Appendix H

Traffic Simulation and Analysis Report

KY 1932 (Chenoweth Lane) Traffic Simulation and Analysis Report

Prepared for:
Kentucky Transportation Cabinet

Prepared by:
Stantec Consulting Service Inc.

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Executive Summary

As part of the larger Chenoweth Lane (KY 1932) Corridor Planning Study in Jefferson County (KYTC item number 5-531.00), Stantec developed a microsimulation model and performed a traffic analysis of existing and future conditions and analyzed the effect of left turns lanes at Massie Avenue. The study corridor is a two-lane minor arterial approximately one mile in length, bounded by an urban minor arterial (US 42) on the north and by an urban minor arterial (US 60) and a rail crossing on the south. The corridor's land use is primarily low to medium density residential on the north and transitions to commercial uses at the southern end of the corridor.

Turning movement counts were collected at seven cross streets and 24-hour directional counts were taken at both ends of the corridor. The average daily traffic in the corridor is approximately 11,900 vehicles per day, with approximately 960 to 1,160 vehicles in the peak hours. Observed train disruptions at the southern end of the corridor occurred at an average rate of almost one per hour, with an average disruption lasting approximately 3:30 minutes. Historical traffic counts for the area and travel demand forecasts indicate that traffic in the area is relatively flat to slightly negative, reflective of the mature, built-out nature of the surrounding area.

The microsimulation model scenarios include an AM peak hour and PM peak hour for both the 2015 existing year and for the 2035 future year. Because travel demand is expected to be flat, a hypothetical "worst case" growth scenario was developed for the future year, with an annual growth rate of 0.25%, which results in a roughly 5% increase in total demand over twenty years.

Upon calibration of the model, the model analysis of existing and future traffic conditions indicated ample capacity and a desirable Level of Serve (LOS A) within the corridor. Congestion at the signalized intersections was notably greater, but within reason given the peak hour volume. A Highway Capacity Manual (HCM) analysis of the US 42 intersection indicated it operated at a satisfactory LOS D for the Chenoweth Lane approach, and at a LOS C for the intersection overall.

Upon a review of the traffic analysis and other pertinent factors, the project team concluded that alternatives encompassing additional roadway capacity would not be analyzed. While the corridor met the criteria for a two-way left turn lane (TWLTL), it was not selected for further analysis in this study. Two mid-corridor intersections met warrants for left turn lanes based on southbound left turns, including at Massie Avenue in both the AM and PM peak hours and at Leland Avenue in the AM peak hour. Left-turn lanes were tested in the simulation model at Massie Avenue and no significant improvement in traffic flow, as measured by travel time and delay, was recorded.

1.0 INTRODUCTION

Under Stantec's Statewide Traffic Modeling Services agreement, the Kentucky Transportation Cabinet (KYTC) requested that Stantec develop a microsimulation model and perform traffic analysis as part of a larger corridor planning study (KYTC item number 5-531.00) for Chenoweth Lane (KY 1932) in Jefferson County, Kentucky. The purpose of the study is to (1) improve sight distance and safety for all users; (2) improve drainage along the corridor; and (3) improve pedestrian safety and mobility within the Chenoweth Lane corridor through portions of the cities of St. Matthews and Louisville in Jefferson County, Kentucky. Engineering consultant Qk4, Inc. is managing the planning study. Stantec's activities related to the traffic analysis included the collection of traffic counts and other data, the development and calibration of a traffic simulation model, and an analysis of existing and future traffic and proposed alternatives. This report documents the analysis.

1.1 STUDY CORRIDOR

The study corridor encompasses Chenoweth Lane (KY 1932) north of Shelbyville Road (US 60) to Brownsboro Road (US 42), in Jefferson County. The corridor is classified as a minor arterial approximately one mile in length, with the southern portion within the city limits of St. Matthews and the northern portion in the jurisdiction of Louisville Metro. Chenoweth Lane also serves as the boundary of three 6th-class residential cities, Brownsboro Village, Druid Hills, and Bellewood. The intersection of Chenoweth Lane and US 42 is included within the scope of this study while the intersection of Chenoweth Lane and US 60 is not included. However the US 60 intersection is included in the traffic simulation model developed for this project in order to accurately depict traffic operations in the southern portion of the Chenoweth Lane corridor. The study area includes Chenoweth Lane's intersections with side streets, commercial driveways, and the rail crossing at the southern end of the corridor, but does not include any adjoining or parallel roadways or new connections. **Figure 1** depicts the study corridor in green, and the surrounding area.

The Chenoweth Lane corridor is one of only two north-south connectors between US 42 and US 60 through a mature and relatively compact suburban residential community. Commercial activities occur at the south end of the corridor as it approaches the commercially oriented US 60 corridor. The southern end of the corridor also includes a major rail line crossing just north of US 60. The corridor is primarily two lanes wide with no bicycle facilities and limited pedestrian facilities. With the exceptions of the southern end of the corridor and the intersection with US 42 at the north end of the corridor, there are no turn lanes along Chenoweth Lane. The intersections with US 42 and US 60 are controlled by traffic signals and the intersection with Westport Road is right-in, right–out only. With the exception of the rail crossing just north of the Westport Road intersection, there are no stop controls on Chenoweth Lane between US 42 and US 60.

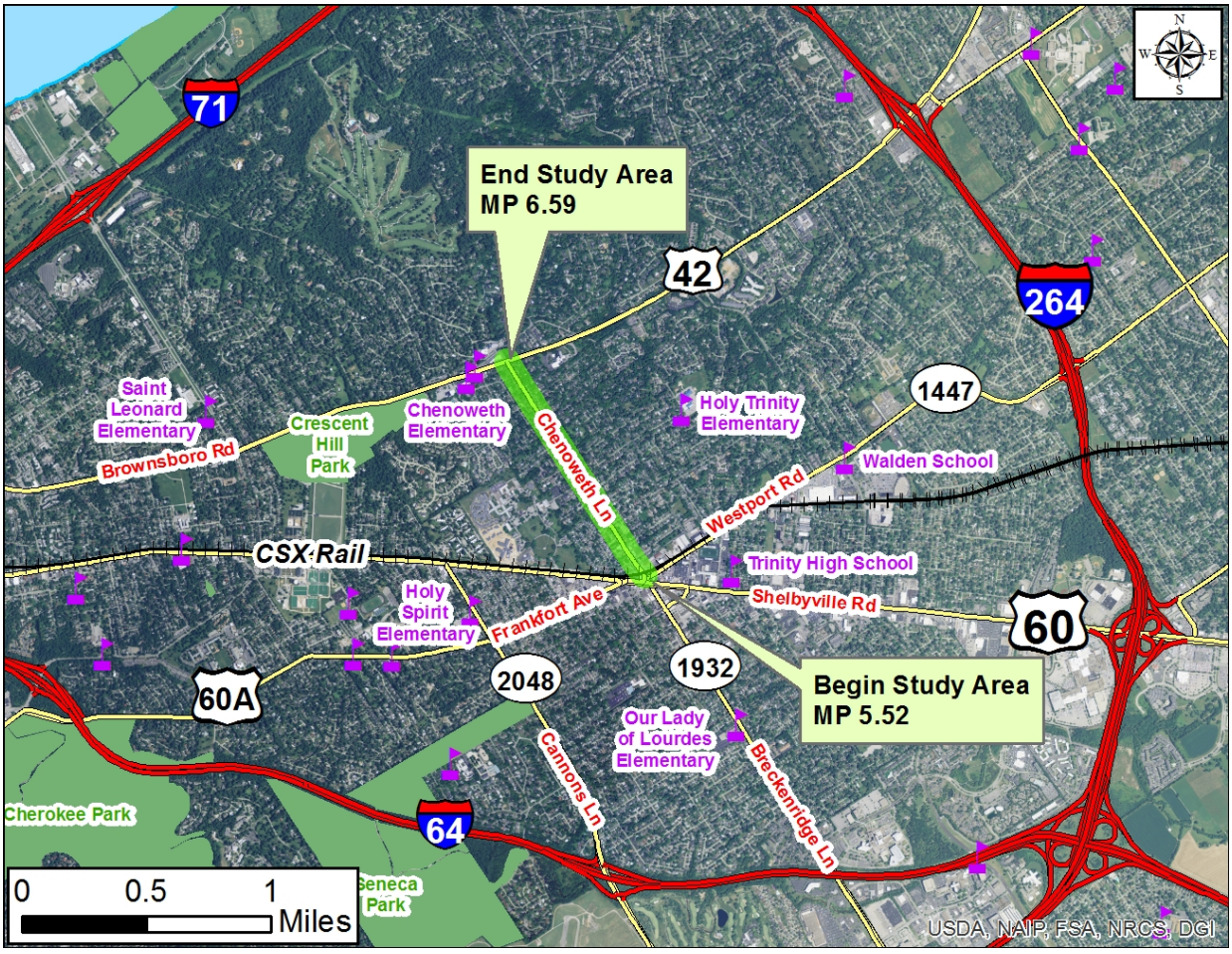


Figure 1. Study Area

2.0 TRAFFIC DATA

2.1 TRAFFIC COUNTS

Traffic counts were collected on May 21, 2015 using MioVision cameras stationed at various locations along the corridor, as depicted in **Figure 2**. Peak period turn movement counts (TMCs) were collected at six intersections, with TMCs collected at Chenoweth Lane and Westport Road on an earlier date as a part of a previous study. The locations of the seven TMCs were the intersections of Chenoweth Lane with the following streets:

1. Westport Road,
2. Massie Avenue,
3. Elmwood Avenue,
4. Washington Square,

5. Leland Road,
6. Napanee Road, and
7. US 42 (Brownsboro Road).

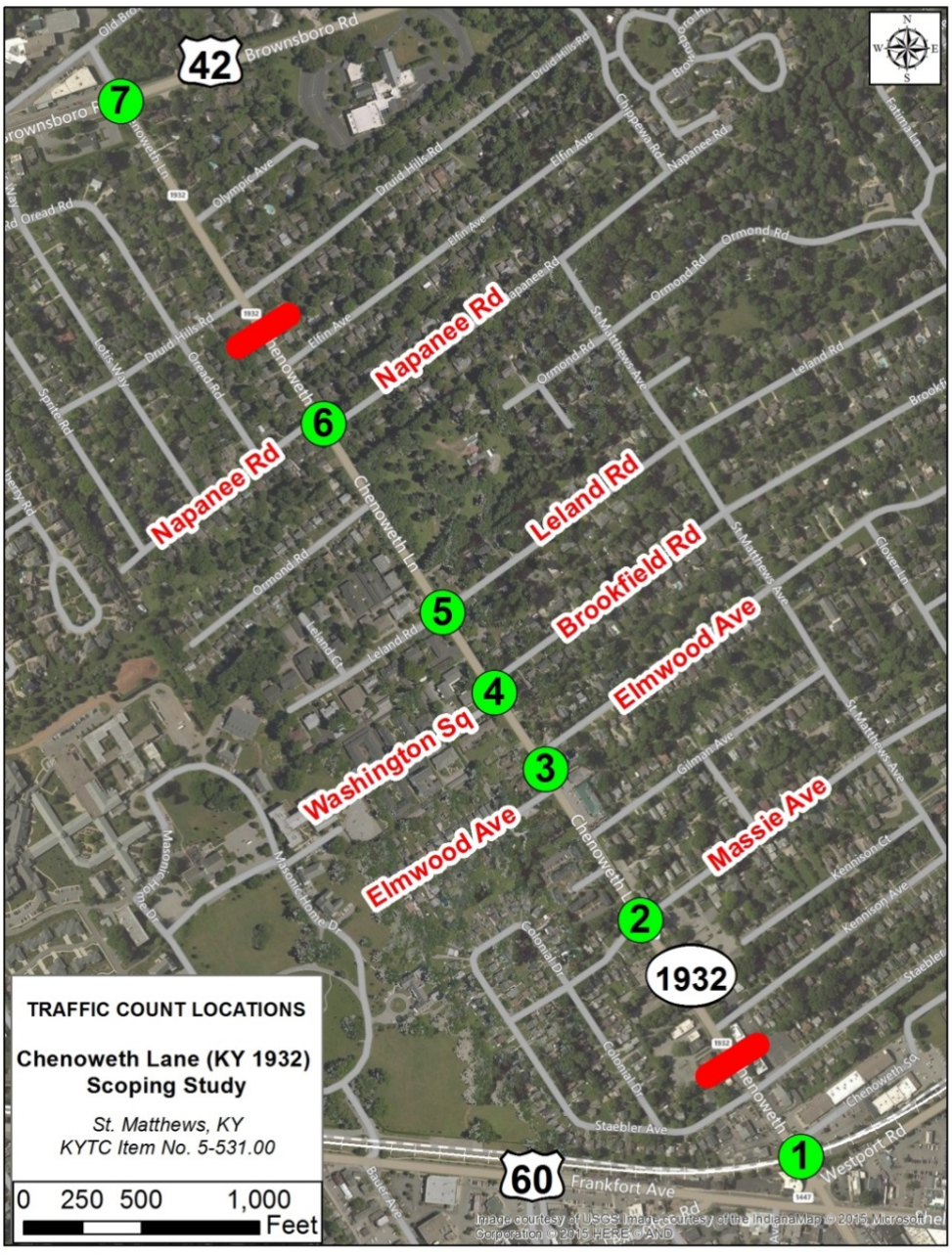


Figure 2. Traffic Count Locations

The locations for the two directional counts were:

1. Chenoweth Lane between Staebler Avenue and Kennison Avenue, and
2. Chenoweth Lane between Elfin Avenue and Druid Hills Road.

Both the TMCs and directional counts were collected in 15-minute increments and include cars, trucks and bicycles, although only a maximum of five bicycles were counted on Chenoweth Lane at any given location during the 24-hour period. The TMCs were taken from 7:00 A.M. to 9:00 A.M. and from 3:00 P.M. to 6:00 P.M. Within these time periods, the two highest consecutive 60-minute periods were identified. The directional counts were used to establish the average daily traffic along the corridor as well as help identify the AM and PM peak hours. Both the TMC and directional count files are included in **Appendix A**. **Table1** presents the summary statistics of the traffic counts.

Table 1. Traffic Count Statistics

AM Peak Hour (highest 60 minute period)	8:00 A.M. to 9:00 A.M
PM Peak Hour (highest 60 minute period)	4:45 P.M. to 5:45 P.M.
AM Peak Hour Traffic (Chenoweth Lane)	960 vehicles
PM Peak Hour Traffic (Chenoweth Lane)	1,160 vehicles
Average Daily Traffic (Chenoweth Lane)	11,900 vehicles
Percent Truck Traffic	9.7%

As US 60 is outside the study corridor, US 42, a major arterial highway on the north end of the corridor, is the only cross street in the corridor with significant traffic volumes. Like Chenoweth Lane, Westport Road is also designated as a minor arterial, but it is right-in, right-out only at Chenoweth Lane, damping its approach volume to less than 100 vehicles in the AM peak hour and less than 200 vehicles in the PM peak hour. The remaining cross streets are local residential streets with most approaches totaling less than 50 vehicles in the peak hours, with some exceptions at Leland, Massie, and Staebler Avenues. **Table 2** presents the peak hour volume entering and exiting Chenoweth Lane via the intersections at the side streets collected through this study.

Table 2. Cross Street Traffic Volumes from Counts

Intersection	AM Peak Hour (8:00 A.M. - 9:00 A.M.)				PM Peak Hour (4:45 P.M. - 5:45 P.M.)			
	West Approach		East Approach		West Approach		East Approach	
	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
Westport Road			65	15			135	30
Massie Avenue	25	20	110	60	20	35	145	95
Elmwood Avenue	25	10	35	15	15	20	15	10
Washington Square	20	10			20	15		
Leland Road	25	10	45	45	15	15	40	35
Napanee Road	30	15	35	15	25	15	35	25
US 42 (Brownsboro Road)	660	1,090	1,025	530	1,090	1,055	915	905

2.2 KYTC HISTORIC COUNTS

Stantec consulted KYTC's historical counts for the major roadways around Chenoweth Lane in order to determine the growth rate expected for the Chenoweth corridor over the next 20 years. The counts indicate that with the exception of US 60, Shelbyville Road, the trend for average daily traffic volume in the area has been going down over the past 25 years. While traffic on Chenoweth Lane has fluctuated, it is approximately the same in 2015 as it was in 1991. A review of the traffic forecast assignments for 2015 and 2035 from the Kentuckiana Regional Planning and Development Agency's (KIPDA) travel demand model suggest that the trend going forward is also flat. These statistics reflect the mature, developed nature of the area, where little to no developable land is available and household and employment trends are stable. **Table 3** and **Figure 3** present the historical counts from the area and their trend lines.

Table 3. KYTC Historical Average Annual Daily Traffic (vehicles)

Street (Count Station)	Chenoweth Ln (208)	Brownsboro Rd (209)	Lexington Rd (163)	Frankfort Ave (165)	Shelbyville Rd (169)	Breckenridge Ln (171)
1991	**12,000**	21,800	21,200	14,300	23,600	25,000
1992						
1993						
1994		22,300				
1995				14,200		
1996				16,100		
1997	**14,300**	22,900				19,700
1998					25,800	
1999						
2000		19,100	19,300	13,500		
2001						
2002	**11,500**	18,900	19,400		28,400	15,900
2003		21,400		14,700		
2004		22,300			31,300	
2005		22,500			27,600	17,500
2006	**12,100**	21,300	14,300	11,400		
2007		21,200				
2008		19,400				16,300
2009	**11,200**	19,700	15,500	11,900	28,700	
2010						
2011					26,800	16,000
2012	**10,600**	20,600	14,500		26,600	
2013						
2014						14,300
2015	**11,900**					
Annual Growth Rate %	**-0.03%**	-0.27%	-1.79%	-1.02%	0.57%	-2.40%

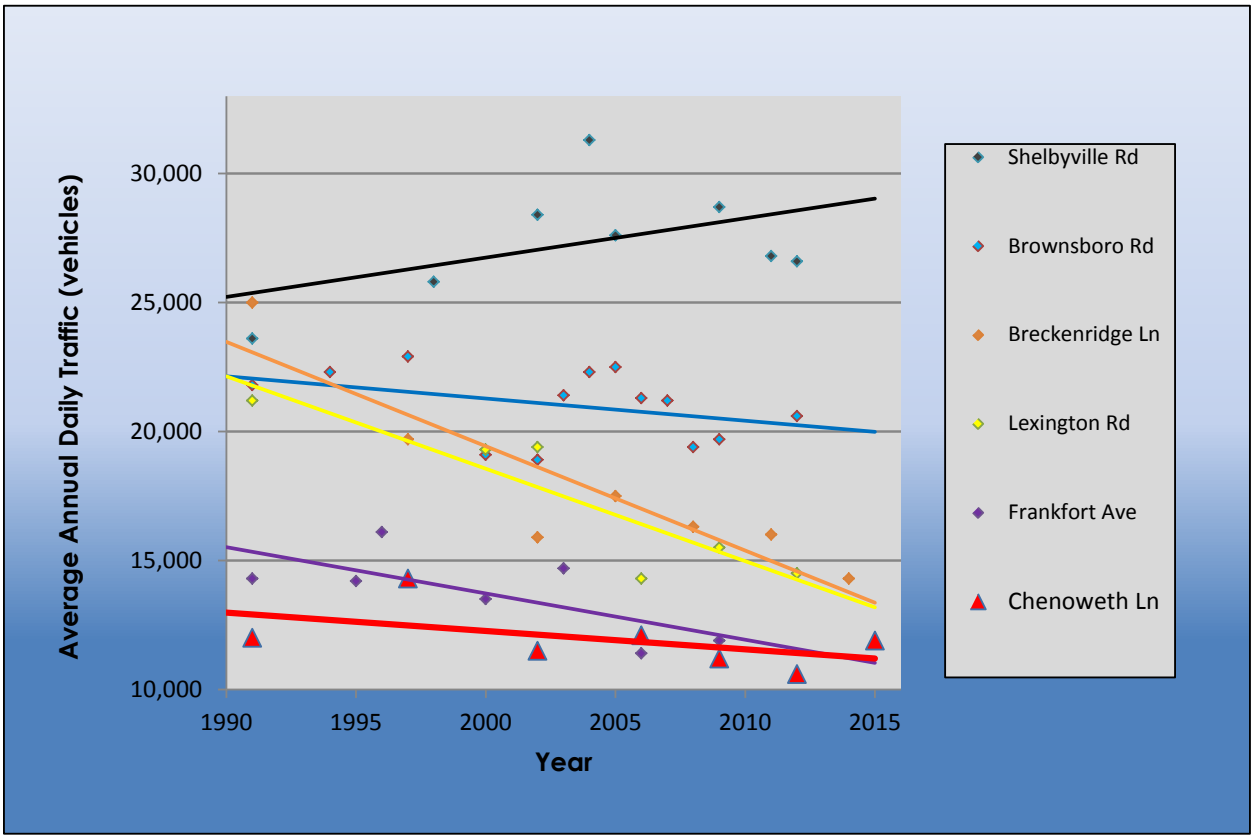


Figure 3. KYTC Historical Average Annual Daily Traffic (vehicles)

2.3 FIELD OBSERVATIONS

2.3.1 Spot Counts

On the same day as the traffic counts were collected, a field site inspection of the corridor was performed during the AM and PM peak periods. Spot counts were taken at several intersections not counted with the MioVision cameras. These spot observations were used to establish a baseline proxy volume for traffic on local streets included in the estimation of trip tables for the microsimulation model. In the AM peak hour, turn movements were observed in 15-minute increments at Staebler Avenue, Ormond Avenue, and Druid Hills Road. At Ormond Road and Druid Hills Road, approach traffic was very light. Traffic at Staebler Avenue was more significant, with approximately 20 cars entering the intersection with Chenoweth Lane from the east approach. In the PM Peak hour, a spot count at Gilman Avenue demonstrated light volume while traffic entering and exiting the car wash and the Chenoweth Square retail center was moderate. **Table 4** presents the spot counts taken during the field observation.

Table 4. Peak Hour 15-minute Spot Counts

Intersection	AM Peak			
	West Approach		East Approach	
	Enter	Exit	Enter	Exit
Staebler Avenue	10	10	20	10
Ormond Road	5	1	N.A.	N.A.
Druid Hills	4	0	4	2
	PM Peak			
Gilman Ave.	N.A.	N.A.	3	4
Car Wash / Chenoweth Sq.	11	10	9	8

2.3.2 Queue Lengths

The lengths of back up queues at either end of the corridor were visually recorded from multiple cycles of the traffic signals during both the AM and PM peak periods. Several queues were also measured on Chenoweth Lane between Massie Avenue and Druid Hills Road that formed as left-turning traffic waited to cross oncoming traffic. Queue lengths are used as a calibration reference for the microsimulation model only, as the sample size of observed data was too small to be considered statistically representative. **Table 5** presents the observed queue length data.

Table 5. Observed Traffic Queues

Approach		Queue Lengths (Feet)		
		Number	Maximum	Average
Southbound @ US 60	AM Peak	3	250	125
	PM Peak	3	400	225
Northbound @ US 42	AM Peak	3	200	100
	PM Peak	3	350	150
Chenoweth Lane - various locations north of Massie Avenue	AM Peak	4	75	25
	PM Peak	4	75	25

2.3.3 Travel Times

The corridor from the railroad tracks on the southern end to the intersection with US 42 was driven twice in each direction the AM and PM peak periods. The corridor as recorded is slightly less than one mile long with a posted speed limit of 35 miles per hour. In five of the eight trips, a left turning vehicle resulted in a stop, although the stops did not create significant delay. **Table 6** summarizes the travel data for these trips. The travel time does not include stopped time at the intersections of US 60 or US 42. In general, congestion on the corridor was characterized as moderate given the peak hour, and speeds were maintained around the posted speed with the exception of the noted stops for left-turning traffic.

Table 6. Corridor Travel Times

Direction	Measure	AM		PM	
		Trip 1	Trip 2	Trip 1	Trip 2
Southbound	Travel Time	2:00 min.	2:20 min.	3:15 min	2:30 min.
	Stops	0	1	1	0
Northbound	Travel Time	1:50 min.	2:20 min.	3:00 min	3:30 min.
	Stops	0	1	1	1

2.3.4 Train Counts

The rail crossing at the southern end of the study corridor plays a significant role in traffic operation given close proximity to US 60, Westport Road, and the many businesses and commercial driveways that comprise that end of the corridor. It is a busy crossing and disruptions caused by trains are common. The camera used to record the directional traffic at Staebler Avenue was angled to capture the train crossing at the southern end of the corridor. From this vantage point, the crossing was recorded for 55 hours between Wednesday, May 20 and Friday, May 22, 2015. **Table 7** presents summary statistics of the data collected during that time period.

Table 7. Train Crossing Statistics

Hours Observed	55 hours
Train Crossings	53
AM Peak Period Crossings	5
PM Peak Period Crossings	5
Average Disruption (min.)	3:34
Maximum Disruption (min.)	6:19
Peak Period Average Disruption (min.)	2:34
Peak Period Maximum Disruption (min.)	4:37

3.0 TRAFFIC MICROSIMULATION MODEL

The primary analysis tool used to analyze traffic conditions for the Chenoweth Lane corridor was a traffic microsimulation model specifically developed for this project. The model simulates as many aspects of actual traffic operation as possible in order to replicate the traffic conditions observed in the field. The primary elements of the simulation model are the roadway network, the traffic control regime, trip tables reflecting traffic demand, and parameters defining vehicle performance and driver behavior. These various elements are developed and assembled together and calibrated to match as closely as possible observed metrics such as traffic flow and speed. The model is considered calibrated when output statistics from the model's simulation runs match these metrics.

3.1 MODEL DEVELOPMENT

The Chenoweth Lane simulation model was developed using the TransModeler 4.0 software package.

3.1.1 Roadway Network

The roadway network was developed with data available from KYTC Highway Information System (HIS) and refined using underlying aerial imagery of the corridor. Because TransModeler is based on a GIS platform, the network can be laid out over the imagery of the actual roadway, allowing for exact alignment of various facilities such as lane widths, driveways, and stop controls such as stop bars and yield signs. The simulation model network file includes separate database files for the following elements:

- Links: the primary roadway between intersections (nodes) which consist of segments and lanes;
- Nodes: the intersections of links or the external endpoint of a link, in which case it serves as a source point for traffic entering and exiting the network;
- Segments: the component parts of links that distinguish unique attributes of the link, such as the number of lanes, direction, and presence of a median;
- Lanes: the individual lanes included in a segment;
- Lane Connectors: the acceptable connecting paths between corresponding lanes entering and exiting intersections and between lanes of connected segments;
- Sensors: the location and dimension of vehicle sensors on the network, typically occurring at intersections and related to signal operation, but also capable of recording vehicle data as needed.

Figure 4 illustrates each of these elements. In addition to the depictions of links, lanes and nodes (intersection in blue, external node in orange), the illustration shows the gray lane connectors traversing the intersections and connecting lanes in link segments. The light blue boxes indicate the location of vehicle sensors tied to the traffic signal.

3.1.2 Traffic Signal Timing Plans

Traffic signal timing plan data for the traffic signals at US 60 and US 42 were provided by Louisville Metro. These plans were input into the model using TransModeler's Intersection Toolbox, and are maintained within an intersection control plan file. While each phase in the traffic signal is provided a minimum amount of green time per cycle, the green time can be extended based on vehicular actuation based on the vehicle sensors embedded in each lane and connected to the intersection. **Figure 5** presents an example of a timing plan as presented in TransModeler's Intersection Toolbox.

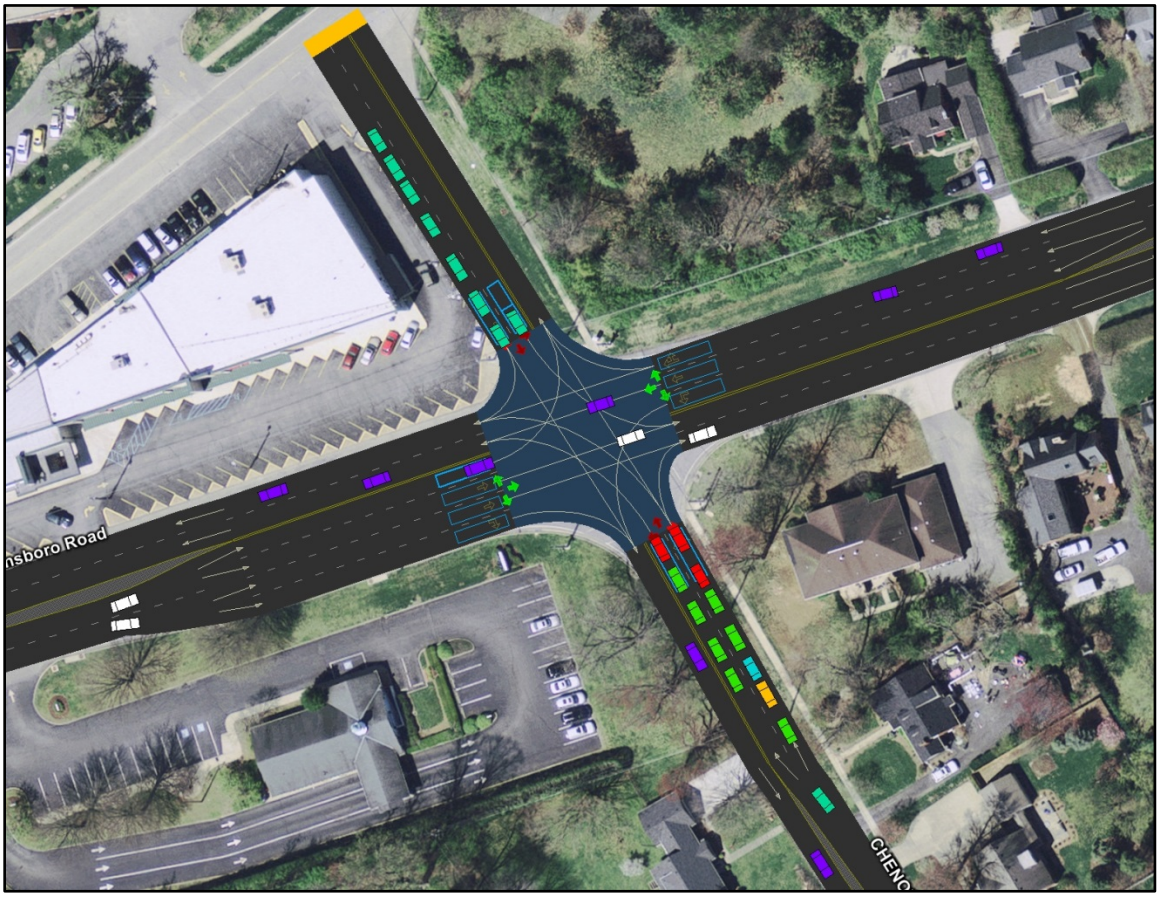


Figure 4. Simulation Network Elements

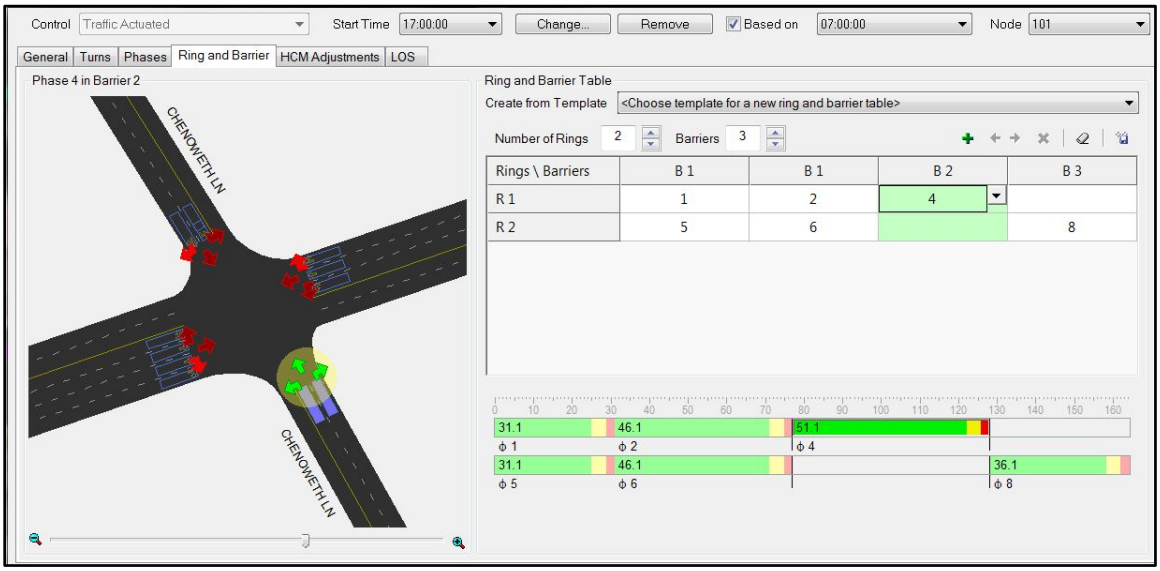


Figure 5. Traffic Signal Plan Diagram

3.1.3 Trip Tables

The model's trip tables represent the number and origin and destination of all the vehicles that travel through the network. The trip tables are matrices with 33 rows and columns each, representing each possible external entrance and exit in the model network. Each cell in the trip table represents the number of vehicles originating from a particular external point and destined for another. There are separate trip tables for both the AM peak hour and the PM peak hour, and for autos and trucks. The number of trips in each cell was estimated with TransModeler's Origin Destination Matrix Estimation (ODME) procedure, using the TMCs and directional counts described in Section 2.1. The AM peak hour trip matrix contains 5,747 autos and 385 trucks. The PM peak hour trip matrix contains 6,086 autos and 366 trucks.

Trips tables representing a growth scenario for the 2035 horizon year were requested as a part of the traffic analysis of the corridor. Given the historical count data and KIPDA model forecasts indicating flat to slightly negative future traffic growth, it was determined by the project team that a flat or negative scenario would be of no analytic value. Therefore a hypothetical "worst case" scenario was developed that reflected the context of flat to negative trends but presumed some small amount of growth. The annual growth rate agreed upon was set at 0.25% per year, which translates roughly into a five percent (5%) increase in overall traffic over twenty years.

3.1.4 Train Disruptions

Given the impact of the rail crossings on the corridor, a train disruption was added to both the AM and PM peak model simulations. In each simulation run, a train crosses Chenoweth Lane, preventing traffic from crossing the rail tracks. The train is scheduled and its speed and length were defined to create a total disruption of approximately 3:30 minutes, which was the average disruption time per train crossing from the observed data detailed in Section 2.3.4.

3.2 MODEL CALIBRATION STATISTICS

The three primary calibration metrics used to validate the simulation model's calibration are model traffic flows, average speeds, and queue lengths. In each case, model outputs were compared to target criteria for matching observed data. As each microsimulation run incorporates random seeds to reflect the daily variance in traffic conditions, multiple simulations runs of each model scenario are performed, with their output statistics averaged to provide mean statistics for comparison to observed values. An average of ten (10) model runs is sufficient to ensure that the mean of output statistics are within a single standard deviation of the true mean at the 95% confidence level.

3.2.1 Traffic Flows

Aggregating the total volume of all TMCs to the approach links that they represent produces 29 links with count that can be compared with model traffic flows. Further, as each link includes counts for each direction, the total number of observation points is 58. **Figure 6** presents a map of the network with the links with counts highlighted in red.

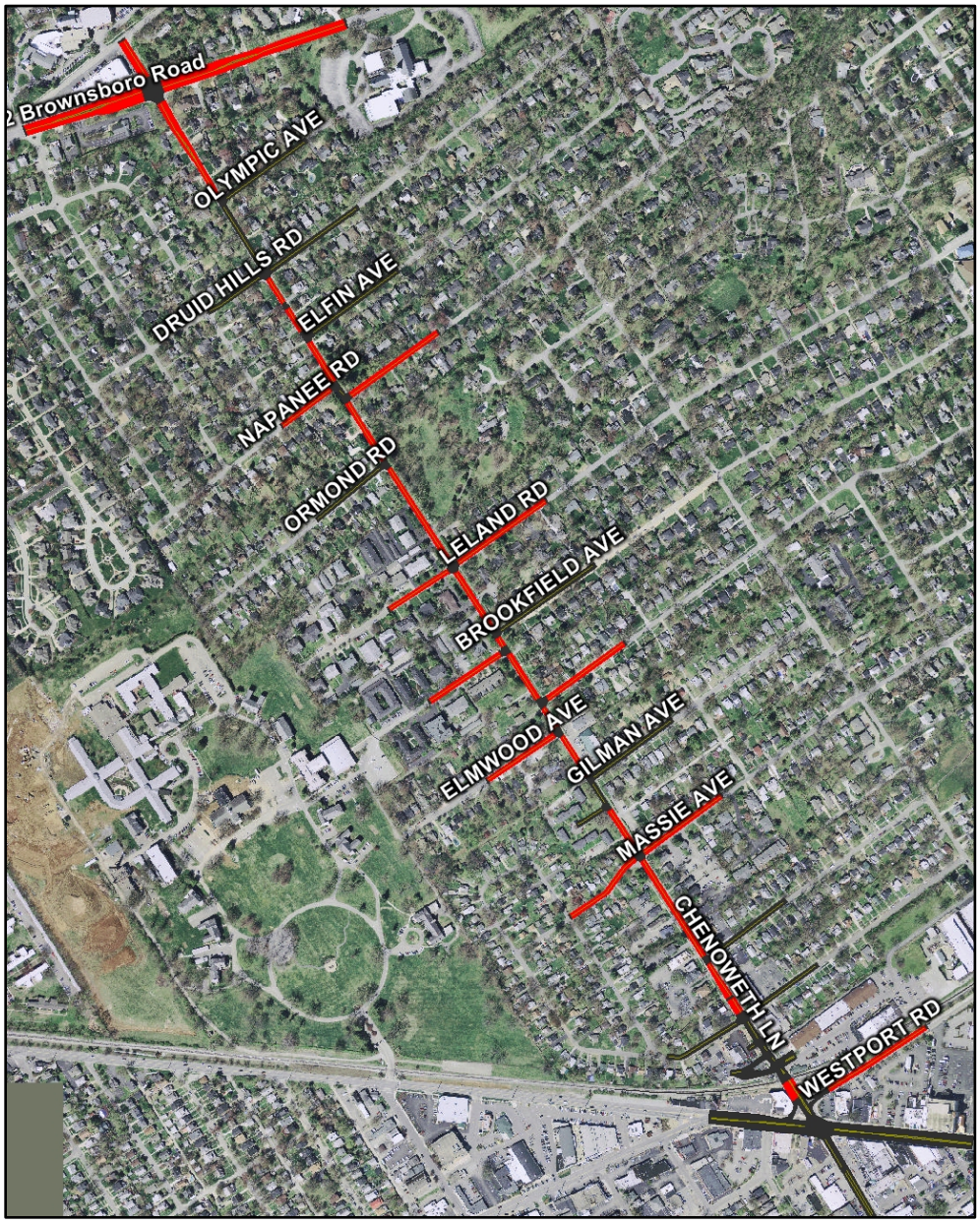


Figure 6. Network Links with Counts (in red)

The two statistics for measuring the goodness of fit between model traffic flows and counts are the Percent Root Mean Square Error (%RMSE) and the Flow-to-Count (F/C) Ratio. The %RMSE statistic compares the squared sum of differences between each count and traffic flow to the total number of counts and the sum total of all counts. The lower the %RMSE statistic, the less presumed error there is in model's assignment and flow. A %RMSE statistic less than 10% is the target for calibration. The F/C ratio is simply the sum model traffic flow for all links with counts over the sum of all counts. The target for the F/C ratio is within 0.05, or five percent of an exact1.00 ratio, an exact match. **Table 8** presents the traffic flow calibration statistics.

Table 8. Traffic Flow Statistics

	AM Peak	PM Peak
Count Locations	29	29
Counts	58	58
Sum of Counts	19,485	23,660
Sum of Model Flow	19,585	24,815
F/C Ratio	1.005	1.049
%RMSE	3.40%	7.57%

3.2.2 Travel Speeds

Average travel speeds from the model were compared to observed travel speeds provided by KYTC. The general target for this metric is within twenty percent (20%) of observed speeds. **Figures 7** through **10** present the speed diagram comparisons of observed versus model travel speeds. Figures 7 and 8 demonstrate a fairly close relationship with the observed speed data in the AM peak period while Figures 9 and 10 suggest that the model's speeds are consistently lower than observed speeds, although generally within 20 percent of the observed values. An explanation may be the consistent train interruption in all of the simulation model runs, something that may not occur in the observed data.

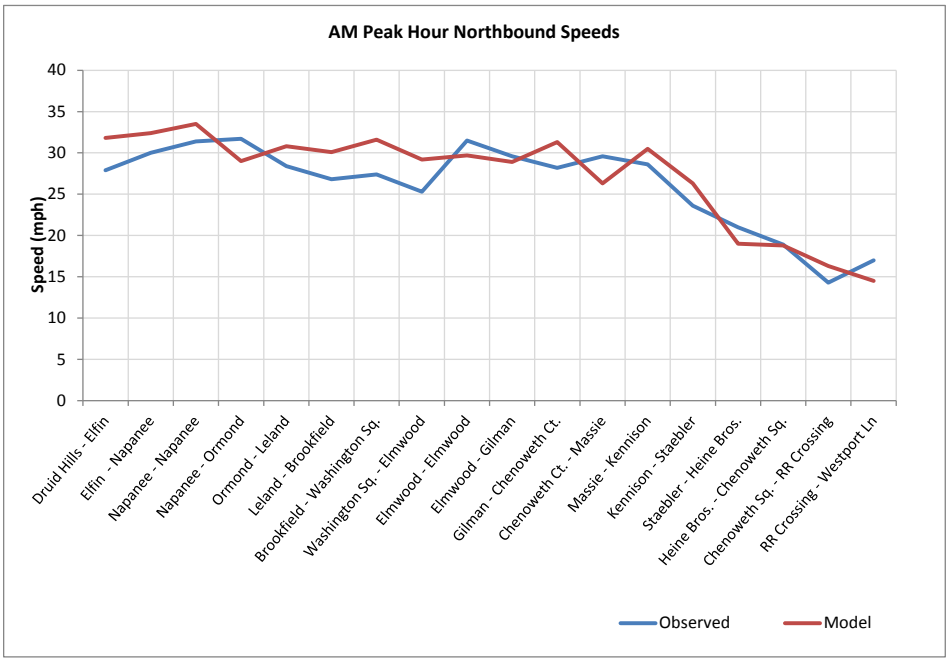


Figure 7. AM Peak Hour Northbound Speeds

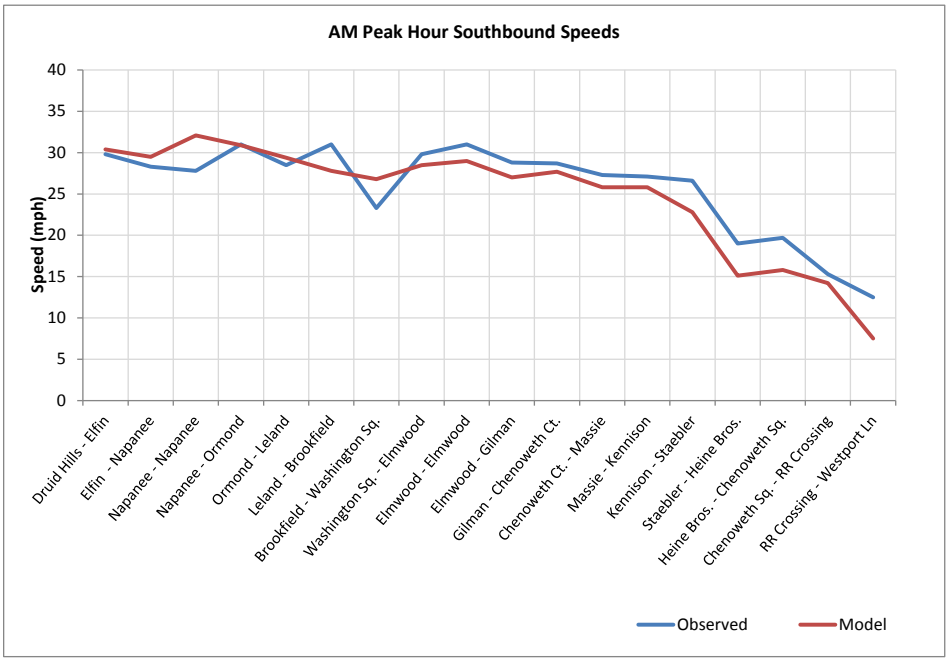


Figure 8. AM Peak Hour Southbound Speeds

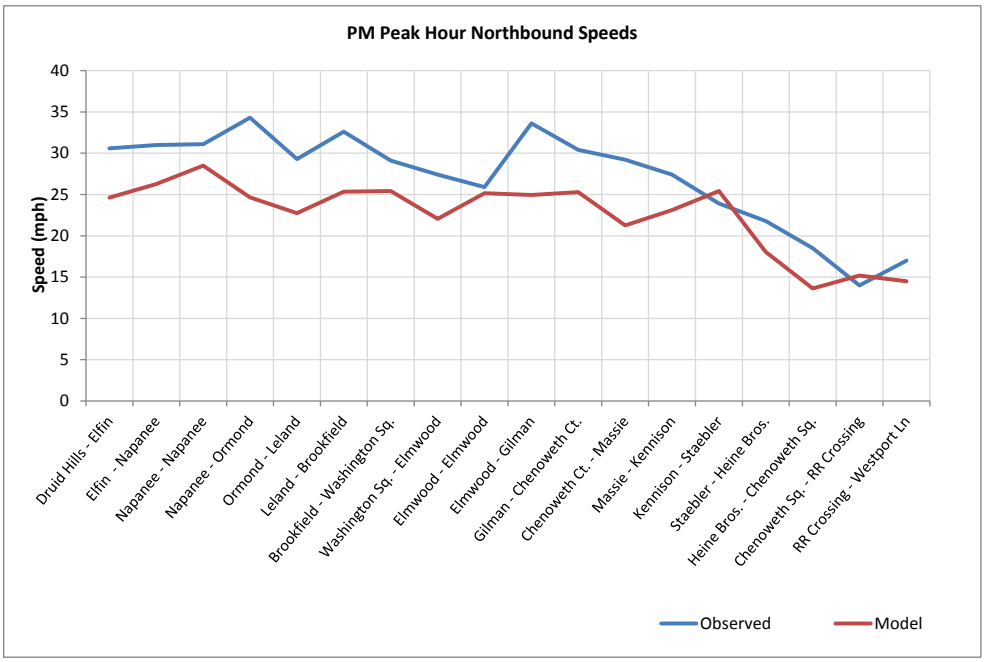


Figure 9. PM Peak Hour Northbound Speeds

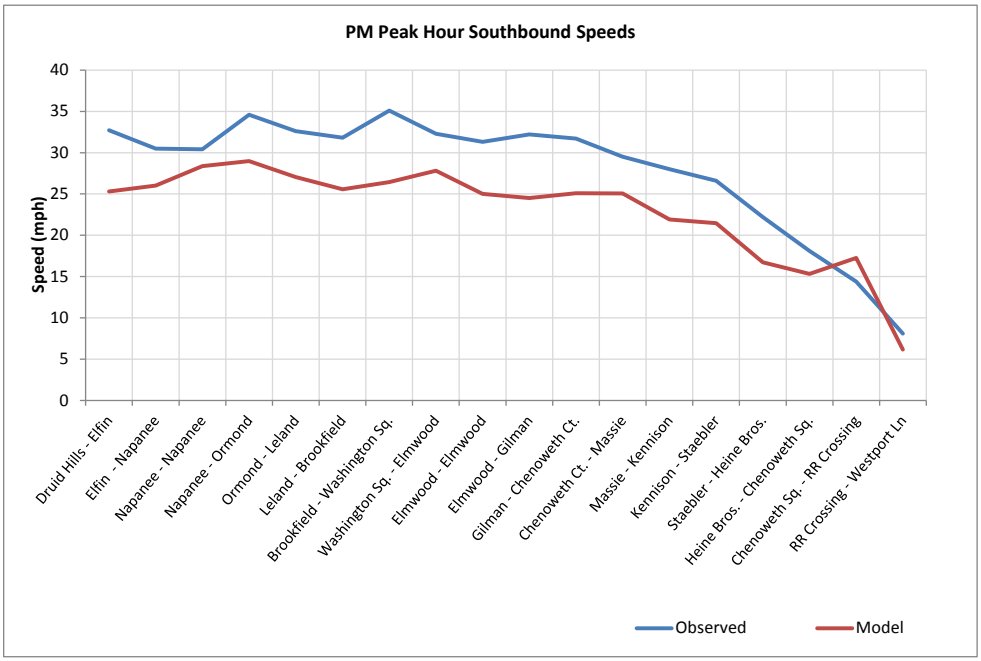


Figure 10. PM Peak Hour Southbound Speeds

3.2.3 Queue Lengths

As described in Section 2.2, queue lengths at the two signalized intersections at either end of the study corridor were recorded as part of the field observations. However, the sample size of these observations is too small to objectively compare with the average queue lengths from the model output. FHWA guidance suggests that the criteria queue lengths and other bottleneck conditions may be determined by a visual audit comparison, based on the analyst's satisfaction. In observing the simulation runs in real time, it was noted that queues at both the southbound approach to US 60 and at the northbound approach at US 42 generally conformed with observed conditions in terms the of the average and maximum length of queues. As observed in the field, most AM peak hour southbound queues do not extend past the railroad crossing, and those that do extend only one or two vehicles. In the PM peak hour at this location, average queues extended up to the railroad crossing, with some queues extending past the Heine Brother's driveway. At US 42, all AM queues were contained within the 250-foot limits of the left turn lane pocket, while in the PM some queues could extend well beyond the pocket, but were always able to clear the intersection within a single cycle of the traffic signal.

Detailed queue statistics for the model output are provided in Section 4.

4.0 TRAFFIC ANALYSIS

With the microsimulation model calibrated, model output from ten simulation runs was averaged and analyzed to measure traffic conditions. Conditions were analyzed for both the AM and PM peak hour periods, for the existing 2015 year and the future 2035 "growth" year. As discussed in section 2.4, historical counts and travel demand forecasts indicate either flat or negative growth in the corridor. For this reason, a hypothetical "worst case" annual growth rate of 0.25% was used to create a future scenario with approximately five percent (5%) more trips than are in the corridor in the existing conditions.

The metrics used to describe traffic conditions include traffic flow volumes on Chenoweth Lane and its approaches, the Volume-to-Capacity (V/C) ratio, the Level of Service (LOS), queue lengths, and travel times. The V/C ratio reflects the percentage of a roadway's carrying capacity currently utilized. A V/C ratio over 1.0 indicates the roadway is carrying more traffic than it is designed to carry. The V/C ratios for the corridor sections are the traffic flow over the flow rate capacity for each direction of traffic on Chenoweth Lane. The flow rate capacity is typically associated with the roadway's saturation flow rate, 1,800 vehicles per hour per lane, times the ratio of the movement's "green time" associated with the cycle length (g/c ratio) at the downstream intersection. However, since Chenoweth Lane is a mile-long corridor with signals only affecting the ends of the corridor, a standard g/c ratio of 0.5 is applied to the overall sections to establish a flow rate capacity of 900 vehicles per hour per lane.

The LOS represents a typical driver's perspective of traffic conditions, based on the level of perceived congestion. The LOS "A" designation represents a free-flowing condition in which driver decisions are unaffected by other vehicles. By contrast, the LOS "F" designation represents severe congestion in which a driver's movements are substantially constrained by surrounding traffic. **Figure 11** graphically depicts the typical traffic conditions associated with each LOS designation. LOS on urban streets such as Chenoweth Lane is typically defined at the intersection level, but TransModeler produces an LOS designation for individual segments as well, based primarily of travel time and the delay associated with traffic conditions. A LOS analysis of the intersection of Chenoweth Lane and US 42 is presented separately in Section 4.3.

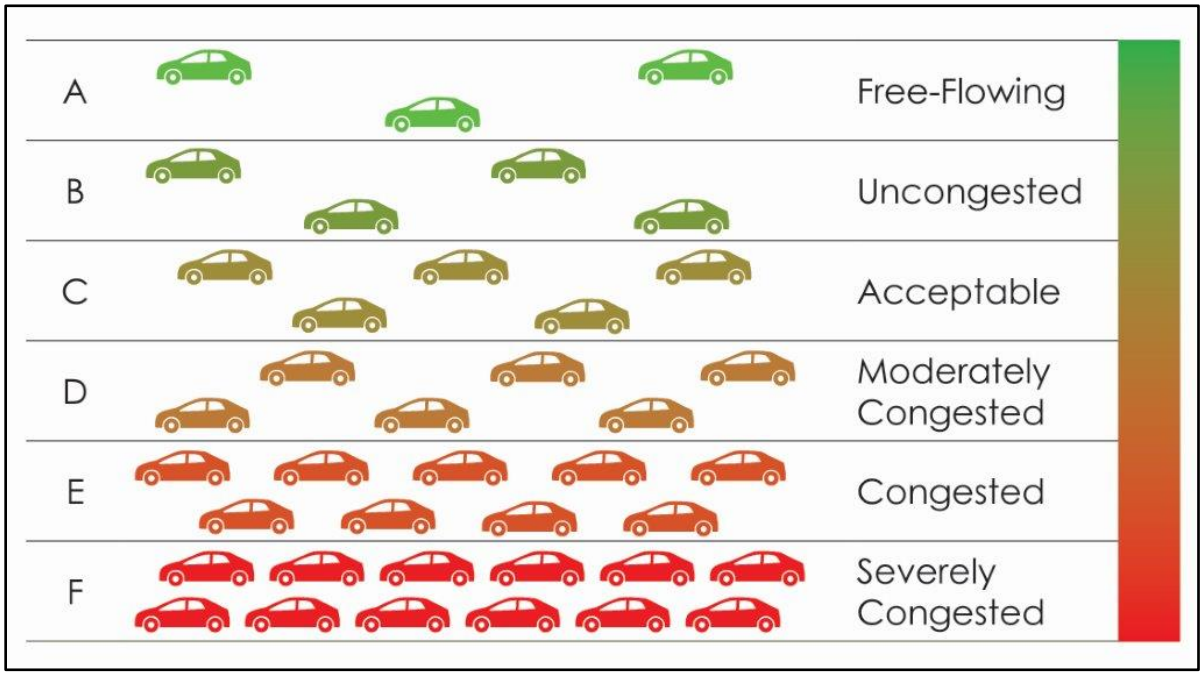


Figure 11. Level of Service

4.1 EXISTING CONDITIONS

Figures 12 and **13** summarize the traffic conditions along the corridor for the 2015 base year. For the analysis, the Chenoweth Lane corridor is divided into three sections, "North" in orange, "Middle" in blue, and "South" in red. The volume figures indicate that the southbound direction on Chenoweth Lane is the heavier direction for both the AM and PM peak hours, although generally more pronounced in the AM peak hour. The PM peak hour has slightly more traffic overall. The V/C ratios for both the AM and PM sections demonstrate traffic flows are well below the overall capacity of the roadway.

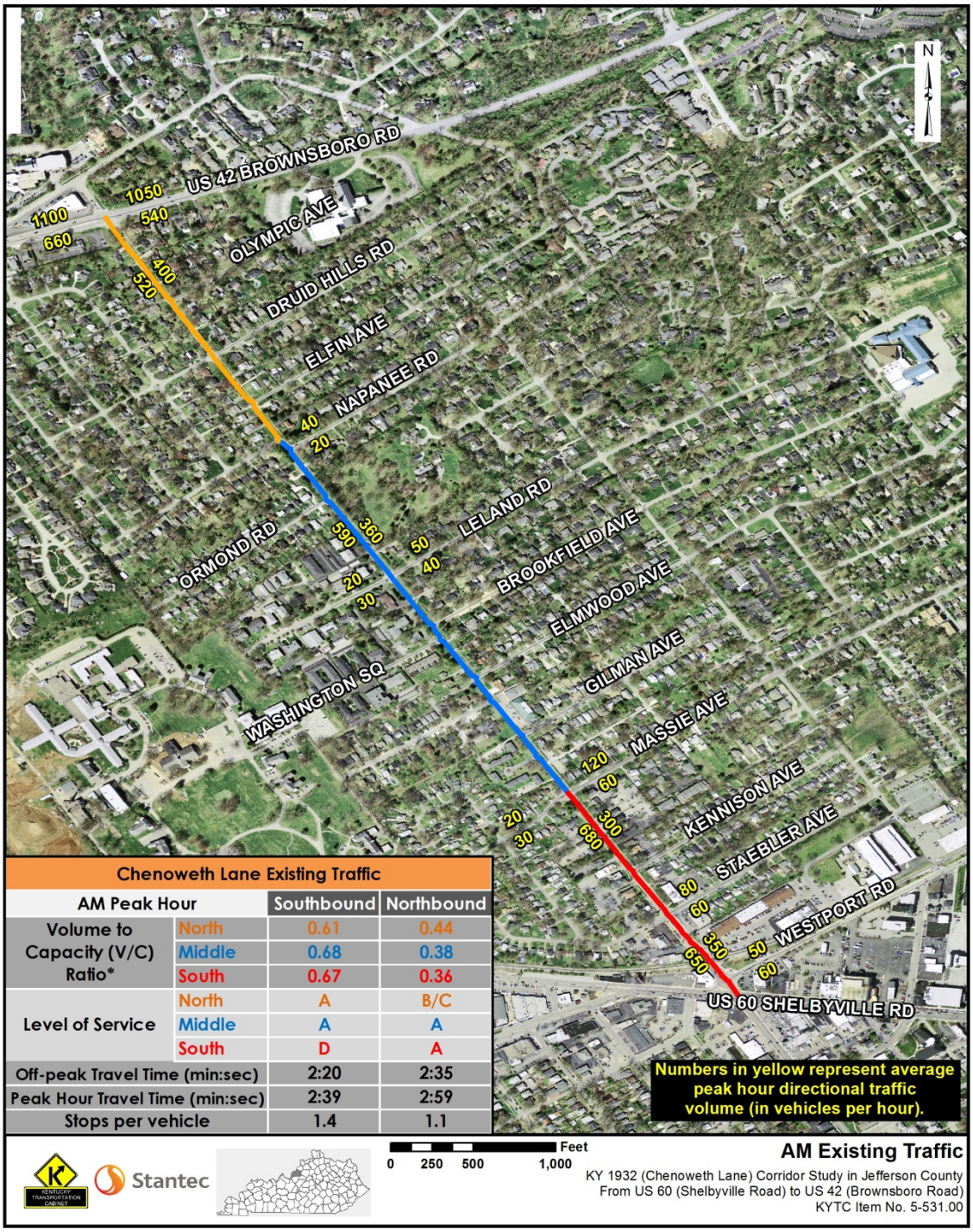
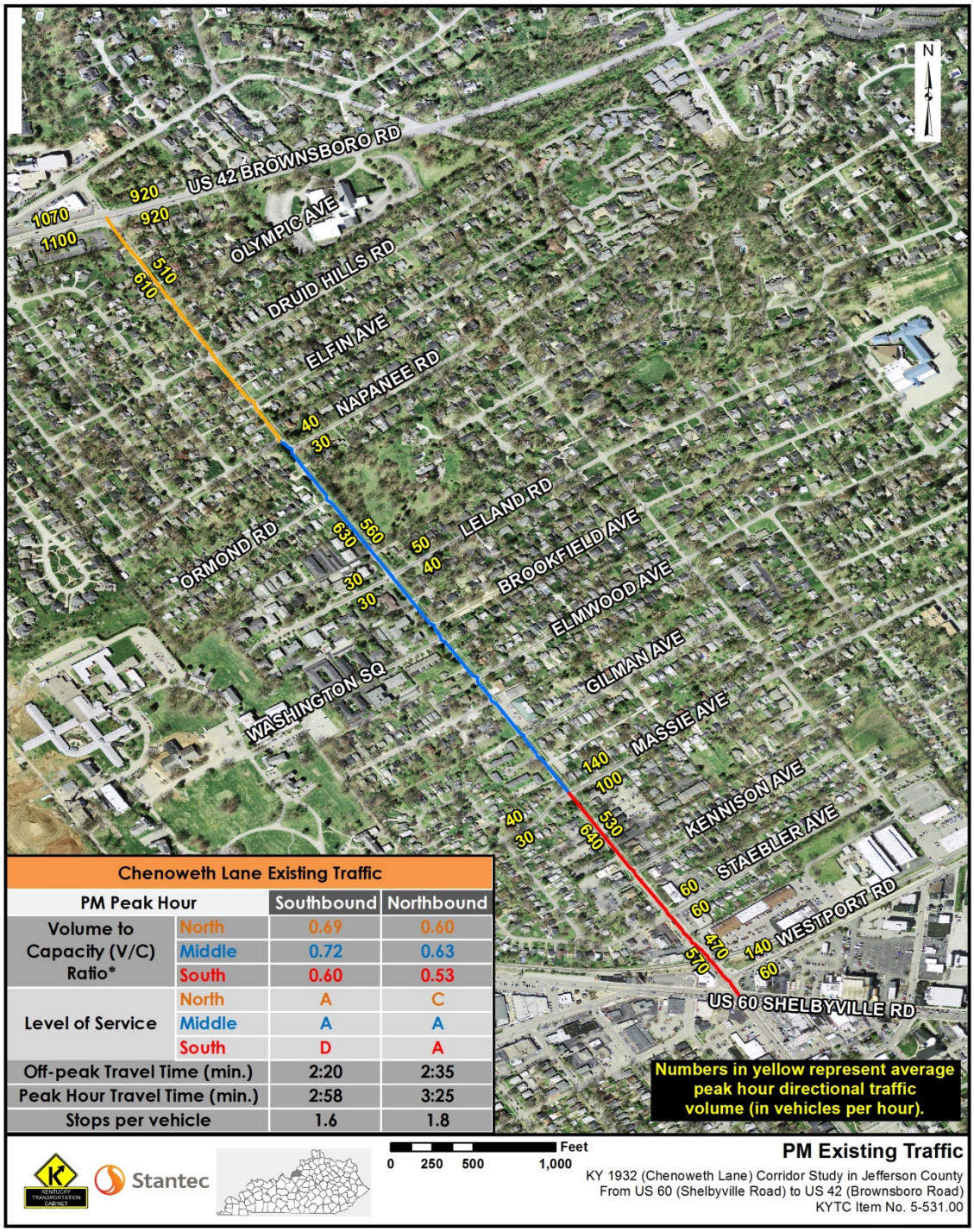


Figure 12. AM Peak Hour Existing Conditions

Stantec



Chenoweth Lane Existing Traffic			
PM Peak Hour		Southbound	Northbound
Volume to Capacity (V/C) Ratio*	North	0.69	0.60
	Middle	0.72	0.63
	South	0.60	0.53
Level of Service	North	A	C
	Middle	A	A
	South	D	A
Off-peak Travel Time (min.)		2:20	2:35
Peak Hour Travel Time (min.)		2:58	3:25
Stops per vehicle		1.6	1.8

Figure 13. PM Peak Hour Existing Conditions

TransModeler's LOS designations show that for the sections of Chenoweth Lane not approaching the two signalized intersections, the level of service is very good. As northbound traffic on Chenoweth Lane approaches US 42, the delay caused by the signal creates some understandable delay and therefore a lower but reasonable LOS designation. For southbound traffic approaching US 60, the signal, railroad tracks, and traffic turning in and out of commercial driveways create more significant delay, resulting in an LOS D.

The travel times to traverse the entire corridor are compared to off-peak free flow travel times to show the inherent delay created by increased traffic occurring during the peak hour periods. In the AM peak hour, delay along the mile-long corridor is less than thirty (30) seconds. In the PM peak hour, the delay is almost one minute in the northbound direction. The PM peak hour also experiences an increased number of stops per vehicle, due to a slightly higher rate of left turns along the corridor. On average, vehicles experience less than two stops along the corridor per trip, including stops at the signals at either end.

4.2 FUTURE NO BUILD CONDITIONS

The 2035 future year "No Build" condition represents an approximate five percent (5%) increase in total trips in each peak hour period over existing conditions. This growth represents the hypothetical "worst case" scenario for future traffic in 2035 and is equivalent to a 0.25% annual growth rate over twenty years. Given the flat to negative growth trend suggested in KYTC's historical counts for the area, this increased growth is intended to assess the corridor's capacity to handle increased demand should it occur. Aside from the increased traffic, the future no build scenario network is the same as the existing scenario.

Figures 14 and **15** summarize the traffic conditions in the future no build scenario. Traffic flows on Chenoweth Lane increase slightly, between 20 to 90 vehicles in any particular location, with the largest increase occurring in the southbound AM peak. As a result, the V/C ratios in each peak hour and direction do not change substantially, ranging from 0.39 to 0.78, which are below the 0.85 threshold for signaling the onset of potential capacity related issues. The LOS designations for segments not approaching a signal are either A or B, while the northbound approach to US 42 is C or better and the southbound approach to US 60 slips to a D/E in the PM peak hour. Travel times across the corridor increase between 2 to 33 seconds compared to the existing condition travel times, and while the average number of stops experienced per vehicle increases, it remains under 2 stops.

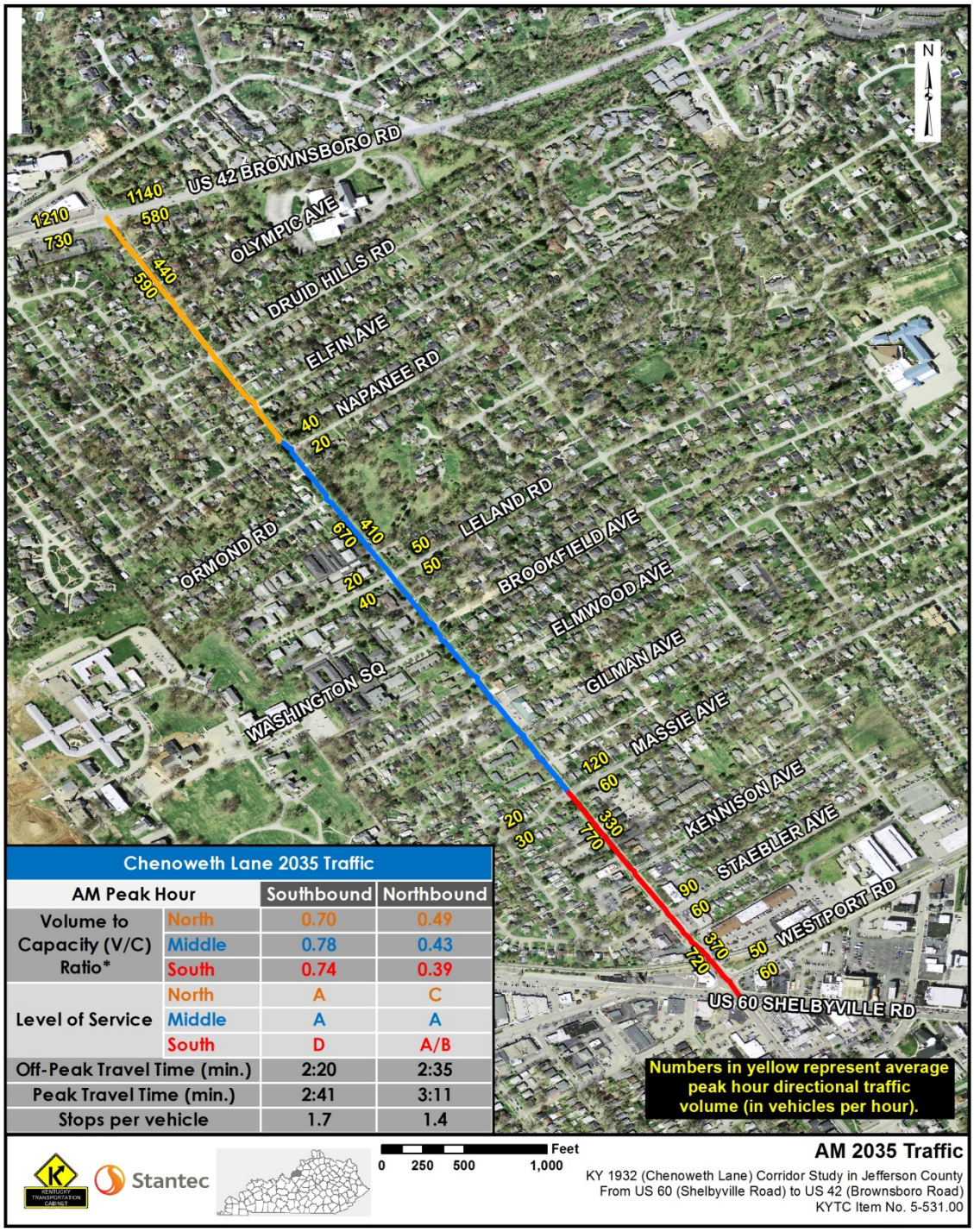


Figure 14. AM Peak Hour Future No Build Conditions

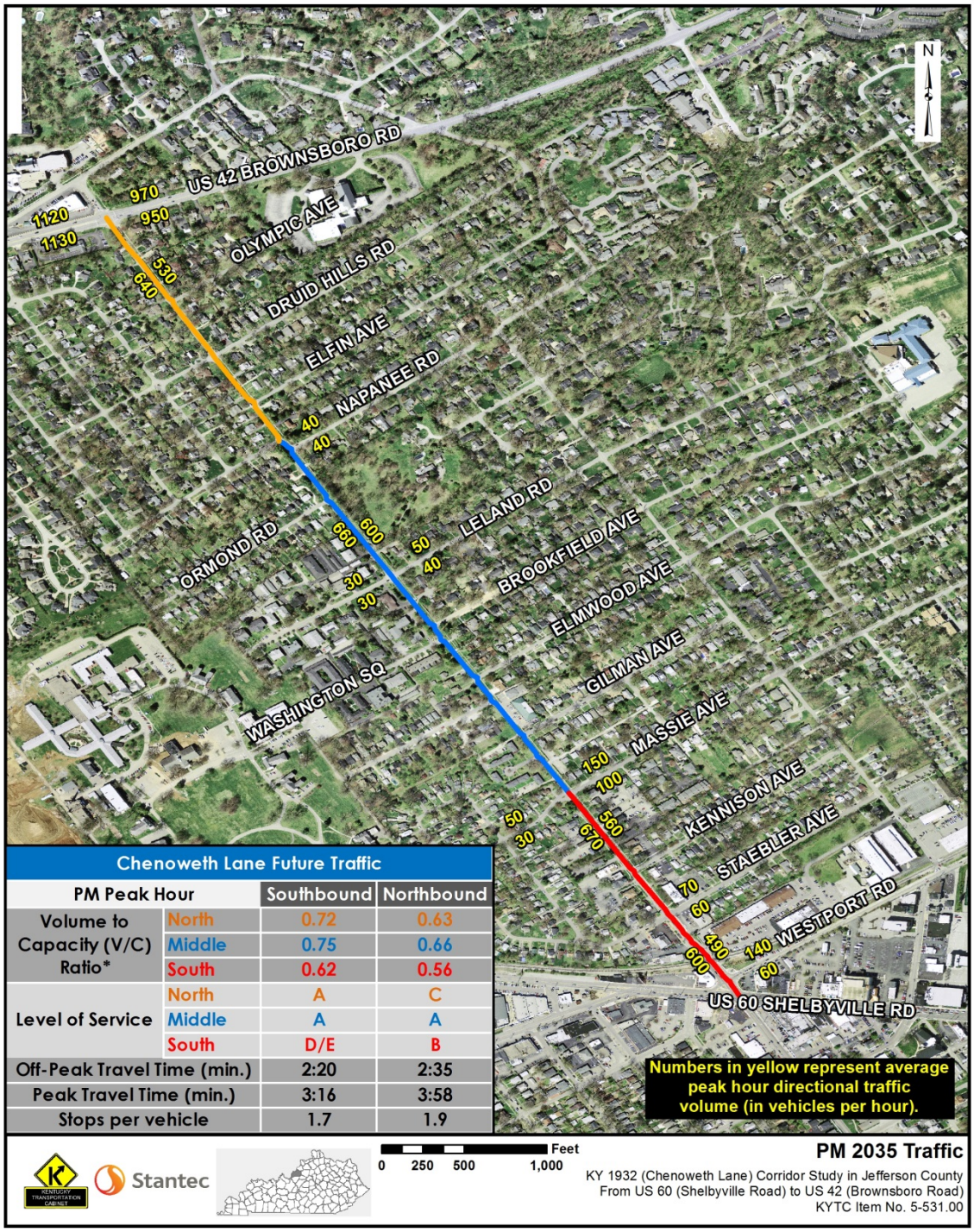


Figure 15. PM Peak Hour Future No Build Conditions

Table 9 presents the average and average maximum queue lengths for vehicles approaching the signalized intersection at US 42 on the north end of the corridor. The northbound approach at US 42 contains a left turn lane with approximately 150 feet of storage with an additional 100 foot taper. Vehicles in the right lane may turn left, right or go straight through the intersection. As Table 8 shows, the average queue in either the AM or PM peak hour is within the length of the turn lane pockets. The average maximum queue, which is the average of the longest queue recorded in each simulation run, does extend beyond the left turn pocket, into the single lane. However, even these longer queues are accommodated within a single phase cycle of the traffic signal.

Table 9. Northbound Queue Lengths Approaching US 42

		2015	2035
AM	Avg. Queue (Feet)	80	80
	Avg. Max Queue (Feet)	280	330
	Avg. Vehicles	4	4
	Avg. Max Vehicles	13	14
PM	Avg. Queue (Feet)	130	130
	Avg. Max Queue* (Feet)	480	500
	Avg. Vehicles	6	6
	Avg. Max Vehicles	21	22

Table 10 presents the average and average maximum queue lengths for vehicles approaching the signalized intersection at US 60 on the south end of the corridor. The southbound approach at US 60 is two lanes from just north of Staebler Avenue to the rail crossing, and three lanes from the railroad crossing to US 60, which is approximately 220 feet in length. From the rail crossing, each of the three lanes is dedicated to the left, through, and right movements respectively. In the AM peak hour, average queues are fairly short, although the average maximum queue can extend beyond the rail crossing almost 300 feet to the entrance driveway of the car wash in the 2015 existing condition, and almost 400 feet to the entrance of the Heine Brothers Coffee in the 2035 growth scenario. In these situations, the longer queue is in the left inside lane as it approaches US 60.

Table 10. Southbound Queue Lengths Approaching US 60

		2015	2035
AM	Avg. Queue (Feet)	70	80
	Avg. Max Queue (Feet)	290	380
	Avg. Vehicles	4	4
	Avg. Max Vehicles	11	13
PM	Avg. Queue (Feet)	100	100
	Avg. Max Queue* (Feet)	430	450
	Avg. Vehicles	4	4
	Avg. Max Vehicles	15	15

4.3 US 42 INTERSECTION ANALYSIS

In addition to the TransModeler analysis, the intersection with US 42 was analyzed using the "Urban Streets" module of the Highway Capacity Software (HCS), which incorporates the methodologies of the 2010 Highway Capacity Manual (HCM) produced by the Transportation Research Board. The software takes as inputs the turn movement volumes from the TMCs and the model output flows, as well as the signal timing plan and lane configuration of the US 42 intersection. The software then outputs an adjusted flow rate for each lane through the intersection, the average delay in seconds for each vehicle, and an LOS designation analogous to that described in sections 4.1 and 4.2.

Table 11 presents the HCS analysis for the northbound approach of Chenoweth Lane at its intersection with US 42. The table indicates that the average vehicular delay for vehicles turning left onto US 42 is between 46 and 47 seconds in both the AM and PM peak periods, for both the 2015 existing and 2035 growth scenarios. This is approximately 10 seconds longer than the average delay in the right lane, which can turn right on red and has less volume over all. It is almost twice the average delay of the intersection as a whole, indicating the signal timing preference is given to the traffic on US 42, the predominant movements at this intersection. The LOS D for the Chenoweth Lane approach reflects the bias towards the US 42 movements. The LOS C for the overall intersection is considered an acceptable target for an intersection handling the high volume of peak hour traffic of a major arterial like US 42. Further, the signal timing plan could be adjusted to provide more time for the Chenoweth Lane northbound approach should it ever be warranted.

Table 11. HCS Intersection Analysis: Chenoweth Lane Northbound at US 42

		AM		PM	
		2015	2035	2015	2035
Adjusted Flow veh/hr	NB Left	312	323	337	362
	NB Through/Right	86	99	138	155
Control Delay sec/veh	NB Left	46	47	46	46
	NB Through/Right	34	35	35	36
	NB Approach	43	44	43	43
	Intersection	26	28	29	31
Level of Service	NB Left	D	D	D	D
	NB Through/Right	C	D	D	D
	NB Approach	D	D	D	D
	Intersection	C	C	C	C

4.4 CONCLUSIONS OF THE EXISTING AND NO BUILD ANALYSIS

The general conclusion of the analysis of existing and future no build traffic conditions in the Chenoweth Lane corridor is that congestion, as measured by the V/C ratio and LOS, are well within the reasonable threshold and do not warrant additional capacity improvements in either scenario. The intersection with US 42 is busy during the peak hours but the current configuration and signal timing plan accommodates the level of traffic well. Left turns from Chenoweth Lane to side streets and driveways are the only notable sources of delay within the middle of the corridor, but these delays are short and occur only once or twice per vehicular trip across the corridor. Congestion and delay on the south end of the corridor is more significant given the number of commercial driveways and the rail crossing, but with two and three lanes in the southbound direction, a lack of capacity is not an issue. As for the train disruptions, the signal at US 60 limits the delay south of the rail crossing as US 60 is given full clearance while the crossing gates are down. The delay north of the crossing can be significant, creating queues that can extend more than 1,000 feet to Massie Avenue. However, when the crossing gates go up and traffic resumes, these queues dissipate within two to three cycles of the signal at US 60.

5.0 ALTERNATIVES ANALYSIS: LEFT TURN LANE OPTION

5.1.1 Left Turn Warrants

Upon a review of the existing and future no build traffic conditions, the consensus of the project team was that the Chenoweth Lane corridor has sufficient roadway capacity for current traffic and potential future growth. Although the sum total of all left turns within the corridor, particularly from Massie Avenue to the rail crossing, meet the minimum criteria for a continuous two-way left-turn lane (TWLTL), alternatives comprising additional capacity including a TWLTL were not carried forward for further analysis in this study. However, an analysis of left turns at the locations where TMCs were conducted did identify three instances where left turn lane pockets could be warranted. To be considered for a left turn lane, KYTC requires that a specific volume threshold of left turns and advancing and opposing traffic must be met. The threshold is based on a formula that incorporates these three factors. However just because this threshold is met and a left turn lane may be considered warranted does not imply that it is necessary or desirable. It only means that the volumes exist to meet KYTC's minimum required criteria for consideration.

Of the eighteen left turn movements analyzed in the corridor, only three movements met the threshold indicating that left turn lanes may be warranted. Those movements were southbound at Massie Avenue in the AM and PM peak hours, and southbound at Leland Avenue in the AM peak hour. **Figures 16** through **18** depict the threshold lines given advancing and opposing traffic volumes. The red dot depicts the left turn volume in reference to the threshold line.

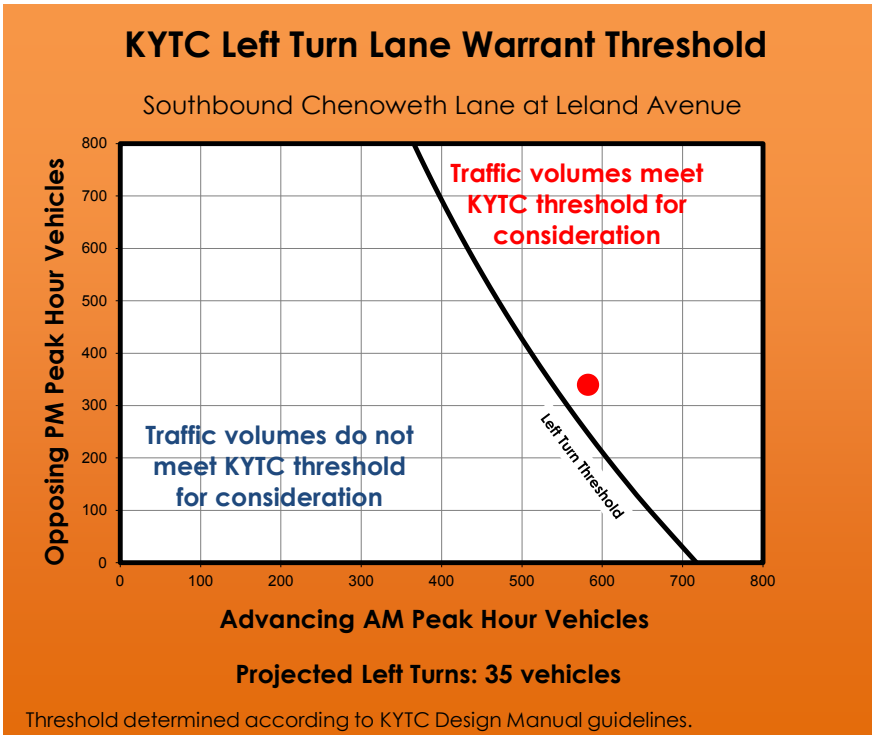


Figure 16. Left Turn Warrant Threshold, Southbound Chenoweth Lane at Leland Avenue, AM Peak Hour

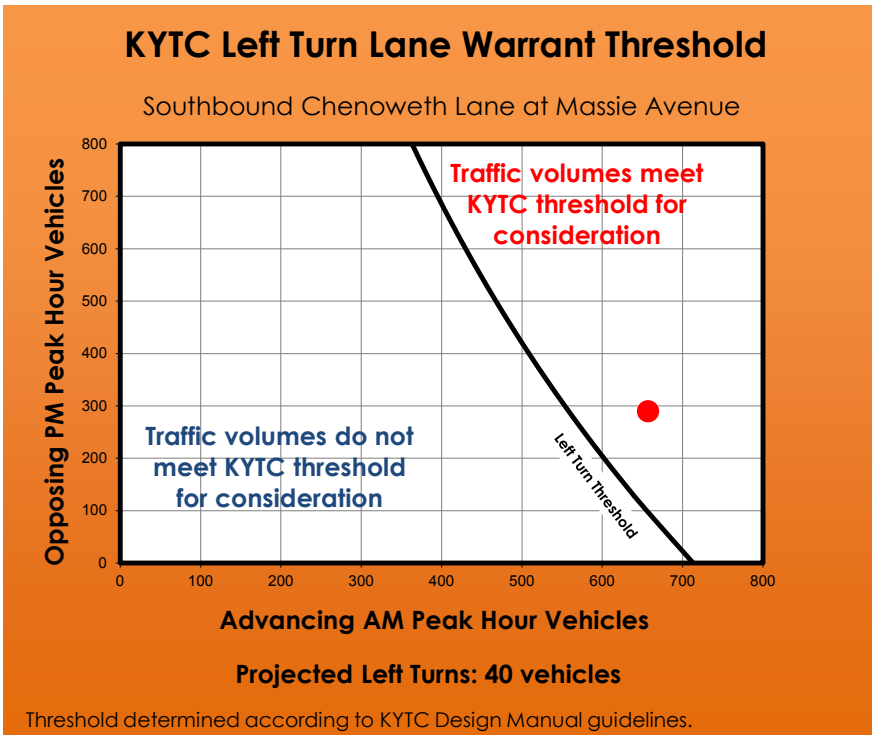


Figure 17. Left Turn Warrant Threshold, Southbound Chenoweth Lane at Massie Avenue, AM Peak Hour

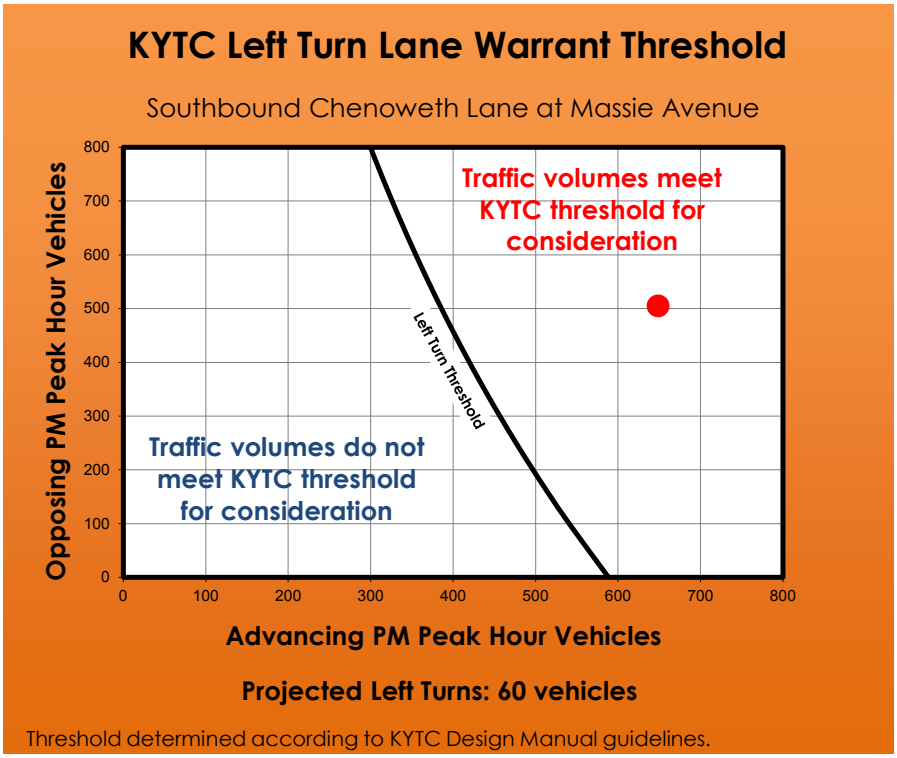


Figure 18. Left Turn Warrant Threshold, Southbound Chenoweth Lane at Massie Avenue, PM Peak Hour

5.1.2 Model Analysis

The analysis of left turns at Massie Avenue and Leland Avenues using the simulation models of existing and future conditions did not indicate any substantial delay created by left turns at Massie Avenue or Leland Avenue that would significantly distinguish them from other locations in the middle of the corridor where left turns occur. However, as a test to determine if left turn lanes would improve traffic flow, left turn lanes were added at Massie Avenue in the model's network. Although only the southbound approach at Massie Avenue warranted a left turn lane, KYTC requires that left turn lanes be paired so that left-turning traffic in both directions are on the same alignment and therefore have an unobstructed line of site of opposing through traffic. The left turn lanes were designed with a 50-foot storage pocket and 150 feet of taper. **Figures 19** and **20** depict the intersection of Chenoweth Lane and Massie Avenue, with and without the left turn lanes.

Figure 19. Chenoweth Lane at Massie Avenue

Figure 20. Chenoweth Lane at Massie Avenue with Left Turn Lanes

At the corridor level, under the 2035 future growth scenario, there is no distinction between network performance with and without left turns lanes at Massie Avenue. The V/C ratio reflects the same volume for both networks, and any change in delay is not significant to affect the LOS. While through traffic does not get delayed at Massie Avenue due to left-turning vehicles being removed from the through lanes in the network, the through traffic approaches the next downstream queue quicker, negating any significant time savings over the course of the trip.

Table 12 presents a comparison of the average delay per vehicle for each approach at the intersection of Chenoweth Lane and Massie Avenue for the PM peak hour. While there is a one second average decrease in delay per vehicle for Chenoweth Lane traffic, eastbound traffic on Massie Avenue increases slightly, albeit for relatively few vehicles. Overall, a one second improvement in delay per vehicle is not considered significant. Although a left turn lane in this location may be warranted for reasons such as safety, it is not warranted on the basis of any notable improvement to traffic conditions.

Table 12. Average Delay by Lane, Chenoweth Lane at Massie Avenue, PM Peak Hour

	Vehicles	Average Delay (sec./veh.)	
		No Left Lane	With Left Lane
SB Chenoweth Ln.	700	4.2	3.2
EB Massie Ave.	40	31.6	34.0
NB Chenoweth Ln.	560	3.8	2.8
WB Massie Ave.	150	66.0	64.5
Intersection Total	1,450	11.2	10.2

APPENDIX A: TRAFFIC COUNTS

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Sunny - 70 degrees
Schools in Session

File Name : US42_at_Chenoweth_Lane_234760_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

Groups Printed- Cars - Buses - Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Chenoweth Lane From North					US42 - Brownsboro Road From East					KY1932 - Chenoweth Lane From South					US42 - Brownsboro Road From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:00 AM	4	3	0	0	7	0	17	0	0	17	12	0	1	0	13	0	17	11	0	28	65
06:15 AM	5	0	0	0	5	9	28	0	2	39	11	1	1	0	13	0	19	11	0	30	87
06:30 AM	4	3	1	0	8	10	39	0	1	50	23	3	6	0	32	0	42	20	0	62	152
06:45 AM	4	6	2	0	12	13	65	0	0	78	22	1	9	0	32	0	44	30	0	74	196
Total	17	12	3	0	32	32	149	0	3	184	68	5	17	0	90	0	122	72	0	194	500
07:00 AM	7	8	0	0	15	29	135	1	0	165	51	9	9	0	69	0	64	36	0	100	349
07:15 AM	13	15	1	0	29	59	149	0	0	208	54	6	7	0	67	1	61	45	0	107	411
07:30 AM	21	20	2	0	43	61	196	0	3	260	91	9	13	0	113	0	97	74	0	171	587
07:45 AM	16	20	1	0	37	35	199	5	0	239	85	17	18	0	120	2	115	68	0	185	581
Total	57	63	4	0	124	184	679	6	3	872	281	41	47	0	369	3	337	223	0	563	1928
08:00 AM	15	16	3	0	34	45	195	4	0	244	51	5	13	0	69	0	87	58	0	145	492
08:15 AM	10	10	0	0	20	65	215	2	0	282	72	7	13	0	92	0	98	39	0	137	531
08:30 AM	12	18	2	0	32	72	179	2	3	256	82	11	18	0	111	0	110	79	0	189	588
08:45 AM	16	19	1	0	36	60	155	3	0	218	83	15	16	1	115	2	123	83	1	209	578
Total	53	63	6	0	122	242	744	11	3	1000	288	38	60	1	387	2	418	259	1	680	2189
03:00 PM	43	28	1	0	72	30	111	2	0	143	72	9	26	0	107	2	146	62	0	210	532
03:15 PM	16	15	0	0	31	35	105	4	0	144	57	18	22	0	97	2	127	62	0	191	463
03:30 PM	31	33	3	0	67	40	117	5	0	162	60	14	33	0	107	2	104	48	0	154	490
03:45 PM	22	15	0	0	37	41	118	3	0	162	56	13	32	0	101	2	177	91	0	270	570
Total	112	91	4	0	207	146	451	14	0	611	245	54	113	0	412	8	554	263	0	825	2055
04:00 PM	20	17	3	0	40	30	143	2	0	175	44	14	28	0	86	3	169	78	0	250	551
04:15 PM	16	18	2	0	36	35	117	2	0	154	79	18	22	0	119	0	144	76	0	220	529
04:30 PM	15	19	1	0	35	39	163	5	0	207	84	16	27	0	127	0	143	81	0	224	593
04:45 PM	18	18	1	0	37	41	154	6	0	201	98	20	19	0	137	1	162	79	0	242	617
Total	69	72	7	0	148	145	577	15	0	737	305	68	96	0	469	4	618	314	0	936	2290
05:00 PM	22	19	6	0	47	42	146	3	0	191	100	21	35	0	156	1	179	94	0	274	668
05:15 PM	13	22	2	0	37	53	182	5	0	240	71	6	12	0	89	1	169	95	0	265	631
05:30 PM	17	23	0	0	40	43	188	4	0	235	94	25	24	0	143	1	192	70	0	263	681
05:45 PM	22	24	3	0	49	49	192	2	0	243	65	18	24	0	107	3	194	85	1	283	682
Total	74	88	11	0	173	187	708	14	0	909	330	70	95	0	495	6	734	344	1	1085	2662

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File Name : US42_at_Chenoweth_Lane_234760_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015
Page No : 2

Groups Printed- Cars - Buses - Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Chenoweth Lane From North					US42 - Brownsboro Road From East					KY1932 - Chenoweth Lane From South					US42 - Brownsboro Road From West					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Grand Total	382	389	35	0	806	936	3308	60	9	4313	1517	276	428	1	2222	23	2783	1475	2	4283	11624
Apprch %	47.4	48.3	4.3	0		21.7	76.7	1.4	0.2		68.3	12.4	19.3	0		0.5	65	34.4	0		
Total %	3.3	3.3	0.3	0	6.9	8.1	28.5	0.5	0.1	37.1	13.1	2.4	3.7	0	19.1	0.2	23.9	12.7	0	36.8	
Cars	361	386	25	0	772	926	3240	56	0	4222	1499	273	422	0	2194	23	2734	1452	0	4209	11397
% Cars	94.5	99.2	71.4	0	95.8	98.9	97.9	93.3	0	97.9	98.8	98.9	98.6	0	98.7	100	98.2	98.4	0	98.3	98
Buses	17	1	9	0	27	3	31	1	0	35	8	0	2	0	10	0	20	6	0	26	98
% Buses	4.5	0.3	25.7	0	3.3	0.3	0.9	1.7	0	0.8	0.5	0	0.5	0	0.5	0	0.7	0.4	0	0.6	0.8
Trucks	4	2	1	0	7	7	36	3	0	46	9	2	4	0	15	0	29	16	0	45	113
% Trucks	1	0.5	2.9	0	0.9	0.7	1.1	5	0	1.1	0.6	0.7	0.9	0	0.7	0	1	1.1	0	1.1	1
Bicycles on Road	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	0	1	0	1	4
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0.1	0.4	0	0	0.1	0	0	0.1	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	9	9	0	0	0	1	1	0	0	0	2	2	12
% Pedestrians	0	0	0	0	0	0	0	0	100	0.2	0	0	0	100	0	0	0	0	100	0	0.1

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File Name : US42_at_Chenoweth_Lane_234760_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015
Page No : 3

	Chenoweth Lane From North					US42 - Brownsboro Road From East					KY1932 - Chenoweth Lane From South					US42 - Brownsboro Road From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	**16**	**20**	1	0	**37**	35	199	**5**	0	239	**85**	**17**	**18**	0	**120**	**2**	**115**	68	0	185	581
08:00 AM	15	16	**3**	0	34	45	195	4	0	244	51	5	13	0	69	0	87	58	0	145	492
08:15 AM	10	10	0	0	20	65	**215**	2	0	**282**	72	7	13	0	92	0	98	39	0	137	531
08:30 AM	12	18	2	0	32	**72**	179	2	**3**	256	82	11	18	0	111	0	110	**79**	0	**189**	**588**
Total Volume	53	64	6	0	123	217	788	13	3	1021	290	40	62	0	392	2	410	244	0	656	2192
% App. Total	43.1	52	4.9	0		21.3	77.2	1.3	0.3		74	10.2	15.8	0		0.3	62.5	37.2	0		
PHF	.828	.800	.500	.000	.831	.753	.916	.650	.250	.905	.853	.588	.861	.000	.817	.250	.891	.772	.000	.868	.932
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**22**		**6**								**100**		**35**		**156**						
05:15 PM	13	22	2	0	37	**53**	182	**5**	0	240	71	6	12	0	89	1	169	**95**	0	265	631
05:30 PM	17	23	0	0	40	43	188	4	0	235	94	**25**	24	0	143	1	192	70	0	263	681
05:45 PM	22	**24**	3	0	**49**	49	**192**	2	0	**243**	65	18	24	0	107	**3**	**194**	85	**1**	**283**	**682**
Total Volume	74	88	11	0	173	187	708	14	0	909	330	70	95	0	495	6	734	344	1	1085	2662
% App. Total	42.8	50.9	6.4	0		20.6	77.9	1.5	0		66.7	14.1	19.2	0		0.6	67.6	31.7	0.1		
PHF	.841	.917	.458	.000	.883	.882	.922	.700	.000	.935	.825	.700	.679	.000	.793	.500	.946	.905	.250	.958	.976

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4661 Marlberry Place
Lexington, KY 40509
859.361.2589
"simplifying Data Collection since 2004"

Sunny - 70 degrees
Schools in Session

File Name : Chenoweth_S_of_DruidHills-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

Groups Printed- Bikes - Motorcycles - Cars - Light Good Vehicles - Buses - Single Unit Trucks - Articulated Trucks

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
12:00 AM	6	6	7	7	13
12:15 AM	5	5	5	5	10
12:30 AM	9	9	7	7	16
12:45 AM	5	5	2	2	7
Total	25	25	21	21	46
01:00 AM	4	4	3	3	7
01:15 AM	3	3	3	3	6
01:30 AM	2	2	3	3	5
01:45 AM	2	2	1	1	3
Total	11	11	10	10	21
02:00 AM	0	0	1	1	1
02:15 AM	1	1	1	1	2
02:30 AM	5	5	5	5	10
02:45 AM	0	0	3	3	3
Total	6	6	10	10	16
03:00 AM	2	2	3	3	5
03:15 AM	0	0	3	3	3
03:30 AM	4	4	2	2	6
03:45 AM	2	2	1	1	3
Total	8	8	9	9	17
04:00 AM	2	2	1	1	3
04:15 AM	3	3	1	1	4
04:30 AM	4	4	5	5	9
04:45 AM	10	10	0	0	10
Total	19	19	7	7	26
05:00 AM	3	3	2	2	5
05:15 AM	6	6	3	3	9
05:30 AM	10	10	8	8	18
05:45 AM	26	26	3	3	29
Total	45	45	16	16	61
06:00 AM	13	13	12	12	25
06:15 AM	23	23	12	12	35
06:30 AM	33	33	30	30	63
06:45 AM	51	51	33	33	84
Total	120	120	87	87	207
07:00 AM	71	71	64	64	135
07:15 AM	121	121	74	74	195
07:30 AM	167	167	105	105	272
07:45 AM	128	128	115	115	243
Total	487	487	358	358	845
08:00 AM	119	119	63	63	182
08:15 AM	115	115	91	91	206
08:30 AM	172	172	103	103	275
08:45 AM	152	152	117	117	269
Total	558	558	374	374	932
09:00 AM	126	126	82	82	208

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
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File Name : Chenoweth_S_of_DruidHills-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

Groups Printed- Bikes - Motorcycles - Cars - Light Good Vehicles - Buses - Single Unit Trucks - Articulated Trucks

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
09:15 AM	119	119	68	68	187
09:30 AM	96	96	63	63	159
09:45 AM	115	115	80	80	195
Total	456	456	293	293	749
10:00 AM	116	116	69	69	185
10:15 AM	96	96	66	66	162
10:30 AM	99	99	75	75	174
10:45 AM	86	86	74	74	160
Total	397	397	284	284	681
11:00 AM	81	81	81	81	162
11:15 AM	121	121	75	75	196
11:30 AM	141	141	81	81	222
11:45 AM	129	129	109	109	238
Total	472	472	346	346	818
12:00 PM	96	96	102	102	198
12:15 PM	129	129	84	84	213
12:30 PM	132	132	98	98	230
12:45 PM	114	114	98	98	212
Total	471	471	382	382	853
01:00 PM	121	121	101	101	222
01:15 PM	113	113	115	115	228
01:30 PM	94	94	86	86	180
01:45 PM	109	109	101	101	210
Total	437	437	403	403	840
02:00 PM	126	126	93	93	219
02:15 PM	138	138	107	107	245
02:30 PM	156	156	114	114	270
02:45 PM	129	129	136	136	265
Total	549	549	450	450	999
03:00 PM	131	131	92	92	223
03:15 PM	115	115	100	100	215
03:30 PM	124	124	108	108	232
03:45 PM	154	154	107	107	261
Total	524	524	407	407	931
04:00 PM	127	127	93	93	220
04:15 PM	141	141	130	130	271
04:30 PM	136	136	128	128	264
04:45 PM	138	138	152	152	290
Total	542	542	503	503	1045
05:00 PM	153	153	149	149	302
05:15 PM	178	178	93	93	271
05:30 PM	145	145	149	149	294
05:45 PM	155	155	126	126	281
Total	631	631	517	517	1148
06:00 PM	134	134	108	108	242
06:15 PM	115	115	98	98	213
06:30 PM	108	108	89	89	197

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
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"simplifying Data Collection since 2004"

File Name : Chenoweth_S_of_DruidHills-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

Groups Printed- Bikes - Motorcycles - Cars - Light Good Vehicles - Buses - Single Unit Trucks - Articulated Trucks

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
06:45 PM	104	104	93	93	197
Total	461	461	388	388	849
07:00 PM	106	106	82	82	188
07:15 PM	90	90	89	89	179
07:30 PM	72	72	61	61	133
07:45 PM	65	65	61	61	126
Total	333	333	293	293	626
08:00 PM	71	71	73	73	144
08:15 PM	61	61	51	51	112
08:30 PM	57	57	53	53	110
08:45 PM	66	66	46	46	112
Total	255	255	223	223	478
09:00 PM	45	45	56	56	101
09:15 PM	33	33	56	56	89
09:30 PM	57	57	50	50	107
09:45 PM	36	36	37	37	73
Total	171	171	199	199	370
10:00 PM	49	49	23	23	72
10:15 PM	27	27	25	25	52
10:30 PM	18	18	28	28	46
10:45 PM	25	25	14	14	39
Total	119	119	90	90	209
11:00 PM	19	19	17	17	36
11:15 PM	19	19	16	16	35
11:30 PM	12	12	19	19	31
11:45 PM	13	13	14	14	27
Total	63	63	66	66	129
Grand Total	7160	7160	5736	5736	12896
Apprch %	100		100		
Total %	55.5	55.5	44.5	44.5	
Bikes	4	4	1	1	5
% Bikes	0.1	0.1	0	0	0
Motorcycles	6	6	3	3	9
% Motorcycles	0.1	0.1	0.1	0.1	0.1
Cars	6464	6464	5192	5192	11656
% Cars	90.3	90.3	90.5	90.5	90.4
Light Good Vehicles	601	601	465	465	1066
% Light Good Vehicles	8.4	8.4	8.1	8.1	8.3
Buses	10	10	16	16	26
% Buses	0.1	0.1	0.3	0.3	0.2
Single Unit Trucks	75	75	54	54	129
% Single Unit Trucks	1	1	0.9	0.9	1
Articulated Trucks	0	0	5	5	5
% Articulated Trucks	0	0	0.1	0.1	0

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4661 Marlberry Place
Lexington, KY 40509
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File Name : Chenoweth_S_of_DruidHills-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 12:00 AM to 09:45 AM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 08:15 AM					
08:15 AM	115	115	91	91	206
08:30 AM	**172**	**172**	103	103	**275**
08:45 AM	152	152	**117**	**117**	269
09:00 AM	126	126	82	82	208
Total Volume	565	565	393	393	958
% App. Total	100		100		
PHF	.821	.821	.840	.840	.871
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 12:30 PM					
12:30 PM	**132**	**132**	98	98	**230**
12:45 PM	114	114	98	98	212
01:00 PM	121	121	101	101	222
01:15 PM	113	113	**115**	**115**	228
Total Volume	480	480	412	412	892
% App. Total	100		100		
PHF	.909	.909	.896	.896	.970
Peak Hour Analysis From 02:00 PM to 11:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 04:45 PM					
04:45 PM	138	138	**152**	**152**	290
05:00 PM	153	153	149	149	**302**
05:15 PM	**178**	**178**	93	93	271
05:30 PM	145	145	149	149	294
Total Volume	614	614	543	543	1157
% App. Total	100		100		
PHF	.862	.862	.893	.893	.958

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4661 Marlberry Place
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Sunny - 70 degrees
Schools in Session

File Name : Napanee_Road_at_Chenoweth_Lane_234759_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks

	KY1932 - Chenoweth Lane From North				Napanee Road From East				KY1932 - Chenoweth Lane From South				Napanee Road From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	14	0	14	0	0	1	1	0	10	0	10	0	0	0	0	25
06:15 AM	1	23	0	24	1	0	0	1	0	12	2	14	0	0	2	2	41
06:30 AM	0	34	0	34	0	0	3	3	0	28	0	28	1	0	1	2	67
06:45 AM	1	51	0	52	0	0	0	0	1	30	0	31	1	0	1	2	85
Total	2	122	0	124	1	0	4	5	1	80	2	83	2	0	4	6	218
07:00 AM	2	70	0	72	2	0	2	4	2	62	0	64	0	0	0	0	140
07:15 AM	2	116	0	118	1	1	4	6	1	69	0	70	0	0	1	1	195
07:30 AM	2	172	1	175	5	0	4	9	1	94	1	96	1	0	3	4	284
07:45 AM	2	134	0	136	0	0	1	1	1	114	0	115	0	0	4	4	256
Total	8	492	1	501	8	1	11	20	5	339	1	345	1	0	8	9	875
08:00 AM	1	118	0	119	3	0	3	6	3	57	0	60	0	0	7	7	192
08:15 AM	0	113	0	113	3	0	2	5	1	86	2	89	1	0	2	3	210
08:30 AM	1	167	0	168	3	0	6	9	1	90	3	94	1	0	5	6	277
08:45 AM	1	144	1	146	1	0	10	11	2	108	3	113	0	0	8	8	278
Total	3	542	1	546	10	0	21	31	7	341	8	356	2	0	22	24	957
03:00 PM	2	128	0	130	3	0	1	4	3	86	0	89	0	0	4	4	227
03:15 PM	1	108	1	110	1	0	6	7	3	98	2	103	0	0	5	5	225
03:30 PM	4	127	0	131	2	0	2	4	1	105	5	111	0	0	4	4	250
03:45 PM	3	142	0	145	1	0	1	2	3	104	1	108	0	1	3	4	259
Total	10	505	1	516	7	0	10	17	10	393	8	411	0	1	16	17	961
04:00 PM	3	124	0	127	2	0	3	5	2	92	1	95	1	0	2	3	230
04:15 PM	3	140	2	145	1	0	3	4	0	123	1	124	0	0	2	2	275
04:30 PM	2	130	1	133	1	1	4	6	3	123	3	129	0	0	6	6	274
04:45 PM	2	136	0	138	2	0	4	6	2	144	3	149	0	0	5	5	298
Total	10	530	3	543	6	1	14	21	7	482	8	497	1	0	15	16	1077
05:00 PM	3	149	0	152	1	0	9	10	4	139	0	143	2	0	5	7	312
05:15 PM	2	167	3	172	1	0	5	6	2	88	1	91	1	0	3	4	273
05:30 PM	6	144	0	150	2	0	4	6	2	149	3	154	0	0	4	4	314
05:45 PM	4	145	2	151	4	1	7	12	6	120	2	128	0	0	2	2	293
Total	15	605	5	625	8	1	25	34	14	496	6	516	3	0	14	17	1192
Grand Total	48	2796	11	2855	40	3	85	128	44	2131	33	2208	9	1	79	89	5280
Apprch %	1.7	97.9	0.4		31.2	2.3	66.4		2	96.5	1.5		10.1	1.1	88.8		
Total %	0.9	53	0.2	54.1	0.8	0.1	1.6	2.4	0.8	40.4	0.6	41.8	0.2	0	1.5	1.7	
Cars	47	2770	9	2826	40	3	83	126	43	2106	31	2180	9	1	77	87	5219
% Cars	97.9	99.1	81.8	99	100	100	97.6	98.4	97.7	98.8	93.9	98.7	100	100	97.5	97.8	98.8
Buses	0	12	0	12	0	0	0	0	0	12	0	12	0	0	2	2	26
% Buses	0	0.4	0	0.4	0	0	0	0	0	0.6	0	0.5	0	0	2.5	2.2	0.5
Trucks	1	14	2	17	0	0	2	2	1	13	2	16	0	0	0	0	35
% Trucks	2.1	0.5	18.2	0.6	0	0	2.4	1.6	2.3	0.6	6.1	0.7	0	0	0	0	0.7

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4661 Marlberry Place
Lexington, KY 40509
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File Name : Napanee_Road_at_Chenoweth_Lane_234759_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

	KY1932 - Chenoweth Lane From North				Napanee Road From East				KY1932 - Chenoweth Lane From South				Napanee Road From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**1**	118	0	119	**3**	0	3	6	**3**	57	0	60	0	0	7	7	192
08:15 AM	0	113	0	113	3	0	2	5	1	86	2	89	**1**	0	2	3	210
08:30 AM	1	**167**	0	**168**	3	0	6	9	1	90	**3**	94	1	0	5	6	277
08:45 AM	1	144	**1**	146	1	0	**10**	**11**	2	**108**	3	**113**	0	0	**8**	**8**	**278**
Total Volume	3	542	1	546	10	0	21	31	7	341	8	356	2	0	22	24	957
% App. Total	0.5	99.3	0.2		32.3	0	67.7		2	95.8	2.2		8.3	0	91.7		
PHF	.750	.811	.250	.813	.833	.000	.525	.705	.583	.789	.667	.788	.500	.000	.688	.750	.861
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	2	136	0	138	**2**	0	4	6	2	144	**3**	149	0	0	**5**	5	298
05:00 PM	3	149	0	152	1	0	**9**	**10**	**4**	139	0	143	**2**	0	5	**7**	312
05:15 PM	2	**167**	**3**	**172**	1	0	5	6	2	88	1	91	1	0	3	4	273
05:30 PM	**6**	144	0	150	2	0	4	6	2	**149**	3	**154**	0	0	4	4	**314**
Total Volume	13	596	3	612	6	0	22	28	10	520	7	537	3	0	17	20	1197
% App. Total	2.1	97.4	0.5		21.4	0	78.6		1.9	96.8	1.3		15	0	85		
PHF	.542	.892	.250	.890	.750	.000	.611	.700	.625	.872	.583	.872	.375	.000	.850	.714	.953

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
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"simplifying Data Collection since 2004"

Sunny - 70 degrees
Schools in Session

File Name : Leland_Road_at_Chenoweth_Lane_234758_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks - Bicycles on Road

	KY1932 - Chenoweth Lane From North				Leland Road From East				KY1932 - Chenoweth Lane From South				Leland Road From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	17	0	17	0	0	0	0	0	9	0	9	0	0	0	0	26
06:15 AM	0	25	0	25	0	0	1	1	0	10	0	10	1	0	2	3	39
06:30 AM	0	36	0	36	1	0	3	4	0	23	0	23	1	0	1	2	65
06:45 AM	2	47	1	50	1	0	2	3	2	25	0	27	2	0	1	3	83
Total	2	125	1	128	2	0	6	8	2	67	0	69	4	0	4	8	213
07:00 AM	2	71	1	74	3	0	2	5	0	62	1	63	0	0	1	1	143
07:15 AM	4	125	0	129	3	0	6	9	1	60	1	62	1	0	3	4	204
07:30 AM	27	150	0	177	2	0	12	14	1	79	3	83	1	0	4	5	279
07:45 AM	6	140	1	147	4	0	4	8	0	111	3	114	1	0	3	4	273
Total	39	486	2	527	12	0	24	36	2	312	8	322	3	0	11	14	899
08:00 AM	2	127	0	129	7	0	3	10	1	55	1	57	1	0	2	3	199
08:15 AM	0	123	0	123	5	0	4	9	2	80	3	85	6	0	3	9	226
08:30 AM	2	167	0	169	2	1	1	4	1	87	1	89	0	0	1	1	263
08:45 AM	2	159	0	161	3	0	5	8	1	105	2	108	2	0	1	3	280
Total	6	576	0	582	17	1	13	31	5	327	7	339	9	0	7	16	968
03:00 PM	5	126	1	132	4	0	2	6	2	93	2	97	0	0	1	1	236
03:15 PM	2	110	3	115	2	0	3	5	3	102	0	105	0	0	3	3	228
03:30 PM	4	128	0	132	5	0	2	7	3	108	2	113	2	0	2	4	256
03:45 PM	5	141	3	149	0	0	3	3	4	105	5	114	0	0	1	1	267
Total	16	505	7	528	11	0	10	21	12	408	9	429	2	0	7	9	987
04:00 PM	4	127	0	131	3	0	4	7	1	91	3	95	2	0	3	5	238
04:15 PM	8	132	2	142	1	0	2	3	2	128	1	131	0	0	3	3	279
04:30 PM	4	134	2	140	3	0	1	4	2	124	4	130	1	1	4	6	280
04:45 PM	3	142	0	145	3	0	5	8	5	146	2	153	0	0	5	5	311
Total	19	535	4	558	10	0	12	22	10	489	10	509	3	1	15	19	1108
05:00 PM	3	147	0	150	4	0	5	9	1	138	4	143	1	0	3	4	306
05:15 PM	5	168	3	176	1	0	3	4	2	96	2	100	0	0	1	1	281
05:30 PM	8	144	1	153	4	0	11	15	2	142	4	148	1	0	0	1	317
05:45 PM	12	139	1	152	2	0	5	7	2	126	5	133	1	1	1	3	295
Total	28	598	5	631	11	0	24	35	7	502	15	524	3	1	5	9	1199
Grand Total	110	2825	19	2954	63	1	89	153	38	2105	49	2192	24	2	49	75	5374
Apprch %	3.7	95.6	0.6		41.2	0.7	58.2		1.7	96	2.2		32	2.7	65.3		
Total %	2	52.6	0.4	55	1.2	0	1.7	2.8	0.7	39.2	0.9	40.8	0.4	0	0.9	1.4	
Cars	108	2787	18	2913	61	0	88	149	38	2079	48	2165	23	2	49	74	5301
% Cars	98.2	98.7	94.7	98.6	96.8	0	98.9	97.4	100	98.8	98	98.8	95.8	100	100	98.7	98.6
Buses	0	14	0	14	0	0	0	0	0	12	0	12	0	0	0	0	26
% Buses	0	0.5	0	0.5	0	0	0	0	0	0.6	0	0.5	0	0	0	0	0.5
Trucks	0	22	1	23	2	1	1	4	0	13	1	14	1	0	0	1	42
% Trucks	0	0.8	5.3	0.8	3.2	100	1.1	2.6	0	0.6	2	0.6	4.2	0	0	1.3	0.8
Bicycles on Road	2	2	0	4	0	0	0	0	0	1	0	1	0	0	0	0	5
% Bicycles on Road	1.8	0.1	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0.1

Cummins Consulting Services, PLLC

4661 Marlberry Place

Lexington, KY 40509

859.361.2589

"simplifying Data Collection since 2004"

File Name : Leland_Road_at_Chenoweth_Lane_234758_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

	KY1932 - Chenoweth Lane From North				Leland Road From East				KY1932 - Chenoweth Lane From South				Leland Road From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**27**	**150**	0	**177**	2	0	**12**	**14**	1	79	**3**	83	1	0	**4**	5	**279**
07:45 AM	6	140	**1**	147	4	0	4	8	0	**111**	3	**114**	1	0	3	4	273
08:00 AM	2	127	0	129	**7**	0	3	10	1	55	1	57	1	0	2	3	199
08:15 AM	0	123	0	123	5	0	4	9	**2**	80	3	85	**6**	0	3	**9**	226
Total Volume	35	540	1	576	18	0	23	41	4	325	10	339	9	0	12	21	977
% App. Total	6.1	93.8	0.2		43.9	0	56.1		1.2	95.9	2.9		42.9	0	57.1		
PHF	.324	.900	.250	.814	.643	.000	.479	.732	.500	.732	.833	.743	.375	.000	.750	.583	.875
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	3	142	0	145	3	0	5	8	**5**	**146**	2	**153**	0	0	**5**	**5**	311
05:00 PM	3	147	0	150	**4**	0	5	9	1	138	**4**	143	**1**	0	3	4	306
05:15 PM	5	**168**	**3**	**176**	1	0	3	4	2	96	2	100	0	0	1	1	281
05:30 PM	**8**	144	1	153	4	0	**11**	**15**	2	142	4	148	1	0	0	1	**317**
Total Volume	19	601	4	624	12	0	24	36	10	522	12	544	2	0	9	11	1215
% App. Total	3	96.3	0.6		33.3	0	66.7		1.8	96	2.2		18.2	0	81.8		
PHF	.594	.894	.333	.886	.750	.000	.545	.600	.500	.894	.750	.889	.500	.000	.450	.550	.958

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
859.361.2589
"simplifying Data Collection since 2004"

File Name : Washington_Square_at_Chenoweth_Lane_234757_05-21-2015
Sunny - 70 degrees
Site Code : KY1932
Schools in Session
Start Date : 5/21/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks - Bicycles on Road

	KY1932 - Chenoweth Lane From North			KY1932 - Chenoweth Lane From South			Washington Square From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
06:00 AM	17	0	17	1	9	10	0	1	1	28
06:15 AM	24	0	24	0	10	10	0	0	0	34
06:30 AM	34	0	34	0	23	23	0	1	1	58
06:45 AM	51	0	51	0	27	27	0	1	1	79
Total	126	0	126	1	69	70	0	3	3	199
07:00 AM	79	0	79	1	61	62	1	2	3	144
07:15 AM	117	0	117	0	51	51	0	2	2	170
07:30 AM	175	0	175	0	52	52	0	2	2	229
07:45 AM	137	1	138	0	87	87	1	0	1	226
Total	508	1	509	1	251	252	2	6	8	769
08:00 AM	142	1	143	0	55	55	0	4	4	202
08:15 AM	139	0	139	1	82	83	1	3	4	226
08:30 AM	164	1	165	0	91	91	0	4	4	260
08:45 AM	161	1	162	2	105	107	0	3	3	272
Total	606	3	609	3	333	336	1	14	15	960
03:00 PM	145	0	145	4	102	106	1	3	4	255
03:15 PM	120	3	123	1	94	95	1	4	5	223
03:30 PM	131	2	133	2	115	117	0	2	2	252
03:45 PM	132	4	136	1	120	121	2	1	3	260
Total	528	9	537	8	431	439	4	10	14	990
04:00 PM	128	3	131	4	96	100	0	2	2	233
04:15 PM	130	0	130	5	123	128	0	1	1	259
04:30 PM	137	1	138	2	138	140	0	1	1	279
04:45 PM	138	1	139	2	155	157	1	4	5	301
Total	533	5	538	13	512	525	1	8	9	1072
05:00 PM	155	1	156	1	146	147	2	3	5	308
05:15 PM	168	0	168	0	91	91	0	5	5	264
05:30 PM	149	1	150	4	150	154	2	1	3	307
05:45 PM	146	1	147	2	134	136	0	4	4	287
Total	618	3	621	7	521	528	4	13	17	1166
Grand Total	2919	21	2940	33	2117	2150	12	54	66	5156
Apprch %	99.3	0.7		1.5	98.5		18.2	81.8		
Total %	56.6	0.4	57	0.6	41.1	41.7	0.2	1	1.3	
Cars	2878	21	2899	33	2092	2125	12	54	66	5090
% Cars	98.6	100	98.6	100	98.8	98.8	100	100	100	98.7
Buses	12	0	12	0	11	11	0	0	0	23
% Buses	0.4	0	0.4	0	0.5	0.5	0	0	0	0.4
Trucks	26	0	26	0	13	13	0	0	0	39
% Trucks	0.9	0	0.9	0	0.6	0.6	0	0	0	0.8
Bicycles on Road	3	0	3	0	1	1	0	0	0	4
% Bicycles on Road	0.1	0	0.1	0	0	0	0	0	0	0.1

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
859.361.2589
"simplifying Data Collection since 2004"

File Name : Washington_Square_at_Chenoweth_Lane_234757_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

	KY1932 - Chenoweth Lane From North			KY1932 - Chenoweth Lane From South			Washington Square From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	142	**1**	143	0	55	55	0	**4**	**4**	202
08:15 AM	139	0	139	1	82	83	**1**	3	4	226
08:30 AM	**164**	1	**165**	0	91	91	0	4	4	260
08:45 AM	161	1	162	**2**	**105**	**107**	0	3	3	**272**
Total Volume	606	3	609	3	333	336	1	14	15	960
% App. Total	99.5	0.5		0.9	99.1		6.7	93.3		
PHF	.924	.750	.923	.375	.793	.785	.250	.875	.938	.882
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	138	**1**	139	2	**155**	**157**	1	4	**5**	301
05:00 PM	155	1	156	1	146	147	**2**	3	5	**308**
05:15 PM	**168**	0	**168**	0	91	91	0	**5**	5	264
05:30 PM	149	1	150	**4**	150	154	2	1	3	307
Total Volume	610	3	613	7	542	549	5	13	18	1180
% App. Total	99.5	0.5		1.3	98.7		27.8	72.2		
PHF	.908	.750	.912	.438	.874	.874	.625	.650	.900	.958

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
859.361.2589
"simplifying Data Collection since 2004"

Sunny - 70 degrees
Schools in Session

File Name : Elmwood_N_at_Chenoweth_Lane_234755_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks - Bicycles on Road

	KY1932 - Chenoweth Lane From North			Elmwood Avenue N From East			KY1932 - Chenoweth Lane From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
06:00 AM	0	18	18	2	0	2	13	1	14	34
06:15 AM	0	26	26	0	2	2	7	0	7	35
06:30 AM	0	39	39	0	2	2	19	0	19	60
06:45 AM	0	52	52	1	1	2	33	0	33	87
Total	0	135	135	3	5	8	72	1	73	216
07:00 AM	0	81	81	2	4	6	57	1	58	145
07:15 AM	1	130	131	4	4	8	54	1	55	194
07:30 AM	10	168	178	4	2	6	51	5	56	240
07:45 AM	1	141	142	7	3	10	83	0	83	235
Total	12	520	532	17	13	30	245	7	252	814
08:00 AM	2	140	142	4	7	11	53	0	53	206
08:15 AM	0	139	139	4	2	6	85	1	86	231
08:30 AM	0	183	183	2	5	7	82	2	84	274
08:45 AM	3	167	170	6	0	6	105	3	108	284
Total	5	629	634	16	14	30	325	6	331	995
03:00 PM	4	139	143	2	6	8	93	1	94	245
03:15 PM	2	118	120	4	2	6	98	2	100	226
03:30 PM	4	133	137	1	6	7	112	1	113	257
03:45 PM	2	133	135	0	1	1	111	2	113	249
Total	12	523	535	7	15	22	414	6	420	977
04:00 PM	2	130	132	3	1	4	100	1	101	237
04:15 PM	0	137	137	0	2	2	134	2	136	275
04:30 PM	1	140	141	0	2	2	137	1	138	281
04:45 PM	2	152	154	1	2	3	160	2	162	319
Total	5	559	564	4	7	11	531	6	537	1112
05:00 PM	0	160	160	2	0	2	140	0	140	302
05:15 PM	2	166	168	3	1	4	102	1	103	275
05:30 PM	1	145	146	1	1	2	146	0	146	294
05:45 PM	2	144	146	0	6	6	129	0	129	281
Total	5	615	620	6	8	14	517	1	518	1152
Grand Total	39	2981	3020	53	62	115	2104	27	2131	5266
Apprch %	1.3	98.7		46.1	53.9		98.7	1.3		
Total %	0.7	56.6	57.3	1	1.2	2.2	40	0.5	40.5	
Cars	36	2946	2982	52	60	112	2080	23	2103	5197
% Cars	92.3	98.8	98.7	98.1	96.8	97.4	98.9	85.2	98.7	98.7
Buses	1	12	13	0	1	1	10	1	11	25
% Buses	2.6	0.4	0.4	0	1.6	0.9	0.5	3.7	0.5	0.5
Trucks	2	20	22	1	1	2	13	3	16	40
% Trucks	5.1	0.7	0.7	1.9	1.6	1.7	0.6	11.1	0.8	0.8
Bicycles on Road	0	3	3	0	0	0	1	0	1	4
% Bicycles on Road	0	0.1	0.1	0	0	0	0	0	0	0.1

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4661 Marlberry Place

Lexington, KY 40509

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"simplifying Data Collection since 2004"

File Name : Elmwood_N_at_Chenoweth_Lane_234755_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

	KY1932 - Chenoweth Lane From North			Elmwood Avenue N From East			KY1932 - Chenoweth Lane From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	2	140	142	4	**7**	**11**	53	0	53	206
08:15 AM	0	139	139	4	2	6	85	1	86	231
08:30 AM	0	**183**	**183**	2	5	7	82	2	84	274
08:45 AM	**3**	167	170	**6**	0	6	**105**	**3**	**108**	**284**
Total Volume	5	629	634	16	14	30	325	6	331	995
% App. Total	0.8	99.2		53.3	46.7		98.2	1.8		
PHF	.417	.859	.866	.667	.500	.682	.774	.500	.766	.876
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**2**	152	154	1	**2**	3	**160**	**2**	**162**	**319**
05:00 PM	0	160	160	2	0	2	140	0	140	302
05:15 PM	2	**166**	**168**	**3**	1	**4**	102	1	103	275
05:30 PM	1	145	146	1	1	2	146	0	146	294
Total Volume	5	623	628	7	4	11	548	3	551	1190
% App. Total	0.8	99.2		63.6	36.4		99.5	0.5		
PHF	.625	.938	.935	.583	.500	.688	.856	.375	.850	.933

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4661 Marlberry Place
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"simplifying Data Collection since 2004"

File Name : Elmwood_Avenue_S_at_Chenoweth_Lane_234756_05-21-2015
Sunny - 70 degrees
Site Code : KY1932
Schools in Session
Start Date : 5/21/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks

	KY1932 - Chenoweth Lane From North			KY1932 - Chenoweth Lane From South			Elmwood Avenue S From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
06:00 AM	19	0	19	0	11	11	0	0	0	30
06:15 AM	26	0	26	0	8	8	0	0	0	34
06:30 AM	35	0	35	0	20	20	1	0	1	56
06:45 AM	52	0	52	1	30	31	0	2	2	85
Total	132	0	132	1	69	70	1	2	3	205
07:00 AM	84	0	84	0	60	60	1	0	1	145
07:15 AM	128	0	128	1	49	50	2	1	3	181
07:30 AM	170	0	170	1	55	56	3	4	7	233
07:45 AM	146	1	147	2	83	85	0	5	5	237
Total	528	1	529	4	247	251	6	10	16	796
08:00 AM	142	2	144	1	49	50	2	4	6	200
08:15 AM	146	0	146	1	78	79	1	4	5	230
08:30 AM	169	2	171	1	85	86	2	3	5	262
08:45 AM	180	1	181	0	105	105	1	0	1	287
Total	637	5	642	3	317	320	6	11	17	979
03:00 PM	147	0	147	2	88	90	0	2	2	239
03:15 PM	121	0	121	2	100	102	0	1	1	224
03:30 PM	137	0	137	3	110	113	2	1	3	253
03:45 PM	127	0	127	3	113	116	1	1	2	245
Total	532	0	532	10	411	421	3	5	8	961
04:00 PM	152	0	152	1	98	99	1	3	4	255
04:15 PM	139	0	139	1	135	136	0	1	1	276
04:30 PM	140	1	141	3	140	143	2	0	2	286
04:45 PM	142	2	144	2	155	157	2	3	5	306
Total	573	3	576	7	528	535	5	7	12	1123
05:00 PM	172	2	174	2	142	144	2	1	3	321
05:15 PM	175	1	176	3	99	102	0	3	3	281
05:30 PM	167	1	168	3	147	150	1	1	2	320
05:45 PM	158	1	159	1	130	131	0	0	0	290
Total	672	5	677	9	518	527	3	5	8	1212
Grand Total	3074	14	3088	34	2090	2124	24	40	64	5276
Apprch %	99.5	0.5		1.6	98.4		37.5	62.5		
Total %	58.3	0.3	58.5	0.6	39.6	40.3	0.5	0.8	1.2	
Cars	3041	14	3055	34	2062	2096	24	40	64	5215
% Cars	98.9	100	98.9	100	98.7	98.7	100	100	100	98.8
Buses	12	0	12	0	11	11	0	0	0	23
% Buses	0.4	0	0.4	0	0.5	0.5	0	0	0	0.4
Trucks	21	0	21	0	17	17	0	0	0	38
% Trucks	0.7	0	0.7	0	0.8	0.8	0	0	0	0.7

Cummins Consulting Services, PLLC

4661 Marlberry Place

Lexington, KY 40509

859.361.2589

"simplifying Data Collection since 2004"

File Name : Elmwood_Avenue_S_at_Chenoweth_Lane_234756_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

	KY1932 - Chenoweth Lane From North			KY1932 - Chenoweth Lane From South			Elmwood Avenue S From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	142	**2**	144	**1**	49	50	**2**	**4**	**6**	200
08:15 AM	146	0	146	1	78	79	1	4	5	230
08:30 AM	169	2	171	1	85	86	2	3	5	262
08:45 AM	**180**	1	**181**	0	**105**	**105**	1	0	1	**287**
Total Volume	637	5	642	3	317	320	6	11	17	979
% App. Total	99.2	0.8		0.9	99.1		35.3	64.7		
PHF	.885	.625	.887	.750	.755	.762	.750	.688	.708	.853
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	142	**2**	144	2	**155**	**157**	**2**	**3**	**5**	306
05:00 PM	172	2	174	2	142	144	2	1	3	**321**
05:15 PM	**175**	1	**176**	**3**	99	102	0	3	3	281
05:30 PM	167	1	168	3	147	150	1	1	2	320
Total Volume	656	6	662	10	543	553	5	8	13	1228
% App. Total	99.1	0.9		1.8	98.2		38.5	61.5		
PHF	.937	.750	.940	.833	.876	.881	.625	.667	.650	.956

Cummins Consulting Services, PLLC

4661 Marlberry Place
Lexington, KY 40509
859.361.2589
"simplifying Data Collection since 2004"

Sunny - 70 degrees
Schools in Session

File Name : Massie_Avenue_at_Chenoweth_Lane_234754_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015
Page No : 1

Groups Printed- Cars - Buses - Trucks - Bicycles on Road

	KY1932 - Chenoweth Lane From North				Massie Avenue From East				KY1932 - Chenoweth Lane From South				Massie Avenue From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	4	18	0	22	1	0	2	3	1	11	0	12	0	0	1	1	38
06:15 AM	1	26	1	28	7	0	0	7	0	5	1	6	0	2	0	2	43
06:30 AM	1	38	1	40	6	1	4	11	2	14	0	16	1	1	0	2	69
06:45 AM	4	53	1	58	7	1	1	9	1	29	0	30	2	2	1	5	102
Total	10	135	3	148	21	2	7	30	4	59	1	64	3	5	2	10	252
07:00 AM	6	77	0	83	7	0	8	15	0	50	0	50	4	1	5	10	158
07:15 AM	3	134	0	137	14	0	8	22	0	37	1	38	4	1	4	9	206
07:30 AM	3	176	0	179	13	0	5	18	0	47	5	52	1	0	4	5	254
07:45 AM	10	140	0	150	7	1	5	13	0	79	3	82	2	2	3	7	252
Total	22	527	0	549	41	1	26	68	0	213	9	222	11	4	16	31	870
08:00 AM	14	136	0	150	14	2	10	26	2	41	4	47	1	0	3	4	227
08:15 AM	5	143	0	148	11	0	15	26	0	68	2	70	3	1	0	4	248
08:30 AM	13	174	0	187	13	0	12	25	2	71	3	76	2	0	1	3	291
08:45 AM	7	162	0	169	12	0	18	30	3	85	4	92	2	1	3	6	297
Total	39	615	0	654	50	2	55	107	7	265	13	285	8	2	7	17	1063
03:00 PM	12	134	3	149	9	1	12	22	2	88	5	95	2	0	2	4	270
03:15 PM	14	108	3	125	14	0	14	28	1	93	7	101	1	1	0	2	256
03:30 PM	7	126	1	134	7	3	15	25	2	98	11	111	2	0	2	4	274
03:45 PM	10	130	2	142	13	0	15	28	3	106	7	116	0	1	3	4	290
Total	43	498	9	550	43	4	56	103	8	385	30	423	5	2	7	14	1090
04:00 PM	13	126	4	143	11	1	15	27	3	91	2	96	2	0	4	6	272
04:15 PM	3	129	3	135	15	3	28	46	1	108	3	112	1	0	2	3	296
04:30 PM	10	125	4	139	20	1	18	39	1	120	7	128	2	0	6	8	314
04:45 PM	12	136	2	150	5	1	22	28	4	143	8	155	1	1	1	3	336
Total	38	516	13	567	51	6	83	140	9	462	20	491	6	1	13	20	1218
05:00 PM	17	138	3	158	12	3	25	40	1	108	4	113	1	2	3	6	317
05:15 PM	19	152	8	179	11	0	26	37	1	85	6	92	0	0	3	3	311
05:30 PM	12	139	5	156	16	1	20	37	1	129	8	138	0	1	3	4	335
05:45 PM	17	127	2	146	7	3	14	24	1	113	4	118	3	0	2	5	293
Total	65	556	18	639	46	7	85	138	4	435	22	461	4	3	11	18	1256
Grand Total	217	2847	43	3107	252	22	312	586	32	1819	95	1946	37	17	56	110	5749
Apprch %	7	91.6	1.4		43	3.8	53.2		1.6	93.5	4.9		33.6	15.5	50.9		
Total %	3.8	49.5	0.7	54	4.4	0.4	5.4	10.2	0.6	31.6	1.7	33.8	0.6	0.3	1	1.9	
Cars	210	2815	43	3068	251	22	308	581	32	1794	92	1918	37	17	55	109	5676
% Cars	96.8	98.9	100	98.7	99.6	100	98.7	99.1	100	98.6	96.8	98.6	100	100	98.2	99.1	98.7
Buses	4	8	0	12	0	0	2	2	0	7	0	7	0	0	1	1	22
% Buses	1.8	0.3	0	0.4	0	0	0.6	0.3	0	0.4	0	0.4	0	0	1.8	0.9	0.4
Trucks	3	22	0	25	1	0	2	3	0	17	3	20	0	0	0	0	48
% Trucks	1.4	0.8	0	0.8	0.4	0	0.6	0.5	0	0.9	3.2	1	0	0	0	0	0.8
Bicycles on Road	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
% Bicycles on Road	0	0.1	0	0.1	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.1

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File Name : Massie_Avenue_at_Chenoweth_Lane_234754_05-21-2015
Site Code : KY1932
Start Date : 5/21/2015

	KY1932 - Chenoweth Lane From North				Massie Avenue From East				KY1932 - Chenoweth Lane From South				Massie Avenue From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	**14**	136	0	150	**14**	**2**	10	26	2	41	**4**	47	1	0	**3**	4	227
08:15 AM	5	143	0	148	11	0	15	26	0	68	2	70	**3**	**1**	0	4	248
08:30 AM	13	**174**	0	**187**	13	0	12	25	2	71	3	76	2	0	1	3	291
08:45 AM	7	162	0	169	12	0	**18**	**30**	**3**	**85**	4	**92**	2	1	3	**6**	**297**
Total Volume	39	615	0	654	50	2	55	107	7	265	13	285	8	2	7	17	1063
% App. Total	6	94	0		46.7	1.9	51.4		2.5	93	4.6		47.1	11.8	41.2		
PHF	.696	.884	.000	.874	.893	.250	.764	.892	.583	.779	.813	.774	.667	.500	.583	.708	.895
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	12	136	2	150	5	1	22	28	**4**	**143**	**8**	**155**	**1**	1	1	3	**336**
05:00 PM	17	138	3	158	12	**3**	25	**40**	1	108	4	113	1	**2**	**3**	**6**	317
05:15 PM	**19**	**152**	**8**	**179**	11	0	**26**	37	1	85	6	92	0	0	3	3	311
05:30 PM	12	139	5	156	**16**	1	20	37	1	129	8	138	0	1	3	4	335
Total Volume	60	565	18	643	44	5	93	142	7	465	26	498	2	4	10	16	1299
% App. Total	9.3	87.9	2.8		31	3.5	65.5		1.4	93.4	5.2		12.5	25	62.5		
PHF	.789	.929	.563	.898	.688	.417	.894	.888	.438	.813	.813	.803	.500	.500	.833	.667	.967

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Sunny - 70 degrees
Schools in Session

File Name : Chenoweth_Staebler-Kennison-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

Groups Printed- Bikes - Motorcycles - Cars - Light Good Vehicles - Buses - Single Unit Trucks - Articulated Trucks

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
12:00 AM	4	4	8	8	12
12:15 AM	8	8	8	8	16
12:30 AM	8	8	7	7	15
12:45 AM	5	5	3	3	8
Total	25	25	26	26	51
01:00 AM	6	6	3	3	9
01:15 AM	2	2	1	1	3
01:30 AM	2	2	2	2	4
01:45 AM	2	2	2	2	4
Total	12	12	8	8	20
02:00 AM	2	2	2	2	4
02:30 AM	4	4	6	6	10
02:45 AM	0	0	3	3	3
Total	6	6	11	11	17
03:00 AM	3	3	3	3	6
03:15 AM	0	0	2	2	2
03:30 AM	3	3	1	1	4
03:45 AM	4	4	2	2	6
Total	10	10	8	8	18
04:00 AM	3	3	1	1	4
04:15 AM	3	3	2	2	5
04:30 AM	5	5	4	4	9
04:45 AM	19	19	1	1	20
Total	30	30	8	8	38
05:00 AM	6	6	3	3	9
05:15 AM	10	10	4	4	14
05:30 AM	16	16	5	5	21
05:45 AM	33	33	5	5	38
Total	65	65	17	17	82
06:00 AM	19	19	12	12	31
06:15 AM	35	35	5	5	40
06:30 AM	45	45	15	15	60
06:45 AM	63	63	29	29	92
Total	162	162	61	61	223
07:00 AM	93	93	50	50	143
07:15 AM	152	152	37	37	189
07:30 AM	190	190	60	60	250
07:45 AM	150	150	81	81	231
Total	585	585	228	228	813
08:00 AM	150	150	51	51	201
08:15 AM	151	151	77	77	228
08:30 AM	185	185	86	86	271
08:45 AM	169	169	96	96	265
Total	655	655	310	310	965
09:00 AM	141	141	89	89	230

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File Name : Chenoweth_Staebler-Kennison-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

Groups Printed- Bikes - Motorcycles - Cars - Light Good Vehicles - Buses - Single Unit Trucks - Articulated Trucks

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
09:15 AM	113	113	77	77	190
09:30 AM	112	112	66	66	178
09:45 AM	126	126	89	89	215
Total	492	492	321	321	813
10:00 AM	136	136	87	87	223
10:15 AM	100	100	75	75	175
10:30 AM	139	139	80	80	219
10:45 AM	113	113	94	94	207
Total	488	488	336	336	824
11:00 AM	89	89	92	92	181
11:15 AM	131	131	85	85	216
11:30 AM	162	162	92	92	254
11:45 AM	148	148	110	110	258
Total	530	530	379	379	909
12:00 PM	126	126	117	117	243
12:15 PM	149	149	86	86	235
12:30 PM	141	141	98	98	239
12:45 PM	149	149	108	108	257
Total	565	565	409	409	974
01:00 PM	137	137	104	104	241
01:15 PM	122	122	121	121	243
01:30 PM	118	118	96	96	214
01:45 PM	127	127	121	121	248
Total	504	504	442	442	946
02:00 PM	130	130	104	104	234
02:15 PM	137	137	105	105	242
02:30 PM	159	159	129	129	288
02:45 PM	164	164	122	122	286
Total	590	590	460	460	1050
03:00 PM	154	154	100	100	254
03:15 PM	128	128	102	102	230
03:30 PM	140	140	119	119	259
03:45 PM	149	149	122	122	271
Total	571	571	443	443	1014
04:00 PM	147	147	106	106	253
04:15 PM	151	151	111	111	262
04:30 PM	153	153	140	140	293
04:45 PM	145	145	155	155	300
Total	596	596	512	512	1108
05:00 PM	156	156	116	116	272
05:15 PM	169	169	96	96	265
05:30 PM	162	162	141	141	303
05:45 PM	143	143	121	121	264
Total	630	630	474	474	1104
06:00 PM	153	153	115	115	268
06:15 PM	130	130	100	100	230
06:30 PM	122	122	89	89	211

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File Name : Chenoweth_Staebler-Kennison-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

Groups Printed- Bikes - Motorcycles - Cars - Light Good Vehicles - Buses - Single Unit Trucks - Articulated Trucks

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
06:45 PM	122	122	95	95	217
Total	527	527	399	399	926
07:00 PM	124	124	97	97	221
07:15 PM	105	105	94	94	199
07:30 PM	76	76	67	67	143
07:45 PM	74	74	63	63	137
Total	379	379	321	321	700
08:00 PM	69	69	73	73	142
08:15 PM	64	64	68	68	132
08:30 PM	59	59	56	56	115
08:45 PM	67	67	59	59	126
Total	259	259	256	256	515
09:00 PM	47	47	61	61	108
09:15 PM	33	33	67	67	100
09:30 PM	57	57	49	49	106
09:45 PM	32	32	41	41	73
Total	169	169	218	218	387
10:00 PM	37	37	24	24	61
10:15 PM	35	35	36	36	71
10:30 PM	22	22	26	26	48
10:45 PM	23	23	25	25	48
Total	117	117	111	111	228
11:00 PM	13	13	23	23	36
11:15 PM	17	17	17	17	34
11:30 PM	12	12	23	23	35
11:45 PM	15	15	16	16	31
Total	57	57	79	79	136
Grand Total	8024	8024	5837	5837	13861
Apprch %	100		100		
Total %	57.9	57.9	42.1	42.1	
Bikes	5	5	1	1	6
% Bikes	0.1	0.1	0	0	0
Motorcycles	6	6	5	5	11
% Motorcycles	0.1	0.1	0.1	0.1	0.1
Cars	7253	7253	5217	5217	12470
% Cars	90.4	90.4	89.4	89.4	90
Light Good Vehicles	687	687	535	535	1222
% Light Good Vehicles	8.6	8.6	9.2	9.2	8.8
Buses	11	11	10	10	21
% Buses	0.1	0.1	0.2	0.2	0.2
Single Unit Trucks	58	58	62	62	120
% Single Unit Trucks	0.7	0.7	1.1	1.1	0.9
Articulated Trucks	4	4	7	7	11
% Articulated Trucks	0	0	0.1	0.1	0.1

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File Name : Chenoweth_Staebler-Kennison-24Hr
Site Code : Hinkleville Road
Start Date : 5/20/2015

	KY1932 - Chenoweth Lane From North		KY1932 - Chenoweth Lane From South		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 12:00 AM to 09:45 AM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 08:15 AM					
08:15 AM	151	151	77	77	228
08:30 AM	**185**	**185**	86	86	**271**
08:45 AM	169	169	**96**	**96**	265
09:00 AM	141	141	89	89	230
Total Volume	646	646	348	348	994
% App. Total	100		100		
PHF	.873	.873	.906	.906	.917
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 11:30 AM					
11:30 AM	**162**	**162**	92	92	254
11:45 AM	148	148	110	110	**258**
12:00 PM	126	126	**117**	**117**	243
12:15 PM	149	149	86	86	235
Total Volume	585	585	405	405	990
% App. Total	100		100		
PHF	.903	.903	.865	.865	.959
Peak Hour Analysis From 02:00 PM to 11:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 04:45 PM					
04:45 PM	145	145	**155**	**155**	300
05:00 PM	156	156	116	116	272
05:15 PM	**169**	**169**	96	96	265
05:30 PM	162	162	141	141	**303**
Total Volume	632	632	508	508	1140
% App. Total	100		100		
PHF	.935	.935	.819	.819	.941

Train Crossing Data

Date	Gate Down Time	Gate Up Time	Duration	Direction
05/20/15 (Wed)	5:16:26 PM	5:19:32 PM	0:03:06	E→W
05/20/15 (Wed)	5:35:34 PM	5:40:11 PM	0:04:37	W→E
05/20/15 (Wed)	6:58:12 PM	7:00:20 PM	0:02:08	E→W
05/20/15 (Wed)	7:39:27 PM	7:43:42 PM	0:04:15	W→E
05/20/15 (Wed)	8:03:15 PM	8:05:17 PM	0:02:02	E→W
05/20/15 (Wed)	9:00:17 PM	9:04:53 PM	0:04:36	W→E
05/20/15 (Wed)	9:39:01 PM	9:43:06 PM	0:04:05	E→W
05/20/15 (Wed)	11:07:38 PM	11:11:51 PM	0:04:13	E→W
05/21/15 (Thu)	12:04:37 AM	12:09:47 AM	0:05:10	W→E
05/21/15 (Thu)	12:24:06 AM	12:28:52 AM	0:04:46	W→E
05/21/15 (Thu)	12:50:45 AM	12:52:36 AM	0:01:51	E→W
05/21/15 (Thu)	1:00:59 AM	1:03:15 AM	0:02:16	E→W
05/21/15 (Thu)	4:13:32 AM	4:15:13 AM	0:01:41	W→E
05/21/15 (Thu)	5:02:03 AM	5:04:37 AM	0:02:34	W→E
05/21/15 (Thu)	5:35:47 AM	5:41:57 AM	0:06:10	W→E
05/21/15 (Thu)	6:22:05 AM	6:28:24 AM	0:06:19	W→E
05/21/15 (Thu)	8:09:19 AM	8:11:16 AM	0:01:57	W→E
05/21/15 (Thu)	9:18:09 AM	9:19:12 AM	0:01:03	
05/21/15 (Thu)	9:20:19 AM	9:21:01 AM	0:00:42	
05/21/15 (Thu)	9:57:30 AM	10:01:57 AM	0:04:27	E→W
05/21/15 (Thu)	12:19:38 PM	12:23:34 PM	0:03:56	E→W
05/21/15 (Thu)	12:58:17 PM	12:59:47 PM	0:01:30	W→E
05/21/15 (Thu)	3:18:58 PM	3:23:47 PM	0:04:49	E→W
05/21/15 (Thu)	5:19:52 PM	5:23:32 PM	0:03:40	W→E
05/21/15 (Thu)	7:25:40 PM	7:27:57 PM	0:02:17	E→W
05/21/15 (Thu)	7:40:12 PM	7:42:20 PM	0:02:08	E→W
05/21/15 (Thu)	8:15:55 PM	8:20:26 PM	0:04:31	W→E
05/21/15 (Thu)	8:37:00 PM	8:42:00 PM	0:05:00	W→E
05/21/15 (Thu)	9:44:15 PM	9:50:27 PM	0:06:12	W→E
05/21/15 (Thu)	10:51:16 PM	10:55:12 PM	0:03:56	E→W
05/21/15 (Thu)	11:08:40 PM	11:12:55 PM	0:04:15	W→E
05/22/15 (Fri)	12:32:51 AM	12:34:49 AM	0:01:58	W→E
05/22/15 (Fri)	1:07:47 AM	1:09:50 AM	0:02:03	E→W
05/22/15 (Fri)	2:08:46 AM	2:13:30 AM	0:04:44	E→W
05/22/15 (Fri)	2:44:19 AM	2:50:23 AM	0:06:04	W→E
05/22/15 (Fri)	4:34:22 AM	4:39:15 AM	0:04:53	E→W
05/22/15 (Fri)	6:25:43 AM	6:28:35 AM	0:02:52	E→W
05/22/15 (Fri)	7:37:12 AM	7:39:10 AM	0:01:58	W→E
05/22/15 (Fri)	8:25:04 AM	8:28:15 AM	0:03:11	E→W

05/22/15 (Fri)	9:26:45 AM	9:28:02 AM	0:01:17	W→E
05/22/15 (Fri)	12:18:17 PM	12:23:35 PM	0:05:18	E→W
05/22/15 (Fri)	1:23:34 PM	1:27:47 PM	0:04:13	E→W
05/22/15 (Fri)	3:11:30 PM	3:16:32 PM	0:05:02	W→E
05/22/15 (Fri)	3:39:30 PM	3:44:30 PM	0:05:00	W→E
05/22/15 (Fri)	4:42:10 PM	4:45:33 PM	0:03:23	W→E
05/22/15 (Fri)	5:13:30 PM	5:15:01 PM	0:01:31	E→W
05/22/15 (Fri)	6:48:52 PM	6:52:52 PM	0:04:00	W→E
05/22/15 (Fri)	7:30:31 PM	7:32:42 PM	0:02:11	E→W
05/22/15 (Fri)	7:38:46 PM	7:43:41 PM	0:04:55	W→E
05/22/15 (Fri)	9:32:40 PM	9:36:10 PM	0:03:30	E→W
05/22/15 (Fri)	9:48:17 PM	9:52:16 PM	0:03:59	W→E
05/22/15 (Fri)	11:22:30 PM	11:23:50 PM	0:01:20	E→W
05/23/15 (Sat)	12:05:09 AM	12:10:12 AM	0:05:03	W→E