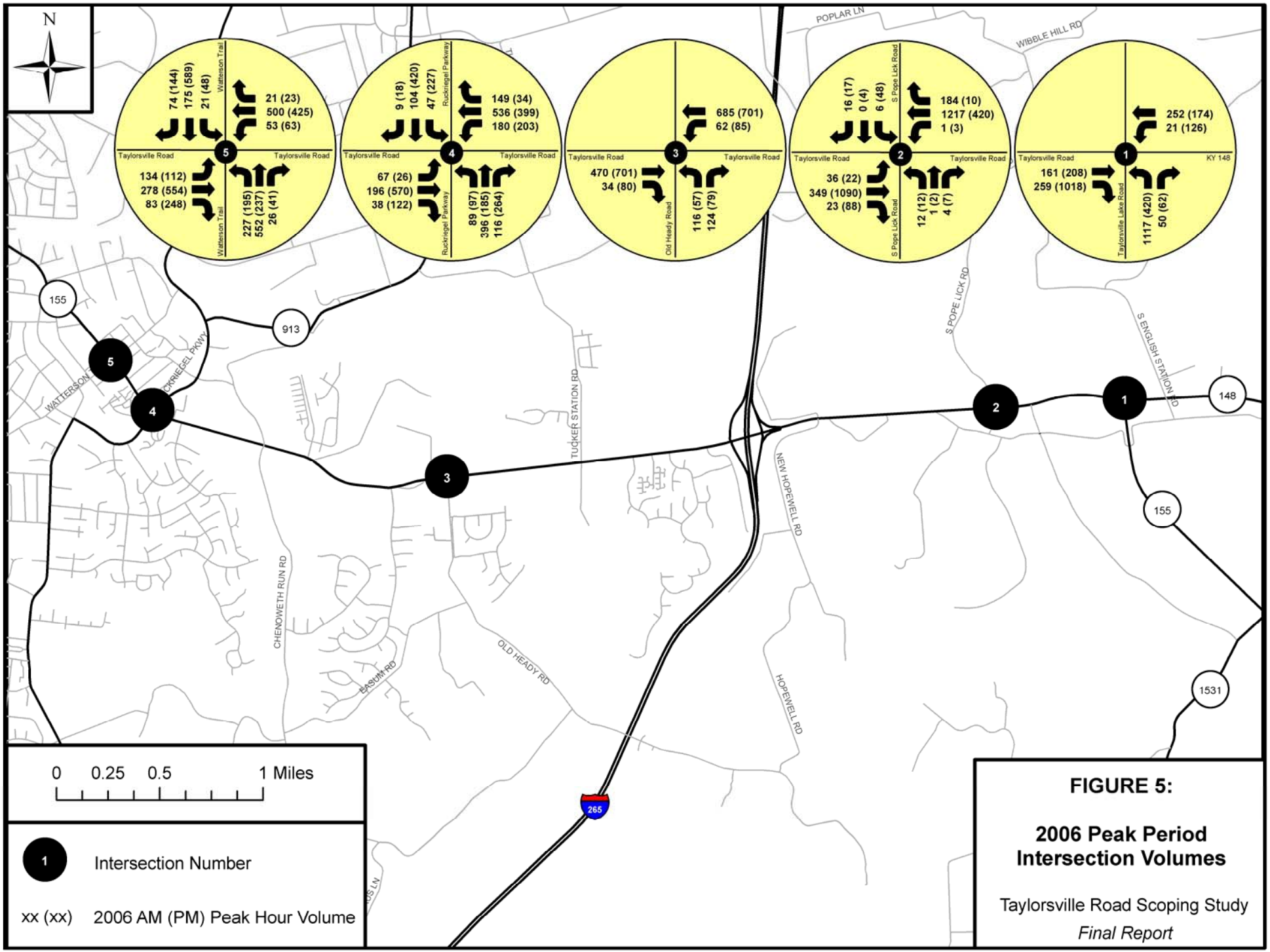
Growth rates for this study are based upon a historical traffic growth analysis along Taylorsville Road within the study area. The analysis utilized traffic counts obtained from the KYTC's 'CTS' traffic count program which includes counts from 1963 to 2006.

The historical counts were entered into a spreadsheet provided by KYTC. The spreadsheet calculates growth rates using both exponential and trendline analyses. The historical growth rates are shown in **Table 1**.

Table 1: **Historic and Proposed Growth Rates**

Station	From	To	Historical Growth Rate	Proposed Growth Rate
996	KY 148	I-265	4.62%	4.7%
253	I-265	Tucker Station Road	4.18%	3.3%
348	Tucker Station Road	Chenoweth Run	2.86%	3.3%
346	Chenoweth Run	Ruckriegel Parkway	2.98%	3.3%
334	Ruckriegel Parkway	Watterson Trail	3.27%	3.3%

In selecting an appropriate growth rate, several factors were considered including the historical growth, recent traffic volumes, and geography. For this study, I-265 (Gene Snyder Freeway) created a distinct division of Taylorsville Road within the study area. Therefore, with respect to growth rates, Taylorsville Road was analyzed as two pieces. East of the freeway, only one count station was present; this value was rounded up to 4.7%. West of the freeway, the segments were averaged to obtain a value of 3.3%.


N
Taylorsville Road
Watterson Trail
Ruckriegel Parkway
Old Heady Road
S Pope Lick Road
KY 148
Taylorsville Lake Road
74 (144)
175 (589)
21 (48)
21 (23)
500 (425)
53 (63)
134 (112)
278 (554)
83 (248)
227 (195)
552 (237)
26 (41)
9 (18)
104 (420)
47 (227)
149 (34)
536 (399)
180 (203)
67 (26)
196 (570)
38 (122)
89 (97)
396 (185)
116 (264)
685 (701)
62 (85)
470 (701)
34 (80)
116 (57)
124 (79)
16 (17)
0 (4)
6 (48)
184 (10)
1217 (420)
1 (3)
36 (22)
349 (1090)
23 (88)
12 (12)
1 (2)
4 (7)
252 (174)
21 (126)
161 (208)
259 (1018)
1117 (420)
50 (62)
POPLAR LN
WIBBLE HILL RD
S POPE LICK RD
S ENGLISH STATION RD
155
913
WATTERSON
RUCKRIEGEL PKWY
TUCKER STATION RD
NEW HOPEWELL RD
148
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
0 0.25 0.5 1 Miles
1 Intersection Number
xx (xx) 2006 AM (PM) Peak Hour Volume
FIGURE 5:
2006 Peak Period Intersection Volumes
Taylorsville Road Scoping Study
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3.3 Truck Volumes

Vehicle classification counts along Taylorsville Road were obtained to examine recent truck percentages. Historic truck percentage trends were not available within the study area. Each of the classification counts were conducted in 2006 as shown in **Table 2**.

Table 2: Vehicle Classification Counts on Taylorsville Road and Average Statewide Truck Percentages

Route	Milepoint	Count Station	General Location	ADT	Axles per Truck	Percent Trucks	2004 Statewide Average Truck %[1]
KY 155	5.600	996	KY 155 between KY 148 and I-265	17,100	2.971	13.2%	6.9%
	6.300	253	KY 155 between I-265 and Tucker Station Road	16,700	3.053	7.7%	
	7.500	348	KY 155 between Tucker Station Road and Chenoweth Run Road	13,700	2.898	10.4%	
	8.800	346	KY 155 between Chenoweth Run and KY 1819	14,100	3.484	6.0%	

[1]2004 Statewide Average Truck % from Traffic Forecasting Report 2004, KYTC Division of Multimodal Programs, December 2004, Page 21.

3.4 Spot Speed Study

Speed data was collected at two locations along Taylorsville Road on October 24, 2006 (Tuesday) to determine vehicle speeds relative to the posted speed limit. The locations were selected to provide speed data in both the east and west ends of the study area. Vehicle speeds were obtained by radar for the eastbound and westbound directions in fifteen minute time periods. The methodology used for conducting the speed study was based on the procedures outlined in the *Institute of Transportation Engineers Manual of Transportation Studies*. This included collecting the data during off-peak periods.

In speed studies, the most significant statistic is the 85th percentile speed. The 85th percentile speed is the speed threshold at or below which 85 percent of the motorists travel. Generally, speed limits are set within five mph of the 85th percentile speed. **Table 3** presents a summary of the speed statistics for Taylorsville Road.

Table 3: Speed Statistics

	Just East of Old Heady Road		West of I-265 at Haymaker	
Statistics	Eastbound	Westbound	Eastbound	Westbound
No. of Observations	84	89	66	73
Minimum Speed (mph)	39	35	44	31
Maximum Speed (mph)	60	64	66	61
85th Percentile Speed (mph)	53	53	59	53
Posted Speed Limit (mph)	55	55	55	55
Difference (85th – Posted)	-2	-2	+4	-2

The observed vehicle speeds were lower than the posted speeds except for the speeds measured in the eastbound direction west of I-265. These speeds were slightly higher than the posted speed limit. Overall, the observations indicate that speeding is not a major issue along this portion of Taylorsville Road.

3.5 Current Level of Service Analysis

3.5.1 Methodology

Intersection Analysis

Intersection operations were evaluated at the following study intersections:

- Taylorsville Road / Watterson Trail – Signalized
- Taylorsville Road / Ruckriegel Parkway – Signalized
- Taylorsville Road / Old Heady Road – Unsignalized
- Taylorsville Road / Pope Lick Road – Unsignalized
- Taylorsville Road / KY 148 – Signalized

For this analysis, the Highway Capacity Software Plus package (HCS+) was used to assess the peak period traffic operating conditions. This software package implements the Highway Capacity Manual (HCM) intersection analysis method. For each study intersection, average vehicle delays were calculated as well as the resulting levels of service (LOS).

Level of service (LOS) is a qualitative measure of expected traffic conflicts, delay, driver discomfort, and congestion. Levels of service are described according to a letter rating system ranging from LOS A (free flow, minimal or no delays – best conditions) to LOS F (stop and go conditions, very long delays – worst conditions). For intersections, the Highway Capacity Manual (2000 HCM) defines levels of service based on the average delay due to signal or STOP control as shown in **Table 4**.

Table 4: LOS Criteria for Intersections

LOS	Signalized Intersections Control Delay (seconds vehicle)	Unsignalized Intersections Control Delay (seconds/vehicle)
A	≤ 10	≤ 10
B	>10 – 20	>10 – 15
C	>20 – 35	>15 – 25
D	>35 – 55	>25 – 35
E	>55 – 80	>35 – 50
F	>80	>50

Source: Highway Capacity Manual (2000)

In general terms, a facility is considered to have reached its physical capacity at LOS E. However, for urban/suburban conditions on an arterial roadway (Taylorsville Road), LOS C is usually considered the threshold for desirable traffic conditions. Therefore, in

this study, LOS C is used as the threshold. Operations below this threshold are noted as undesirable and warrant improvement. LOS C corresponds to ≤ 35 seconds of delay per vehicle at a signalized intersection and ≤ 25 seconds of delay at an unsignalized intersection. (Refer to the HCM published by the Transportation Research Board for more specific information.)

Two-Lane Highway Analysis

A corridor level of service analysis was prepared for the two-lane highway segments of Taylorsville Road from KY 148 to Watterson Trail. This was completed using the HCS+ two-lane road analysis module, which is based on the 2000 HCM. For this method, there are two classes of roadways: Class I highways which include higher speed arterials and daily commuter routes, and Class II highways which include lower speed collector roadways and roads primarily designed to provide access. Driver expectations regarding speed and flow are important in determining a highway's class. Taylorsville Road, a major through route in the study area, was considered to be a Class I highway. Levels of service for Class I highways are based on the estimated average travel speeds and percent time vehicles spend following other vehicles as shown in **Table 5**. Levels of service for Class II highways are defined only in terms of the percent time vehicles spend following other vehicles. Average travel speed is not considered since drivers typically will tolerate lower speeds on a Class II facility because of its function as an access roadway (serving shorter trips and fewer through trips). Refer to the HCM for more details.

Table 5: LOS Criteria for Two-Lane Highways

LOS	Class I Highways		Class II Highways
	Percent Time Spent Following	Average Travel Speed	Percent Time Spent Following
A	≤ 35	>55	≤ 40
B	>35 - 50	>50 – 55	>40 – 55
C	>50 - 65	>45 – 50	>55 – 70
D	>65 – 80	>40 - 45	>70 – 85
E	>80	≤40	>85
F	LOS F applies whenever the flow rate exceeds the capacity		

Source: Highway Capacity Manual (2000)

Again, LOS C is the threshold for desirable traffic operations in this study. Operations below this threshold are noted as undesirable and warrant improvement. For Class I highways, the LOS C threshold corresponds to an average travel speed of >45 miles per hour with ≤65 percent time spent following another vehicle. For Class II highways, the LOS C threshold corresponds to ≤ 70 percent time spent following another vehicle. (Refer to the HCM for more specific information.)

As noted in Section 3.1, the number of lanes along Taylorsville Road within the study area ranges from two to four lanes. The majority of the route contains two lanes with the exception of short three-lane and four-lane sections near the Gene Snyder Freeway. As these are short segments, it was decided that all segments of Taylorsville Road would be analyzed with the two-lane road analysis package of HCS+.

3.5.2 Existing Traffic Operating Conditions

Intersection Level of Service and Delay

In order to determine the level of service and delay at the key intersections, the peak period traffic counts collected by KYTC were utilized. As noted, the peak periods were 6:30 AM to 9:00 AM (AM peak) and 4:00 PM to 6:00 PM (PM peak) for most of the study intersections. The highest peak hour for each count was selected for use in the analysis. Intersection geometry, signal timings, and other necessary traffic operations data was also collected and used to evaluate the intersection operations.

Typical weekday traffic operating conditions were determined for both the AM and PM peak hours. **Table 6** lists the level of service and delay for each approach. For the unsignalized intersections, the HCS+ does not calculate whole intersection levels of service or a level of service for approaches with no conflicting movements.

Table 6: 2006 Intersection Levels of Service

Intersection	Type	Approach	AM Avg. Delay (sec)	LOS	PM Avg. Delay (sec)	LOS
Taylorsville Road / Watterson Trail	Signalized	Eastbound	31.4	C	66.5	E
		Westbound	165.0	F	101.6	F
		Northbound	65.2	E	30.6	C
		Southbound	35.7	D	45.4	D
		Whole Int.	81.1	F	60.8	E
Taylorsville Road / Ruckriegel Parkway	Signalized	Eastbound	44.5	D	201.9	F
		Westbound	80.3	F	53.3	D
		Northbound	105.7	F	62.1	E
		Southbound	51.0	D	136.1	F
		Whole Int.	80.0	E	118.6	F
Taylorsville Road / Old Heady Road	STOP Controlled	Eastbound	-	-	-	-
		Westbound	8.8	A	10.3	B
		Northbound	167.8	F	148.0	F
Taylorsville Road / South Pope Lick Road	STOP Controlled	Eastbound	14.4	B	8.4	A
		Westbound	8.2	A	11.9	B
		Northbound	113.0	F	75.6	F
		Southbound	56.0	F	230.8	F
Taylorsville Road / KY 148	Signalized	Eastbound	70.7	E	119.5	F
		Westbound	109.3	F	67.9	E
		Northbound	72.2	E	97.4	F
		Whole Int.	77.6	E	106.1	F

The three signalized intersections operate at LOS E or LOS F for both the AM and PM peak periods which is below the desirable LOS C threshold.

The two unsignalized intersections currently have approaches that experience undesirable LOS conditions during the AM and PM peak periods. These include the

northbound approaches at both unsignalized intersections as well as the southbound approach at the Taylorsville Road / Pope Lick Road intersection.

For each intersection, specific movements that have turn bays were analyzed in a queue analysis. Calculated queue lengths versus storage are listed in **Table 7**. This table is based on the Highway Capacity Manual method (95^{th} percentile) and uses the existing signal timing. This method is sometimes conservative in estimating queues.

Table 7: 2006 Queue Length Evaluation

Int.	Approach / Movement	Design Hour	95th Percentile Queue (HCM)	Queue Length (ft)	Available Storage Length (ft)	Notes
Taylorsville Road / Watterson Trail	Eastbound Left	AM	6.9	172.5	220	**MEETS** available storage
		PM	5.8	145.0	220	**MEETS** available storage
	Westbound Left	AM	3.2	80.0	120	**MEETS** available storage
		PM	3.9	97.5	120	**MEETS** available storage
	Northbound Right	AM	1.3	32.5	80	**MEETS** available storage
		PM	2.3	57.5	80	**MEETS** available storage
	Southbound Left	AM	1.3	32.5	70	**MEETS** available storage
		PM	2.9	72.5	70	**EXCEEDS** available storage
	Southbound Right	AM	4.0	100.0	70	**EXCEEDS** available storage
		PM	8.6	215.0	70	**EXCEEDS** available storage
Taylorsville Road / Ruckriegel Parkway	Eastbound Left	AM	5.3	132.5	120	**EXCEEDS** available storage
		PM	2.1	52.5	120	**MEETS** available storage
	Westbound Left	AM	11.0	275.0	180	**EXCEEDS** available storage
		PM	14.9	372.5	180	**EXCEEDS** available storage
	Northbound Left	AM	7.9	197.5	190	**EXCEEDS** available storage
		PM	8.5	212.5	190	**EXCEEDS** available storage
	Northbound Right	AM	7.8	195.0	200	**MEETS** available storage
		PM	21.1	527.5	200	**EXCEEDS** available storage
	Southbound Left	AM	4.4	110.0	240	**MEETS** available storage
		PM	19.3	482.5	240	**EXCEEDS** available storage
Taylorsville Road / KY 148	Northbound Right	AM	2.1	52.5	80	**MEETS** available storage
		PM	3.9	97.5	80	**EXCEEDS** available storage

As shown, the southbound left turn lane and southbound right turn lanes from Watterson Trail onto Taylorsville Road do not have adequate storage given the current traffic volumes and operations. Similarly, the approaches of the Taylorsville Road / Ruckriegel Parkway intersection have queues longer than the available storage. Also, the northbound right turn volumes from Taylorsville Lake Road on KY 148 exceed available storage.

Two-Lane Highway Level of Service and Delay

The current traffic volumes and roadway characteristics were used to evaluate corridor operating conditions on the two-lane sections of Taylorsville Road. Peak hour traffic volumes for highway segments were estimated based on the average daily traffic volumes for those segments. Based on the available data, between 6.7 and 11.8 percent of the daily traffic volume occurs during the AM peak hour of the day while 8.1 and 12.0 percent occurs during the PM peak hour. The current lane widths, shoulder widths, percent passing, and other design factors were also used.

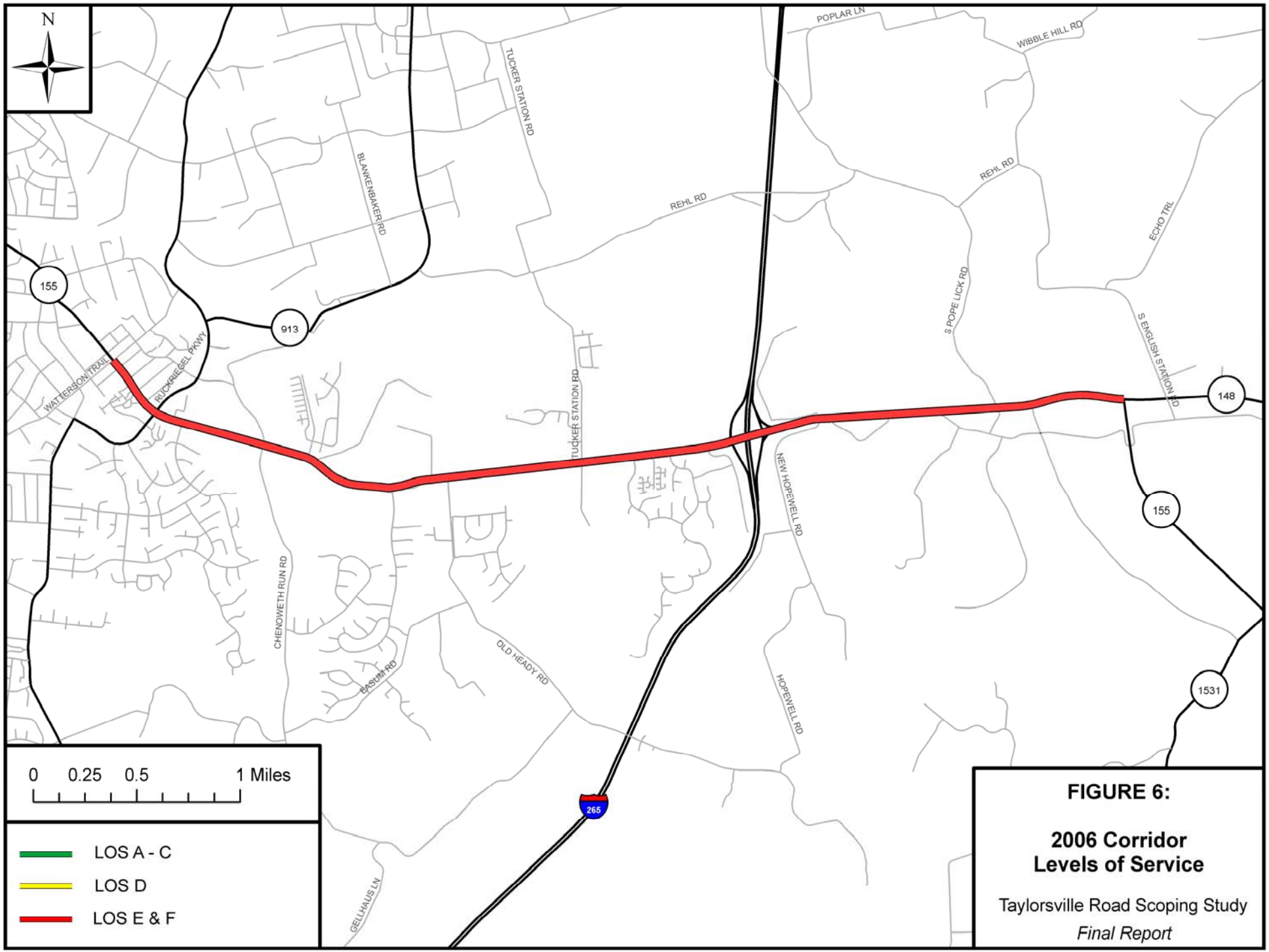
All roadway segments operate at an unacceptable level of service, LOS E. As noted, the acceptable threshold of LOS C is desirable. The poor levels of service are a result of low estimated travel speeds (<45 mph) which are attributable to a number of factors, mainly high traffic volumes. The segment levels of service are listed in **Table 8** and illustrated on **Figure 6**.

Table 8: 2006 Corridor Levels of Service

Route	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2006 ADT	K-Factor	2006 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	LOS
KY 155	1	4.257 (KY 148)	6.058 (I-265)	1.80	17,100	0.120	2052	55	3.3%	32.8	89.9	E
	2	6.058 (I-265)	6.889 (Tucker Station)	0.83	16,700	0.100	1670	55	3.3%	34.8	85.7	E
	3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	13,700	0.100	1370	55	2.9%	37.1	81.0	E
	4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	14,100	0.098	1382	35	2.9%	25.8	81.3	E
	5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	14,800	0.098	1450	35	3.6%	25.2	82.5	E

LOS E - F
LOS D
LOS A - C

Notes:
ADT = 2006 Average Daily Traffic from HIS Traffic Count Information (2006 count or forecasted from most recent count using historical trends)
K-Factor = Design Hour Factor obtained from most recent traffic count data provided by KYTC
DHV = 2006 Design Hour Volume (Average Daily Traffic x K-Factor)
Speed Limit obtained from Highway Information System
% Trucks and Buses obtained from most recent truck classification data
Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software


N
POPLAR LN
WIBBLE HILL RD
TUCKER STATION RD
BLANKENBAKER RD
REHL RD
REHL RD
ECHO TRL
S POPE LICK RD
S ENGLISH STATION RD
155
913
WATTERSON TRAIL
RUCKRIEGEL PKWY
TUCKER STATION RD
148
NEW HOPEWELL RD
155
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
GELUHAUS LN
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
FIGURE 6:
2006 Corridor Levels of Service
Taylorsville Road Scoping Study
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3.6 Future No-Build Traffic Operating Conditions

Traffic forecasts for each of the five intersections were developed for the No-Build scenario for the future year 2010. In addition, traffic forecasts were developed for each of the study area segments for the future years of 2010 and 2030. The methodology and findings for the future No-Build traffic forecasts are summarized below. For a more detailed explanation of the traffic forecast methodology, refer to **Appendix A** where the complete Traffic Forecast Methodology Report is included.

Traffic Forecast Methodology

In order to determine future baseline No-Build traffic volumes, a growth factor was applied to current year traffic volumes. Historic traffic data was the primary consideration in determining the appropriate traffic growth rate for the study area. Typically, growth rates used to calculate future traffic volumes are annual growth rates compounded over time. A thorough review of historic traffic data determined that traffic was growing at slightly different rates in different parts of the study area. It was determined that travel patterns differ on each side of the Gene Snyder Freeway. As a result, two growth rates for Taylorsville Road were used to develop 2010 intersection volumes: 3.3% west of the Gene Snyder Freeway and 4.7% east of the Freeway. Refer to **Table 1** for more details regarding the growth rate selection.

For the year 2010 and 2030, corridor traffic volumes were forecasted using model output from the Kentuckiana Regional Planning and Development Agency (KIPDA).

Trip Generation

In addition to projected traffic growth, there are several planned developments along the corridor that are likely to impact traffic volumes in the future. These developments include a mix of residential and commercial land uses. Additional information was provided by the Louisville Metro Planning and Design department regarding the developments to be located along or near Taylorsville Road. **Figure 7** shows the general location for each of these developments.

The *Institute of Transportation Engineers Trip Generation* manuals were used to develop approximate numbers of trips generated by these developments. **Tables 9, 10,** and **11** provide a summary of the trips generated by the identified developments.

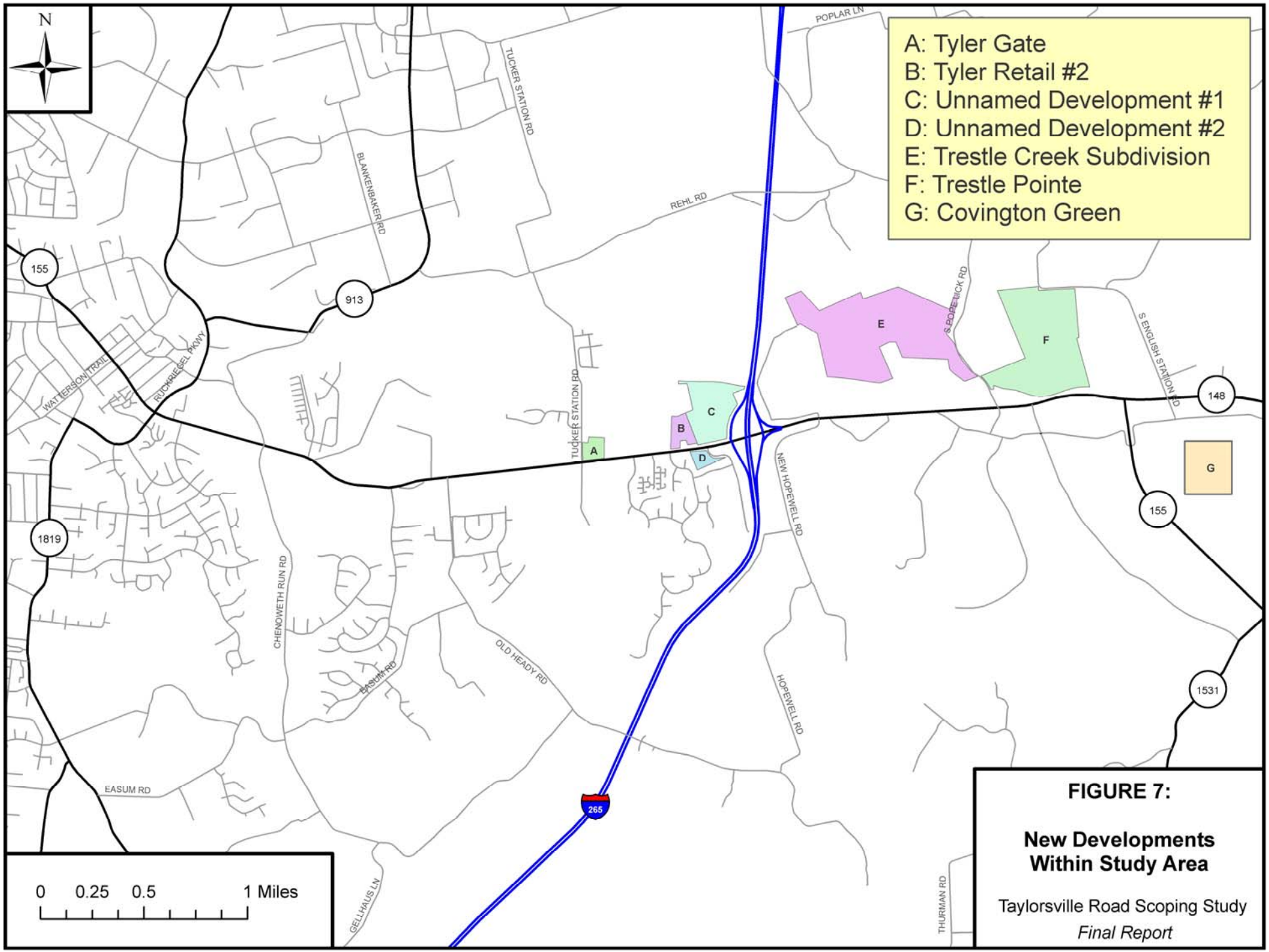


FIGURE 7:

New Developments Within Study Area

Taylorsville Road Scoping Study

Final Report

Table 9: Identified Developments

Development	Name	Units	Daily Trips (Rounded)
A	Tyler Gate	27320 SF Retail	2,922
		8050 SF Restaurant	1,024
		3550 SF Bank	390
		2500 SF Pharmacy	225
		Total	**4,561**
B	Tyler Retail #2	24800 SF Retail	2,744
		13200 SF Restaurant	1,678
		4800 SF Bank	620
		20000 SF Office	386
		Total	**5,428**
C	Unnamed Development #1	90200 SF Retail	6,351
		3410 SF Bank	360
		166 SF Hotel	1,110
		Total	**7,821**
D	Unnamed Development #2	4000 SF Bank	470
		4000 SF Bank	470
		18598 SF Office	365
		12 Units Residential	149
		Total	**1,454**
E	Trestle Creek Subdivision	161 Single Family Homes	1,611
		Total	**1,611**
F	Trestle Pointe	142 Single Family Homes	1,436
		68 Condo / Townhouse	462
		Total	**1,898**
G	Covington Green	1120 Single Family Homes	9,599
		Total	**9,599**

Table 10: AM Generated Trip / Distribution

Development	Units	Trips (Rounded)	% Trips In	% Trips Out	Number of Trips In	Number of Trips Out
A	27320 SF Retail	72	61%	39%	44	28
	8050 SF Restaurant	93	52%	48%	48	45
	3550 SF Bank	44	56%	44%	25	19
	2500 SF Pharmacy	8	59%	41%	5	3
	Total	**217**	**-**	**-**	**122**	**95**
B	24800 SF Retail	68	61%	39%	41	27
	13200 SF Restaurant	152	52%	48%	79	73
	4800 SF Bank	59	56%	44%	33	26
	20000 SF Office	52	88%	12%	46	6
	Total	**331**	**-**	**-**	**199**	**132**
C	90200 SF Retail	147	61%	39%	90	57
	3410 SF Bank	42	56%	44%	24	18
	166 SF Hotel	77	61%	39%	47	30
	Total	**266**	**-**	**-**	**161**	**105**
D	4000 SF Bank	49	56%	44%	27	22
	4000 SF Bank	49	56%	44%	27	22
	18598 SF Office	49	88%	12%	43	6
	12 Units Residential	8	22%	78%	2	6
	Total	**155**	**-**	**-**	**99**	**56**
E	161 Single Family Homes	120	25%	75%	30	90
	Total	120	**-**	**-**	**30**	**90**
F	142 Single Family Homes	110	25%	75%	28	83
	68 Condo / Townhouse	38	17%	83%	6	32
	Total	**148**	**-**	**-**	**34**	**115**
G	1120 Single Family Homes	790	25%	75%	198	593
	Total	790	**-**	**-**	**198**	**593**

Table 11: PM Generated Trip / Distribution

Development	Units	Trips (Rounded)	% Trips In	% Trips Out	Number of Trips In	Number of Trips Out
A	27320 SF Retail	266	48%	52%	128	138
	8050 SF Restaurant	88	61%	39%	54	34
	3550 SF Bank	162	50%	50%	81	81
	2500 SF Pharmacy	21	50%	50%	11	11
	Total	**537**	**-**	**-**	**274**	**264**
B	24800 SF Retail	249	48%	52%	120	129
	13200 SF Restaurant	144	61%	39%	88	56
	4800 SF Bank	220	50%	50%	110	110
	20000 SF Office	101	17%	83%	17	84
	Total	**714**	**-**	**-**	**335**	**379**
C	90200 SF Retail	585	48%	52%	281	304
	3410 SF Bank	156	50%	50%	78	78
	166 SF Hotel	98	53%	47%	52	46
	Total	**839**	**-**	**-**	**411**	**428**
D	4000 SF Bank	183	50%	50%	92	92
	4000 SF Bank	183	50%	50%	92	92
	18598 SF Office	100	17%	83%	17	83
	12 Units Residential	12	65%	35%	8	4
	Total	**478**	**-**	**-**	**209**	**271**
E	161 Single Family Homes	165	63%	37%	104	61
	Total	**165**	**-**	**-**	**104**	**61**
F	142 Single Family Homes	147	63%	37%	93	54
	68 Condo / Townhouse	44	67%	33%	29	15
	Total	**191**	**-**	**-**	**122**	**69**
G	1120 Single Family Homes	947	63%	37%	597	350
	Total	**947**	**63%**	**37%**	**597**	**350**

Given that there are commercial/retail developments that attract pass-by trips, it is likely that such trips would be attracted to these developments. Pass-by rates were determined from the *Institute of Transportation Engineers Trip Generation* Handbook. Pass-by percentages ranged from 38% to 55%.

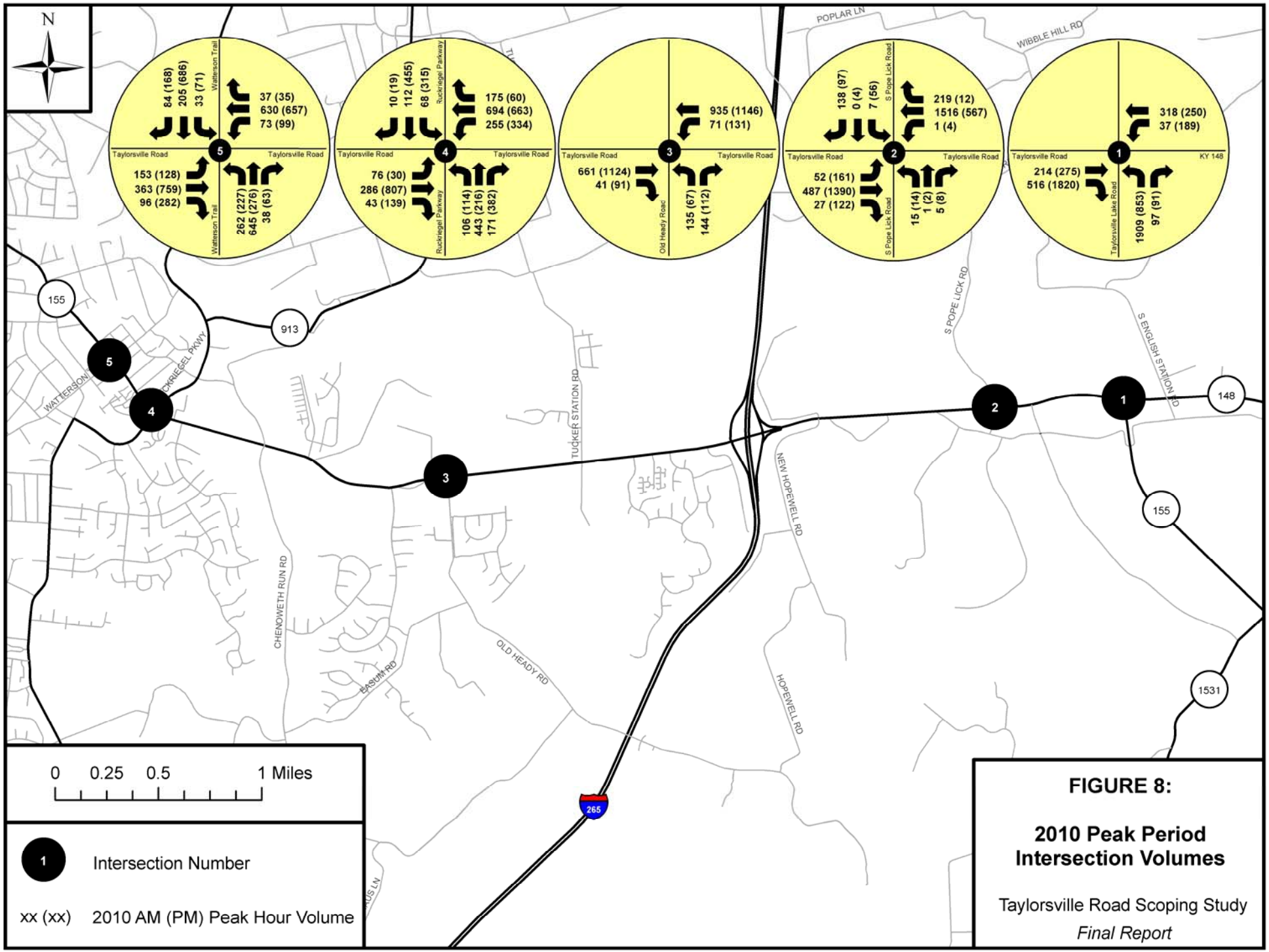
It was also assumed that full build-out of the developments would be completed by the future forecast year of 2010. The additional volumes from these developments was added to the future year forecasted traffic volumes as appropriate.

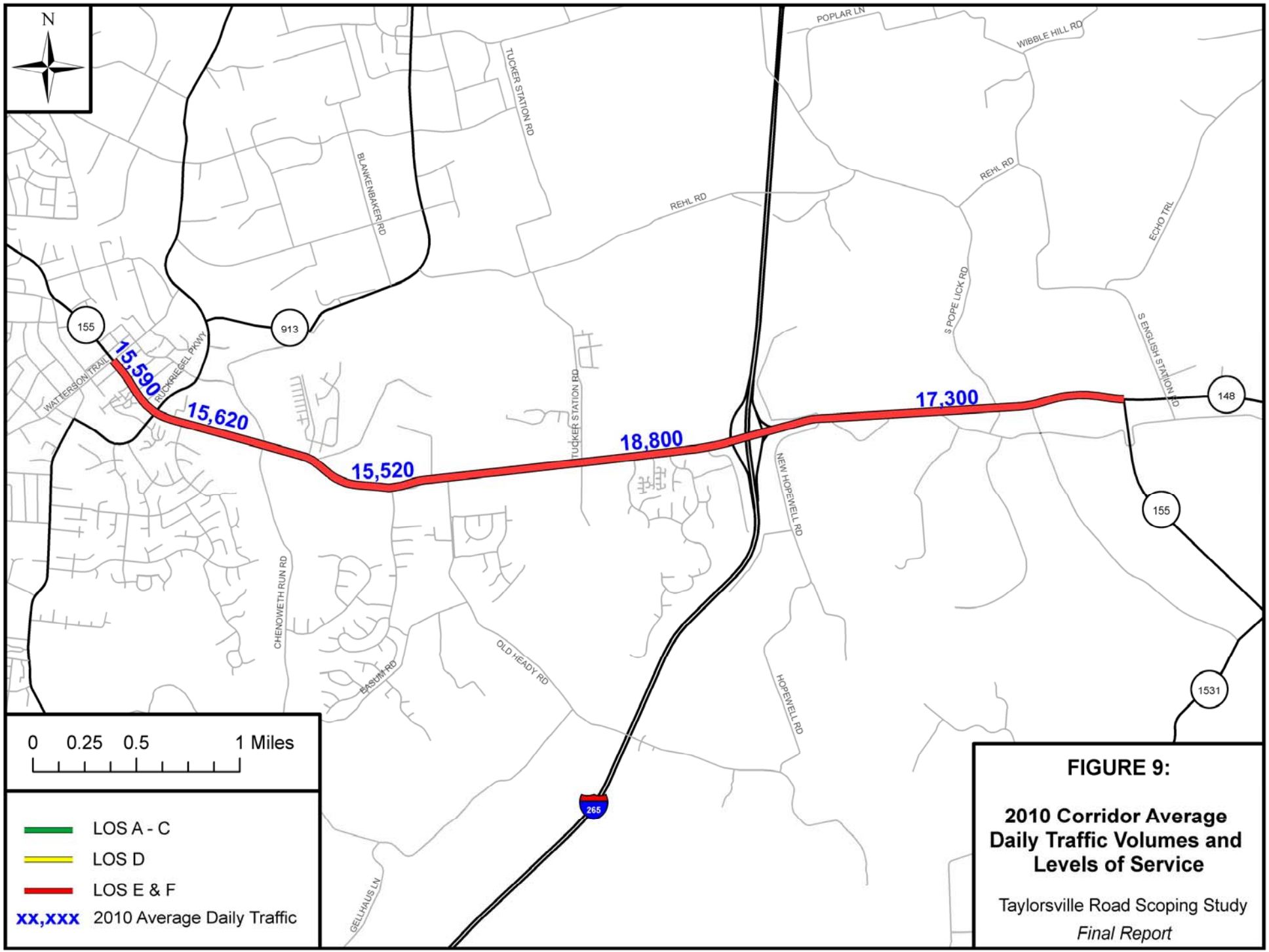
Future No-Build Traffic Volumes

The 2010 future year intersection No-Build traffic volumes were calculated by applying a 3.3% per year growth rate west of the Gene Snyder Freeway and 4.7% per year growth rate east of the Freeway. The additional traffic volumes generated by the new

developments for the AM and PM peak periods were added to the increased volumes for 2010. For the 2010 and 2030 corridor volumes, the KIPDA model was used to generate these volumes. The 2030 corridor volumes were provided directly from KIPDA. The 2010 volumes were derived from interpolation between the 2006 and 2030 No-Build volumes.

Figure 8 shows the projected 2010 intersection volumes for the No-Build scenario. Similarly, **Figures 9** and **10** show 2010 and 2030 average daily traffic volumes for the No-Build scenario, respectively.


N
Taylorsville Road
Watterson Trail
Ruckriegel Parkway
Old Heady Road
S Pope Lick Road
KY 148
Taylorsville Lake Road
84 (168)
205 (686)
33 (71)
37 (35)
630 (657)
73 (99)
153 (128)
363 (759)
96 (282)
262 (227)
645 (276)
38 (63)
10 (19)
112 (455)
68 (315)
175 (60)
694 (663)
255 (334)
76 (30)
286 (807)
43 (139)
106 (114)
443 (216)
171 (382)
661 (1124)
41 (91)
935 (1146)
71 (131)
135 (67)
144 (112)
138 (97)
0 (4)
7 (56)
219 (12)
1516 (567)
1 (4)
52 (161)
487 (1390)
27 (122)
15 (14)
1 (2)
5 (8)
214 (275)
516 (1820)
1909 (853)
318 (250)
37 (189)
97 (91)
POPLAR LN
WIBBLE HILL RD
S POPE LICK RD
S ENGLISH STATION RD
155
913
148
WATTERSON
RUCKRIEGEL PKWY
TUCKER STATION RD
NEW HOPEWELL RD
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
0 0.25 0.5 1 Miles
Intersection Number
xx (xx) 2010 AM (PM) Peak Hour Volume
FIGURE 8:
2010 Peak Period Intersection Volumes
Taylorsville Road Scoping Study
Final Report


N
POPLAR LN
WIBBLE HILL RD
TUCKER STATION RD
BLANKENBAKER RD
REHL RD
REHL RD
ECHO TRL
S POPE LICK RD
S ENGLISH STATION RD
155
913
WATTERSON TRAIL
RUCKRIEGEL PKWY
15,590
15,620
15,520
18,800
17,300
148
TUCKER STATION RD
NEW HOPEWELL RD
155
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
GELUHAUS LN
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
xx,xxx 2010 Average Daily Traffic
FIGURE 9:
2010 Corridor Average Daily Traffic Volumes and Levels of Service
Taylorsville Road Scoping Study
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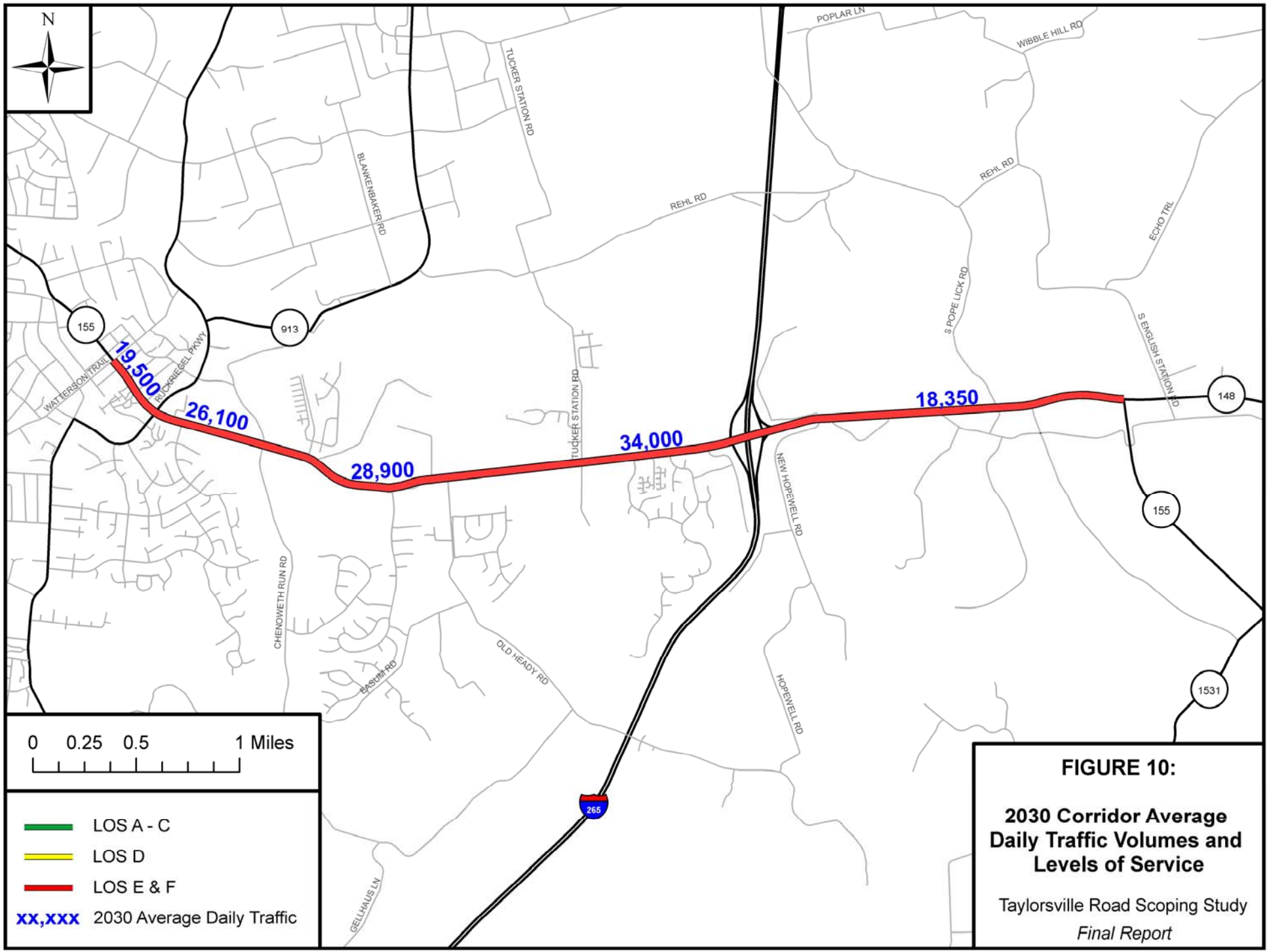
N
POPLAR LN
WIBBLE HILL RD
TUCKER STATION RD
BLANKENBAKER RD
REHL RD
REHL RD
ECHO TRL
S POPE LICK RD
S ENGLISH STATION RD
155
913
WATTERSON TRAIL
RUCKRIEGEL PKWY
19,500
26,100
28,900
34,000
18,350
148
TUCKER STATION RD
NEW HOPEWELL RD
155
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
GELUHAUS LN
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
xx,xxx 2030 Average Daily Traffic
FIGURE 10:
2030 Corridor Average Daily Traffic Volumes and Levels of Service
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2010 Intersection Level of Service and Delay

No-Build scenario levels of service were evaluated for the five key intersections using the projected traffic volumes. The key intersections are the same as the ones evaluated in the 2006 analysis. These are shown in **Table 12**.

Table 12: 2010 Intersection Levels of Service

Intersection	Type	Approach	AM Avg. Delay (sec)	LOS	PM Avg. Delay (sec)	LOS
Taylorsville Road / Watterson Trail	Signalized	Eastbound	35.1	D	170.2	F
		Westbound	303.9	F	319.4	F
		Northbound	108.2	F	33.0	C
		Southbound	35.9	D	52.1	D
		Whole Int.	138.8	F	150.6	F
Taylorsville Road / Ruckriegel Parkway	Signalized	Eastbound	49.3	D	409.5	F
		Westbound	170.8	F	165.4	E
		Northbound	133.2	F	106.2	E
		Southbound	51.5	D	162.5	F
		Whole Int.	129.9	F	220.7	F
Taylorsville Road / Old Heady Road	STOP Controlled	Eastbound	-	-	-	-
		Westbound	9.8	A	14.9	B
		Northbound	880.2	F	2676.0	F
Taylorsville Road / South Pope Lick Road	STOP Controlled	Eastbound	19.6	C	9.7	A
		Westbound	8.6	A	14.6	B
		Northbound	*	F	*	F
		Southbound	*	F	*	F
Taylorsville Road / KY 148	Signalized	Eastbound	286.1	F	337.6	F
		Westbound	1794.0	F	808.8	F
		Northbound	394.4	F	519.9	F
		Whole Int.	541.2	F	462.5	F

*Delay too high to calculate

Compared to the 2006 levels of service and delay, all intersection operations declined with the additional traffic.

2010 Highway Level of Service and Delay

No-Build scenario levels of service were also calculated for Taylorsville Road for the year 2010. The highway sections are the same as those used in the 2006 analysis. **Table 13** and **Figure 9** displays the levels of service for each of the highway sections.

As shown on this table, all of the sections remain at LOS E. Overall, the 2006 analysis showed poor operations the entire length of the corridor with the 2010 analysis showing that traffic operations will only continue to decrease with the additional traffic volumes.

2030 Highway Level of Service and Delay

Table 14 and **Figure 10** display the levels of service for each of the highway sections for the year 2030. The sections east of I-265 and between Chenoweth Run Road and Watterston Trail remain at a LOS E. However, the two sections between I-265 and Chenoweth Run Road drop to a LOS F with the additional volumes. Overall, traffic operations continue to deteriorate even from 2010 levels.

Table 13: 2010 Corridor Levels of Service

Section	Begin Milepoint	End Milepoint	Section Length (miles)	2010 ADT	K-Factor	2010 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	LOS
1	4.257 (KY 148)	6.058 (I-265)	1.80	17,300	0.120	2080	55	3.3%	32.6	90.2	E
2	6.058 (I-265)	6.889 (Tucker Station)	0.83	18,800	0.100	1880	55	3.3%	33.1	88.1	E
3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	15,520	0.100	1550	55	2.9%	35.8	84.0	E
4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	15,620	0.098	1530	35	2.9%	24.6	83.7	E
5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	15,590	0.098	1530	35	3.6%	26.4	83.7	E

LOS E - F
LOS D
LOS A - C

Notes:
ADT = ADT based on 2006 volumes with an applied per year growth rate provided by KIPDA
K-Factor = Design Hour Factor obtained from most recent traffic count data provided by KYTC
DHV = 2010 Design Hour Volume (Average Daily Traffic x K-Factor)
Speed Limit obtained from Highway Information System
% Trucks and Buses obtained from most recent truck classification data
Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software

Table 14: 2030 Corridor Levels of Service

Section	Begin Milepoint	End Milepoint	Section Length (miles)	2030 ADT	K-Factor	2030 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	Estimated Travel Speed (MPH)	% Time Spent Following	LOS
1	4.257 (KY 148)	6.058 (I-265)	1.80	18,350	0.120	2200	55	3.3%	31.6	91.1	E
2	6.058 (I-265)	6.889 (Tucker Station)	0.83	34,000	0.100	3400	55	3.3%	*	98.3	F
3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	28,900	0.100	2890	55	2.9%	*	95.9	F
4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	26,100	0.098	2560	35	2.9%	16.0	93.9	E
5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	19,500	0.098	1910	35	3.6%	21.5	88.4	E

LOS E - F
LOS D
LOS A - C

Notes:
ADT = ADT based on 2006 volumes with an applied per year growth rate provided by KIPDA
K-Factor = Design Hour Factor obtained from most recent traffic count data provided by KYTC
DHV = 2030 Design Hour Volume (Average Daily Traffic x K-Factor)
Speed Limit obtained from Highway Information System
% Trucks and Buses obtained from most recent truck classification data
Estimated Travel Speed, % Time Spent Following, and Level of Service (LOS) calculated using Highway Capacity Software

3.7 Crash Analysis

Crash Analysis Methodology

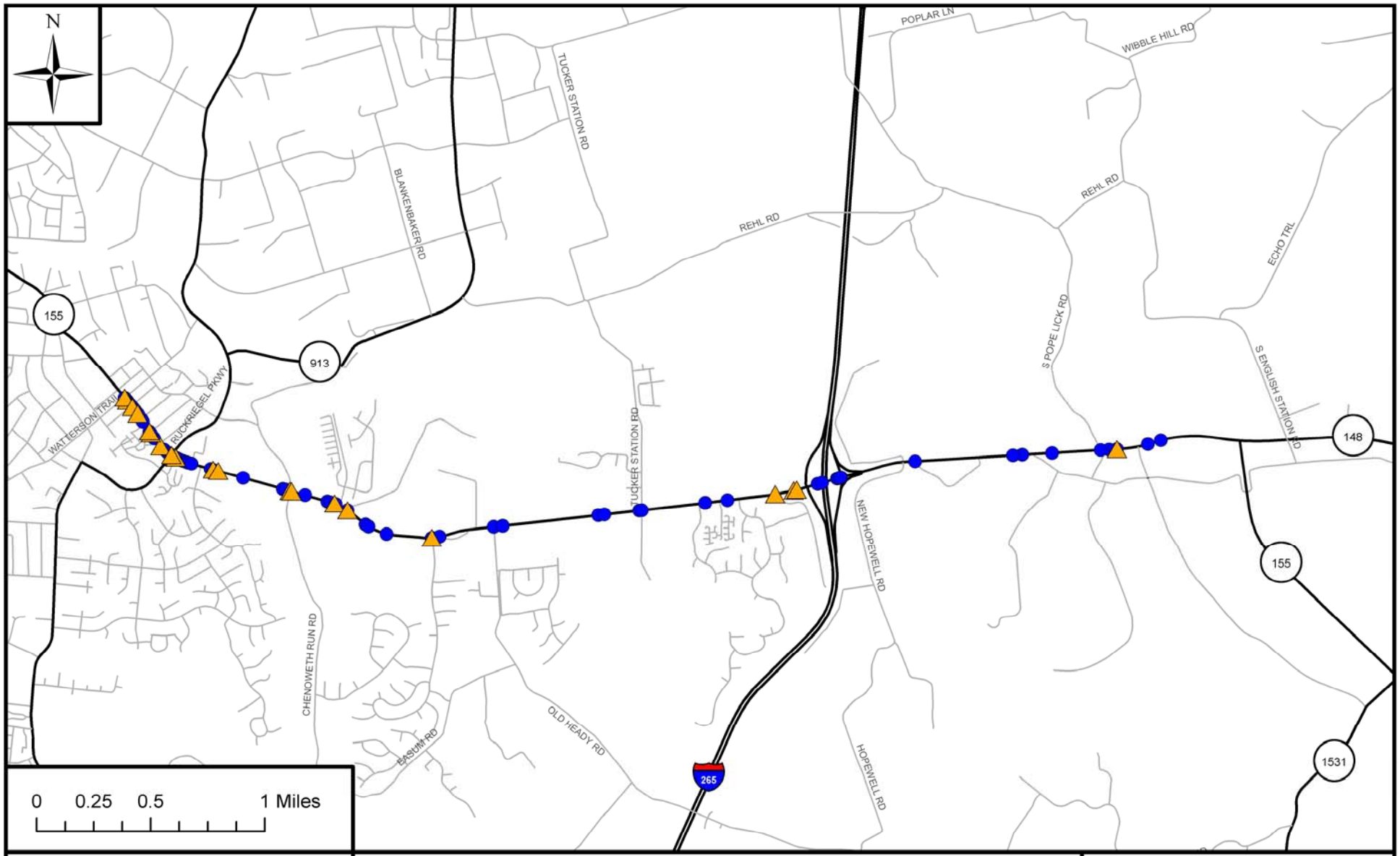
The Kentucky Transportation Cabinet provided crash data for a three-year period from January 1, 2004 through December 31, 2006. **Figure 11** shows the locations of these crashes by crash type (fatality, injury or property damage). The Jeffersontown Police Department and Louisville Metro Police Department were also contacted to determine if any additional reported crashes occurred during the same time period (2004 to 2006) not listed in the state database. The Jeffersontown Police Department has jurisdiction from Chenoweth Run Road to Watterson Trail and provided data for two additional crashes. The Louisville Metro Police Department has jurisdiction from Chenoweth Run Road east to KY 148, but did not have any additional crashes for this area. The additional crash data provided by the Jeffersontown Police was incorporated into the crash analysis.

Crash rates were computed for specific segments of Taylorsville Road using the methodology provided in the crash analysis report periodically published by the Kentucky Transportation Center (KTC)[1]. The section crash rates are based on the number of crashes on a specified section, the average daily traffic on the roadway, the time frame of analysis, and the length of the section. They are expressed in terms of crashes per 100 million vehicle-miles. A section's crash rate was then compared to a statewide critical crash rate[2] derived from critical crash rate tables for highway sections in the KTC crash report (Appendix D of KTC crash report). This comparison is expressed as a ratio of the section crash rate to the critical crash rate and is referred to as the critical crash rate factor. Sections with a critical crash rate factor greater than one are considered high crash locations and are potential candidates for safety improvements.

The section crash rate is also compared directly to the statewide average crash rate presented in the KTC crash report. The statewide averages consider all crashes for a specified period that are listed in the Collision Report Analysis for Safer Highways (CRASH) database maintained by the Kentucky State Police and stratified by functional classification (Table B-2 in KTC crash report). Section rates that exceed the statewide average crash rate but not the critical crash rate may be problem areas, but they are not statistically proven to be higher crash areas. Therefore, this second comparison is used to identify a second tier of highway sections that may have crash problems and could be considered for safety improvements if warranted based on further analysis.

[1] Analysis of Traffic Crash Data in Kentucky (2000 – 2004), Kentucky Transportation Center Research Report KTC-05-19/KSP2-05-1F.

[2] The critical crash rate is the threshold above which an analyst can be statistically certain (at a 99.5% confidence level) that the section crash rate exceeds the average crash rate for a similar roadway and is not mistakenly shown as higher than the average due to randomly occurring crashes.



Fatal Crash

Injury Crash

Property Damage Only

NOTES:

1. The crash locations represent crashes occuring January 1, 2004 to December 31, 2006 based on KYTC data.

2. Additonal data was obtained from the Jeffersontown Police (2 crashes for same time period) but is not shown on this map since the data does not include specific crash location.

3. The purpose of this figure is to provide an approximate location of crashes within the study area. In some cases, more than one crash is represented by a symbol.

FIGURE 11:

Crash Locations

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Section Crash Analysis

The section crash analysis showed that there is no existing crash rate problem between KY 148 and Chenoweth Run Road. As Taylorsville Road nears Jeffersontown, the number of crashes increases dramatically. Between Chenoweth Run Road and Ruckriegel Parkway, 38 reported crashes occurred. While this section does not have a critical crash rate factor greater than one, the section crash rate does exceed the statewide average crash rate, indicating that there may be crash problems on this segment. The critical crash rate factor does exceed one for the section of Taylorsville Road between Ruckriegel Parkway and Watterson Trail. Between 2004 and 2006, 75 reported crashes occurred on this segment. For additional detail on the section crash analysis, **Table 15** shows the crash statistics for the segments analyzed and **Figure 12** shows the crash analysis by segment on a map.

Spot Crash Analysis

To determine if there are any crash rate problems in the vicinity of the study area intersections, a spot crash analysis was conducted. A spot location is defined as a section of highway 0.3 miles in length. The methodology used to calculate the spot crash rates is similar to that used for calculating the section crash rates. The crash rates at these "spots" were compared to the critical crash rates for similar facilities derived from critical spot crash rate tables in the KTC crash report (Appendix E in KTC crash report). **Table 16** lists the spot crash analysis by intersection highlighting places exceeding the critical crash rate for the location.

The spot crash analysis yielded similar results as the section crash analysis. The intersections of KY 148, South Pope Lick Road, and Old Heady Road with Taylorsville Road do not currently have a crash rate problem. The intersections of Ruckriegel Parkway and Watterson Trail with Taylorsville Road both have critical crash rate factors greater than one, and are therefore, high crash rate spots. Improvements at these intersections should be considered during the alternate development process.

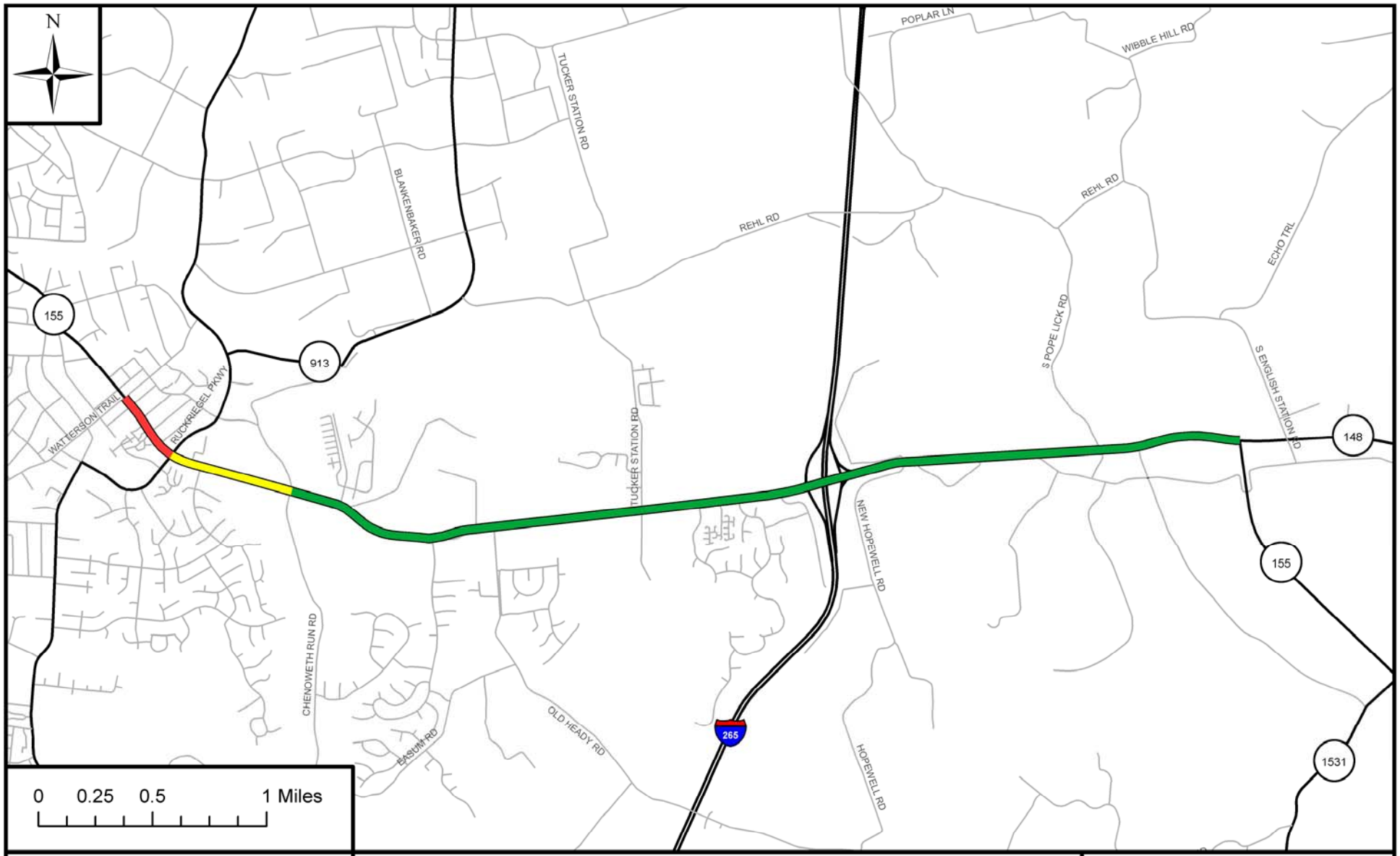
Table 15: Crash Rates by Segment

Route	Section	Begin Milepoint	End Milepoint	Total Crashes	Average Daily Traffic	Section Length* (miles)	Exposure "M" (100 or 1 MVM)	Statewide Average Crash Rate	Section Crash Rate	Statewide Critical Crash Rate	Critical Crash Rate Factor
KY 155	1	4. 257 (KY 148)	5.737 (Harrods Old Trace)	12	19,663	1.48	0.319	258	38	336	0.11
	2	5.738 (Harrods Old Trace)	6.058 (I-265)	6	19,663	0.32	0.069	278	87	386	0.23
	3	6.059 (I-265)	6.407 (Just West of Hopewell Road)	5	18,374	0.348	0.070	278	71	390	0.18
	4	6.408 (Hopewell Road)	6.889 (Tucker Station Road)	6	18,374	0.481	0.097	258	62	381	0.16
	5	6.890 (Tucker Station Road)	8.461 (Chenoweth Run Road)	28	16,271	1.571	0.280	258	100	340	0.29
	6	8.462 (Chenoweth Run Road)	9.024 (Ruckriegel Parkway)	38	16,193	0.562	0.100	258	381	384	0.99
	7	9.025 (Ruckriegel Parkway)	9.4 (Watterson Trail)	75	14,300	0.375	0.059	258	1277	396	3.23

Critical Crash Rate Factor >1, Section Crash Rate Exceeds Statewide Critical Rate (High Crash Rate Section)
Critical Crash Rate Factor <1, Section Crash Rate Exceeds Statewide Average Rate
Critical Crash Rate Factor <1, Section Crash Rate Lower Than Statewide Average Rate

Notes:
Analysis Period: 3 Years (1/1/2004 to 12/31/2006)
Crash rates are expressed in crashes per 100 MVM (100 million vehicle miles traveled)
Exposure (M) = [(ADT) x (365) x (Time Frame of Analysis (Years)) x (Section Length)] / 100,000,000
Section Crash Rate = Total Crashes / Exposure
Critical Crash Rate Factor = Section Crash Rate / Statewide Critical Crash Rate
ADT = Average Daily Traffic, MVM = Million Vehicle Miles

Sources:
Crash data for 1/1/2004 to 12/31/2006 from KYTC Data and Jeffersontown Police
Statewide Rates from KTC Research Report KTC-05-19/KSP2-05-1F, Analysis of Traffic Crash Data in Kentucky (2000 - 2004)



Crash Rate Exceeds Critical Crash Rate for Road Type

Crash Rate Exceeds Average for Road Type

Crash Rate Below Average for Road Type

NOTES:

1. The crash locations represent crashes occuring January 1, 2004 to December 31, 2006.

FIGURE 12:

2006 Crash Rates by Segment

Taylorsville Road Scoping Study

Final Report

Table 16: Crash Rates by Spot

Route		Intersection	Total Crashes	Average Daily Traffic	Spot Crash Rate	Critical Crash Rate	Critical Crash Rate Factor
KY 155	1	KY 148 (4.107 - 4.407)	0	19,663	0.00	1.22	0.00
	2	South Pope Lick Road (4.724 - 5.024)	6	19,663	0.28	1.22	0.23
	3	Old Heady Road (7.390 - 7.690)	7	16,271	0.39	1.26	0.31
	4	Ruckriegel Parkway (8.874 - 9.174)	40	14,300	2.55	1.30	1.97
	5	Watterson Trail (9.200 - 9.500)	60	14,300	3.83	1.30	2.95

Notes:
Analysis Period: 3 Years (1/1/2004 to 12/31/2006)
Spot Crash Rate = [(1,000,000) x (Total Crashes)] / [(365) x (Analysis Period in Years) x (Average Daily Traffic)]
Critical Crash Rate Factor = Spot Crash Rate / Critical Crash Rate

Sources:
Crash data for 1/1/2004 to 12/31/2006 from KYTC Data and Jeffersontown Police
Critical Crash Rates from KTC Research Report KTC-05-19/KSP2-05-1F, Analysis of Traffic Crash Data in Kentucky (2000 - 2004)

Crash Report Analysis

Because of the number of crashes within the primary study area, particularly between Ruckriegel Parkway and Watterson Trail, an additional crash analysis was conducted to look at severity and crash type.

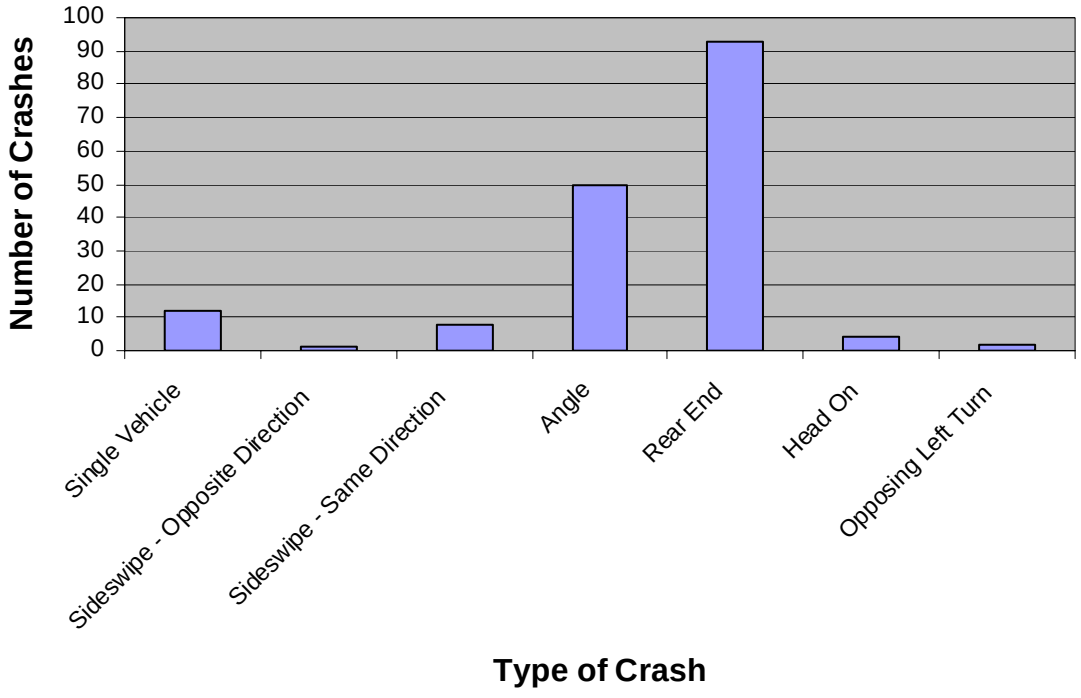
A breakdown of the crash severity along Taylorsville Road from KY 148 to Watterson Trail is provided below.

Severity	Number of Crashes	Percentage
Property Damage Only	145	85.3%
Injury	25	14.7%
Fatality	0	0.0%
	170	100%

The majority of crashes were property damage only (145). Less than one-fifth of the crashes involved an injury and no fatal crashes occurred during the time frame of analysis.

A review of all crash types for the study area was performed to determine the most frequent type. **Figure 13** shows the results.

Figure 13: Crash Types (2004 – 2006)



Rear end crashes were by far the most frequent type of crash on Taylorsville Road (93 crashes). Given that the majority of the roadway is a two-lane facility without turn lanes, with the exception of the area around the interchange, this seems reasonable.

3.8 Multimodal Facilities (Pedestrian, Bicycle, and Transit)

Sidewalks are intermittent along the corridor, with sections primarily bordering residential neighborhoods and commercial development. A particular location noted during a field visit as lacking in sidewalk is between the Watterson Trail and Ruckriegel Parkway intersections. The south side of Taylorsville Road does not currently have any sidewalk between these two intersections. A sidewalk would be beneficial at this location as it would provide a path from Jeffersontown to the Wal-mart located on Ruckriegel Parkway.

There are no designated bicycle facilities along Taylorsville Road from KY 148 to Watterson Trail. However, based on discussions with Louisville Metro, this corridor has been designated as part of their bicycle master plan as a primary bicycle corridor to connect Louisville and Jeffersontown to Floyds Fork Park. The plan calls for the re-striping of the existing pavement for the creation of a dedicated bicycle lane along both sides of the roadway from Jeffersontown to Chenoweth Run Road. In addition, a shared-use path to the north of the roadway corridor is proposed to connect to a planned trail through Veterans Park. From Chenoweth Run Road, through I-265 (Gene Snyder Freeway) to Floyds Fork Park, the plan recommends widening the existing pavement to provide shoulder bicycle lanes along both sides of the roadway as well as a shared-use path along the south side of the corridor.

The Transit Authority of River City (TARC) operates the public bus system serving the greater Louisville area. Currently, there are no designated bus routes along Taylorsville Road. Taylorsville Road does provide a primary connection between I-265 and Jeffersontown and recently has seen significant commercial / retail development near the I-265 interchange. The potential development of a bus route or park and ride system should be evaluated as part of possible corridor improvements.

3.9 Existing and Future No-Build Traffic and Highway Conditions Summary

Based on the existing transportation conditions analysis, there appear to be a number of key transportation issues in the study area. These include the following:

- High truck percentages along Taylorsville Road, ranging from 6 – 13%.
- All study intersections have poor levels of service, with several operating at LOS F during one or more peak periods.
- At the intersection of Taylorsville Road and Ruckriegel Parkway, the queue lengths during peak periods exceed the available storage for all turn movements with separate turn lanes.
- At the intersection of Taylorsville Road and Watterson Trail, queue lengths during peak periods exceed the available storage for the southbound left and right turns.

- The queue length during the PM peak period only exceeds the available storage for the northbound right turn at the Taylorsville Road / KY 148 intersection.
- There is a high crash area between Ruckriegel Parkway and Watterson Trail on Taylorsville Road.
- The intersections of Watterson Trail and Ruckriegel Parkway with Taylorsville Road are high crash spots.
- The most frequent type of crash was rear end crashes on Taylorsville Road.
- There are no bicycle or transit facilities along the corridor.

4.0 REVIEW OF PREVIOUS REPORTS

A review of previous transportation studies and reports for the study area is necessary to better understand the problems and possible solutions that have already been identified or studied. In this case, the primary work performed previous to this study includes development plans for multiple residential and commercial developments. Each of the proposed developments is discussed in detail as part of the trip generation process under Section 3.6 (Future No-Build Traffic Operating Conditions). Additional information regarding impacts / recommendations to Taylorsville Road resulting from these developments, aside from increased traffic volumes, was not available except for the Trestle Creek and Trestle Pointe developments.

A technical memorandum summarizing the traffic impacts of these two developments was prepared by Jordan, Jones, and Goulding in June 2006. Based on the projected traffic volumes resulting from these proposed developments and the corresponding level of service analysis, it was determined that the developer should improve the Taylorsville Road / South Pope Lick Road intersection by:

- Constructing a westbound left turn lane on Taylorsville Road; and
- Constructing a southbound left turn lane on South Pope Lick Road.

It was also mentioned in the memo that by the year 2009 when both developments are projected to be completed, a traffic signal may be warranted at this location. The recommendations / proposed improvements discussed in this memo will be considered during the alternate development and evaluation phase later in this report.

5.0 HUMAN ENVIRONMENT OVERVIEW

An overview was conducted to determine the general characteristics of the human environment in the study area. The analysis addresses: general socioeconomic characteristics, environmental justice, land use characteristics, and cultural / historic and archeological characteristics. The following sections summarize the overview findings.

5.1 Socioeconomic Profile

Population Growth – According to the 2000 Census, the population of Jefferson County was 693,604, the population of the City of Louisville was 256,231 and the population of the City of Jeffersontown was 26,633. The population for Jefferson County has increased by 4.3% from 1990 when the population was 664,937. The population for the City of Louisville actually decreased from 269,063 in 1990. This represents a decrease of 4.7%. The population of the City of Jeffersontown increased from 1990 when the population was 23,221. This represents an increase of 14.6%. By 2030, the population of Jefferson County is expected to grow to 763,393. This represents an increase of 10%.

The trend exhibited in the study area is typical of those observed across the nation. The older central city areas are losing population while the outlying more suburban areas are gaining. The case of the Louisville area is somewhat mixed and interesting as the City of Louisville and Jefferson County merged in 2003 to form Louisville Metro. The old City of Louisville boundary is now known as the urban service district. Therefore, any reference to the City of Louisville for the 2000 Census is now known as the urban service district. The City of Jeffersontown is still a separate jurisdictional area from that of Louisville Metro.

It is also interesting to note that there is significant population growth occurring to the southeast in Spencer County. Currently, it is one of the fastest growing counties in Kentucky. In 1990, the population of the county was 6,801 according to the US Census Bureau. The 2000 Census data showed a 73% increase in population with the population of the county at 11,766. It is projected that by 2030, the population of Spencer County could reach 31,906, an increase of approximately 171% from the 2000 Census data. This is important to note since there is a significant amount of commuter and recreational traffic that utilizes Taylorsville Road (KY 155) between Spencer and Jefferson Counties and goes through the Taylorsville Road / KY 148 intersection.

Minority Populations – According to the 2000 Census, minority populations in Jefferson County represented 22.6% of all residents. In the City of Louisville, minority population represents a total of 37% of residents. In the City of Jeffersontown, minority residents represent 14.5% of all residents. As a comparison, the total minority population percentage of the entire Commonwealth of Kentucky is 9.9%.

Low – Income Populations – In 2000, approximately 12.4% of the Jefferson County population was below the poverty line. In Louisville, approximately 21.6% were below the poverty line. In the City of Jeffersontown, 12.4% were below the poverty line. The numbers for the City of Louisville exceed the statewide average of 15.8%, while those for Jefferson County and the City of Jeffersontown are both below the statewide average.

Age of Population – The City of Louisville and Jefferson County both have a higher percentage of residents age 60 and over (18.3% and 17.5% respectively) compared to the statewide average (17.0%). The City of Jeffersontown has a lower percentage of residents age 60 and over with 14.5% of its residents falling into this category.

Local Economy – In 2000, Jefferson County's unemployment rate was 3.3%. This is lower than the 2000 unemployment rates for Kentucky and the United States., which were 3.5% and 4.0%, respectively. In the City of Louisville and the City of Jeffersontown, the rates were 4.5% and 1.9%, respectively.

The highest percentage of employees in all jurisdictions is in the field of management, professional and related occupations. This is accounted for by the service-based economy and the presence of healthcare, government, banking and insurance companies. Sales and office occupations also account for a high percentage of the local workforce. Manufacturing is also important in the Louisville area. Large employers in the area include: Ford, GE Appliances, Jefferson County Public Schools, UPS, and Humana.

Commuting – According to the 2000 Census Commuting Patterns, there are 329,091 total workers who live in Jefferson County. Of those, 92.3% (303,624) live and work in Jefferson County with the remaining 7.7% (25,467) living in Jefferson County but working elsewhere such as the nearby counties of Bullitt, Hardin, Oldham and Shelby. The total number of actual workers in Jefferson County is 404,554. Approximately 75.1% (303,624) of this population work and live in Jefferson County. The remaining 24.9% (100,930) work in Jefferson County but live in a different county. The total number of residents from Spencer County who work in Jefferson County is 3,135 based on the 2000 Census, which is likely a low estimate given the recent growth in Spencer County and the fact that this data is becoming somewhat dated.

In 2000, the average travel time to work was 21.9 minutes. In 1990, the average travel time to work was 20.8 minutes. The increase in time from 1990 to 2000 represents an increase of 5.3%. The dominant mode in both 1990 and 2000 was the single occupant vehicle (SOV) which accounted for 79.0% and 80.8% of the mode usage, respectively.

Community Facilities and Development Patterns – The study area is a mix of residential, commercial, and rural areas. Commercial areas are located primarily near Jeffersontown (Watterson Trail and Ruckriegel Parkway intersections) as well as near the I-265 interchange. A few other small businesses such as gas stations are located sporadically throughout the rest of the corridor. Some of this development, particularly

near the I-265 interchange has been constructed within the past several years including the new shopping center anchored by Kroger.
There are two parks located in close proximity to Taylorsville Road: Veterans Memorial Park near Jeffersontown and Floyd's Fork Park near the KY 148 intersection. The Jeffersontown Community Center is located along Taylorsville Road near Veterans Memorial Park. The corridor also provides access to several churches and a school (near St. Michael Church Road).

5.2 Environmental Justice

The Environmental Justice (EJ) assessment examined potential disproportionate adverse community impacts of selected groups (minority, low income and elderly) within the defined project study area for the proposed transportation improvement(s) in the Taylorsville Road (KY 155) corridor from Watterson Trail to the Taylorsville Road / KY 148 intersection in Jefferson County, Kentucky. The assessment was prepared by the Kentuckiana Regional Planning and Development Agency (KIPDA) in support of the KYTC's project to identify improvements that will enhance safety and reduce congestion in the rapidly developing area surrounding the study corridor. A summary of the assessment is provided below. For a more in-depth analysis, refer to **Appendix B** which contains the entire report.

The purpose of the assessment is to:

- assist the Kentucky Transportation Cabinet in carrying out the Division of Planning's mission "… to collect, maintain, analyze and report accurate data for making sound fiscally responsible recommendations regarding the maintenance, operation and improvement of our transportation network";
- fulfill applicable federal Environmental Justice commitments; and
- further the goals and objectives and cooperative nature of the metropolitan transportation planning process.

The assessment focused on identifying, through a demographic analysis, the extent to which EJ populations and other groups of concern reside in or near the study area and may be impacted by the proposed project. Subsequent actions (determination of disproportionately high and adverse effects; proposing measures to avoid, minimize, and/or mitigate such effects; and providing specific opportunities for public involvement) may be undertaken, as appropriate, contingent upon the results of the demographic analysis.

The KIPDA staff assessment of demographic data from the 2000 Census, consideration of information from other sources, and conversations with individuals familiar with the area indicate the following:

- The highest concentrations of resident minority populations in and near the study area were found to exist primarily along the south side of the study corridor between downtown Jeffersontown and I-265. These percentages were similar to

the average for Kentucky, while the remaining area minority populations were much lower. None of the concentrations in the study area reached the levels found in the general populations of the nation or Jefferson County.

- Resident low-income populations along the study corridor existed in much lower proportions than those seen in the general population of the nation, state, and county.
- The highest proportion of elderly residents was located in the vicinity of senior housing and a long-term care facility near downtown Jeffersontown. With the exception of this area, the elderly were present along the study corridor in concentrations similar to or less than those of the general population of the county, state, and nation.
- For the most part, persons with disabilities in or near the study area were present in either similar or lesser percentages than those of the general population of the county, state, or nation. One exception to this was north of Taylorsville Road near Jeffersontown (tract 111.02 block group 2) which had a disabled proportion slightly higher than the state average.

Given the level of detail of the available information, the community impact assessment did not uncover any significant concentrations of Environmental Justice populations within the study area. These persons were present within the general resident population of the study corridor in proportions similar to or less than county, state, and national levels. There was, however, one area near the study corridor with elderly and disabled population distributions slightly higher than those of the population-at-large. Apart from these exceptions, the elderly and disabled populations were also present in proportions similar to or less than those of the general populous of the United States, Kentucky, and Jefferson County.

5.3 Previously Documented Cultural Historic and Archeological Sites

A formal records search or windshield survey was not performed as part of this study to determine the existence of any cultural or archeological resources. Based on agency correspondence with the State Historic Preservation Office (SHPO), there are many cultural resources within the project area, including the National Register of Historic Places (NRHP) listed Tyler Rural Settlement Historic District. There are also inventoried sites; however, they as yet are to be evaluated by a professional architectural historian for potential eligibility on the NRHP. There are additional previously recorded archeological sites; however most of this area has never been surveyed by professional archaeologists.

As no formal evaluation has been completed, any improvement projects with significant impacts would need to be evaluated for impacts to cultural historic and archeological sites. A copy of the response from the SHPO is included in **Appendix C** of this report.

6.0 NATURAL ENVIRONMENT OVERVIEW

A formal overview to determine the characteristics of the natural environment in the study area was not conducted as part of this study. However, numerous state and federal agencies were contacted to request input regarding this project. Based on responses received from these agencies, resources addressed in this section include aquatic and terrestrial ecosystems. For a copy of the response letters, refer to **Appendix C** of this report.

6.1 Aquatic Ecosystems

No adverse impacts to surface water, wetlands and ponds, and floodplains were identified in the agency correspondence.

6.2 Terrestrial Ecosystems

Nature Preserves and Wildlife Management Areas – There are none in the study area.

Threatened and Endangered Species – There are several federally protected species known to exist within Jefferson County. These include two types of bats, seven species of mussels, and one bird species. Any improvement project implemented will require a Habitat Assessment.

Floral and Faunal Communities – Only one type of plant that is federally protected is known to occur in Jefferson County. This is the running buffalo clover.

7.0 GEOTECHNICAL OVERVIEW

Based on comments received from the Kentucky Geological Survey, there are no major geologic concerns in the Taylorsville Road improvement corridor. It should be noted that the study area might encounter karst features such as sinkholes, but would not encounter units prone to landslides or unconsolidated sediments in drainage areas. Rocks suitable for construction stone are possible within the corridor such as rocks from the upper part of the Laurel Dolomite.

For additional information about geologic features / concerns, refer to the letter provided by the Kentucky Geological Survey attached in **Appendix C** as part of the agency coordination for this study.

8.0 PUBLIC INVOLVEMENT

The Public Involvement Program for the Taylorsville Road Scoping Study was comprised of several key elements designed to encourage participation and obtain feedback from the greatest number of the affected populace as possible. The key aspects include: a local officials meeting, stakeholder meetings, public workshops/meetings, and agency correspondence. The process and methods for public involvement are outlined in this chapter. The results and feedback from implementation of the Public Involvement Program are provided throughout the entire report as it was particularly beneficial in the development and evaluation of alternates. Copies of the public involvement meeting summaries are included in **Appendix D** for reference including summaries of the input received at the public workshops/meetings.

Local Officials Meeting – A meeting was held on December 14, 2006 with local elected officials including Metro Council Members, state legislators, and heads of local agencies. The purpose of this meeting was to brief the officials about the project and to gather any feedback about issues and concerns. Those in attendance provided insight on the key issues related to the study and provided some feedback as to what they have heard regarding the need for improvements. Some in attendance also filled out survey forms for written documentation of project needs. Meeting minutes are provided at the end of the report in **Appendix D**.

Stakeholder Meetings – Stakeholder meetings were held during the course of the study with selected key stakeholders representing a wide variety of interests. The purpose of the meetings was to inform them about the project and receive input on issues and concerns about the project. Of note was a meeting held with the Jeffersontown Planning and Design Department. This meeting was particularly helpful in that the improvement projects currently being pursued by Jeffersontown were discussed along with how they affect and could be incorporated into this study.

As two of the intersections being evaluated in this study lead into Jeffersontown (Watterson Trail and Ruckriegel Parkway), the director of the Jeffersontown Planning and Design Department was especially concerned about any recommendations for these locations. The overall goal of the department is to preserve Jeffersontown. There is concern that in order to improve traffic flow, major roadway widening would need to occur thereby destroying the historic nature of the community. These concerns were discussed and efforts will be made to provide a balance between improving traffic flow and maintaining the Jeffersontown area. For additional information about this meeting, refer to **Appendix D** for meeting minutes.

Public Meetings – Two public meetings were held during the course of this study. The first public meeting was held as part of the 2006 Jeffersontown Gaslight Festival. The second meeting was held in Jeffersontown in a more traditional open-house style format. Key goals for these meetings were to gather input on the issues and alternates to be considered and then to obtain feedback on the preliminary recommendation

before a final recommendation was made. Each of these meetings is described in more detail below.

- Public Meeting #1 – This meeting was held on September 16 (Saturday) and 17 (Sunday) as part of the 2006 Jeffersontown Gaslight Festival. The purpose of the first public information meeting was to inform the public of the study, present the existing conditions documentation, gather input on the project issues and goals, and begin the process of alternate development. Informational materials were available at a booth both days of the festival which was staffed with both KYTC and PB personnel. In addition to engaging passersby in discussion about the study, survey forms were distributed. A summary of this informational event and the resulting survey information is provided in **Appendix D**.

- Public Meeting #2 – This meeting was held on February 27, 2007 at the Jeffersontown Community Center. The purpose of the meeting was to present to the public all of the analysis work completed up to that time, and to present and request feedback on the various improvement alternates developed prior to KYTC making a final decision on the project. A brief presentation was given to familiarize the public with the study and the open house format. The meeting featured display stations staffed with project team members to answer questions about the various alternates and recommendations. All attendees were encouraged to provide their thoughts and opinions on the comment forms provided at the meeting. A summary of this meeting as well as the comment form responses can also be found in **Appendix D**.

Agency Correspondence – An agency mailing was prepared during the initial stages of this study and sent to various local, state, and federal agencies to obtain input in the study process. The list of recipients includes:

- The Kentucky Department of Military Affairs
- Kentucky Division of Forestry
- Kentucky Vehicle Enforcement
- Kentucky Department for Environmental Protection Division for Air Quality
- Kentucky Geological Survey
- State Historic Preservation Office
- Kentucky Department of Fish and Wildlife Resources Commerce Cabinet
- Kentucky Cabinet for Health and Family Services Facilities Management Division
- Kentucky Division of Water
- Kentucky Division of Waste Management

The review by the State Historic Preservation Office (SHPO) indicated that there are many cultural resources and previously recorded archeological sites within the project area, many of which have not been evaluated. The only registered area is the Tyler Rural Settlement Historic District, which is listed on the National Register of Historic Places (NRHP). A Section 106 Review Process may need to be completed to provide

an in-depth evaluation of potential sites within the project corridor depending on the funding source for improvements to Taylorsville Road. A full survey of both cultural and archeological resources would need to be completed and submitted to the SHPO via the KYTC Central Office Division of Environmental Analysis for review.

Overall, there were no additional significant comments that would require avoidance or mitigation related to potential improvements along the Taylorsville Road corridor. The following are some considerations mentioned in the response letters that could be included in future phases of this project.

- The Division of Forestry did express concern regarding existing trees and requested that care be taken during any construction to avoid wounding of the trunk or surface roots or impact soil compaction.
- The Kentucky Department for Environmental Protection Division for Air Quality response stated that the project must meet the conformity requirements of the Clean Air Act as amended and the transportation planning provisions of Title 23 and Title 49 of United States Code.
- The Kentucky Division of Waste Management noted that if underground storage tanks are encountered, they must be addressed properly and that any solid waste generated by this project must be disposed of at a permitted facility.
- Based on comments provided by the Kentucky Department of Fish and Wildlife Resources Commerce Cabinet, the federally endangered gray bat, *Myotis grisescens*, and Indiana bat, *Myotis sodalist* are known to occur within close proximity to the project area. Any impact to trees during construction should be completed within a specific time frame to avoid any harm to the bats.

A copy of the responses can be found in **Appendix C** for reference.

Project Team Meetings – Several meetings were also held with the KYTC to discuss project issues including the development of alternates and the presentation of these alternates to the public, the results of the second public meeting, and a meeting to discuss project recommendations. The minutes from these meetings are included in **Appendix D** for reference.

9.0 ALTERNATES DEVELOPMENT AND EVALUATION

The development, evaluation, and recommendation for improvements to Taylorsville Road have been subdivided into two categories – short-term projects and long-term projects. Short-term refers to projects that could be completed in the near future (year 2010) and would generally consist of improvements that could be implemented at an intersection level such as new and/or additional traffic signals, signal system optimization, turn pockets or lanes, storage lanes and/or extended turn lanes. Long-term projects refer to projects that are broader in scope and apply to the entire corridor by looking at what the ultimate vision is for improvements. This includes determining if additional lanes are necessary in the future to meet increased traffic demand and if so, how many. The long term design year for this project is 2030.

As the alternates and the evaluation criteria are specific to each improvement type, the development and analysis of alternates is presented below in two separate sections. Alternate recommendations follow in the next chapter.

9.1 Short-Term Project Development and Evaluation

9.1.1 Alternates Development

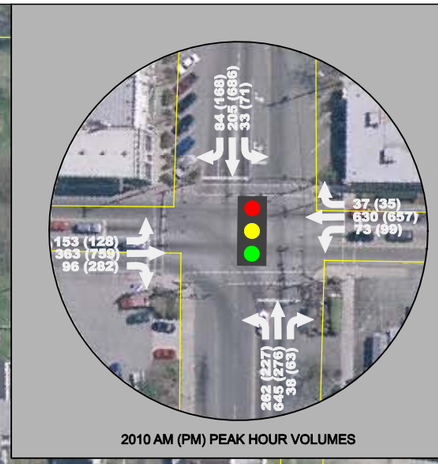
As mentioned above, the primary focus for alternates development in the short-term is at the intersection level. There are five intersections that are part of this study and multiple alternates were developed for each intersection. These were based on the following:

- Project purpose and need
- Existing / future conditions and problem definition and analysis
- Recommendations and alternates from any past and concurrent studies
- Project Team suggestions
- Feedback from the public involvement process including stakeholder interviews, the elected officials briefing, and public open houses.

Figures 14 – 18 depict the list of alternate improvements developed for this study.

Also considered was the potential for construction of roundabouts at all study area intersections, particularly at the KY 148 intersection. However, an analysis of traffic volumes on Taylorsville Road compared to standard guidelines (FHWA Roundabout Guide) for the installation of a roundabout showed that there were no locations where a roundabout would be feasible along this corridor. The through traffic volumes on Taylorsville Road contributed to a high circulatory flow causing the roundabouts to operate at or above capacity. Therefore, while the installation of roundabouts was initially examined, they were not included on the full list of alternates following the results of the initial feasibility analysis.

FIGURE 14: TAYLORSVILLE ROAD & WATTERSON TRAIL INTERSECTION



2010 AM (PM) PEAK HOUR VOLUMES

Key Issues / Deficiencies

- High traffic volumes contribute to high delays and undesirable LOS.
- Limitations for major improvements because of ROW constraints.
- The pedestrian signal when crossing Taylorsville Road (on west) does not have countdown feature.

Alternates

- Alt. 1 – Add WB Right Lane:
  The WB right lane reduces delay for both the approach and intersection.
- Alt. 2 – Add Two Thru Lanes on Taylorsville Road and WB Right Lane:
  This improvement results in an acceptable LOS for both peak periods.
- Alt. 3 – Add Two Thru Lanes on Taylorsville Road, a WB Right Lane, and 2nd NB Left Lane:
  Provides minor improvements over Alt. 2.
- Alt. 4 – Add Pedestrian Countdown Signal:
  Adding this signal would make all signals comparable.
  (Estimated Construction Cost: $10,000)
- Alt. 5 – Add Advanced Warning Signs for Pedestrian Crossings.
  (Estimated Construction Cost: $5,000)
- Alt. 6 – Replace Retro-Reflectivity:
  Upgrade locations to increase awareness at intersection.
  (Estimated Construction Cost: $10,000)

*CONSTRUCTION COST ONLY - EXCLUDES RIGHT-OF-WAY AND UTILITIES

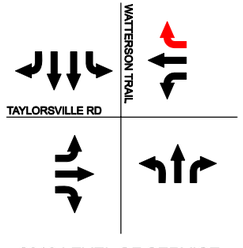
WATTERSON TRAIL

TAYLORSVILLE ROAD

2010 NO BUILD LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	D	35.1	F	170.2
WB	F	303.9	F	319.4
NB	F	108.2	C	33.0
SB	D	35.9	D	52.1
WHOLE INT.	F	138.8	F	150.6

ALTERNATE 1

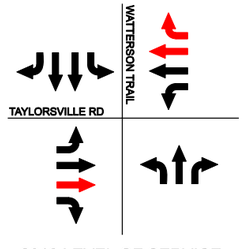


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	30.8	F	85.9
WB	D	40.3	D	50.6
NB	E	74.8	D	42.7
SB	C	33.6	D	47.4
WHOLE INT.	D	49.9	E	60.3

ESTIMATED CONSTRUCTION COST*: $100,000

ALTERNATE 2

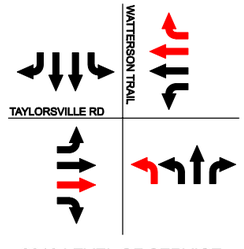


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	26.7	C	30.6
WB	D	39.8	D	44.1
NB	E	68.3	C	29.6
SB	C	32.2	D	42.7
WHOLE INT.	D	46.3	D	36.8

ESTIMATED CONSTRUCTION COST*: $730,000

ALTERNATE 3



2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	26.8	C	30.6
WB	D	39.7	D	44.1
NB	E	65.5	C	25.2
SB	C	31.9	D	42.7
WHOLE INT.	D	45.2	D	36.1

ESTIMATED CONSTRUCTION COST*: $880,000

ALTERNATE 4

ADD PEDESTRIAN COUNTDOWN SIGNAL
(ESTIMATED CONSTRUCTION COST*: $10,000)

ALTERNATE 5

ADD ADVANCED WARNING SIGNS FOR PEDESTRIAN CROSSINGS
(ESTIMATED CONSTRUCTION COST*: $5,000)

ALTERNATE 6

REPLACE RETRO-REFLECTIVITY
(ESTIMATED CONSTRUCTION COST*: $10,000)

LEGEND

EXISTING RIGHT OF WAY

SIGNALIZED INTERSECTION

STOP-CONTROLLED INTERSECTION

980 (1080) 2010 AM (PM) PEAK HOUR VOLUMES

50 0 50 100 150

GRAPHIC SCALE IN FEET

FIGURE 15: TAYLORSVILLE ROAD & RUCKRIEGEL PARKWAY INTERSECTION

2010 AM (PM) PEAK HOUR VOLUMES

Key Issues / Deficiencies

- This intersection completely fails overall and for each approach.
- A sidewalk does not exist on the south side of Taylorsville Road, which could provide access to Walmart.
- The pedestrian signals are difficult to see because of height.

Alternates

- Alt. 1 – Add EB Right, SB Right, and WB Right Lanes:
  This provides some operational improvements but does not meet acceptable LOS thresholds.
- Alt. 2 – Add 2nd Thru Lane on Taylorsville Road and EB Right Lane, SB Right Lane, and WB Right Lane:
  This provides better operating conditions in the AM peak period but not in the PM peak period.
- Alt. 3 – Add 2nd Thru Lane for All Approaches and Exclusive Turn Lanes for All Movements:
  This results in acceptable LOS for the intersection in both peak periods; however this would require large amounts of ROW.
- Alt. 4 – Add Sidewalk to South Side of Taylorsville Road
  (Estimated Construction Cost: $70,000)

Recommendation

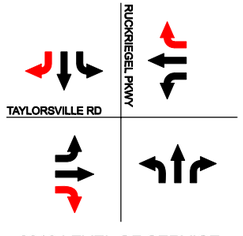
- Lower Pedestrian Signal:
  Provides better visibility.
  (Estimated Construction Cost: Minimal)

*CONSTRUCTION COST ONLY - EXCLUDES RIGHT-OF-WAY AND UTILITIES

2010 NO BUILD LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	D	49.3	F	409.5
WB	F	170.8	E	165.4
NB	F	133.2	E	106.2
SB	D	51.5	F	162.5
WHOLE INT.	F	129.9	F	220.7

ALTERNATE 1

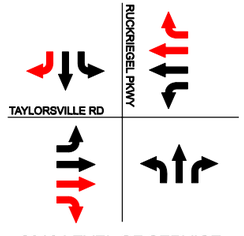


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	34.9	F	184.1
WB	D	54.0	F	108.4
NB	E	58.8	F	136.7
SB	E	76.5	F	196.4
WHOLE INT.	D	54.0	F	154.7

ESTIMATED CONSTRUCTION COST*: $210,000

ALTERNATE 2

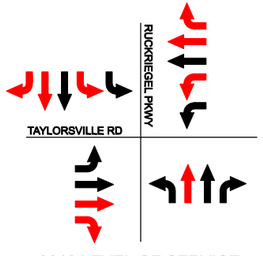


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	D	39.5	E	59.4
WB	C	28.5	E	68.8
NB	D	36.7	F	98.6
SB	E	59.9	F	141.4
WHOLE INT.	D	35.2	F	88.4

ESTIMATED CONSTRUCTION COST*: $640,000

ALTERNATE 3



2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	24.1	E	56.7
WB	B	18.4	C	30.6
NB	C	29.2	E	65.5
SB	D	35.2	E	55.8
WHOLE INT.	C	23.8	D	50.3

ESTIMATED CONSTRUCTION COST*: $1,400,000

ALTERNATE 4

ADD SIDEWALK TO SOUTH SIDE OF TAYLORSVILLE ROAD
(ESTIMATED CONSTRUCTION COST*: $70,000)

RECOMMENDATION

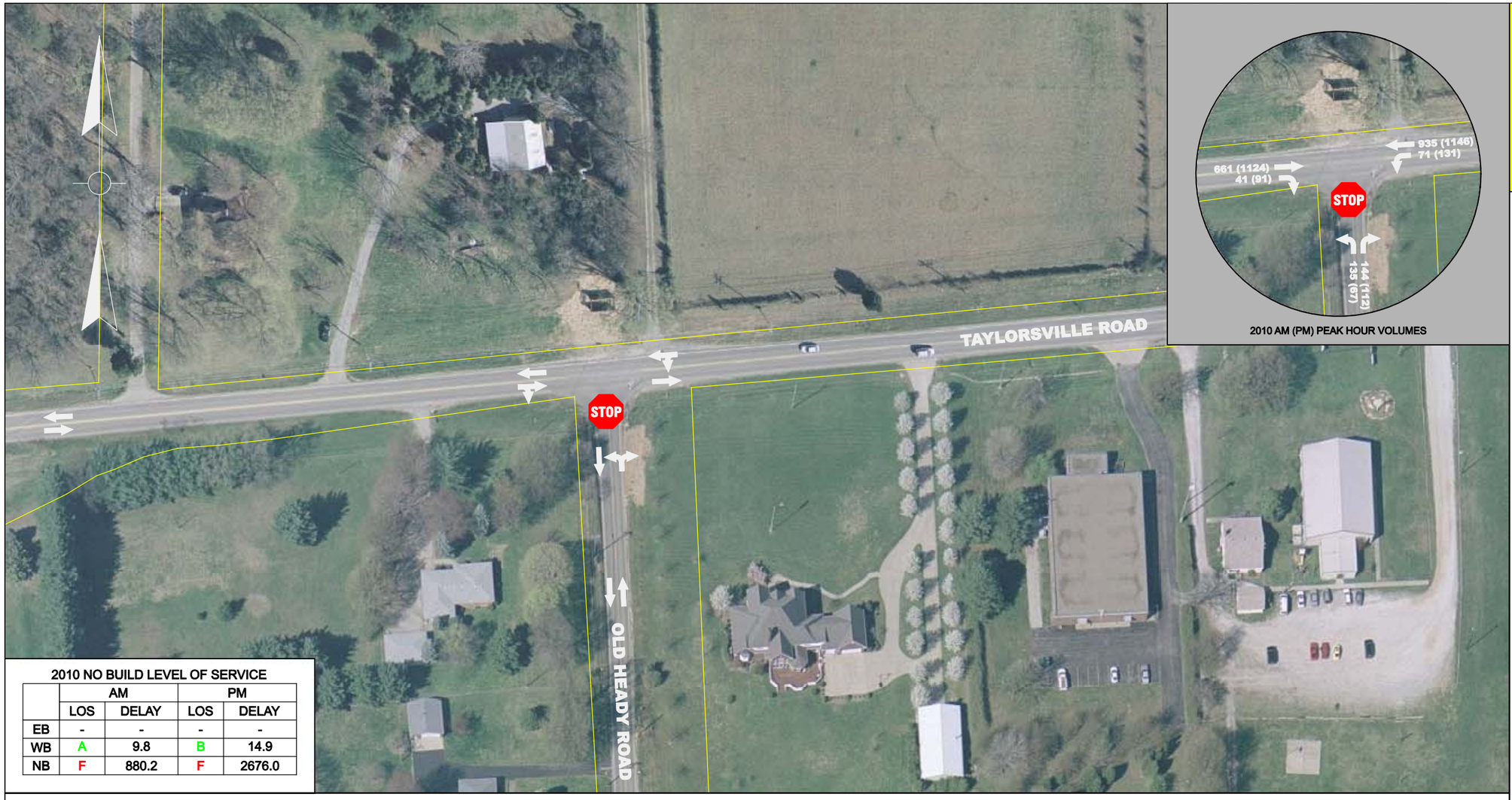
LOWER PEDESTRIAN SIGNAL
(ESTIMATED CONSTRUCTION COST*: MINIMAL)

LEGEND

- EXISTING RIGHT OF WAY
- SIGNALIZED INTERSECTION
- STOP-CONTROLLED INTERSECTION
- 980 (1080) 2010 AM (PM) PEAK HOUR VOLUMES

50 0 50 100 150
GRAPHIC SCALE IN FEET

FIGURE 16: TAYLORSVILLE ROAD & OLD HEADY ROAD INTERSECTION



2010 AM (PM) PEAK HOUR VOLUMES

2010 NO BUILD LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	-	-	-	-
WB	A	9.8	B	14.9
NB	F	880.2	F	2676.0

Key Issues / Deficiencies

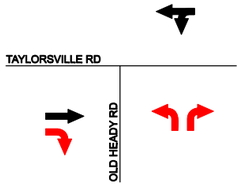
- Poor LOS and long delays for NB approach on Old Heady Road resulting from high volumes along Taylorsville Road.
- The NB approach is a single lane which increases delay.

Alternates

- Alt. 1 – Add EB Right and NB Right Lanes: This improves delay on the NB approach, but does not solve problem for intersection.
- Alt. 2 – Signalization: **The traffic volumes in 2006 meet the peak hour signal warrant.** The signal alone does not solve the PM delay.
- Alt. 3 – Signalization and Add WB Left Turn Lane: The combination of the traffic signal and the turn lane result in an overall acceptable LOS.
- Alt. 4 – Signalization and Exclusive Turn Lanes for All Movements: Overall improves the LOS and delay for most approaches and the entire intersection.

*CONSTRUCTION COST ONLY - EXCLUDES RIGHT-OF-WAY AND UTILITIES

ALTERNATE 1

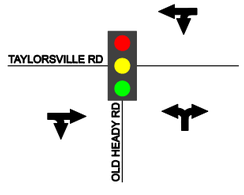


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	-	-	-	-
WB	A	9.8	B	14.9
NB	F	356.7	F	950.1

ESTIMATED CONSTRUCTION COST*: $140,000

ALTERNATE 2

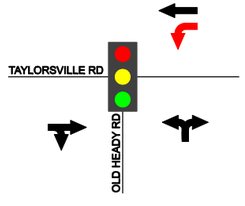


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	A	7.7	A	9.9
WB	C	25.2	F	147.5
NB	E	73.4	F	319.4
WHOLE INT.	C	25.1	F	95.1

ESTIMATED CONSTRUCTION COST*: $130,000

ALTERNATE 3

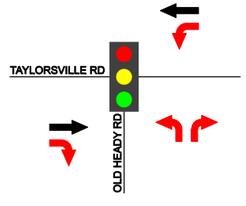


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	A	8.6	C	33.3
WB	B	15.9	C	23.1
NB	D	38.5	E	59.1
WHOLE INT.	B	16.2	C	29.9

ESTIMATED CONSTRUCTION COST*: $330,000

ALTERNATE 4



2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	A	5.9	B	16.4
WB	B	11.0	C	32.3
NB	C	30.9	D	52.0
WHOLE INT.	B	11.8	C	26.3

ESTIMATED CONSTRUCTION COST*: $460,000

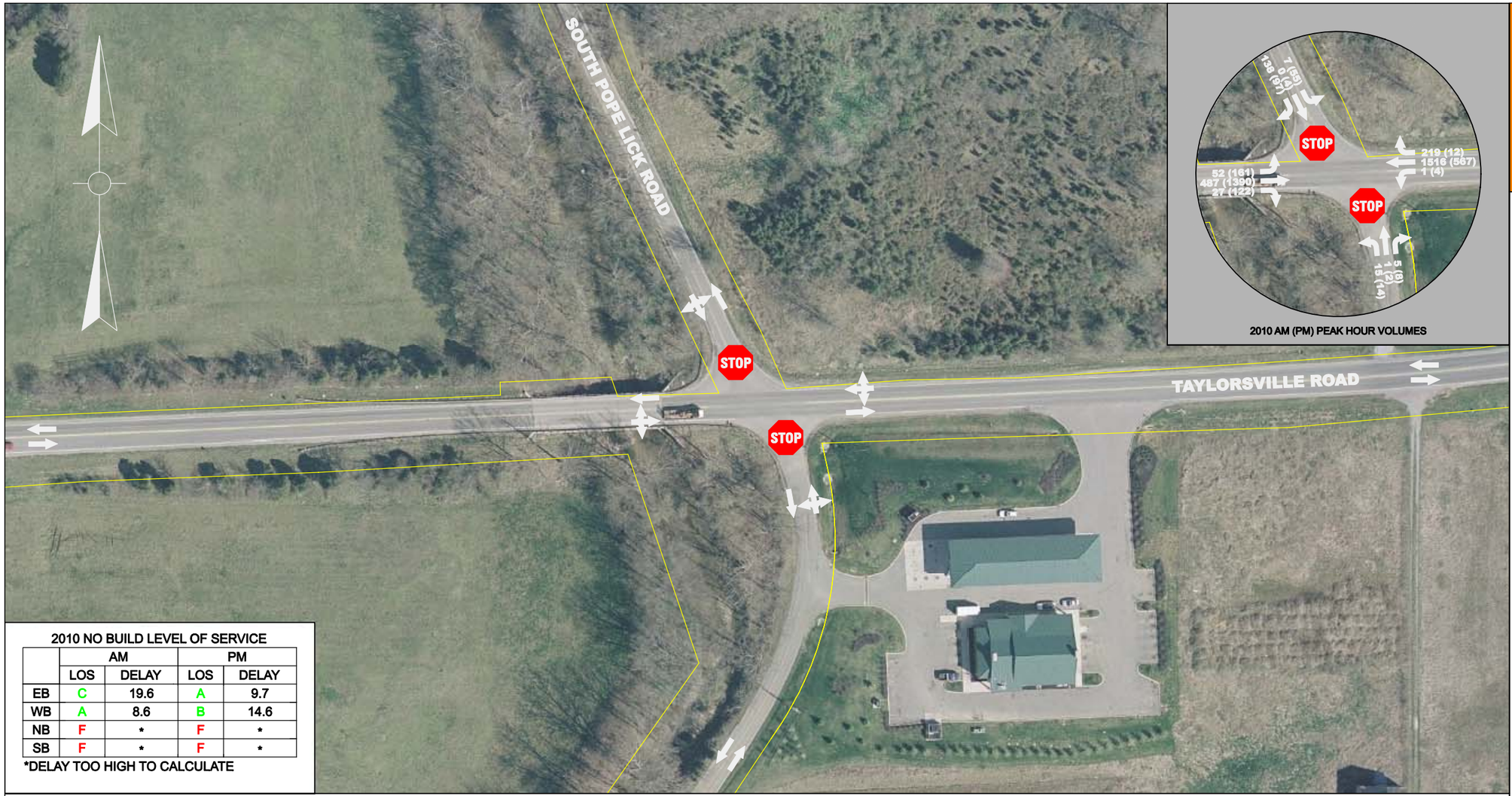
LEGEND

- EXISTING RIGHT OF WAY
- SIGNALIZED INTERSECTION
- STOP-CONTROLLED INTERSECTION
- 980 (1080) 2010 AM (PM) PEAK HOUR VOLUMES

50 0 50 100 150

GRAPHIC SCALE IN FEET

FIGURE 17: TAYLORSVILLE ROAD & SOUTH POPE LICK ROAD INTERSECTION



Key Issues / Deficiencies

- Poor LOS and long delay for both NB and SB movements.
- Poor sight distance for SB approach.
- Traffic signal not warranted based on 2006 traffic counts.
- New residential development is expected to worsen traffic conditions.

Alternates

- Alt. 1 – Add SB Right and NB Right Lanes: Improves the SB approach in the PM peak period; however, the LOS for this approach remains poor during the AM peak period.
- Alt. 2 – Signalization:
  Though not warranted in 2006, the 2010 volumes were tested with a traffic signal. Without additional lanes, the resulting LOS and delays were still poor.
- Alt. 3 – Signalization and Add WB Right and EB Left Turn Lanes:
  The overall LOS and delay improve with these improvements, but still are not desirable.
- Alt. 4 – Signalization and Add Turn Lanes for All Movements:
  The resulting LOS and delay are acceptable, but the delay for the SB approach is still high.
- Alt. 5 – Re-align Intersection:
  Re-aligning the intersection in order to improve the sight distance will increase safety.
  (Construction Cost Estimate: $230,000)

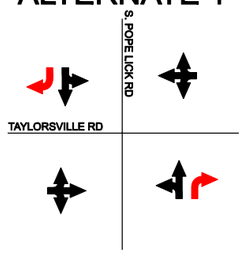
**CONSTRUCTION COST ONLY - EXCLUDES RIGHT-OF-WAY AND UTILITIES

2010 NO BUILD LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	19.6	A	9.7
WB	A	8.6	B	14.6
NB	F	*	F	*
SB	F	*	F	*

*DELAY TOO HIGH TO CALCULATE

ALTERNATE 1

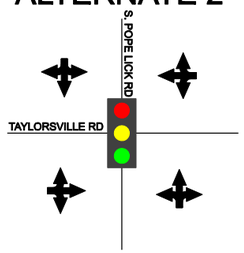


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	19.6	A	9.7
WB	A	8.6	B	14.6
NB	B	11.9	D	35.0
SB	F	372.3	B	14.7

ESTIMATED CONSTRUCTION COST*: $140,000

ALTERNATE 2

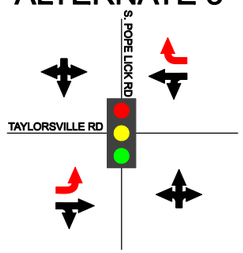


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	A	3.4	F	184.1
WB	F	101.0	A	3.0
NB	F	100.8	E	70.0
SB	F	275.7	F	208.0
WHOLE INT.	F	86.7	F	140.4

ESTIMATED CONSTRUCTION COST*: $130,000

ALTERNATE 3

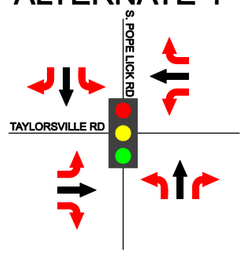


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	22.0	E	75.6
WB	E	67.2	A	6.3
NB	E	63.1	E	59.3
SB	F	86.8	F	90.6
WHOLE INT.	E	57.5	E	59.5

ESTIMATED CONSTRUCTION COST*: $850,000

ALTERNATE 4



2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	C	20.9	C	20.8
WB	D	54.0	A	2.1
NB	E	78.7	E	60.8
SB	F	166.0	F	113.2
WHOLE INT.	D	53.2	C	22.1

ESTIMATED CONSTRUCTION COST*: $1,640,000

ALTERNATE 5

RE-ALIGN INTERSECTION
(ESTIMATED CONSTRUCTION COST*: $230,000)

LEGEND

- EXISTING RIGHT OF WAY
- SIGNALIZED INTERSECTION
- STOP-CONTROLLED INTERSECTION
- 980 (1080) 2010 AM (PM) PEAK HOUR VOLUMES

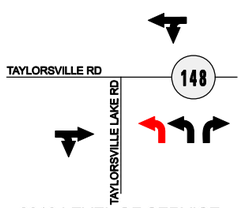
50 0 50 100 150
GRAPHIC SCALE IN FEET

FIGURE 18: TAYLORSVILLE ROAD & KY 148 INTERSECTION

2010 NO BUILD LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	F	286.1	F	337.6
WB	F	1794.0	F	808.8
NB	F	394.4	F	519.9
WHOLE INT.	F	541.2	F	462.5

ALTERNATE 1

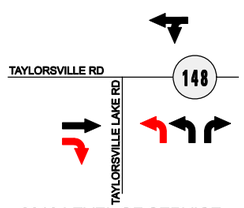


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	F	130.2	F	252.5
WB	F	206.1	F	476.6
NB	E	76.4	F	276.5
WHOLE INT.	F	103.1	F	292.6

ESTIMATED CONSTRUCTION COST*: $690,000

ALTERNATE 2

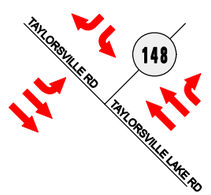


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	B	12.3	B	14.9
WB	D	53.4	C	26.7
NB	D	49.1	C	25.2
WHOLE INT.	D	42.1	B	19.8

ESTIMATED CONSTRUCTION COST*: $790,000

ALTERNATE 3

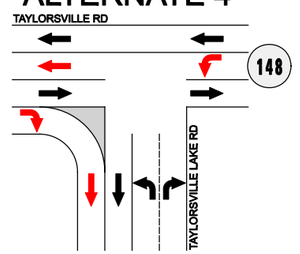


2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	F	127.0	C	24.0
WB	A	3.8	A	6.1
SB	B	11.6	B	12.9
WHOLE INT.	C	34.7	B	17.9

ESTIMATED CONSTRUCTION COST*: $2,290,000

ALTERNATE 4



2010 LEVEL OF SERVICE

	AM		PM	
	LOS	DELAY	LOS	DELAY
EB	F	283.3	C	26.6
WB	F	144.9	D	54.2
NB	F	213.0	D	47.9
WHOLE INT.	F	218.6	D	44.5

ESTIMATED CONSTRUCTION COST*: $330,000

Key Issues / Deficiencies

- Long queues and delay for NB Taylorsville Lake Road in AM peak period.
- High EB right turn volume from Taylorsville Lake Road during PM peak period.
- Queues and delays will worsen as growth continues.

Alternates

- Alt. 1 – Add 2nd NB Left Turn Lane:
  Improves delay in AM peak period, but does not solve issues during PM peak period. This will require a second receiving lane on WB Taylorsville Road.
- Alt. 2 – Add 2nd NB Left Turn Lane and Exclusive EB Right Turn Lane:
  This reduces delay and queues for all approaches in both peak periods. Also requires additional receiving lane on WB Taylorsville Road.
- Alt. 3 – Reconfigure Intersection to Make Taylorsville Road / Taylorsville Lake Road the Major Movement:
  This change does not operate better than Alt. 2, even with two through lanes.
- Alt. 4 – Continuous Flow "T":
  This would allow two continuous movements - EB right turn onto Taylorsville Lake Road and WB thru toward I-265. This provides improvement in delay, but not as much as Alt. 2. Also improves safety.

*CONSTRUCTION COST ONLY - EXCLUDES RIGHT-OF-WAY AND UTILITIES

LEGEND

- EXISTING RIGHT OF WAY
- SIGNALIZED INTERSECTION
- STOP-CONTROLLED INTERSECTION
- 980 (1080) 2010 AM (PM) PEAK HOUR VOLUMES

50 0 50 100 150
GRAPHIC SCALE IN FEET

9.1.2 Alternates Evaluation

The analysis procedure used to evaluate each alternate is a comparative process that considers multiple evaluation criteria and enables the best alternate of the set to be recommended for implementation. A matrix consisting of the evaluation criteria was developed for each intersection to be used as an evaluation tool. A list of the matrix criterion is provided below along with a description of each.

Level of Service / Delay – For intersection improvements such as signalization and / or adding turn lanes, a level of service analysis was performed using the HCS+ software package and 2010 volumes. No-Build levels of service and delay for the same year (2010) were calculated and used to compare to values resulting from intersection improvement to determine the extent to which they improve intersection operations.

For signalized intersections, the overall intersection level of service and delay (in seconds) is listed for the worst peak period. For the unsignalized intersections, the approach with the worst level of service and delay was selected for the worst peak period. Therefore, the poorest levels of service and delay for each intersection are shown in the table.

Signal Warrants – A traffic signal warrant evaluation was performed to determine if the intersection meets or exceeds any of the signal warrants as outlined in the Manual of Uniform Traffic Control Devices (MUTCD). According to the MUTCD, there are eight warrants used to justify the installation of a traffic signal, four of which are most relevant to intersections analyzed as part of this study. These four warrants are listed below along with a brief definition.

- Warrant 1: Eight-Hour Vehicular Volume – To satisfy this warrant, a minimum hourly volume must be exceeded for eight hours during an average day.
- Warrant 2: Four-Hour Vehicular Volume – For this warrant, traffic volumes for each of any 4 hours of an average day must be above the applicable curve in Figure 4C-1 or 4C-2 in the MUTCD manual.
- Warrant 3: Peak Hour – For this warrant, traffic volumes during one hour must be such that they exceed the given threshold as shown on either Figure 4C-3 or 4C-4 in the MUTCD.
- Warrant 7: Crash Experience – This warrant is used when the primary reason for installing a signal is due to a history of severe and frequent crashes in the vicinity of the intersection.

Intersections that are part of the study and not currently signalized (Old Heady Road and South Pope Lick Road) were evaluated to determine if any of these four warrants apply. In some instances, more information including turning movement counts during the off-peak hours (9:00 AM to 4:00 PM) are necessary to determine if warrants are met. Overall, it should be noted that simply meeting a warrant does not mean that a traffic signal must be installed at that location. Engineering judgment must also be used

to ensure that the installation of a traffic signal would be the best option for improving traffic operations and safety at that location.

Safety – Based on the crash analysis performed as part of the existing conditions analysis, it was noted if the intersection is located in a high crash rate section or is a high crash rate spot. Other, more qualitative discussion is also included where an improvement may lead to a reduction in certain crash types.

Environmental Impacts – This evaluation criterion is subdivided into two categories – human and natural. The human environmental impacts relate to issues that would impact populations of people who live along the corridor or infrastructure that has specific value to the community such as historical or archaeological value. An assessment of environmental justice issues such as adverse impacts to minority, low-income, or elderly populations was performed to determine if there are any locations along the corridor where these occur. The full discussion on environmental justice issues is included as **Appendix B** at the end of this report.

The natural environmental impacts refer to impacts to floodplains, wetlands, and threatened / rare / endangered species. As this is a fairly urban / suburban area, these types of impacts are minimal.

Public Input – Results from the second public meeting held on February 27, 2007 were used to populate the evaluation criteria. Specifically, attendees were asked to select the alternate they thought would best improve any operational or safety deficiencies at each intersection on a comment form. These forms were collected at the meeting as well as via mail and fax following the meeting and compiled to determine the preferred alternate for each intersection as chosen by the public. The ranking of alternates is listed in the evaluation matrix.

Property Impacts – For the improvement alternates that require physical improvements such as turn lane construction, an assessment of the number of properties impacted by this construction was performed. The results are noted in the matrix.

Cost – Construction costs were developed for each alternate. The costs are in 2007 dollars and are for planning level purposes only. They do not include any costs for design, right-of-way or utilities.

The individual matrices for each intersection are shown as **Tables 17 – 21** on the following pages. The green shading indicates that an alternate has the best performance in a category while the red shading indicates the poorest performance. A summary of key evaluation points for each intersection follows the tables.

Table 17: Taylorsville Road / Watterson Trail Evaluation Matrix

Alternate	Description	Traffic			Environment Impacts		Public Input	Property Impacts	Cost*
		Delay (sec) / LOS	Signal Warrants	Safety	Human	Natural			
0	Do Nothing	150.6 / F	N/A	High Crash Rate Section	None	None	No response	0	$0
1	Add WB Right Lane from Taylorsville Rd to Watterson Trail	60.3 / E	N/A	High Crash Rate Section	Minor impact to downtown Jeffersontown character	None	No response	1	$100,000
2	Add Two Through Lanes on Taylorsville Rd and WB Right Lane from Taylorsville Rd to Watterson Trail	46.3 / D	N/A	High Crash Rate Section	Major impact to downtown Jeffersontown character	None	No response	10	$730,000
3	Add Two Through Lanes on Taylorsville Rd, a WB Right Lane from Taylorsville Rd to Watterson Trail, and 2nd NB Left Lane from Watterson Trail to Taylorsville Rd	45.2 / D	N/A	High Crash Rate Section	Major impact to downtown Jeffersontown character	None	1st	10	$880,000
4	Add Pedestrian Countdown Signal	N/A	N/A	High Crash Rate Section	None	None	2nd - Tied	0	$10,000
5	Add Advanced Warning Signs for Pedestrian Crossings	N/A	N/A	High Crash Rate Section	None	None	2nd - Tied	0	$5,000
6	Replace Retro-Reflectivity	N/A	N/A	High Crash Rate Section	None	None	2nd - Tied	0	$10,000

* Planning level cost estimate in 2007 dollars. Does not include utilities or right-of-way costs.

Table 18: Taylorsville Road / Ruckriegel Parkway Evaluation Matrix

Alternate	Description	Traffic			Environment Impacts		Public Input	Property Impacts	Cost*
		Delay (sec) / LOS	Signal Warrants	Safety	Human	Natural			
0	Do Nothing	220.7 / F	N/A	High Crash Rate Section	None	None	No response	0	$0
1	Add EB Right Lane from Taylorsville Rd to Ruckriegel Pkwy, SB Right Lane from Ruckriegel Pkwy to Taylorsville Rd, and WB Right Lane from Taylorsville Rd to Ruckriegel Pkwy	154.7 / F	N/A	High Crash Rate Section	None	None	2nd - Tied	4	$210,000
2	Add 2nd Through Lane on Taylorsville Rd and EB Right Lane from Taylorsville Rd to Ruckriegel Pkwy, SB Right Lane from Ruckriegel Pkwy to Taylorsville Rd, and WB Right Lane from Taylorsville Rd to Ruckriegel Pkwy	88.4 / F	N/A	High Crash Rate Section	None	None	No response	10	$640,000
3	Add 2nd Through Lane for All Approaches and Exclusive Turn Lane for All Movements	50.3 / D	N/A	High Crash Rate Section	None	None	1st	14	$1,400,000
4	Add Sidewalk to South Side of Taylorsville Rd	N/A	N/A	High Crash Rate Section	None	None	2nd - Tied	2	$70,000

* Planning level cost estimate in 2007 dollars. Does not include utilities or right-of-way costs.

Table 19: Taylorsville Road / Old Heady Road Evaluation Matrix

Alternate	Description	Traffic			Environment Impacts		Public Input	Property Impacts	Cost*
		Delay (sec) / LOS	Signal Warrants	Safety	Human	Natural			
0	Do Nothing	2676.0 / F	N/A	-	None	None	No response	0	$0
1	Add EB Right Turn Lane from Taylorsville Rd to Old Heady Rd and a NB Right Turn Lane from Old Heady Road to Taylorsville Rd	950.1 / F	N/A	Could reduce rear end crashes on Taylorsville Road and Old Heady Road	None	None	4th	2	$140,000
2	Signalization	95.1 / F	Meets Warrant 3	-	None	None	3rd	0	$130,000
3	Signalization and Add WB Left Turn Lane from Taylorsville Rd to Old Heady Rd	29.9 / C	Meets Warrant 3	Could reduce rear end crashes in the WB direction only on Taylorsville Rd	None	None	2nd	2	$330,000
4	Signalization and Exclusive Turn Lanes for all Movements	26.3 / C	Meets Warrant 3	Could reduce rear end crashes in both directions on Taylorsville Rd and on Old Heady Rd	None	None	1st	4	$460,000

* Planning level cost estimate in 2007 dollars. Does not include utilities or right-of-way costs.

Table 20: Taylorsville Road / South Pope Lick Road Evaluation Matrix

Alternate	Description	Traffic			Environment Impacts		Public Input	Property Impacts	Cost*
		Delay (sec) / LOS	Signal Warrants	Safety	Human	Natural			
0	Do Nothing	Delay too high to calculate / F	N/A	-	None	None	No response	0	$0
1	Add SB Right and NB Right Turn Lanes from South Pope Lick Rd to Taylorsville Rd	372.3 / F	N/A	-	None	None	2nd	2	$140,000
2	Signalization	140.4 / F	Does not meet warrants	-	None	None	No response	0	$130,000
3	Signalization and Add WB Right and EB Left Turn Lanes from Taylorsville Rd to South Pope Lick Rd	59.5 / E	Does not meet warrants	Could reduce rear end crashes	None	None	No response	Impacts RR right-of-way	$850,000
4	Signalization and Add Turn Lanes for All Movements	53.2 / D	Does not meet warrants	Could reduce rear end crashes	None	None	1st	2 properties and impacts RR right-of-way	$1,640,000
5	Re-align Intersection	N/A	N/A	Could reduce rear end crashes and improve sight distance	None	None	3rd	2 properties and impacts RR right-of-way	$230,000

* Planning level cost estimate in 2007 dollars. Does not include utilities or right-of-way costs.

Table 21: Taylorsville Road / KY 148 Evaluation Matrix

Alternate	Description	Traffic			Environment Impacts		Public Input	Property Impacts	Cost*
		Delay (sec) / LOS	Signal Warrants	Safety	Human	Natural			
0	Do Nothing	541.2 / F	N/A	-	None	None	No response	0	$0
1	Add 2nd NB Left Turn Lane	292.6 / F	N/A	-	None	None	4th	1	$690,000
2	Add 2nd NB Left Turn Lane and Exclusive EB Right Turn Lane	42.1 / D	N/A	Could reduce rear end crashes on Taylorsville Road in EB direction	None	None	1st - Tied	2 properties and impacts RR right-of-way	$790,000
3	Reconfigure Intersection to Make Taylorsville Rd / Taylorsville Lake Rd the Major Movement	34.7 / C	N/A	Could reduce rear end crashes on Taylorsville Road in both directions	None	None	1st - Tied	2 properties and impacts RR right-of-way	$2,290,000
4	Continuous Flow "T"	218.6 / F	N/A	Separates turning traffic from through traffic, potentially reducing rear-end crashes	None	None	3rd	2 properties and impacts RR right-of-way	$330,000

* Planning level cost estimate in 2007 dollars. Does not include utilities or right-of-way costs.

Taylorsville Road / Watterson Trail – This intersection is located in Jeffersontown and is surrounded by businesses and commercial/retail establishments on all sides. This severely limits any new construction to add capacity to the intersection such as additional through lanes and/or turn lanes without negatively impacting the existing development. Overall, the intersection will operate at LOS F by 2010, with a corresponding delay of between 138.8 seconds and 150.6 seconds depending on the peak period. To achieve an acceptable level of service in both peak periods, Alternate 2 would need to be constructed. This includes the addition of a through lane in both directions on Taylorsville Road as well as a westbound right turn lane on Taylorsville Road to Watterson Trail. Based on public response, there is a desire to improve traffic flow through the intersection by adding through lanes and turn lanes. However, there is also the desire to preserve the historic integrity of the downtown Jeffersontown area. This desire was especially expressed by the Jeffersontown Planning and Design Department.

Other additional projects to enhance pedestrian safety at this intersection were proposed including adding a pedestrian countdown signal at the southwest corner of the intersection, adding advanced warning signs for pedestrian crossings and enhancing the retro-reflectivity of signs and markings through the intersection. It was generally noted that pedestrian improvements are desirable, however, such improvements may not be high priority projects compared to intersection capacity and safety improvements. There were few responses overall for these improvements to the Taylorsville Road / Watterson Trail intersection. While it seems that there was good public response for these alternates, in fact one person was in favor of such as the preferred alternate.

Taylorsville Road / Ruckriegel Parkway – Located on the edge of the Jeffersontown area, this intersection has many similar issues to that of the Taylorsville Road / Watterson Trail intersection. Based on 2010 volumes, this intersection also operates at a LOS F during both the AM and PM peak periods, with a slightly worse delay during the PM peak period (220.7 seconds). To achieve an acceptable level of service overall, significant reconstruction of the intersection would need to occur (Alternate 3). This includes adding a through lane in each direction as well as several turn lanes that would require the construction of additional receiving lanes. In all, this would be a costly project that would result in the most property impacts.

This intersection received little public comment with only three respondents selecting Alternate 3 as the preferred alternate and one respondent who selected Alternate 1 and Alternate 4. Alternate 4 is the addition of a sidewalk on the south side of Taylorsville Road. This would be a good project from a pedestrian perspective in that it connects the Jeffersontown area to the new neighborhood Wal-Mart located along Ruckriegel Parkway to the south. There were some comments made at the public meeting that any permanent improvements such as sidewalks should be incorporated in the final design plan and not constructed in advance so that it would not need to be rebuilt and construction dollars wasted.

Taylorsville Road / Old Heady Road – This intersection is currently unsignalized and is perceived as a dangerous intersection by the public. Of the five intersections evaluated as part of this study, this intersection received the most comments by the public at the second public meeting (35 responses out of 102 comment forms returned). The majority of respondents were in favor of signalization and exclusive turn lanes for all movements (Alternate 4). Based on the existing 2006 traffic volumes, this intersection does meet Warrant 3 (Peak Hour), but additional traffic data may need to be collected for the off-peak periods to further justify signal installation. According to the crash analysis performed earlier in this report, a documented crash rate problem does not exist at this location; however, it is possible that there is a safety issue and many minor incidents or near misses are not reported. The northbound approach (Old Heady Road) operates poorly during both peak periods, with a substantial delay during the PM peak period (2676.0 seconds). Installation of a traffic signal alone does not solve the level of service issue; additional exclusive turn lanes are required to achieve a LOS C or better overall. At a minimum, this could include a westbound left turn lane only on Taylorsville Road (Alternate 3) or could include full separation of turning movements (Alternate 4) which is the preferred public alternate. Given the strong public response for improvements at this intersection, this response may need to be considered in the prioritization of projects along Taylorsville Road.

Taylorsville Road / South Pope Lick Road – This intersection is also currently unsignalized. The public response regarding improvements to this intersection is much less than that for the Old Heady Road intersection (only six responses). The primary deficiencies identified for this intersection include poor sight distance and poor levels of service / long delays for the southbound approach. Another issue is impending development related to two new residential subdivisions proposed to be located off of this road (Trestle Creek Subdivision and Trestle Pointe). These developments include a proposal for 303 new residential homes, significantly increasing traffic volumes on this roadway. The preferred alternate based on public response is signal installation along with the addition of turn lanes for all movements. However, current traffic warrants are not met to justify installation of a signal. It is possible that given the projected increases in traffic, they will be met in the future. According to the level of service analysis, signalization alone will not improve intersection operations to an acceptable level of service. To achieve a LOS C/D overall, exclusive turn lanes would need to be constructed for all movements. Any construction along the northeast section of Taylorsville Road may impact the railroad line that parallels Taylorsville Road between KY 148 and South Pope Lick Road. This includes the turn lanes proposed as part of Alternate 3 and Alternate 4.

It should be noted that some of the improvements proposed for this intersection including a westbound left turn lane on Taylorsville Road and a southbound left turn lane on South Pope Lick Road may be constructed by the developer for Trestle Creek and/or Trestle Pointe.

Taylorsville Road / KY 148 – This is a critical intersection that has distinct traffic flows during the AM and PM peak periods for traffic going to/from Taylorsville Lake Road

(Spencer County). During the AM peak period, the forecasted northbound left turn volume is 1,909 vehicles per hour. During the PM peak period, the forecasted volume making the reciprocal turn (eastbound right) is 1,820 vehicles per hour. These are very high volumes, especially for single turn lanes. Without improvements, the intersection operates at a LOS F during both peak periods. Several alternates were developed to address this issue including additional turn lanes, realigning the intersection, and separating movements to provide for continuous flow movements through the intersection. Based on level of service, Alternates 2 and 3 provide the best improvement in level of service (LOS A/B/C). From a cost perspective, Alternate 2 is much lower than Alternate 3 given similar improvements in level of service. From the public perspective, the majority of respondents preferred Alternate 2 and 3 equally.

9.2 Long-Term Project Development and Evaluation

9.2.1 Alternates Development

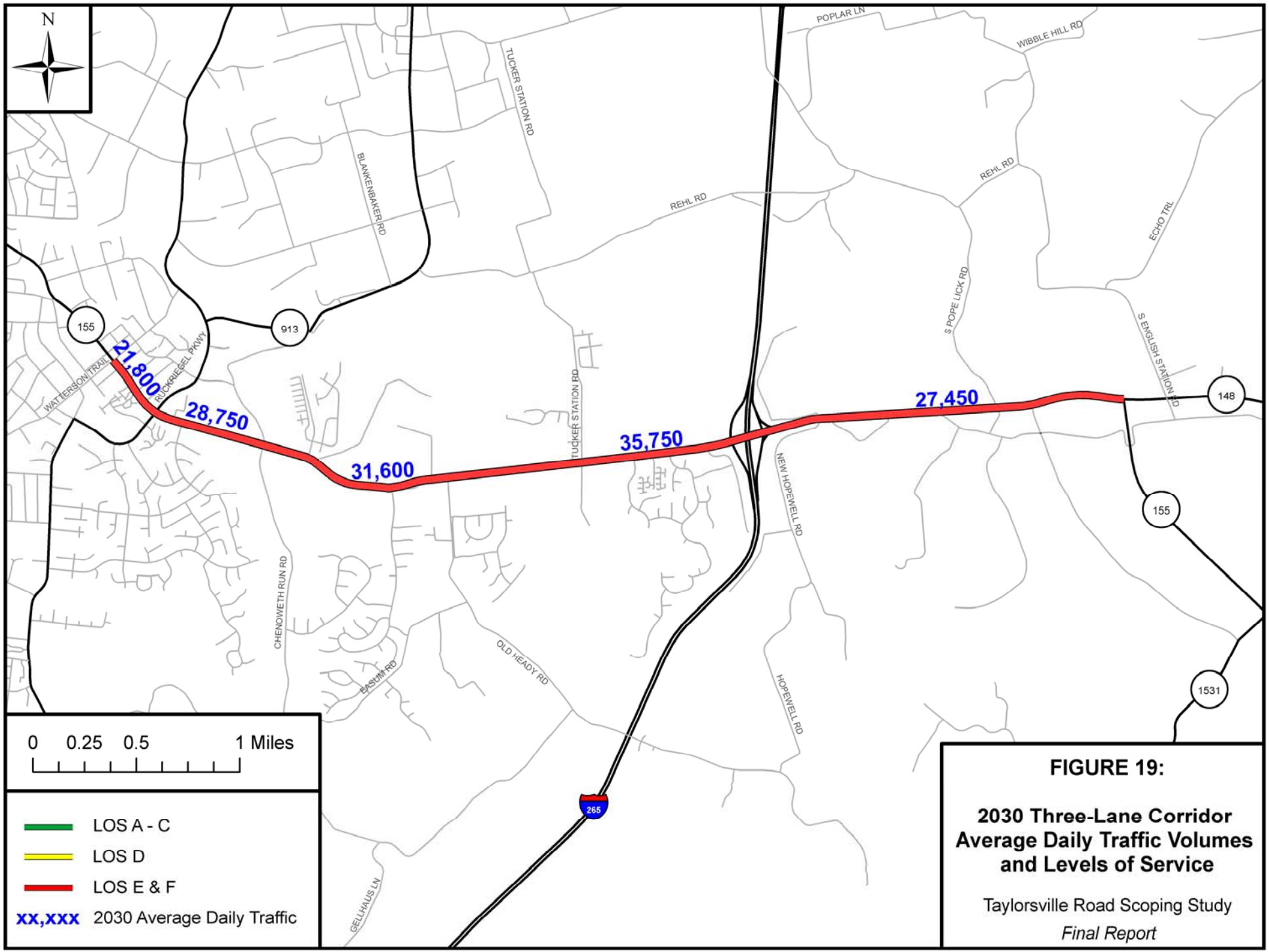
For the long-term time frame of improvements to Taylorsville Road, a corridor approach was taken as opposed to evaluating specific intersections. The focus of the alternate development included determining different typical sections for the Taylorsville Road corridor. This includes determining the number of lanes, aesthetics, and multimodal aspects that could be included for an ultimate build-out of the roadway. Given these types of characteristics, the following alternates comprise the range of alternates considered for this study.

- 3 Lanes (One travel lane in each direction and a two-way left-turn lane)
- 4 Lanes (Two travel lanes in each direction separated by a median)
- 5 Lanes (Two travel lanes in each direction and a two-way left-turn lane)
- 6 Lanes (Three travel lanes in each direction separated by a median)

For consistency, since the corridor is primarily in an urban setting, it is assumed that curb and gutter would be used for the typical section. For alternates that include a median, the median could either be a narrow strip of concrete to limit right-of-way impacts or could be a wide, landscaped median that lends itself to more of a parkway aspect to Taylorsville Road. Sidewalks, wide curb lanes or off-road multi-use paths could be considered with any of the alternates to accommodate bicyclists and pedestrians.

9.2.2 Alternates Evaluation

Traffic Forecasts and Level of Service – Given the broader scope of alternate type and potential combinations, the first step in evaluating the long-term alternates was to determine the need for additional travel lanes, particularly how many, to meet future traffic demand in the corridor. This includes the preparation of traffic forecasts for each alternate. The traffic forecasts were prepared by the Kentuckiana Regional Planning and Development Agency (KIPDA) for the year 2030. These forecasted traffic volumes are shown in the following figures (**Figures 19 – 22**).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TUCKER STATION RD
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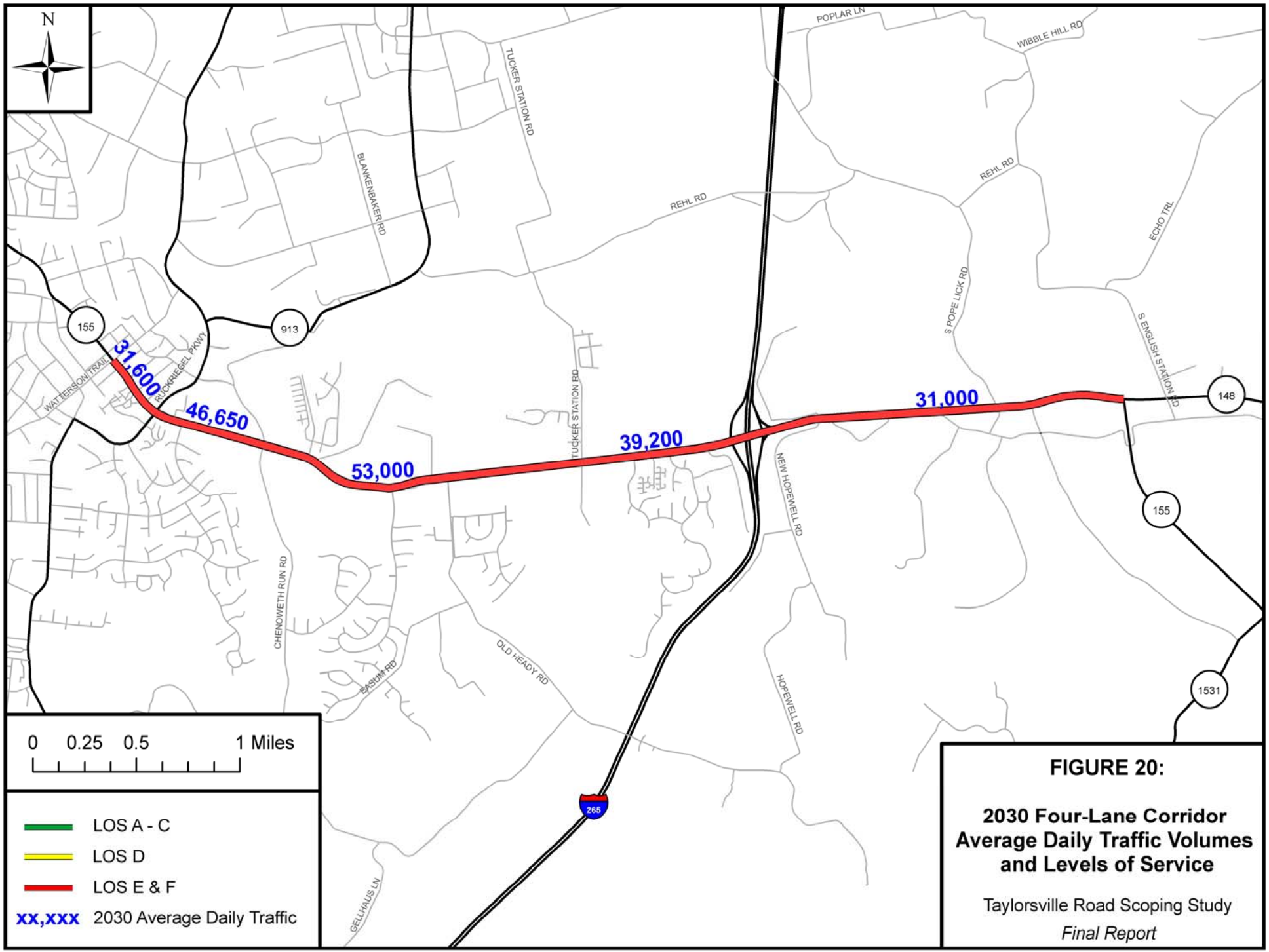
155
913
WATTERSON TRAIL
RUCKRIEGEL PKWY
21,800
28,750
31,600
35,750
27,450
148
TUCKER STATION RD
NEW HOPEWELL RD
155
CHENOWETH RUN RD
OLD HEADY RD
EASUM RD
HOPEWELL RD
1531
265
GELLHAUS LN
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
xx,xxx 2030 Average Daily Traffic
FIGURE 19:
2030 Three-Lane Corridor
Average Daily Traffic Volumes
and Levels of Service
Taylorsville Road Scoping Study
Final Report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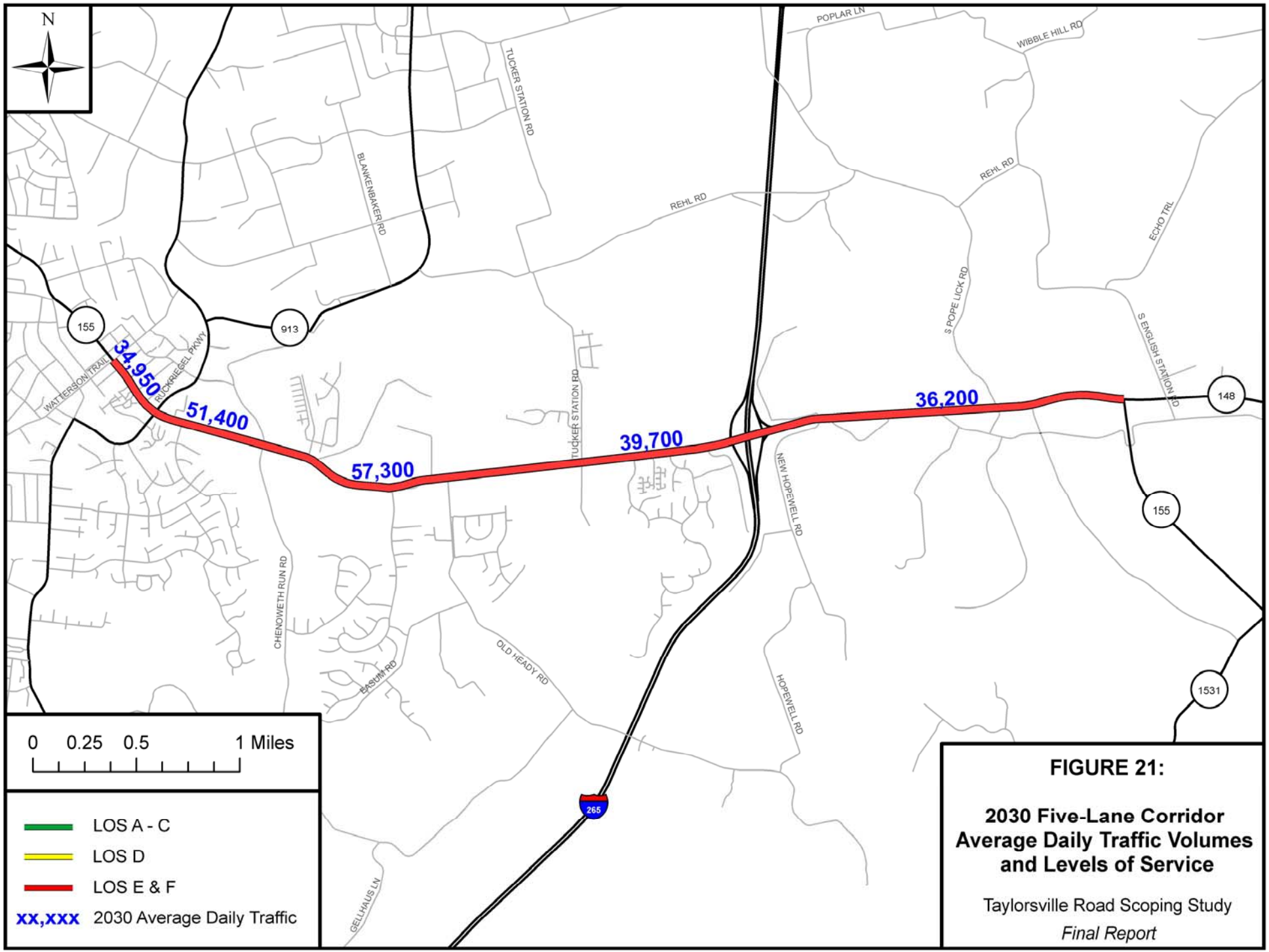
TUCKER STATION RD
NEW HOPEWELL RD
155
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
GELLHAUS LN
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
xx,xxx 2030 Average Daily Traffic
FIGURE 20:
2030 Four-Lane Corridor
Average Daily Traffic Volumes
and Levels of Service
Taylorsville Road Scoping Study
Final Report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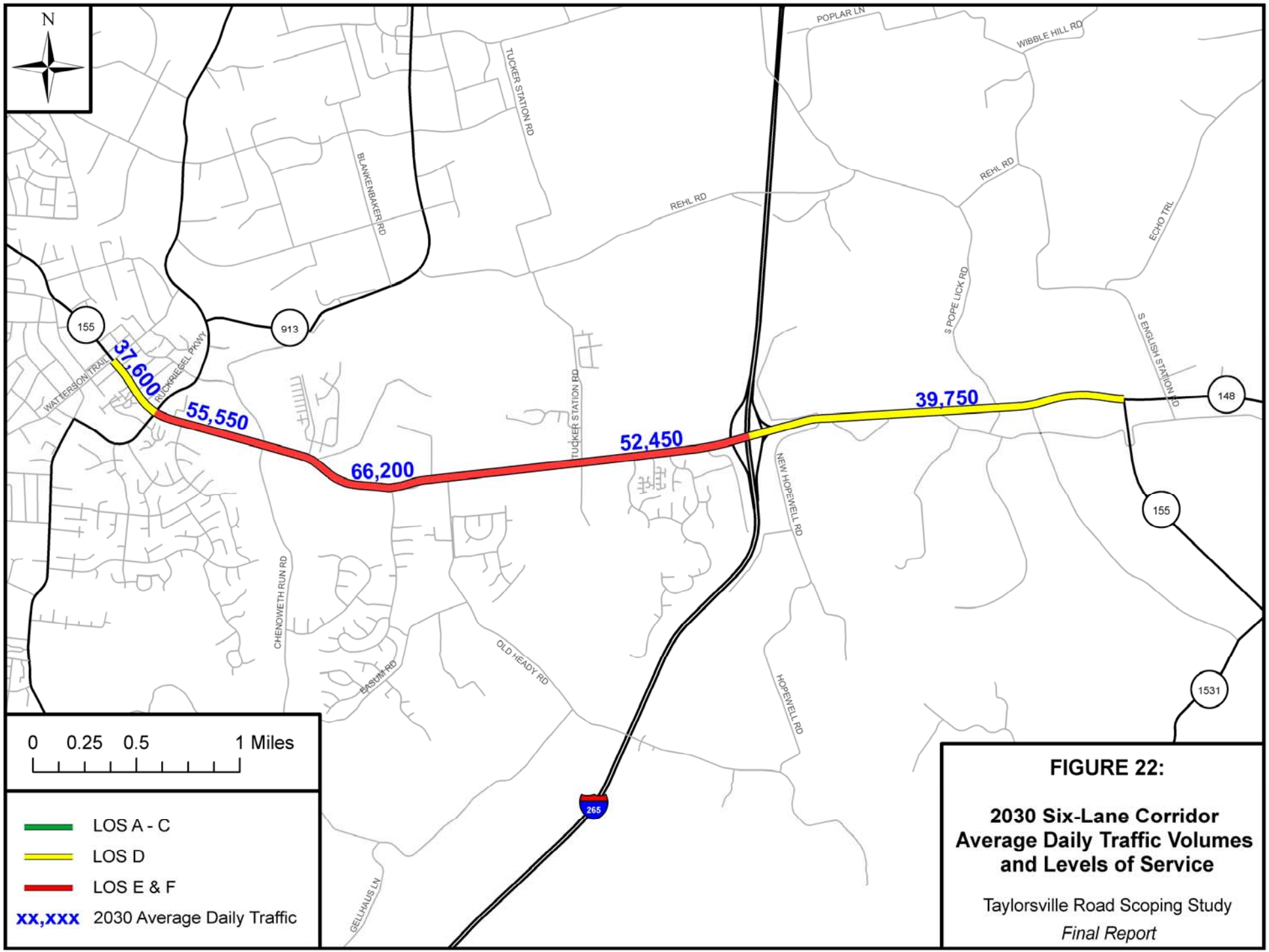
155
913
WATTERSON TRAIL
RUCKRIEGEL PKWY
34,950
51,400
57,300
39,700
36,200
148
TUCKER STATION RD
NEW HOPEWELL RD
155
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
265
GELUHAUS LN
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
xx,xxx 2030 Average Daily Traffic
FIGURE 21:
2030 Five-Lane Corridor
Average Daily Traffic Volumes
and Levels of Service
Taylorsville Road Scoping Study
Final Report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155
913
148
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1531
WATTERSON TRAIL
RUCKRIEGEL PKWY
37,600
55,550
66,200
52,450
39,750
TUCKER STATION RD
NEW HOPEWELL RD
HOPEWELL RD
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
GELLHAUS LN
265
0 0.25 0.5 1 Miles
LOS A - C
LOS D
LOS E & F
xx,xxx 2030 Average Daily Traffic
FIGURE 22:
2030 Six-Lane Corridor
Average Daily Traffic Volumes
and Levels of Service
Taylorsville Road Scoping Study
Final Report

A level of service analysis was prepared for the corridor using the new forecasted volumes for each scenario. When calculating levels of service for these build alternates (3-Lane, 4-Lane, 5-Lane, and 6-Lane), it was realized that there are limitations in using the Highway Capacity Software Plus and the Highway Capacity Manual methods. With the Highway Capacity methods, there are two possible ways of analyzing the Taylorsville Road corridor, either as a multilane highway or as an urban street. Urban streets include arterials and collectors and typically have a high concentration of roadside development, a high density of access points and signalized intersections are spaced at less than two miles apart. Taylorsville Road in parts meets these criteria, particularly the portion located closer to I-265 and near Jeffersontown. Taylorsville Road to the east of I-265 does not meet these criteria as most of the development located along the roadside is residential with a lower frequency of access for driveways. Also, the current location of traffic signals is spaced further apart than two miles. A multilane highway generally has a posted speed limit of 40 to 55 mph, has a total of four or six lanes, may have medians, and may have traffic signals, but they are typically spaced at two miles apart or more. While portions of Taylorsville Road (particularly east of I-265) fit this description of roadway type better, this still does not provide a means for evaluating differences between the four-lane and five-lane alternates since both divided and two-way left-turn lanes are considered medians and the Highway Capacity methods do not differentiate between the two types. Finally, when the free-flow speed drops below 45 mph, the Highway Capacity methods will not calculate a LOS. The section of Taylorsville Road closest to Jeffersontown is posted at 35 mph.

Given these limitations, it was determined that using the Highway Capacity methods was not appropriate to develop comparable levels of service for the different build alternates. However, a relative comparison is possible using level of service thresholds developed for various functional classifications and number of lanes based on average daily traffic volumes. Using this method, the following levels of service were calculated for the different build scenarios as shown on **Table 22** and **Figures 19 – 22**. These levels of service should be used for comparison purposes only and not assumed to be the ultimate achievable level of service, although they should be correct in magnitude (i.e. if the level of service is poor – LOS E or F, the section is likely to operate poorly).

As shown on the table, almost all sections operate poorly for all scenarios with the exception of the beginning and end of the study area for the six-lane build scenario. The poor level of service for most of the sections is likely due to the fact that as the number of travel lanes increases, more traffic is attracted to the roadway thus preventing the level of service to improve. Knowing this, it is difficult to make a determination of which alternate is preferred based on traffic volumes alone.

Table 22: 2030 Build Corridor Levels of Service

Alternate	Section	Begin Milepoint	End Milepoint	Section Length (miles)	2030 ADT	K-Factor	2030 DHV	Posted Speed Limit (MPH)	% Trucks and Buses	LOS
3-Lane Alternate	1	4.257 (KY 148)	6.058 (I-265)	1.80	27,450	0.120	3290	55	3.3%	F
	2	6.058 (I-265)	6.889 (Tucker Station)	0.83	35,750	0.100	3580	55	3.3%	F
	3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	31,600	0.100	3160	55	2.9%	F
	4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	28,750	0.098	2820	35	2.9%	F
	5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	21,800	0.098	2140	35	3.6%	E
4-Lane Alternate	1	4.257 (KY 148)	6.058 (I-265)	1.80	31,000	0.120	3720	55	3.3%	F
	2	6.058 (I-265)	6.889 (Tucker Station)	0.83	39,200	0.100	3920	55	3.3%	F
	3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	53,000	0.100	5300	55	2.9%	F
	4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	46,650	0.098	4570	35	2.9%	F
	5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	31,600	0.098	3100	35	3.6%	F
5-Lane Alternate	1	4.257 (KY 148)	6.058 (I-265)	1.80	36,200	0.120	4340	55	3.3%	F
	2	6.058 (I-265)	6.889 (Tucker Station)	0.83	39,700	0.100	3970	55	3.3%	F
	3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	57,300	0.100	5730	55	2.9%	F
	4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	51,400	0.098	5040	35	2.9%	F
	5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	34,950	0.098	3430	35	3.6%	E
6-Lane Alternate	1	4.257 (KY 148)	6.058 (I-265)	1.80	39,750	0.120	4770	55	3.3%	D
	2	6.058 (I-265)	6.889 (Tucker Station)	0.83	52,450	0.100	5250	55	3.3%	E
	3	6.889 (Tucker Station)	8.461 (Chenoweth Run)	1.57	66,200	0.100	6620	55	2.9%	F
	4	8.461 (Chenoweth Run)	9.024 (Ruckriegel Pkwy)	0.56	55,550	0.098	5440	35	2.9%	E
	5	9.024 (Ruckriegel Pkwy)	9.350 (Watterson Trail)	0.33	37,600	0.098	3680	35	3.6%	D

LOS E - F
LOS D
LOS A - C

Notes:
ADT = Forecasted Volumes from KIPDA based on output from their Regional Travel Demand Forecasting Model
K-Factor = Design Hour Factor obtained from most recent traffic count data provided by KYTC
DHV = 2030 Design Hour Volume (Average Daily Traffic x K-Factor)
Speed Limit obtained from Highway Information System
% Trucks and Buses obtained from most recent truck classification data
Level of Service (LOS) based on Alabama DOT and Maryland SHA LOS Reference Sheet

Property Impacts – In addition to traffic volumes, property impacts and right-of-way availability is an important issue. Taylorsville Road is currently two lanes along most of the corridor with the exception of a three-lane section near the I-265 interchange. While there is significant development located along the corridor, the development generally tends to be set-back from the roadway with some right-of-way currently available. The primary property / right-of-way impact are likely between South Pope Lick Road and the KY 148 intersection. Between these two intersections, just north of Taylorsville Road, a railroad line exists. At this location, it primarily follows Taylorsville Road and allows little room for expansion north of Taylorsville Road without impacting the rail line. To determine an approximate property impact associated with each build scenario, an assessment of property impacts was performed. This is shown in **Table 23** below.

Table 23: Build Alternate Property Impacts

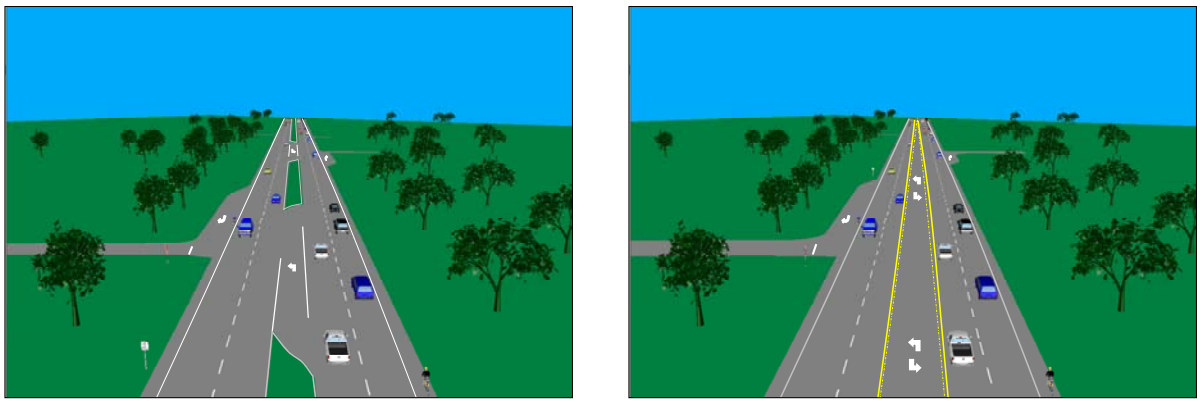
Alternate	# of Properties Impacted		Total Acreage	
	with Sidewalk	w/o Sidewalk	with Sidewalk	w/o Sidewalk
3-Lane	120	126	12.6	13.7
4-Lane	156	161	19.4	20.9
5-Lane	161	161	21.9	23.5
6-Lane	168	168	30.1	31.8

In order to determine the total acreage impacted, some assumptions were made regarding the typical section for each alternate. Typical section widths were used for the travel lanes (12 feet) and curb and gutter is used throughout the entire corridor. The median / two-way left-turn lane is assumed to be 14 feet.

Based on this analysis, all of the alternates have some degree of impact to the existing development, although the 5-Lane and 6-Lane alternates have a worse impact as opposed to the 3-Lane and 4-Lane alternates.

Public Input – For the second public meeting held on February 27, 2007, two primary alternates were presented to the public. Both consisted of two travel lanes in each direction with the primary difference being that one included a divided median and the other one included a two-way left-turn lane. Given the potential for high property impacts and little benefit as determined from the level of service analysis, a four-lane roadway (two lanes in each direction) was determined to be the preferred alternate shown to the public by project team members at a project team meeting on February 22, 2007. **Figure 23** shows the general concept of these alternates as presented to the public.

Figure 23: Two-Way Left-Turn Lane and Divided Median Alternates



As shown in the figure, both include two travel lanes in each direction. A center two-way left-turn lane is pictured in one typical section while a divided median is shown in the other. As mentioned before, the median could be a narrow strip of concrete to minimize property impacts or could be a wide, landscaped median.

Only nineteen people provided input as to which typical section should be applied to the Taylorsville Road corridor in the future, and they were evenly split on which alternate they preferred (9 for the two-way left-turn lane, 9 for the divided median, and 1 for "other"). This individual who put "other" indicated that he/she would like to see a median along Taylorsville Road and have it designated as a parkway.

When asked if the same type of section should be applied to the entire corridor or if different sections should be applied to different locations, most respondents indicated they would like to see the same look applied throughout the corridor.

Based on this response, the public input does not provide much distinction between which alternate should be recommended. However, if the person who responded as "other" was included, then there would be a slight shift to the majority being in favor of a divided median along the corridor.

Median versus Two-Way Left-Turn Lane – Much research and analysis has been performed in determining the implications with constructing a two-way left-turn lane as opposed to a median. Some of the benefits of each include:

Median:

- Allows for landscaping and aesthetic improvements
- Reduces headlight glare from opposing traffic
- Allows for a refuge area for pedestrians

Two-Way Left-Turn Lane (TWLTL):

- Provides additional storage for turning vehicles
- Maintains full access for driveways and businesses

- Minimizes landscaping and the associated maintenance requirements

In order to determine if one is better suited for this corridor than the other, a comparative analysis was performed that included several evaluation categories (safety, traffic operations, access and control, aesthetics, and cost/economics). Following the category listing below is a brief comparison of how each type of median treatment works with regard to that category.

Safety:

- Comparing crash rates, a TWLTL has a higher crash rate and is more dangerous for pedestrians (Georgia Department of Transportation Study of Divided Highways between 1995 and 1998).
- Both types of divided highways reduce rear-end collisions, but other types of crashes may increase including head-on crashes associated with a TWLTL and run-off road crashes associated with a median.

Traffic Operations:

- Research from Oregon State University suggests that when traffic volumes exceed 24,000 vehicles per day, then a TWLTL should be replaced. Volumes along the corridor do not meet this threshold in the 2010 forecast; however they do meet the threshold in the 2030 forecast between Ruckriegel Parkway and I-265.
- For analysis purposes, both types of divided highways accommodate the same volumes of traffic and there is essentially no difference in level of service operations.
- Points of access alter the functionality of both highway types.

Access and Control:

- As access density increases, the potential for conflicts and collisions also increases.
- Installing a median limits conflict points at intersections. For example, at a typical intersection with three approaches, installing a median limits access to right-in, right-out turns only and results in two conflict points. If a TWLTL was installed at the same location, full movements would be allowed resulting in ten conflict points.

Aesthetics:

- Divided highways can use different alignments for each direction of travel, with potential for saving construction costs and being more aesthetically pleasing.
- A TWLTL separates the travel lanes, but does not allow any room for landscaping.

Cost:

- Landscaped medians require maintenance regularly whereas a TWLTL does not.

The following table (**Table 24**) summarizes the comparison between a median and a TWLTL.

Table 24: Median versus TWLTL Comparison Table

Criteria	Median	TWLTL
Safety	✓	
Traffic Operations	No difference operationally, but traffic volumes may be too high for TWLTL	
Access and Control	✓	
Aesthetics	✓	
Cost		✓

Cost – A planning level cost estimate was prepared for both the two-way left-turn lane and the divided median alternates. The cost estimate is for construction only of the roadway and does not include design, right-of-way, or utility costs. The typical section assumptions used in the cost estimate for each are as follows:

Two-Way Left-Turn Lane Alternate:
- Four 12-foot travel lanes
- 14-foot two-way left-turn lane
- Curb and gutter
- 8-foot bicycle lane on one side of the roadway with a 6-foot buffer from the edge of pavement or curb

Divided Median Alternate:
- Four 12-foot travel lanes
- Minimum 6 foot median with landscaping
- Curb and gutter
- 8-foot bicycle lane on one side of the roadway with a 6-foot buffer from the edge of pavement or curb

Based on these assumptions, the 2007 planning level cost estimates for each alternate are:

- Two-Way Left-Turn Lane Alternate: $18.1 million
- Divided Median Alternate: $16.3 million

These cost estimates assume no curb and gutter between interchange terminals starting at the existing 4-lane section.

Multimodal Aspects – Taylorsville Road currently does not have any bus service, and based on comment forms returned at the second public meeting, there is not a strong

desire from the respondents for this. Eight people out of 112 attendees returned an answer to the question about the need for bus service, and out of those eight people, six answered that they would not utilize bus service if it was provided. They cited reasons such as it would not go where they wanted to go and convenience.

With regard to bicyclists, there are currently no designated lanes along Taylorsville Road. However, as mentioned in the Existing Conditions section of this report, Taylorsville Road has been designated as part of the Bicycle Master Plan for Louisville Metro. This corridor forms a primary route between Jeffersontown and Floyds Fork Park. The plan specifies wide shoulders to accommodate bicyclists as well as a separate multi-use path along the south side of the corridor. Based on discussions with the project team staff at the project team meeting held on February 22, 2007, the inclusion of both accommodations for bicyclists in this recommendation would not be cost effective. Therefore, for cost estimation purposes and property impacts assessments, it was assumed that only a multi-use path would be constructed as part of the preferred alternate.

Sidewalk facilities are intermittent throughout the corridor. However, given the current rural nature of Taylorsville Road east of I-265, sidewalks are not currently necessary in this area or through the interchange. It would be beneficial to build sidewalk in certain areas along the corridor including along the south side of Taylorsville Road near the Ruckriegel intersection. This would be beneficial to connect Jeffersontown and a housing development to the shopping center located off of Ruckriegel Parkway. Sidewalk could also be constructed along the other developed portions of the corridor, particularly near the retail / commercial area near the I-265 interchange.

Comparison Matrix – To provide a better understanding of the benefits and drawbacks for each of the primary alternates (4-Lane with a Two-Way Left-Turn Lane and 4-Lane with a Divided Median), a summary evaluation matrix was compiled consisting of the evaluation criteria discussed above (**Table 25**). As with previous matrices, green indicates good performance and red indicates poor performance.

Table 25: Taylorsville Road Corridor Evaluation Matrix

Alternate Description	LOS	Property Impacts (with Sidewalk)	Public Input	Median vs TWLTL Comparison	Cost* (in millions)
4-Lanes: Two-Way Left Turn Lane	F	161	9 Responses in Favor of Alternate	Poor Performance Based on Evaluation Criteria	$18.1
4-Lanes: Divided Median	F	156	10 Responses in Favor of Alternate	Good Performance Based on Evaluation Criteria	$16.3

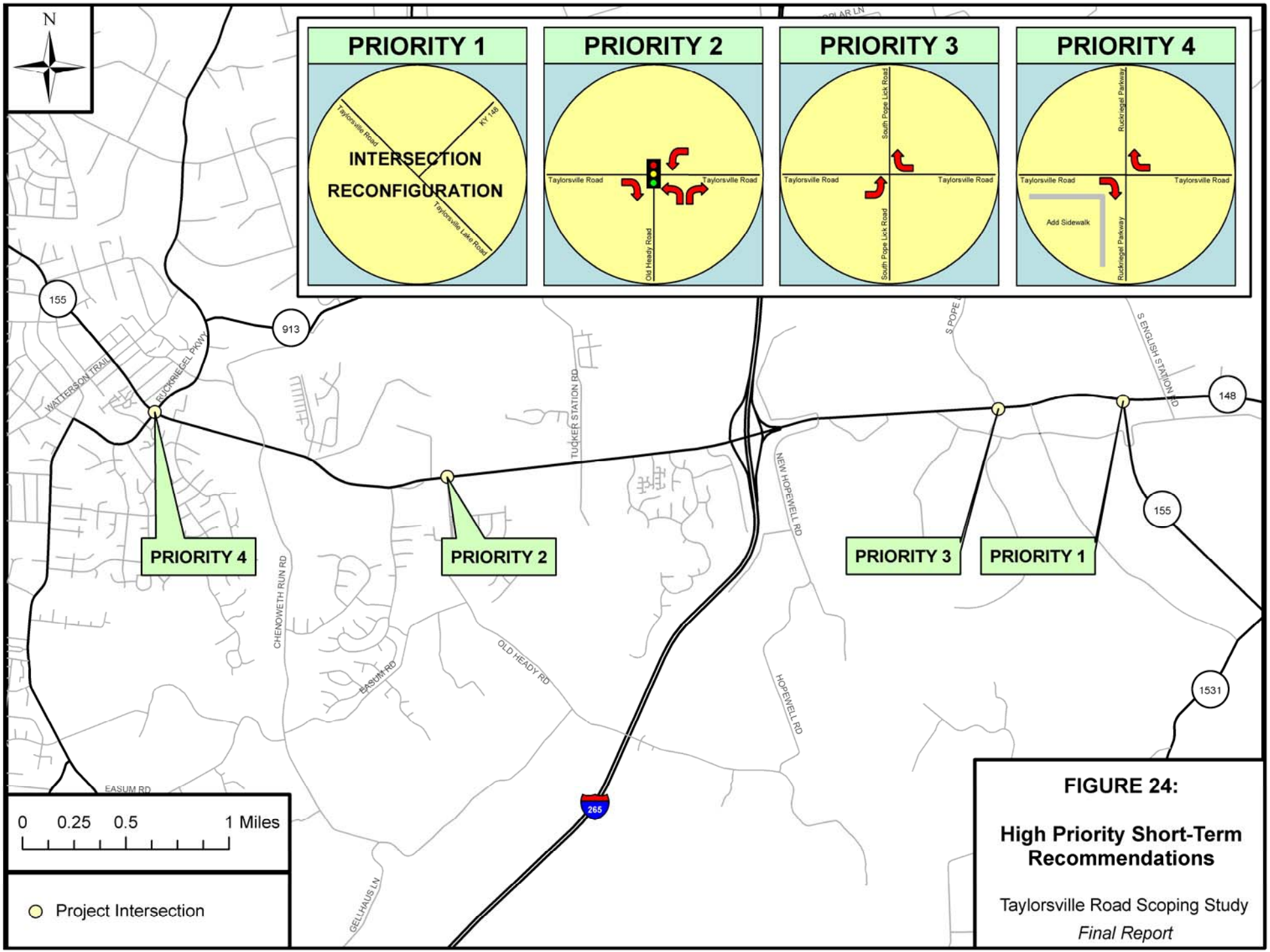
* Planning level cost estimate in 2007 dollars. Does not include utilities or right-of-way costs.

10.0 ALTERNATES RECOMMENDATION

10.1 Short-Term Recommendations

Based on the evaluation criteria supplied in **Tables 17 – 21**, and a project team meeting held on July 6, 2007, the following are the short-term intersection recommendations. Also refer to **Figure 24** for a graphical summary of the recommendations.

Intersection	Alternate
Watterson Trail	Alt. 4, 5 and 6 – Add Pedestrian Countdown Signal, Advanced Warning Signs for Pedestrian Crossings, and Replace Retro-Reflectivity
Ruckriegel Parkway	Add Eastbound and Westbound Right Turn Lanes on Taylorsville Road to Ruckriegel Parkway as well as Add Sidewalk to the South Side of Taylorsville Road
Old Heady Road	Alt. 4 – Signalization and Exclusive Turn Lanes for All Movements
South Pope Lick Road	Alt. 3 – Add Westbound Right and Eastbound Left Turn Lanes from Taylorsville Road to South Pope Lick Road, Do Not Signalize; Re-evaluate Signalization at a later time
KY 148	Alt. 3 – Reconfigure Intersection to make Taylorsville Road / Taylorsville Lake Road the Major Movement


PRIORITY 1
INTERSECTION RECONFIGURATION
Taylorsville Road
KY 148
Taylorsville Lake Road
PRIORITY 2
Taylorsville Road
Taylorsville Road
Old Heady Road
PRIORITY 3
South Pope Lick Road
Taylorsville Road
Taylorsville Road
South Pope Lick Road
PRIORITY 4
Ruckriegel Parkway
Taylorsville Road
Taylorsville Road
Add Sidewalk
Ruckriegel Parkway
N
155
913
WATTERSON TRAIL
RUCKRIEGEL PKWY
TUCKER STATION RD
S POPE LICK RD
S ENGLISH STATION RD
148
155
PRIORITY 4
PRIORITY 2
PRIORITY 3
PRIORITY 1
NEW HOPEWELL RD
CHENOWETH RUN RD
EASUM RD
OLD HEADY RD
HOPEWELL RD
1531
EASUM RD
265
GELLHAUS LN
0 0.25 0.5 1 Miles
Project Intersection
FIGURE 24:
High Priority Short-Term Recommendations
Taylorsville Road Scoping Study
Final Report

The following text provides some discussion / justification regarding the selection of each alternate.

Watterson Trail – It was decided by the Project Team that adding additional through or turn lanes to any approach would not only be expensive but also inconsistent with Jeffersontown's desires for its downtown. Therefore, the only improvements to be made were for pedestrians by adding a pedestrian countdown signal, advanced warning signs for pedestrian crossings and replacing retro-reflectivity.

Ruckriegel Parkway – Like Watterson Trail, Ruckriegel Parkway is located in Jeffersontown, where major changes to the geometrics of the roadway are undesirable. In order to improve this intersection to an acceptable level of service, major widening of the road would be necessary, which is against the wishes of the Jeffersontown Planning and Design Department. The improvements would also involve a large number of property impacts. Adding east and westbound right turn movements provides some level of improvement for traffic operations while minimizing property impacts. It was also decided that sidewalk needed to be added to the southwest quadrant of the intersection to connect Jeffersontown with the new neighborhood Wal-Mart.

Old Heady Road – Alternate 4, signalization and exclusive turn lanes for all movements, was chosen for this intersection. This intersection received the most feedback from the public at the second public meeting, who expressed concern regarding the safety of the intersection. The intersection does meet Warrant 3 for signalization, and adding the exclusive turn lanes could help reduce rear end crashes. This alternate has only a few property impacts and is relatively inexpensive.

South Pope Lick Road – This intersection is not currently signalized and does not meet the warrants for a signal. Therefore, the only recommendations made were to add a westbound right turn lane and eastbound left turn lane from Taylorsville onto South Pope Lick Road to improve safety at this intersection by separating the turning traffic. As development occurs and increases traffic on South Pope Lick Road, it was suggested that the intersection should be re-evaluated for a traffic signal at a later time.

KY 148 – Alternate 3, the reconfiguration to make Taylorsville Road / Taylorsville Lake Road the major movement, was chosen for this intersection because of the extremely high volumes turning left onto Taylorsville Road in the morning and making the reciprocating right turn in the afternoon. The reconfiguration will designate two through lanes from Taylorsville Lake Road to Taylorsville Road that will carry through to the South Pope Lick intersection (with the second lane ending in the westbound right turn lane), separate right and left turn lanes onto KY 148, and separate right and left turn lanes from KY 148 to Taylorsville and Taylorsville Lake Roads. It was noted in the July 6, 2007 project team meeting that $800,000 has already been requested for improvements at this intersection.

10.2 Long-Term Recommendations

Based on the technical analysis presented in Section 9.2, it was decided by the Project Team at a meeting held on July 6, 2007 that the preferred long-term recommendation is a four-lane section (two lanes in each direction) with a median along Taylorsville Road and curb and gutter the entire corridor. To accommodate bicyclists and pedestrians, a 10-foot multiuse path with a 4-foot buffer was agreed upon along one side of Taylorsville Road. A 5-foot sidewalk is specified for construction on the other side of the roadway. Additional discussion regarding the recommendation specifics such as design elements is presented in the following section.

11.0 PROPOSED DESIGN / MITIGATION AND NEXT STEPS

11.1 Design Elements

For the intersection recommendations, specific design elements will be determined in the next phase of project development.

For the long-term corridor recommendation, the following design elements are assumed which form the basis for the cost estimate.

- Four 11-foot travel lanes
- Minimum 6-foot landscaped median
- Curb and gutter the entire corridor length with the exception of the section through the interchange
- 10-foot wide multiuse path with 4-foot buffer from edge of roadway on one side
- 5-foot sidewalk on one side of roadway

It should be noted that 11-foot travel lanes were selected as opposed to 12-foot travel lanes since this is currently specified in the Taylorsville Road striping plan.

11.2 Design Issues

For the South Pope Lick Road and KY 148 intersections with Taylorsville Road, special care will need to be taken when developing the design plans for the construction of new turn lanes and the reconfiguration of the intersections to minimize impacts to the railroad located to the north of Taylorsville Road.

Accommodating bicyclists and pedestrians safely through the Taylorsville Road / I-265 interchange is another design consideration when developing plans for the ultimate corridor widening and off-road trail that will connect Jeffersontown to Floyds Fork Park.

11.3 Cost Estimate

Final 2007 planning-level cost estimates has been developed for each of the recommended projects. The estimated construction costs are listed in **Table 26** for each project. Design, right-of-way, utility, and other mitigation costs are not presented. These cost estimates in 2007 dollars are for planning purposes only and are subject to further refinement during the design phase.

Table 26: Recommended Projects Cost Estimates

Project	Cost
Watterson Trail – Add Pedestrian Countdown Signal, Advanced Warning Signs for Pedestrian Crossings, and Replace Retro-Reflectivity	**$25,000**
Ruckriegel Parkway – Add Eastbound and Westbound Right Turn Lanes on Taylorsville Road to Ruckriegel Parkway as well as Add Sidewalk to the South Side of Taylorsville Road	**$260,000**
Old Heady Road – Signalization and Exclusive Turn Lanes for All Movements	**$460,000**
South Pope Lick Road – Add Westbound Right and Eastbound Left Turn Lanes from Taylorsville Road to South Pope Lick Road, Do Not Signalize; Re-evaluate Signalization at a Later Time	**$720,000**
KY 148 – Reconfigure Intersection to Make Taylorsville Road / Taylorsville Lake Road the Major Movement	**$2,290,000**

The revised cost estimate for the long-term corridor recommendation assuming the design criteria listed in Section 11.1 is $15,800,000.

11.4 Right-of-Way Impact Assessment

For the short-term recommended projects, detailed right-of-way impact assessments were performed. These are planning level estimates only and should be used as a guide for proceeding into subsequent project development phases. **Table 27** lists the impacts for each project in terms of acres required for improvements.

Table 27: Recommended Projects Right-of-Way Estimates

Project	Acres
Watterson Trail – Add Pedestrian Countdown Signal, Advanced Warning Signs for Pedestrian Crossings, and Replace Retro-Reflectivity	**0.00**
Ruckriegel Parkway – Add Eastbound and Westbound Right Turn Lanes on Taylorsville Road to Ruckriegel Parkway as well as Add Sidewalk to the South Side of Taylorsville Road	**0.31**
Old Heady Road – Signalization and Exclusive Turn Lanes for All Movements	**1.72**
South Pope Lick Road – Add Westbound Right and Eastbound Left Turn Lanes from Taylorsville Road to South Pope Lick Road, Do Not Signalize; Re-evaluate Signalization at a Later Time	**1.40**
KY 148 – Reconfigure Intersection to Make Taylorsville Road / Taylorsville Lake Road the Major Movement	**5.96**

11.5 Project Phasing

The following is the priority ranking for the short-term intersection improvements as determined during a project team meeting on July 6, 2007.

1. Reconfiguration of KY 148 / Taylorsville Road Intersection.

2. Signalization and exclusive turn lanes for all movements at Old Heady Road.

3. Addition of westbound right and eastbound left turn lanes from Taylorsville Road to South Pope Lick Road.

4. Addition of eastbound and westbound right turn lanes on Taylorsville Road to Ruckriegel Parkway and new sidewalk in the southwest quadrant of this intersection.

It should be noted that the pedestrian improvements at Watterson Trail were not ranked because they are inexpensive and can be completed immediately.

11.6 Multimodal Facilities

There are no freight or transit facilities in the study area; therefore, these facilities would not be impacted by the study recommendation.

Bicycle and pedestrian provisions have been incorporated in keeping with the KYTC Pedestrian and Bicycle Travel Policy (July 2002). Care should be taken in the placement of shoulder rumble strips to avoid conflicts with the travel way for cyclists. For the urban typical sections, sidewalks should be included.

11.7 Intelligent Transportation Systems (ITS)

No intelligent transportation systems have been included in the proposed recommendations.

11.8 Commitment Action Plan

KYTC is committed to incorporating appropriate pedestrian and bicycle facilities into the proposed highway projects. KYTC is also committed to working with KTC/SHPO as the project progresses to avoid, to the greatest extent possible, impacts to any identified National Register eligible properties.

11.9 Next Steps / Implementation

Following approval of this report by KYTC, the short-term project recommendations should be included based on priority in the KYTC Six-Year Highway plan to acquire funding for design, right-of-way, utility work, and construction. The corridor recommendation should be included in the District's long range plan for future consideration.