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Lexington Area Congestion Management Bottleneck Study

Lexington, KY

Lexington Area Metropolitan Planning Organization (MPO)

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Prepared for:

Lexington Area Metropolitan Planning Organization (MPO)

Congestion Management Bottleneck Study Steering Committee Members:

Sam Hu, LAMPO
Max Conyers, LAMPO
Kenzie Gleason, LAMPO
Chris Evilia, LAMPO
Stuart Kearns, LAMPO
Jason Allinder, LFUCG
Joel Weber, LFUCG
Douglas Burton, LFUCG
Andrew Grunwald, LFUCG
Julia Shaw, Lexington Police Department
Thomas Witt, KYTC
Scott Thomson, KYTC
Sadie Middleton, KYTC
Casey Smith, KYTC
Kim Bayert, KYTC
Joshua Samples, KYTC

Prepared by:

Vanessa Nghiem, PE, PTOE
OH/KY Traffic Lead, Transportation
T: (513) 419-3451
M: (859) 466-3179
E: vanessa.nghiem@aecom.com

AECOM
525 Vine Street
Cincinnati, OH 45202
aecom.com

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Executive Summary

The Lexington Area Metropolitan Planning Organization (MPO) in coordination with Lexington-Fayette Urban County Government (LFUCG) selected AECOM to conduct a Congestion Management (CM) Bottleneck Study of the CM Network in the MPO two-county area in August 2020. The primary purpose of this Study is to identify roadway bottlenecks on the CM Network, evaluate bottleneck conditions, rank the bottlenecks, propose bottleneck-relief improvements, and provide preliminary engineering cost estimates for each of the proposed improvements. A Steering Committee including members from the Lexington MPO, the Kentucky Transportation Cabinet (KYTC) Planning / District 7 and the LFUCG Traffic Engineering / Engineering Divisions was established at the onset of the study which provided members the opportunity to participate in regular meetings throughout the duration of the study.

Historical probe data, future travel demand modeling and field observation information was used to identify bottleneck locations for further evaluation. The list was pared down by eliminating duplicate locations, locations with a future programmed project and locations where costs greatly outweighed expected benefit. From the filtered list, the bottleneck locations were reviewed, and improvement concepts were developed to address the associated congestion and/or safety concerns. For intersections and junctions, the FHWA Capacity Analysis Comparison Tool was used as a clearinghouse for comparison of possible solutions. Synchro traffic modeling software was also used to compare the performance of recommended improvement concepts with existing conditions.

The next step included the development of costs estimates and estimates of benefits for each selected improvement concept. This information will allow the MPO to plan for the scale of projects that would be needed to address the congestion issues for any given location. Although they are termed “projects” for the purposes of this study, these concepts were developed at a planning level only and would require additional study and data collection before moving to design. Each project was evaluated based on potential reduction in congestion and improvement to safety, but these are only two factors to be considered when projects are selected to move forward. The MPO will weigh other aspects as part of the Metropolitan Transportation Plan. The final list of thirty-two improvement concepts ranges from signal timing changes to displaced left turn innovative intersections. The projects were located primarily in Fayette County with one corridor in Jessamine County. The project costs range from under $10,000 to $39 million (for an entire corridor access management plan).

The cost to benefit of each improvement concept was estimated using estimated reduction in delays to give the MPO a path forward on how and where to prioritize projects. In some cases, projects already planned but not yet programmed have been included to support the importance of these concepts. Project with low costs are the easiest to tackle without out requiring programming of major funds. The impacts of the lower cost concepts are less, but still provide benefits. The medium and higher cost concepts would be next to prioritize. Those providing the highest benefit in reduction of delay should be considered first but for many of these concepts, they may dovetail in with other projects planned in the future. Having this list moving forward will allow the MPO to better target needs and expand program projects in some cases. It is recommended that all locations and prospective projects be studied in further detail to refine the concepts before progressing to design phase.

1. Introduction

The Lexington Area MPO desires to program valuable projects in the Lexington area that will reduce congestion and improve safety. According to the Federal Highway Administration (FHWA), a traffic bottleneck is *"A localized section of highway that experiences reduced speeds and inherent delays due to a recurring operational influence or a nonrecurring impacting event".* This study was requested to identify congestion at bottlenecks, analyze traffic operations, and develop concepts for improving traffic operations while maintaining multimodal transportation systems. This report discusses the worst bottleneck locations and prioritizes the infrastructure improvements to invest in the most critical transportation projects.

2. Purpose and Objectives

The Lexington Area Metropolitan Planning Organization (MPO) has a population greater than 200,000, which requires a Congestion Management Process (CMP) to monitor congestion, travel reliability and effectiveness of congestion reduction efforts according to federal law. The CMP also informs the development of the short and long-range transportation plans for the area.

Key purposes of the Bottleneck Study are:

- **reduce congestion**
- **improve safety**
- **identify critical transportation projects to program for investment**
- **prioritize projects and programs**
- **develop conceptual designs**

The Bottleneck Study was focused on reduction of congestion and improving safely throughout the MPO region, but those are not the sole factors the MPO will consider when selecting projects. This study was not intended to identify these other factors and they will be evaluated by MPO staff as part of the Metropolitan Transportation Plan.

Conceptual projects have been developed for planning purposes, but additional study will be necessary for each recommendation as part of any design phase to refine the concepts.

3. Steering Committee

To make this project a success, participation and buy-in from stakeholder agencies was imperative. AECOM worked with Lexington Area MPO members to identify appropriate contacts at stakeholder agencies to participate as a Steering Committee. The entire list of committee members is included inside the cover of this report. The Steering Committee included representatives from the following agencies:

- Lexington Area Metropolitan Planning Organization (LAMPO)
- Lexington-Fayette Urban County Government (LFUCG) Traffic, Engineering
- Lexington Police Department (LPD)
- Kentucky Transportation Cabinet (KYTC) Division of Planning
- KYTC District Seven Traffic, Planning, Design

Steering Committee members actively participated in monthly (or biweekly, in some cases) meetings. The Committee provided invaluable data for the Bottleneck Study that included:

- Vetting of data driven top bottleneck locations *(Is there really a problem here?)*
- Supplemental location identification *(Why is this location not on our list?)*
- Background on issues at targeted locations *(This is a northbound issue in the morning)*
- Annual list of highest crash locations
- Knowledge of programmed projects
- Critique and review of improvement concepts

4. Identification of Existing and Future Bottlenecks

Available data sources were leveraged to identify and rank bottleneck locations in the Congestion Management (CM) Network two-county MPO area. Historic probe data, future travel demand models, crash data and polling of steering committee members were compiled to gain an understanding of where delays historically occur, where delays will occur in the future, and where safety concerns exist.

4.1 INRIX Data Analysis

INRIX is a subscription-based data platform that leverages probe data from connected vehicles. Connected vehicles include fleet vehicles and personal vehicles in which anonymous data can be collected using any connected device including On-Star, cell phones, etc. LFUCG and the MPO already had an agreement in place with INRIX, which streamlined the data collection effort. There is great value in the sheer amount of data that INRIX can provide. Data can be sorted and filtered by year, month, day and even, time of day. For the purposes of this study, historical data from 2017-2019 was used. 2020 data was available but considered atypical due to the impacts to travel patterns during the pandemic. Weekdays as well as weekends were granulated into hour long periods. **Figure 4-1** below shows the mapped area studied using INRIX data.

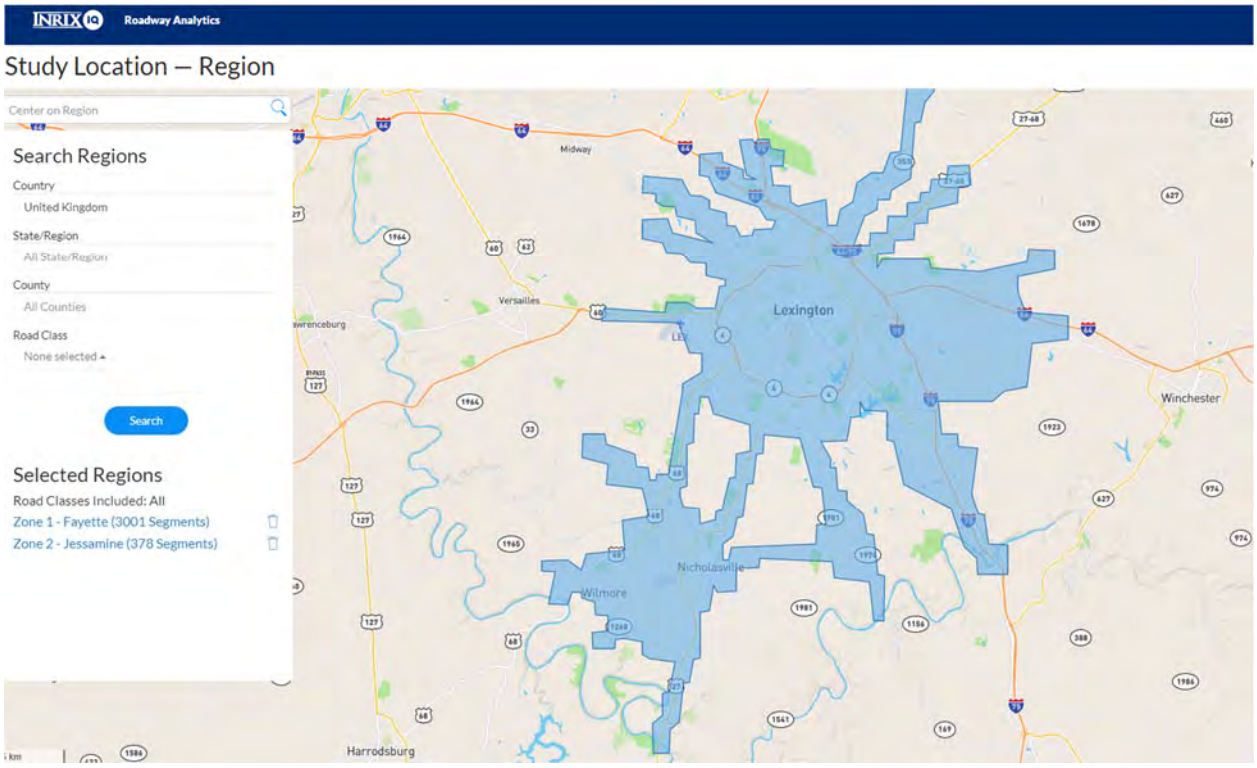


Figure 4-1: INRIX Study Area

INRIX not only offers the probe data itself, but also offers reporting and analytic tools that aide in easily extracting insights from big data. The suite of browser-based tools provided with a subscription include a Roadway Analytics component. Within the Roadway Analytics, there is a "Bottleneck Ranking" tool that proved to be a starting point for narrowing the scope of the Bottleneck Study. The detection of bottlenecks is based on comparisons of speeds to reference speeds, which are the proxy of the free flow or uncongested speed. A potential bottleneck is detected when speeds on a segment drop to 65% of the reference speed, and a bottleneck is published if speeds stay below 65% and causes 120 seconds of delay. If the speed remains below 75% of the reference speed, the bottleneck will not be cleared.

While the Bottleneck Ranking tool within INRX provided a great starting point, there was a significant amount of data that required scrubbing to understand the information provided. For instance, INRIX provides a Bottleneck Ranking factor based on Occurrences, Averages, Max Duration and Average Maximum Length. Bottlenecks are calculated by the head segment. If the speed drops below 65% of the reference speed for more than two minutes, the data at the beginning of the bottleneck (starting two minutes prior) is targeted. All segments behind that head segment are grouped until a segment is above the 65% threshold. This remains as a bottleneck until the head segment rises above 70% of reference speed. The tail may change in length but if the head remains the same it is grouped as the same bottleneck. However, if bottlenecks begin in a different place, which could be an adjacent segment, this will be considered a new bottleneck. This caused some redundancy in the initial data query. A closer look at every corridor identified in the study area was required to filter duplications. It also rendered the ranking directly from INRIX unusable.

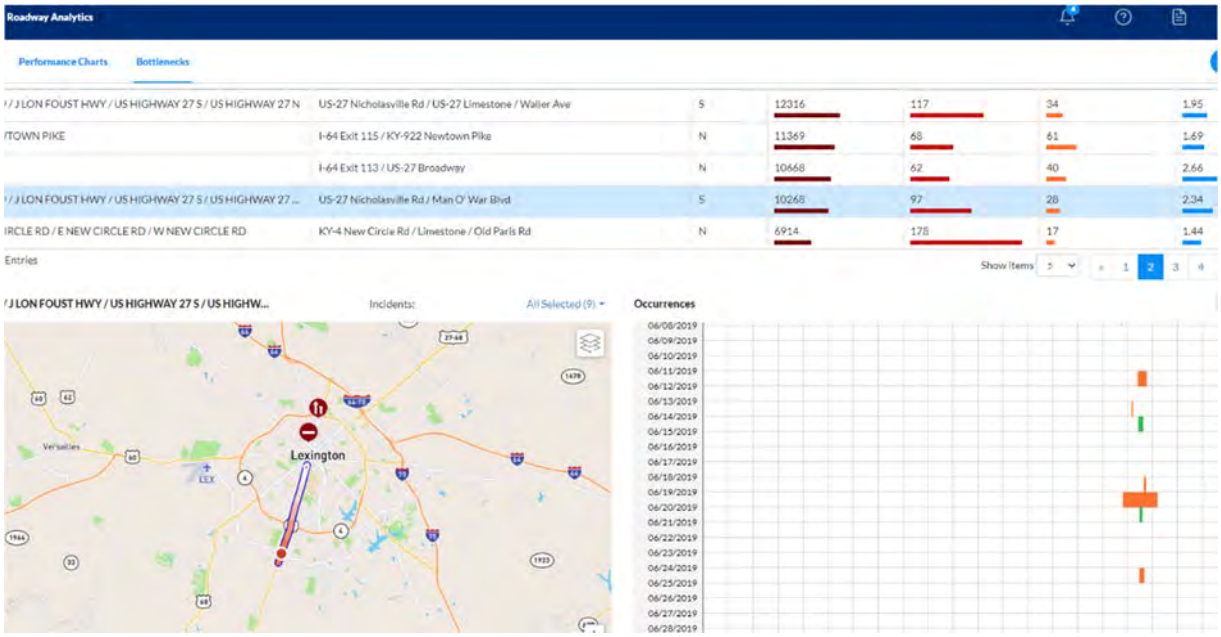


Figure 4-2: INRIX Bottleneck Analytics

Although the initial list had over a thousand bottlenecks listed, aggregating the data and eliminating locations that were beyond the Congestion Management Network trimmed the list. Additionally, locations were eliminated if the number of occurrences was very small (less than ten in one year), which reduced the list drastically. **Figure 4-2** above shows the Bottleneck Analysis interface in INRIX. It was assumed locations with a low rate of occurrence were based on incidents or special events. Once the data was thoroughly scrubbed and duplications were eliminated, the top 40 locations were mapped using GIS to begin the initial review with the Steering Committee.

4.2 Observation and Crash Reviews

After the historical bottleneck locations in the CM Network were compiled using INRIX, the Steering Committee was surveyed to capture additional “pain point” locations that may not have shown up with the probe data analytics. The stakeholder agencies provided locations that receive driver complaints, are known bottlenecks or had recurring safety concerns. The yearly list of the top crash locations for The MPO region for 2017-2019 for intersections and segments was also studied. This data was queried from the Lexington Police Department’s Annual Traffic

Reports that summarize top locations for various traffic related items such as red light running, crashes, and crashes with injuries. A high occurrence of crashes does not necessarily equate to a bottleneck or congestion problem, but these locations were included to review more closely. If a location had a high crash rate as well as supporting congestion data from INRIX and was a known issue, it remained on the list. However, if a location only had a safety issue and there was no evidence to suggest a bottleneck, it was eliminated. While safety is always a priority for our traveling public, the focus of the study was to identify bottleneck locations. Opportunities to improve safety with each of the bottleneck locations were explored where possible.

With the large amount of data and various data sources, the easiest way to digest the information was using GIS and sharing the data via GoogleMaps kmz files to map all data sources allowing a view of hotspots and overlaps. **Figure 4-3** shows all historical data sources overlaid on a map of the area. This information is also provided in **Appendix A** for easier viewing.

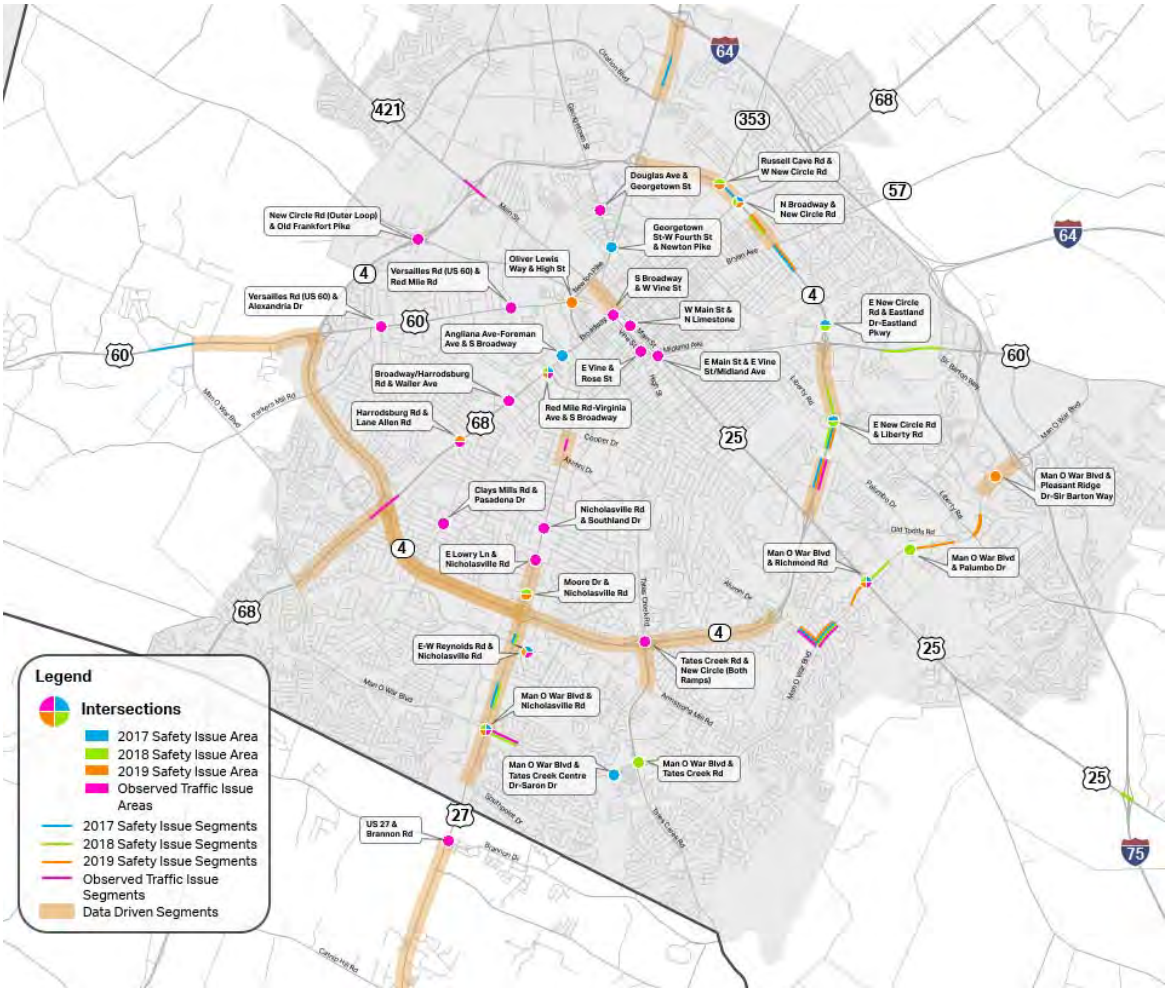


Figure 4-3: Data-Driven, Observation and Safety Issue Locations Map

4.3 Future MPO Transportation Planning Model

A review of the MPO Travel Demand Model for the five- and ten-year horizon was the last layer of data to study to gain a comprehensive look at bottleneck locations. The scope for the study requested identification of current roadway bottlenecks (Top 10), forecast 5-year future bottlenecks (Top 10), and forecast 10-year future bottlenecks (Top 10). While the travel demand

models cannot predict a future bottleneck, it can provide data that would indicate a potential congestion issue. Capacity issues can be detected and compared from the current model to future models. For each future model, the maximum volume to capacity (v/c) ratios of both travel directions on each link in the AM and PM peak periods was recorded. Segments were color-coded and flagged if the v/c ratio was greater than 0.85 (equates to Level of Service E) and greater than 1.0 (equates to Level of Service F). The color-coded segments were overlaid on the locations previously identified via INRIX, high crash locations, or observed issues. The segments with undesirable v/c ratios in the future model matched very closely with the segments and intersections that had already been captured using historical information. This indicated that the top locations of bottlenecks in the future are already causing problems today. With the future data incorporated, the Steering Committee determined that it made sense to simply flag the top 30 bottleneck locations and dive further into the issues and possible solutions instead of dividing them by current or future bottleneck. See **Appendix B** for a larger version of the map below illustrating locations with LOS E or F in the 2020, 2025 and 2030 Travel Demand Models.

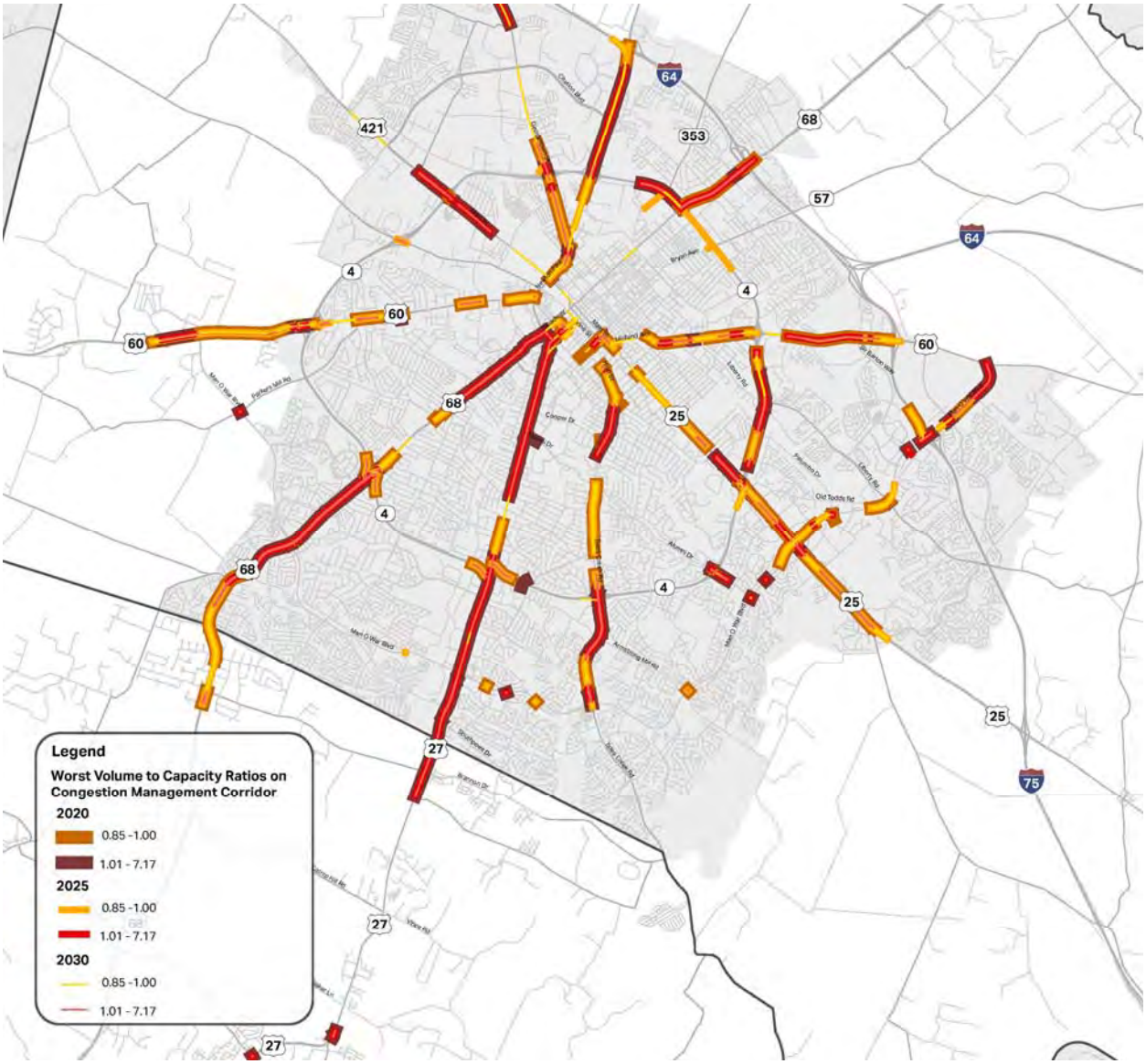


Figure 4-4: Travel Demand Model Undesirable LOS Segments

4.4 Capacity Analysis

Now that a list of locations had been established using all data sources available, the next step was to evaluate possible solutions. LFUCG provided microsimulation models for each location in which a model existed. The models included peak hour volume counts. The Synchro models are what LFUCG uses to develop timing along the signal timing corridors in Fayette County. Fortunately, LFUCG had at least one peak hour model for nearly every location selected for project development. While the year of the counts in the models may have varied, there was enough information to evaluate the efficacy of various alternatives against each other. All improvement concepts developed are meant to be a starting point and each location requires further study with updated data. It should be noted that this study's scope did not include the collection of new traffic count data. The Steering Committee agreed that at the network analysis level, the methodology detailed in this section was appropriate.

The FHWA Office of Operations Research and Development (R&D) has developed the Capacity Analysis for Planning of Junctions (CAP-X) tool. This can be used to evaluate selected types of innovative junction designs (eight intersections, five interchanges, three roundabouts and two mini-roundabouts) using given peak flow volumes. The intersections and interchanges are evaluated using the method of critical lane volume summation to provide planning capacity assessment at each crossing. The roundabouts are evaluated using the equations in the Highway Capacity Manual (HCM) 2010 to determine lane capacities, except the three-lane roundabout. The entire CAP-X tool has been developed using Microsoft Excel; This workbook is designed to be very straightforward with only volume counts and number of lanes needed to be entered into the tool. The Excel workbook has 32 spreadsheets that analyze 17 different types of innovative junctions. Some of the key junctions in CAP-X include: displaced left turn, three-lane roundabout, double crossover diamond, and the single point interchange. CAP-X is a cost-effective sketch-planning tool that will help users focus on more effective intersection and interchange designs prior to conducting more demanding traffic simulations. The CAP-X results are compiled in **Appendix C**.

CAP-X analysis was conducted on each intersection in the list of top bottlenecks where it was determined basic widening or signal timing was not a sufficient solution. This helpful tool allows for a quick comparison of various intersection treatments. Preliminary screening performed high level overview of each concept to consider multiple options that potentially will have positive impacts for the study area. The evaluations identified which concepts would improve safety and access while enhancing mobility. Once a preferred option was selected using the CAP-X spreadsheet, it was evaluate further using Synchro. LFUCG provide models in both Synchro 11 and Synchro 10 and the proposed alternatives were evaluated in the version in which the existing conditions were provided to maintain consistency in comparing existing versus proposed. Proposed concepts were modified based on geometric constraints and feedback from the Steering Committee. The Synchro reports for each improvement location including existing conditions and proposed alternative performance results. The expected reduction in delays from the Synchro results was used to quantify the benefits of each project. The Synchro reports can be found in **Appendix D**.

5. Projects List

As improvement concepts were developed for each bottleneck locations, the list evolved. In some cases, identified corridors were reduced to an improvement at a key intersection. In other cases, programmed projects that would improve congestion already existed and eliminated the need for a new concept. The following table shows locations that were identified but ultimately

not carried forward on the final project list for the reasons indicated. **Figure 5-1** shows a map of the project locations. This map is also included in **Appendix E** for easier viewing.

After analysis in Synchro, the proposed improvements were drawn conceptually for each project to evaluate geometrics, R/W and utility impacts. **Appendix F** provides a project sheet for every project showing existing condition information, the identified issue of the location, a description of proposed improvements including estimated cost and the schematic layout of the project. These can be used as a standalone information sheet for future funding requests.

Table 5-1: Eliminated Bottleneck Locations

Location ID	Location	Reason No Concept Developed
N	New Circle at Versailles	Evident from time and dates of occurrences this was a Keeneland Event problem only.
O	New Circle at Old Frankfort Pk	Sight Distance concern not easily addressed. Safety issue but not congestion issue.
U	Harrodsburg at Lane Allen	No significant capacity issues evident in available models.
W	Versailles (US 60) at Red Mile	No significant capacity issues evident in available models.
X	Versailles (US 60) at Alexandria	No significant capacity issues evident in available models.
Y	W Main at Limestone	Location constrained downtown.
AA	Main at Vine/Midland	Location constrained by planned work of Town Branch. Pedestrian Safety Improvement.
CC	Douglas at Georgetown	Although noted by Steering Committee no further of evidence of congestion available. Did not appear as an issue in INRIX or TDMs
N/A	Newtown Pike from I-75 south toward downtown	Programmed widening project expected to alleviate congestion.
N/A	Man'O War Boulevard at I-75	Ramp Improvements complete. Hamburg Connector programmed.

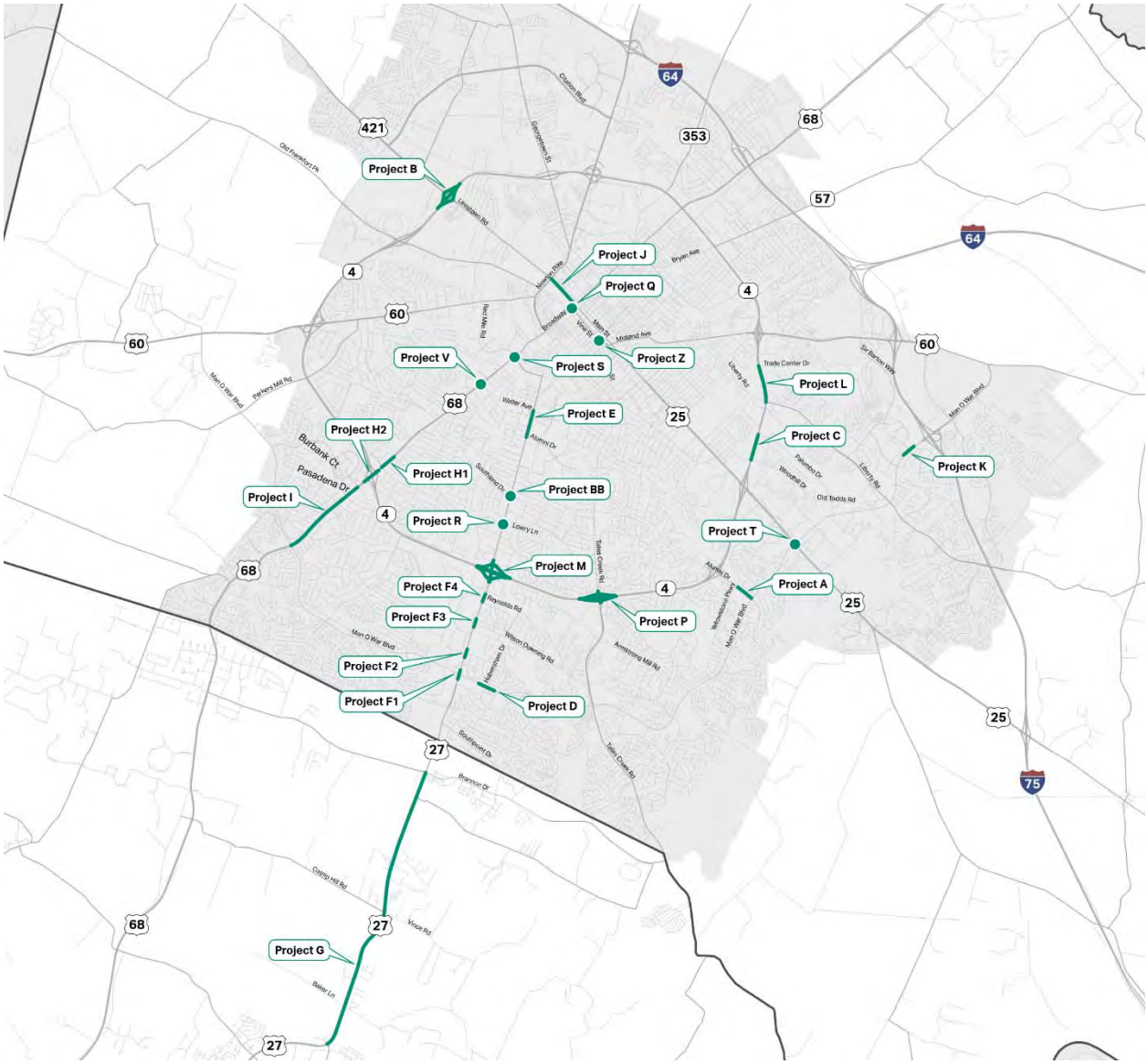


Figure 5-1: Project Locations

6. Cost Opinions

The project team incorporated the most up to date tools and methods for analyzing the study area and corridors. Project type was identified for each location, and some improvement concepts projects would be considered minor or major widening. Minor widening consisted of extending a turn lane or adding a small turn lane via full depth construction for a short length. Major widening included intersection construction along with corridor widening for several hundred feet. Each concept was developed using the latest software and new modeling approaches that were vetted through extensive quality reviews. Each concept was developed utilizing up to date data for an accurate depiction of the impacts.

Cost opinions were generated by developing a conceptual design and enhancement of the roadway models to identify numerous construction category groups. These construction item

groups were quantified and used to develop cost opinions using current KYTC unit bid prices and methodology and applied an assumed price. Some assumptions used in this planning study were:

- New Pavement/Widening = $100 per square yard
- Overlay = $15 per square yard
- Guardrail = $25 per linear foot
- Pavement Removal = $15 per square yard
- Traffic Signal varies from low $15k timing to full replacement up to $100k each
- Bridge = $300 per square foot
- Sidewalk = $75 per square yard
- Raised Median (including curb) = $80 per square yard
- MOT approximately $500k per mile

Other lump sum values were assessed per size of concept and shear area of impact using engineering judgement and values compared to other concepts which are: earthwork, clearing and grubbing, staking, erosion control, drainage structures, demolition, and striping and markings.

Concepts were compared for accuracy and backchecked versus average costs on similar planning level projects. However, these cost opinions are at a macro level utilizing a 2D concept therefore a contingency was included in the overall costs. The resulting cost opinion was then subjected to a 3% miscellaneous environmental permitting, a miscellaneous construction item/contingency of 40%, and a 10% construction inspection adjustment to obtain a total construction dollar amount. The miscellaneous items and contingency are imperative at this stage due to high complexity of construction items required for projects being let to bid. The contingency involves multiple bid items that are not quantifiable at this stage in the planning stage as well as but not limited to various smaller cost items that are common on any construction project. Right of Way and Utilities costs were not quantified for this planning study.

Evaluation metrics associated with concepts at this phase are fairly high level. The data points include the following general elements: distance of route (cost), right-of-way impacts, utility impacts, constructability, and sensitivity to local resources. Local resources will include a variety of existing conditions and environmental factors to be discussed below. Often times right of way impacts and utility impact grades at this macro level grade in similar patterns due to most utilities fall at the existing right of way line or just outside where any large disturbance outside of the typical roadway corridor has the potential for major utility relocations.

The cost opinions determined for the Right of Way and Utility estimates were derived on a per acre and per mile basis respectively and are planning study level accuracy. The refinement of each concept based on the location and phase of design would be further needed as the level of development progresses. Quantities were calculated based on potential disturbance limits and obtained by measuring in CADD using GIS Data. The quantities calculated were multiplied by values that were determined from a cost range that utilizes an estimated cost for internal state and consulting services to clear right of way and utilities. The rates were provided and are used on KYTC projects in Fayette County. Engineering judgment was used for values within a range and no survey data was collected.

The Right of Way properties estimated included Residential and Commercial. Both property types had a low, mid, and high estimate value and were determined depending on the characteristics of the property. Project locations near high density business, residential, or community resources (colleges, hospitals, etc.) were gauged based on corridors and weighted

on the higher range versus more rural single family to agriculture type land use. All areas were quantified on a per acre basis.
The Utilities had a low, mid, and high estimate value. Each value was determined depending on the type of improvement that was proposed and characteristics of each site. The utilities were quantified on a per mile basis and the likelihood of a utility needing to be relocated from impacts of each conceptual design.

Below are the range of values used for the purpose of the cost opinions noted within this report.

Planning level cost estimate information for each project is included in **Appendix G**.

6.1 Right-of-Way Impacts

GIS data was gathered for the study to identify parcels and rights of way along the study area corridors. Preliminary roadway design concepts were evaluated to determine if any proposed recommendations impacted parcels or fell outside of existing right of way. A map of the parcels compared to the limits of the proposed improvement concept was analyzed to obtain the number of parcels potentially affected. A high-level overview of parcel impacts to screen the preliminary concepts compared the concepts to associate a grade from low to high. Concepts with minor impacts and generally fit within right of way garnered a low grade versus large right of way and parcel impacts generated a high grade.

Rural (Agricultural and Residential)
- Low: $20k - $300k per acre.
- Mid: $800k - $1 million per acre.
- High: $2 million - $3 million per acre.

Urban Residential (Multi-Family/Dense/Multi-Purpose)
- Low: $1 million per acre
- Mid: $1.5 million - $3 million per acre.
- High: $10 million - $25 million per acre.

Commercial
- Low: $700k - $1 million per acre.
- Mid: $1.25 - $3 million per acre.
- High: $4 - $6 million per acre.

6.2 Utility Impacts

GIS data was gathered for the study area to identify facilities within the study area corridors. The utility impacts also were then graded from low to high for the evaluation. Similarly, to Right-of-Way impacts, the limits of disturbance from the design concepts identified areas of potential conflicts for screening which was evaluated by field site visits or Google Earth Street View to determine potential severity of the utility impacts. Linear impacts associated with each facility were measured. Potential large volume of utility relocations were graded high versus a low grade when utility relocations would be minimal.

Minor Widening/Low Impact rural locations - $300k - $500k per mile
Minor Widening/Mid Impacts to services urban locations - $1 million - $1.5 million per mile
Major Widening/High Impacts to large services or multiple relocations along corridor - $3 million - $5 million per mile

7. Estimated Benefits

Estimated benefits were developed using the expected reduction in delay calculated from the Synchro models. The existing conditions were modelled in Synchro and compared to the performance in models that incorporated the improvement concepts. The average delay in seconds per vehicle was converted to annual delay savings in dollars using delay cost per person hour. Annual delay savings in hours is included in the project matrix to compare the impacts of each improvement concept.

In addition to calculating the value of time saved by road users, the potential reduction of crashes was also assessed. The number of crashes within project area was extracted using the Kentucky State Police Open Portal Solution website. This portal allows for a query of crashes using a variety of filtering options. For the purposes of this study, crashes from 2017-2019 were extracted for each location. The total number of crashes, number of crashes with property damage only, number of crashes with injuries and number of crashes with fatalities was recorded. An 8% annual reduction in potential crash was applied for reduced delay and more efficient operation of signalized intersections. This reduction was applied using the most conservative factor derived from the Crash Modification Factors Clearinghouse. This potential annual crash reduction and the associated reduction in costs was used to monetize the value of safety benefits. The spreadsheet calculations for the delay and safety benefits of each project are included in **Appendix H**. This information is not included for Project G as the project design has already been started after an access management study was performed.

Other benefits that could not be fully captured include:

- the reduction in emissions,
- improvement to route reliability,
- improved safety of intersections with innovative treatments that reduce conflicting movements,

8. Implementation Strategies

A project matrix was developed as a master list of concepts and locations as well as blueprint for how to prioritize the concepts and program for the future. The project matrix is included in **Appendix I**. While each improvement concept requires further study to refine, the estimated costs and benefits for each concept can be gleaned from the matrix. The matrix allows a comprehensive look at all the locations for which project concepts were developed.

The matrix illustrates the impacts to pedestrians. Projects listed with no impact to pedestrians means that safety for pedestrians was neither improved nor made worse by the proposed concept. In cases where impacts to pedestrians were listed as positive or negative, the basis for this rating is indicated in the matrix. The matrix also shows estimated benefit as a reduction in delay hours as well as reduction in potential crashes.

The information provided within this report and summarized in the project matrix allows the MPO to prepare for the scale of the improvement concept required to solve the congestion issues faced at each location. Additionally, it also allows the MPO to go after “low hanging fruit”. Locations that will benefit from low cost implementation could realize positive impacts much sooner than improvement concepts requiring a larger funding stream. The last column of the matrix gives relative cost to benefit information. While the improvement concepts are not ranked in numerical order, they have been grouped in a logical manner.

Immediate Priority: Improvement concepts with low costs (under $500,000) and low to medium benefit are recommended to target first. These concepts include signal timing improvements, signal phasing changes, intersection lane use reallocation and minor widening. These improvement concepts are highlighted green on the matrix and can be programmed to be completed in the near term.

Short to Medium Term Priority: The next group of improvement concepts in the medium cost range ($500,000 - $2 Million) resulted in greater reductions in delay but would require more time and money. These concepts are colored yellow on the matrix. These concepts are primarily intersection improvements that include minor widening, addition of turn lanes, and signal improvements.

Long Term: The third grouping, colored in orange are the long-term improvement concepts requiring more funding but resulting in increased benefits. These concepts include construction of innovative intersections such as restricted crossing U-turn, displaced left turns, use of quadrant roads and access management of a corridor. While these concepts are grouped as a long-term priority, it is important to program and plan for them as soon as possible. These concepts have the potential to make the biggest impacts to reduce bottlenecks.

Partial Project: Two improvement concepts colored blue on the matrix (R and BB) are located on the section of Nicholasville Road evaluated in the recent “Imagine Nicholasville Road” corridor planning study and showed a high cost with low benefit. Several innovative intersections were proposed within the Imagine Nicholasville study, which also included the proposed installation of a Bus Rapid Transit system on the Nicholasville Road corridor. While the installation of the innovative intersections at these locations will provide some benefit, it will not be nearly as effective without similar treatments throughout the corridor. These concepts are not recommended to progress unless the larger project for the entire corridor is funded.

8.1 Further Study Recommended

As noted, there has already been a planning study on Nicholasville Road known as “Imagine Nicholasville Road” (INR)”. Several project locations identified within this bottleneck study are also in the INR study area and are noted in the project matrix in **Appendix I**. This corridor is a critical piece of the roadway network in the Lexington area and should be modelled in more detail to understand the impacts that may occur with the addition of Bus Rapid Transit and other zoning changes. A more detailed study should include traffic analysis including BRT, and detailed cost benefits. The corridor improvements will need to be logically staged and more information is required to determine where to start.

Additionally, a study of the northeast section of New Circle Road (NNCR) will begin in late 2021 and projects within the NNCR study area have also been noted in the project matrix. Any recommendations that come out of the NNCR study may impact or modify those included in Projects C and L.

9. Conclusion

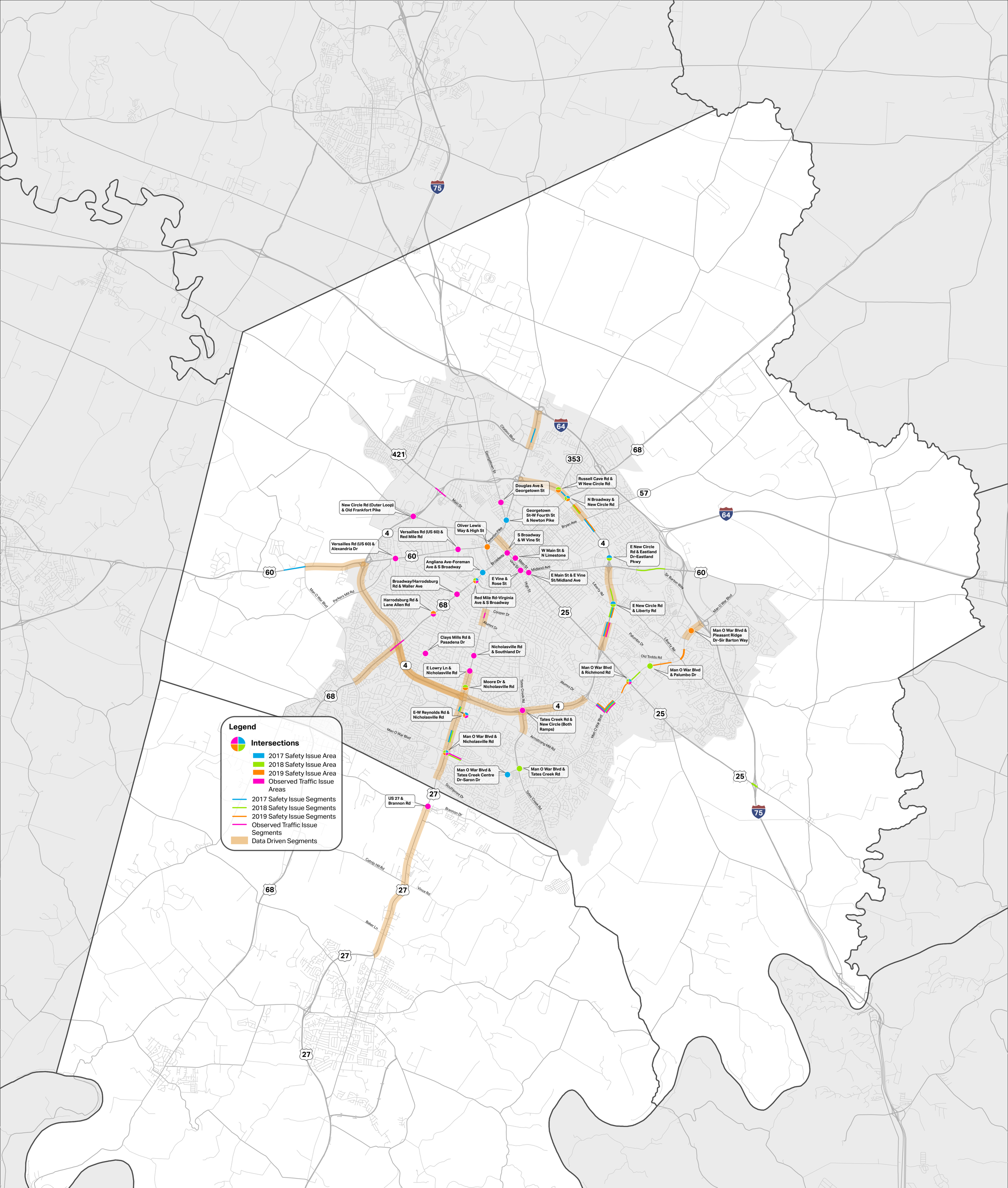
The Lexington Area Congestion Management Bottleneck Study provides the Lexington Area MPO and stakeholder agencies the ability to plan for improvements in targeted bottleneck locations. The locations most in need of improvement have been identified. Improvement concepts have been developed and evaluated for each location. The magnitude of the cost of the improvement concepts as well as an estimate of the benefits that could be realized have been quantified so the MPO can program these improvements for the future. The MPO is now armed with data driven information on where the most impactful issues are and how they might be addressed.

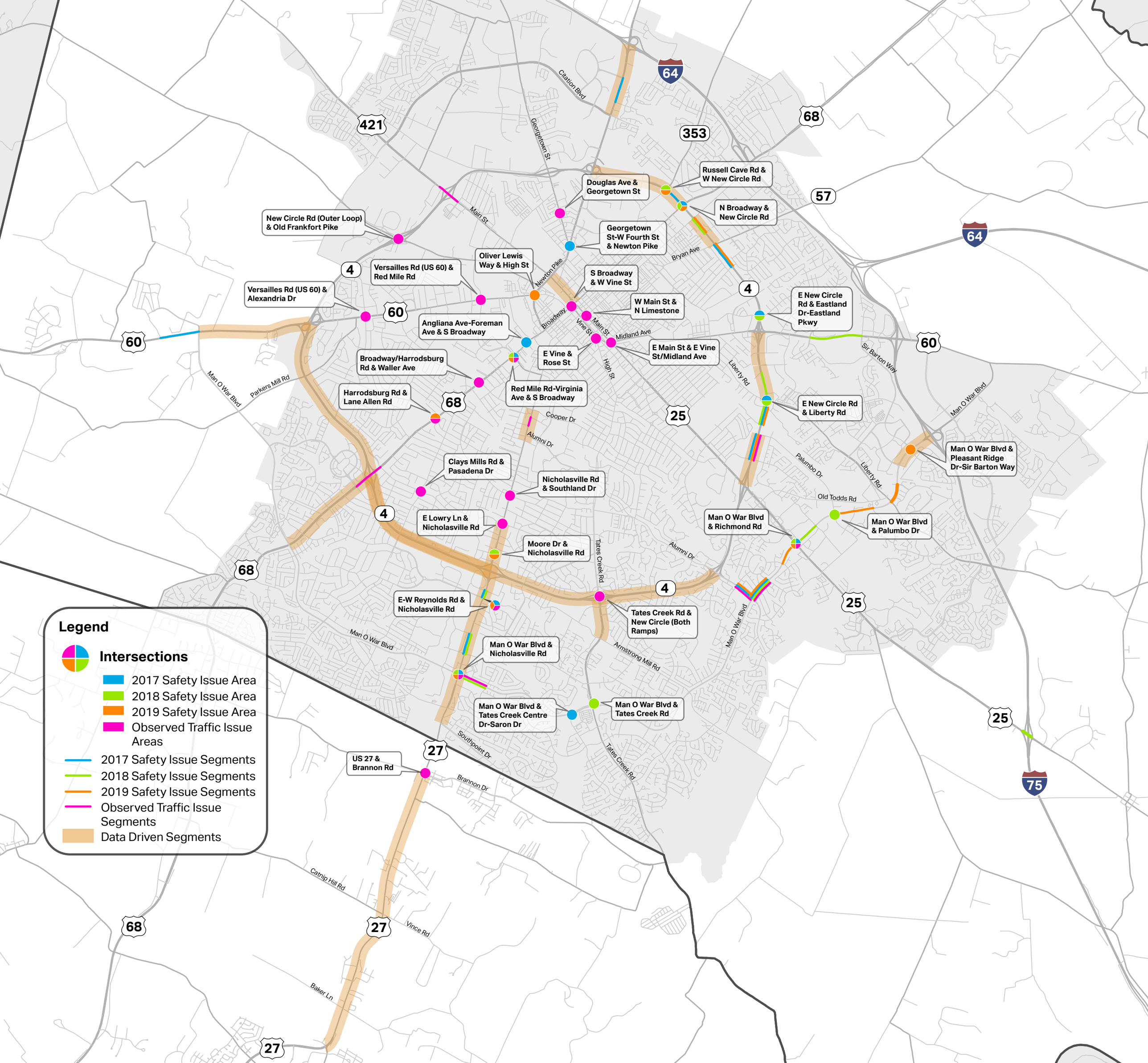
10. Limiting Conditions

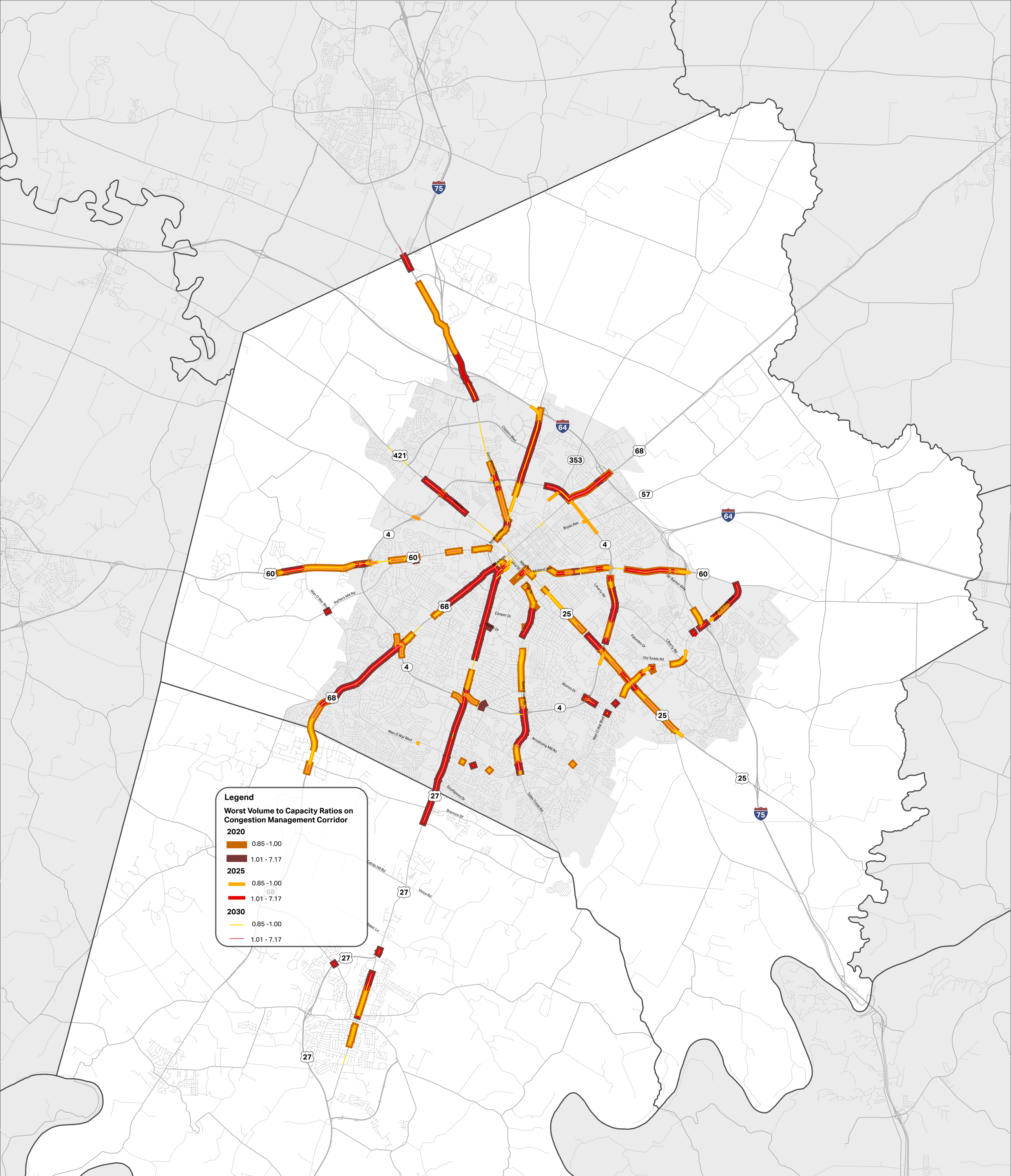
AECOM devoted the level of effort consistent with (i) the level of diligence ordinarily exercised by competent professionals practicing in the area under the same or similar circumstances, and (ii) consistent with the time and budget available for the Services to develop the Deliverables. The Deliverables are based on estimates, assumptions, information developed by AECOM from its independent research effort, general knowledge of the industry, and information provided by and consultations with Client and Client's representatives. No responsibility is assumed for inaccuracies in data provided by the Client, the Client's representatives, or any third-party data source used in preparing or presenting the Deliverables. AECOM assumes no duty to update the information contained in the Deliverables unless such additional services are separately retained pursuant to a written agreement signed by AECOM and Client.

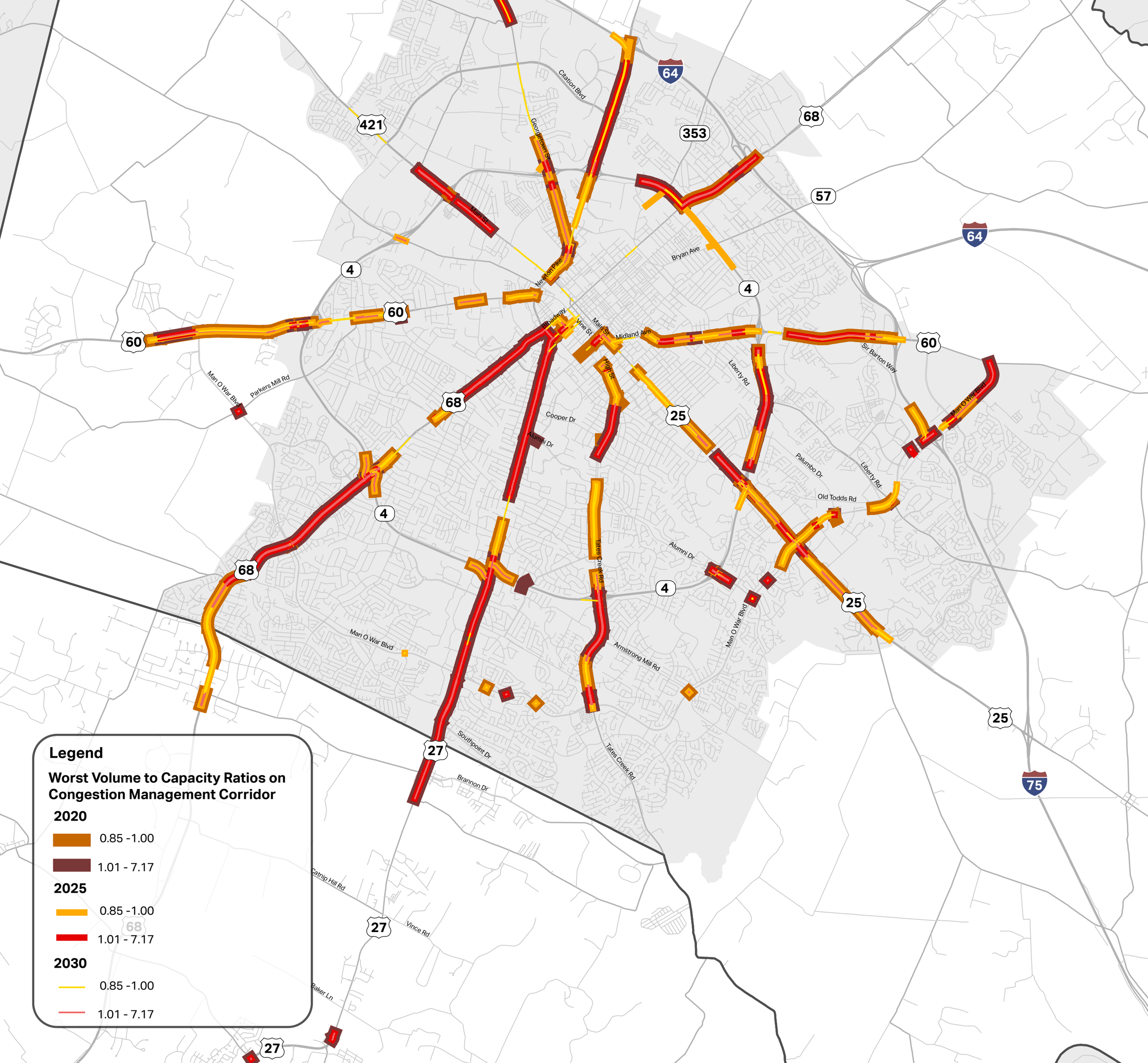
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Legend
Intersections
2017 Safety Issue Area
2018 Safety Issue Area
2019 Safety Issue Area
Observed Traffic Issue Areas
2017 Safety Issue Segments
2018 Safety Issue Segments
2019 Safety Issue Segments
Observed Traffic Issue Segments
Data Driven Segments
New Circle Rd (Outer Loop) & Old Frankfort Pike
Versailles Rd (US 60) & Red Mile Rd
Versailles Rd (US 60) & Alexandria Dr
Oliver Lewis Way & High St
Douglas Ave & Georgetown St
Georgetown St-W Fourth St & Newton Pike
Russell Cave Rd & W New Circle Rd
N Broadway & New Circle Rd
S Broadway & W Vine St
W Main St & N Limestone
E New Circle Rd & Eastland Dr-Eastland Pkwy
Angliana Ave-Foreman Ave & S Broadway
E Vine & Rose St
E Main St & E Vine St/Midland Ave
Broadway/Harrodsburg Rd & Waller Ave
Red Mile Rd-Virginia Ave & S Broadway
Harrodsburg Rd & Lane Allen Rd
E New Circle Rd & Liberty Rd
Man O War Blvd & Pleasant Ridge Dr-Sir Barton Way
Clays Mills Rd & Pasadena Dr
Nicholasville Rd & Southland Dr
E Lowry Ln & Nicholasville Rd
Moore Dr & Nicholasville Rd
Man O War Blvd & Richmond Rd
Man O War Blvd & Palumbo Dr
E-W Reynolds Rd & Nicholasville Rd
Tates Creek Rd & New Circle (Both Ramps)
Man O War Blvd & Nicholasville Rd
Man O War Blvd & Tates Creek Centre Dr-Saron Dr
Man O War Blvd & Tates Creek Rd
US 27 & Brannon Rd
Citation Blvd
Georgetown St
Main St
Newton Pike
Bryan Ave
Broadway
Vine St
Main St
Midland Ave
High St
Liberty Rd
Sir Barton Way
Man O War Blvd
Parkers Mill Rd
Cooper Dr
Alumni Dr
Palumbo Dr
Old Todds Rd
Tates Creek Rd
Armstrong Mill Rd
Southpoint Dr
Brannon Dr
Catnip Hill Rd
Vince Rd
Baker Ln
75
64
421
353
68
57
4
60
25
27


Russell Cave Rd & W New Circle Rd
Douglas Ave & Georgetown St
N Broadway & New Circle Rd
Georgetown St-W Fourth St & Newton Pike
New Circle Rd (Outer Loop) & Old Frankfort Pike
Oliver Lewis Way & High St
Versailles Rd (US 60) & Red Mile Rd
S Broadway & W Vine St
Versailles Rd (US 60) & Alexandria Dr
W Main St & N Limestone
E New Circle Rd & Eastland Dr-Eastland Pkwy
Angliana Ave-Foreman Ave & S Broadway
E Main St & E Vine St/Midland Ave
E Vine & Rose St
Broadway/Harrodsburg Rd & Waller Ave
Red Mile Rd-Virginia Ave & S Broadway
Harrodsburg Rd & Lane Allen Rd
E New Circle Rd & Liberty Rd
Man O War Blvd & Pleasant Ridge Dr-Sir Barton Way
Clays Mills Rd & Pasadena Dr
Nicholasville Rd & Southland Dr
E Lowry Ln & Nicholasville Rd
Moore Dr & Nicholasville Rd
Man O War Blvd & Richmond Rd
Man O War Blvd & Palumbo Dr
E-W Reynolds Rd & Nicholasville Rd
Tates Creek Rd & New Circle (Both Ramps)
Man O War Blvd & Nicholasville Rd
Man O War Blvd & Tates Creek Centre Dr-Saron Dr
Man O War Blvd & Tates Creek Rd
US 27 & Brannon Rd
Legend
Intersections
2017 Safety Issue Area
2018 Safety Issue Area
2019 Safety Issue Area
Observed Traffic Issue Areas
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Observed Traffic Issue Segments
Data Driven Segments
Citation Blvd
Georgetown St
Main St
Newton Pike
Broadway
Vine St
Main St
Midland Ave
High St
Bryan Ave
Liberty Rd
Sir Barton Way
Man O War Blvd
Parkers Mill Rd
Cooper Dr
Alumni Dr
Palumbo Dr
Old Todds Rd
Tates Creek Rd
Alumni Dr
Armstrong Mill Rd
Southpoint Dr
Brannon Dr
Catnip Hill Rd
Vince Rd
Baker Ln
421
64
68
353
57
4
60
25
27
75


Legend
Worst Volume to Capacity Ratios on Congestion Management Corridor
2020
0.85 -1.00
1.01 - 7.17
2025
0.85 -1.00
1.01 - 7.17
2030
0.85 -1.00
1.01 - 7.17
75
64
421
353
68
57
4
60
27
25
Clinton Blvd
Georgetown St
Lawrence
Newsom Place
Bryan Ave
Parkway
Vine St
Main St
Midland Ave
Fifth St
Liberty Rd
San Barton Way
Man O War Blvd
Parkers Mill Rd
Cooper Dr
Alumni Dr
Palumbo Dr
Old Todds Rd
Talons Creek Rd
Armstrong Mill Rd
Southpoint Dr
Brannon Dr
Catnip Hill Rd
Vince Rd
Baker Ln


Legend
Worst Volume to Capacity Ratios on Congestion Management Corridor
2020
0.85 -1.00
1.01 - 7.17
2025
0.85 -1.00
1.01 - 7.17
2030
0.85 -1.00
1.01 - 7.17
64
421
68
353
57
4
60
25
27
75
Citation Blvd
Georgetown St
Main St
Newton Pike
Bryan Ave
Broadway
Vine St
Midland Ave
Sir Barton Way
Man O War Blvd
Parkers Mill Rd
High St
Liberty Rd
Cooper Dr
Alumni Dr
Palumbo Dr
Old Todds Rd
Tates Creek Rd
Armstrong Mill Rd
Southpoint Dr
Brannon Dr
Catnip Hill Rd
Vince Rd
Baker Ln

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project B*
Location	*Leestown Rd at New Circle*
Date	June 14, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
1	2	2	27

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									2540	1.59	1.59	6
2	Conventional Shared RT LN	CSRL									2671	1.67	1.67	8
3.1	Quadrant Roadway	S-W			1133	*0.71*			2017	1.26	2712	1.70	1.70	9
3.2		N-E	1519	0.95			2158	1.35			2763	1.73	1.73	10
3.3		S-E			1061	*0.66*	1061	*0.66*			2763	1.73	1.73	10
3.4		N-W	1473	0.92					2582	1.61	2011	1.26	1.61	7
4.1	Partial Displaced Left Turn	N-S	843	*0.53*	616	*0.39*					2412	1.51	1.51	3
4.2		E-W					1940	1.21	1923	1.20	2210	1.38	1.38	2
5	Displaced Left Turn	FULL	843	*0.53*	616	*0.39*	1940	1.21	1923	1.20	2089	1.31	1.31	1
6.1	Restricted Crossing U-Turn	N-S	2499	1.56	3045	1.90	5442	3.40	5644	3.53			3.53	15
6.2		E-W	2082	1.30	2217	1.39	2253	1.41	2450	1.53			1.53	4
7.1	Median U-Turn	N-S	953	*0.60*	1006	*0.63*					2817	1.76	1.76	12
7.2		E-W					2137	1.34	2237	1.40	2478	1.55	1.55	5
8.1	Partial Median U-Turn	N-S	985	*0.62*	942	*0.59*					3005	1.88	1.88	13
8.2		E-W					2264	1.42	2142	1.34	3005	1.88	1.88	13

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	205.00			378.87			155.00			337.50			378.87	6
9.2	75 ICD	205.00			378.87			155.00			337.50			378.87	6
9.3	1 X 1	41.59			14.54			71.84			16.85			71.84	5
9.4	1 X 2	16.35			7.66	6.89		22.04			7.49	9.36		22.04	2
9.5	2 X 1	15.98	25.61		9.40			34.20	37.65		10.09			37.65	4
9.6	2 X 2	7.34	10.07		4.88	5.60		12.78	11.55		5.32	4.45		12.78	1
9.7	3 X 3	3.47	12.72	17.90	0.85	6.44	5.46	5.79	28.57	24.82	0.46	6.58	6.89	28.57	3

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1171	0.73	1444	0.90					0.90	5
10.2		E-W					1867	1.17	1740	1.09					1.17	8
11.1	Partial Cloverleaf	N-S					880	0.55	987	0.62					0.62	1
11.2		E-W					1680	0.95	1418	0.89					1.05	6
13.1	Displaced Left Turn	N-S	1331	0.83			919	0.57	996	0.62			804	0.50	0.83	2
13.2		E-W	1837	1.15			1407	0.88	1410	0.88			1490	0.93	1.15	7
14.1	Double Crossover Diamond	N-S	1331	0.83	732	0.46	1378	0.86	1200	0.75	1095	0.68	804	0.50	0.86	3
14.2		E-W	1938	1.21	2180	1.36	1551	0.97	1203	0.75	2129	1.33	1528	0.96	1.36	10
15.1	Single Point	N-S	1400	0.88			1101	0.69					832	0.52	0.88	4
15.2		E-W	1938	1.21			1864	1.16					1528	0.96	1.21	9

Capacity Analysis for Planning of Junctions

Input Worksheet

		Critical Lane Volume Sum			
Project Name:	*LFUCG Bottleneck Study*	Acceptable Configurations			
Project Number:	*Project E*	< 1200	1200 - 1399	1400 - 1599	≥ 1600
Location	*Waller Ave at Nicholasville Rd - AM Peak Hour*	8	8	7	9
Date	May 26, 2021				

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1677	1.05	1.05	15
2	Conventional Shared RT LN	CSRL									1583	0.99	0.99	11
3.1	Quadrant Roadway	S-W			1016	*0.64*			825	*0.52*	1482	0.93	0.93	9
3.2		N-E	1186	*0.74*			996	*0.62*			1413	0.88	0.88	8
3.3		S-E			1186	*0.74*	1186	*0.74*			1329	0.83	0.83	3
3.4		N-W	958	*0.60*					828	*0.52*	1341	0.84	0.84	6
4.1	Partial Displaced Left Turn	N-S	1061	*0.66*	592	*0.37*					1409	0.88	0.88	7
4.2		E-W					889	*0.56*	597	*0.37*	1494	0.93	0.93	10
5	Displaced Left Turn	FULL	1061	*0.66*	592	*0.37*	889	*0.56*	597	*0.37*	1240	0.77	0.77	1
6.1	Restricted Crossing U-Turn	N-S	798	*0.50*	1332	0.83	1147	*0.72*	733	*0.46*			0.83	5
6.2		E-W	1280	0.80	1663	1.04	1408	0.88	899	*0.56*			1.04	14
7.1	Median U-Turn	N-S	695	*0.43*	1184	*0.74*					1324	0.83	0.83	2
7.2		E-W					1024	*0.64*	1166	*0.73*	1329	0.83	0.83	3
8.1	Partial Median U-Turn	N-S	700	*0.44*	1280	0.80					1583	0.99	0.99	12
8.2		E-W					812	*0.51*	863	*0.54*	1583	0.99	0.99	12

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	93.00			67.07			186.10			68.00			186.10	6
9.2	75 ICD	93.00			67.07			186.10			68.00			186.10	6
9.3	1 X 1	1.68			1.71			3.89			3.68			3.89	5
9.4	1 X 2	1.38			0.85	0.86		3.05			1.72	1.96		3.05	4
9.5	2 X 1	0.99	0.69		1.24			1.85	2.04		2.16			2.16	3
9.6	2 X 2	0.84	0.57		1.10	1.15		1.51	1.60		0.65	0.63		1.60	1
9.7	3 X 3	0.21	0.73	0.58	0.12	0.69	0.69	0.17	1.59	1.69	0.43	1.27	1.53	1.69	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1153	0.72	1194	0.75					0.75	8
10.2		E-W					992	0.62	991	0.62					0.62	2
11.1	Partial Cloverleaf	N-S					632	0.40	1101	0.69					0.69	6
11.2		E-W					736	0.74	589	0.37					0.46	1
13.1	Displaced Left Turn	N-S	1061	0.66			967	0.60	851	0.53			592	0.37	0.66	5
13.2		E-W	597	0.37			758	0.47	898	0.56			997	0.62	0.62	3
14.1	Double Crossover Diamond	N-S	1023	0.64	624	0.39	1261	0.79	1260	0.79	940	0.59	514	0.32	0.79	10
14.2		E-W	583	0.36	1070	0.67	822	0.51	673	0.42	1215	0.76	1029	0.64	0.76	9
15.1	Single Point	N-S	1048	0.66			1186	0.74					526	0.33	0.74	7
15.2		E-W	583	0.36			902	0.56					1029	0.64	0.64	4

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project E*
Location	*Waller Ave at Nicholasville Rd - PM Peak Hour*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
3	2	4	23

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									2040	1.27	1.27	13
2	Conventional Shared RT LN	CSRL									2199	1.37	1.37	14
3.1	Quadrant Roadway	S-W			1747	1.09			1039	*0.65*	1952	1.22	1.22	9
3.2		N-E	1548	0.97			1130	*0.71*			1518	0.95	0.97	2
3.3		S-E			1565	0.98	1565	0.98			1676	1.05	1.05	5
3.4		N-W	1529	0.96					884	*0.55*	2023	1.26	1.26	12
4.1	Partial Displaced Left Turn	N-S	859	*0.54*	1410	0.88					1839	1.15	1.15	8
4.2		E-W					1163	*0.73*	679	*0.42*	1663	1.04	1.04	4
5	Displaced Left Turn	FULL	859	*0.54*	1410	0.88	1163	*0.73*	679	*0.42*	1472	0.92	0.92	1
6.1	Restricted Crossing U-Turn	N-S	1726	1.08	1008	*0.63*	1230	0.77	1492	0.93			1.08	6
6.2		E-W	3509	2.19	3090	1.93	1272	0.79	1784	1.11			2.19	15
7.1	Median U-Turn	N-S	1623	1.01	976	*0.61*					1638	1.02	1.02	3
7.2		E-W					1584	0.99	1661	1.04	1794	1.12	1.12	7
8.1	Partial Median U-Turn	N-S	1450	0.91	1083	*0.68*					1985	1.24	1.24	10
8.2		E-W					1358	0.85	1267	0.79	1985	1.24	1.24	10

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	233.20			70.47			131.20			114.40			233.20	6
9.2	75 ICD	233.20			70.47			131.20			114.40			233.20	6
9.3	1 X 1	5.80			9.67			2.79			3.59			9.67	5
9.4	1 X 2	4.31			4.55	5.12		2.17			1.92	1.67		5.12	4
9.5	2 X 1	3.09	2.70		4.23			1.29	1.50		2.48			4.23	3
9.6	2 X 2	2.42	2.01		1.41	1.15		1.05	1.17		2.29	2.24		2.42	1
9.7	3 X 3	*0.39*	2.49	2.11	1.09	3.38	3.44	*0.19*	1.03	1.18	*0.70*	1.17	1.30	3.44	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1820	1.14	1703	1.06					1.14	10
10.2		E-W					1145	*0.72*	1340	0.84					0.84	5
11.1	Partial Cloverleaf	N-S					1339	0.84	878	*0.55*					0.84	4
11.2		E-W					992	0.97	955	*0.60*					0.62	1
13.1	Displaced Left Turn	N-S	922	*0.58*			1448	0.91	1364	0.85			1414	0.88	0.91	6
13.2		E-W	686	*0.43*			859	*0.54*	873	*0.55*			1163	*0.73*	0.73	2
14.1	Double Crossover Diamond	N-S	922	*0.58*	1630	1.02	1676	1.05	1766	1.10	698	*0.44*	1414	0.88	1.10	8
14.2		E-W	705	*0.44*	1038	*0.65*	843	*0.53*	994	*0.62*	1485	0.93	1018	*0.64*	0.93	7
15.1	Single Point	N-S	969	*0.61*			1804	1.13					1437	0.90	1.13	9
15.2		E-W	705	*0.44*			1180	*0.74*					1018	*0.64*	0.74	3

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project F*
Location	*MOW at US 27 - AM Peak Hour*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
13	8	2	9

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1304	0.82	0.82	6
2	Conventional Shared RT LN	CSRL									1523	0.95	0.95	13
3.1	Quadrant Roadway	S-W			1672	1.04			1092	0.68	1091	0.68	1.04	14
3.2		N-E	1306	0.82			1102	0.69			1237	0.77	0.82	8
3.3		S-E			1516	0.95	1516	0.95			1192	0.74	0.95	12
3.4		N-W	1084	0.68					856	0.54	1106	0.69	0.69	2
4.1	Partial Displaced Left Turn	N-S	932	0.58	510	0.32					1202	0.75	0.75	5
4.2		E-W					887	0.55	730	0.46	1113	0.70	0.70	3
5	Displaced Left Turn	FULL	932	0.58	510	0.32	887	0.55	730	0.46	1017	0.64	0.64	1
6.1	Restricted Crossing U-Turn	N-S	929	0.58	1919	1.20	1844	1.15	1369	0.86			1.20	15
6.2		E-W	863	0.54	1241	0.78	1372	0.86	1057	0.66			0.86	9
7.1	Median U-Turn	N-S	691	0.43	1151	0.72					1100	0.69	0.72	4
7.2		E-W					878	0.55	1037	0.65	1306	0.82	0.82	7
8.1	Partial Median U-Turn	N-S	534	0.33	1025	0.64					1386	0.87	0.87	10
8.2		E-W					1035	0.65	1163	0.73	1386	0.87	0.87	10

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	104.70			134.97			227.20			107.50			227.20	6
9.2	75 ICD	104.70			134.97			227.20			107.50			227.20	6
9.3	1 X 1	2.74			4.38			8.12			10.27			10.27	5
9.4	1 X 2	2.01			2.49	1.89		5.42			5.97	4.30		5.97	4
9.5	2 X 1	1.36	1.38		2.97			3.57	4.55		5.08			5.08	3
9.6	2 X 2	1.05	1.01		3.32	2.13		2.55	3.03		1.80	1.28		3.32	1
9.7	3 X 3	*0.24*	1.05	1.07	*0.65*	1.74	1.45	*0.24*	3.12	3.45	1.89	4.04	3.19	4.04	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1216	0.76	1157	*0.72*					0.76	10
10.2		E-W					1027	*0.64*	1182	*0.74*					0.74	9
11.1	Partial Cloverleaf	N-S					442	*0.28*	1176	*0.74*					0.74	7
11.2		E-W					1180	0.82	856	*0.53*					0.74	8
13.1	Displaced Left Turn	N-S	956	*0.60*			1125	*0.70*	995	*0.62*			577	*0.36*	0.70	6
13.2		E-W	730	*0.46*			599	*0.37*	622	*0.39*			923	*0.58*	0.58	1
14.1	Double Crossover Diamond	N-S	956	*0.60*	708	*0.44*	1040	*0.65*	1024	*0.64*	1060	*0.66*	577	*0.36*	0.66	5
14.2		E-W	554	*0.35*	906	*0.57*	775	*0.48*	592	*0.37*	932	*0.58*	975	*0.61*	0.61	2
15.1	Single Point	N-S	981	*0.61*			1007	*0.63*					602	*0.38*	0.63	4
15.2		E-W	554	*0.35*			892	*0.56*					975	*0.61*	0.61	2

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project F*
Location	*MOW at US 27 - PM Peak Hour*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
4	7	7	14

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1507	0.94	0.94	8
2	Conventional Shared RT LN	CSRL									1849	1.16	1.16	13
3.1	Quadrant Roadway	S-W			1610	1.01			1213	0.76	1490	0.93	1.01	10
3.2		N-E	1290	0.81			1137	*0.71*			1262	0.79	0.81	2
3.3		S-E			1413	0.88	1413	0.88			1417	0.89	0.89	6
3.4		N-W	1412	0.88					1191	*0.74*	1377	0.86	0.88	5
4.1	Partial Displaced Left Turn	N-S	919	*0.57*	1213	0.76					1320	0.82	0.82	3
4.2		E-W					1048	*0.66*	818	*0.51*	1332	0.83	0.83	4
5	Displaced Left Turn	FULL	919	*0.57*	1213	0.76	1048	*0.66*	818	*0.51*	1154	*0.72*	0.76	1
6.1	Restricted Crossing U-Turn	N-S	1660	1.04	1558	0.97	1915	1.20	1776	1.11			1.20	14
6.2		E-W	2366	1.48	1991	1.24	1164	*0.73*	1808	1.13			1.48	15
7.1	Median U-Turn	N-S	1480	0.92	1076	*0.67*					1463	0.91	0.92	7
7.2		E-W					1028	*0.64*	1262	0.79	1610	1.01	1.01	9
8.1	Partial Median U-Turn	N-S	1434	0.90	1167	*0.73*					1618	1.01	1.01	11
8.2		E-W					1016	*0.63*	1229	0.77	1618	1.01	1.01	11

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	288.90			141.57			167.70			119.80			288.90	6
9.2	75 ICD	288.90			141.57			167.70			119.80			288.90	6
9.3	1 X 1	10.63			26.34			7.32			5.58			26.34	5
9.4	1 X 2	7.03			12.94	13.40		4.60			3.28	2.30		13.40	4
9.5	2 X 1	5.41	5.22		10.59			3.43	3.89		3.42			10.59	3
9.6	2 X 2	3.84	3.45		2.18	1.41		2.33	2.45		6.06	5.39		6.06	1
9.7	3 X 3	0.87	4.20	3.84	3.27	9.48	8.78	0.76	2.50	2.73	0.99	2.19	1.70	9.48	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1487	0.93	1438	0.90					0.93	10
10.2		E-W					1306	0.82	1464	0.92					0.92	9
11.1	Partial Cloverleaf	N-S					1231	0.77	1144	0.72					0.77	6
11.2		E-W					1135	0.81	855	0.53					0.71	2
13.1	Displaced Left Turn	N-S	919	0.57			1132	0.71	1177	0.74			1220	0.76	0.76	5
13.2		E-W	911	0.57			970	0.61	970	0.61			1086	0.68	0.68	1
14.1	Double Crossover Diamond	N-S	637	0.40	1309	0.82	1306	0.82	1295	0.81	773	0.48	1220	0.76	0.82	7
14.2		E-W	962	0.60	1024	0.64	1030	0.64	875	0.55	1134	0.71	1142	0.71	0.71	3
15.1	Single Point	N-S	662	0.41			1426	0.89					1262	0.79	0.89	8
15.2		E-W	962	0.60			1060	0.66					1142	0.71	0.71	3

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project I*
Location	*Harrodsburg at MOW - Plan 5*
Date	June 14, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
5	5	7	15

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1212	0.76	0.76	1
2	Conventional Shared RT LN	CSRL									1562	0.98	0.98	9
3.1	Quadrant Roadway	S-W			944	*0.59*			1292	0.81	1570	0.98	0.98	10
3.2		N-E	982	*0.61*			1206	0.75			1400	*0.87*	0.87	4
3.3		S-E			881	*0.55*	881	*0.55*			1414	0.88	0.88	5
3.4		N-W	1013	*0.63*					1521	0.95	1757	1.10	1.10	14
4.1	Partial Displaced Left Turn	N-S	428	*0.27*	746	*0.47*					1332	0.83	0.83	3
4.2		E-W					779	*0.49*	1107	*0.69*	1454	0.91	0.91	6
5	Displaced Left Turn	FULL	428	*0.27*	746	*0.47*	779	*0.49*	1107	*0.69*	1267	0.79	0.79	2
6.1	Restricted Crossing U-Turn	N-S	2022	1.26	1094	*0.68*	2076	1.30	2923	1.83			1.83	15
6.2		E-W	1350	0.84	1051	*0.66*	1670	1.04	1014	*0.63*			1.04	11
7.1	Median U-Turn	N-S	942	*0.59*	588	*0.37*					1520	0.95	0.95	8
7.2		E-W					1443	0.90	927	*0.58*	1512	0.95	0.95	7
8.1	Partial Median U-Turn	N-S	747	*0.47*	583	*0.36*					1743	1.09	1.09	12
8.2		E-W					1410	0.88	1161	*0.73*	1743	1.09	1.09	12

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	101.80			109.37			85.00			243.60			243.60	6
9.2	75 ICD	101.80			109.37			85.00			243.60			243.60	6
9.3	1 X 1	12.17			3.33			2.49			4.89			12.17	5
9.4	1 X 2	5.62			1.79	1.55		1.75			2.81	2.08		5.62	3
9.5	2 X 1	4.99	7.17		2.30			1.20	1.29		3.86			7.17	4
9.6	2 X 2	2.62	3.31		2.31	1.64		0.90	0.91		1.31	1.07		3.31	1
9.7	3 X 3	0.72	4.13	4.94	0.20	1.48	1.22	0.25	0.91	1.05	0.48	2.21	1.78	4.94	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1075	0.67	812	0.51					0.67	5
10.2		E-W					1516	0.95	1680	1.05					1.05	9
11.1	Partial Cloverleaf	N-S					466	0.29	394	0.25					0.29	1
11.2		E-W					1103	0.61	1329	0.83					0.83	6
13.1	Displaced Left Turn	N-S	428	0.27			804	0.50	683	0.43			746	0.47	0.50	2
13.2		E-W	1362	0.85			1164	0.73	1140	0.71			1037	0.65	0.85	7
14.1	Double Crossover Diamond	N-S	424	0.27	888	0.55	678	0.42	892	0.56	463	0.29	607	0.38	0.56	3
14.2		E-W	1400	0.87	1568	0.98	648	0.40	1385	0.87	1720	1.07	769	0.48	1.07	10
15.1	Single Point	N-S	438	0.27			1017	0.64					613	0.38	0.64	4
15.2		E-W	1400	0.87			1656	1.04					769	0.48	1.04	8

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project L*
Location	*New Circle at Liberty - PM Peak Hour*
Date	June 25,2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
0	0	1	21

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									2164	1.35	1.35	13
2	Conventional Shared RT LN	CSRL									2432	1.52	1.52	14
3.1	Quadrant Roadway	S-W			1689	1.06			1160	*0.73*	1839	1.15	1.15	6
3.2		N-E	1648	1.03			939	*0.59*			1656	1.04	1.04	2
3.3		S-E			1638	1.02	1638	1.02			1672	1.04	1.04	3
3.4		N-W	1396	0.87					1025	*0.64*	1929	1.21	1.21	9
4.1	Partial Displaced Left Turn	N-S	1233	0.77	1289	0.81					1873	1.17	1.17	8
4.2		E-W					1181	*0.74*	723	*0.45*	1684	1.05	1.05	4
5	Displaced Left Turn	FULL	1233	0.77	1289	0.81	1181	*0.74*	723	*0.45*	1440	0.90	0.90	1
6.1	Restricted Crossing U-Turn	N-S	2141	1.34	1942	1.21	1610	1.01	1651	1.03			1.34	12
6.2		E-W	3718	2.32	3717	2.32	2298	1.44	2186	1.37			2.32	15
7.1	Median U-Turn	N-S	1845	1.15	1588	0.99					1755	1.10	1.15	7
7.2		E-W					1449	0.91	1746	1.09	1749	1.09	1.09	5
8.1	Partial Median U-Turn	N-S	1330	0.83	1427	0.89					2025	1.27	1.27	10
8.2		E-W					1224	0.76	1423	0.89	2025	1.27	1.27	10

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	455.90			-0.61			17.65			-0.85			455.90	7
9.2	75 ICD	24.17			-0.70			10.77			-1.01			24.17	6
9.3	1 X 1	5.34			9.46			4.82			8.10			9.46	5
9.4	1 X 2	3.95			4.05	5.40		3.68			4.86	3.24		5.40	4
9.5	2 X 1	2.79	2.54		4.50			2.41	2.41		4.20			4.50	3
9.6	2 X 2	2.17	1.88		2.81	1.68		1.92	1.84		2.18	2.57		2.81	1
9.7	3 X 3	0.36	2.25	2.00	0.73	3.20	3.72	0.21	2.06	1.98	1.67	3.16	2.50	3.72	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					####	####	####	####					#DIV/0!	#DIV/0!
10.2		E-W					####	####	####	####					#DIV/0!	#DIV/0!
11.1	Partial Cloverleaf	N-S					####	####	####	####					#DIV/0!	#DIV/0!
11.2		E-W					####	1.03	####	####					#DIV/0!	#DIV/0!
13.1	Displaced Left Turn	N-S	####	####			####	####	####	####			####	####	#DIV/0!	#DIV/0!
13.2		E-W	####	####			####	####	####	####			####	####	#DIV/0!	#DIV/0!
14.1	Double Crossover Diamond	N-S	####	####	####	####	####	####	####	####	####	####	####	####	#DIV/0!	#DIV/0!
14.2		E-W	####	####	####	####	####	####	####	####	####	####	####	####	#DIV/0!	#DIV/0!
15.1	Single Point	N-S	####	####			####	####					####	####	#DIV/0!	#DIV/0!
15.2		E-W	####	####			####	####					####	####	#DIV/0!	#DIV/0!

Capacity Analysis for Planning of Junctions

Input Worksheet

		Critical Lane Volume Sum			
Project Name:	*LFUCG Bottleneck Study*	Acceptable Configurations			
Project Number:	*Project M*	< 1200	1200 - 1399	1400 - 1599	≥ 1600
Location	*New Circle Road at Nicholasville Road*	2	1	2	27
Date	July 16, 2021				

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									6599	4.12	4.12	13
2	Conventional Shared RT LN	CSRL									7047	4.40	4.40	15
3.1	Quadrant Roadway	S-W			1899	1.19			3010	1.88	3283	2.05	2.05	5
3.2		N-E	1920	1.20			3596	2.25			3879	2.42	2.42	11
3.3		S-E			1753	1.10	1753	1.10			3440	2.15	2.15	6
3.4		N-W	2078	1.30					3189	1.99	3722	2.33	2.33	8
4.1	Partial Displaced Left Turn	N-S	1332	0.83	1804	1.13					2503	1.56	1.56	2
4.2		E-W					1265	0.79	1830	1.14	2878	1.80	1.80	4
5	Displaced Left Turn	FULL	1332	0.83	1804	1.13	1265	0.79	1830	1.14	2322	1.45	1.45	1
6.1	Restricted Crossing U-Turn	N-S	3637	2.27	3422	2.14	6441	4.03	7029	4.39			4.39	14
6.2		E-W	3345	2.09	3818	2.39	4306	2.69	2664	1.67			2.69	12
7.1	Median U-Turn	N-S	1642	1.03	1838	1.15					2761	1.73	1.73	3
7.2		E-W					3314	2.07	2270	1.42	3592	2.24	2.24	7
8.1	Partial Median U-Turn	N-S	1839	1.15	1738	1.09					3838	2.40	2.40	9
8.2		E-W					2765	1.73	2155	1.35	3838	2.40	2.40	9

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	-0.32			-3.81			-1.32			-2.31			-0.32	2
9.2	75 ICD	-0.36			-4.53			-1.50			-2.64			-0.36	1
9.3	1 X 1	324.46			22.27			68.63			105.74			324.46	7
9.4	1 X 2	62.11			10.52	11.74		25.91			53.88	51.87		62.11	3
9.5	2 X 1	171.10	153.37		12.43			41.96	26.67		41.05			171.10	5
9.6	2 X 2	43.14	29.36		24.49	20.14		18.63	10.07		6.47	6.56		43.14	3
9.7	3 X 3	24.80	144.62	84.65	1.14	8.81	8.45	10.67	31.76	19.74	6.77	43.90	32.49	144.62	4

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1881	1.18	1492	0.93					1.18	4
10.2		E-W					2831	1.77	2436	1.52					1.77	9
11.1	Partial Cloverleaf	N-S					1384	0.86	1130	0.71					0.86	1
11.2		E-W					1844	1.20	1906	1.19					1.19	5
13.1	Displaced Left Turn	N-S	1250	0.78			1323	0.83	1268	0.79			1511	0.94	0.94	2
13.2		E-W	2011	1.26			1843	1.15	2281	1.43			1561	0.98	1.43	7
14.1	Double Crossover Diamond	N-S	1250	0.78	757	0.47	1218	0.76	1523	0.95	1299	0.81	872	0.54	0.95	3
14.2		E-W	1770	1.11	2670	1.67	1215	0.76	2469	1.54	2512	1.57	1210	0.76	1.67	8
15.1	Single Point	N-S	1308	0.82			1930	1.21					905	0.57	1.21	6
15.2		E-W	1770	1.11			2874	1.80					1210	0.76	1.80	10

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project M*
Location	*New Circle Road at Nicholasville Road*
Date	July 16, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
2	0	1	29

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									7755	4.85	4.85	15
2	Conventional Shared RT LN	CSRL									7290	4.56	4.56	13
3.1	Quadrant Roadway	S-W			2695	1.68			2728	1.71	3955	2.47	2.47	8
3.2		N-E	1954	1.22			5244	3.28			3621	2.26	3.28	11
3.3		S-E			2112	1.32	2112	1.32			3840	2.40	2.40	7
3.4		N-W	2177	1.36					3361	2.10	3621	2.26	2.26	5
4.1	Partial Displaced Left Turn	N-S	1272	0.80	2063	1.29					2948	1.84	1.84	2
4.2		E-W					1610	1.01	1166	*0.73*	3317	2.07	2.07	4
5	Displaced Left Turn	FULL	1272	0.80	2063	1.29	1610	1.01	1166	*0.73*	2840	1.77	1.77	1
6.1	Restricted Crossing U-Turn	N-S	3784	2.37	3965	2.48	7470	4.67	6796	4.25			4.67	14
6.2		E-W	6761	4.23	5981	3.74	2735	1.71	4677	2.92			4.23	12
7.1	Median U-Turn	N-S	2368	1.48	1695	1.06					3058	1.91	1.91	3
7.2		E-W					1977	1.24	2951	1.84	3621	2.26	2.26	5
8.1	Partial Median U-Turn	N-S	2522	1.58	1839	1.15					4098	2.56	2.56	9
8.2		E-W					1694	1.06	2678	1.67	4098	2.56	2.56	9

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	-1.61			-1.92			-0.68			-2.84			-0.68	2
9.2	75 ICD	-1.82			-2.15			-0.76			-3.41			-0.76	1
9.3	1 X 1	101.48			166.81			254.65			22.11			254.65	7
9.4	1 X 2	36.83			73.29	93.51		61.95			11.06	11.06		93.51	3
9.5	2 X 1	49.82	51.66		56.48			114.43	140.23		11.86			140.23	5
9.6	2 X 2	21.41	18.75		6.58	5.93		35.23	34.11		29.72	31.66		35.23	3
9.7	3 X 3	6.16	43.36	36.28	3.67	69.29	64.81	24.68	94.38	90.57	0.78	9.75	8.27	94.38	4

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1684	1.05	1735	1.08					1.08	5
10.2		E-W					2196	1.37	2102	1.31					1.37	7
11.1	Partial Cloverleaf	N-S					1612	1.01	1084	0.68					1.01	2
11.2		E-W					1779	1.22	1192	0.74					1.11	6
13.1	Displaced Left Turn	N-S	1001	0.63			1195	0.75	1264	0.79			1535	0.96	0.96	1
13.2		E-W	1592	1.00			1816	1.14	1979	1.24			2255	1.41	1.41	8
14.1	Double Crossover Diamond	N-S	758	0.47	1243	0.78	1676	1.05	1681	1.05	841	0.53	1491	0.93	1.05	3
14.2		E-W	1655	1.03	2482	1.55	1885	1.18	1452	0.91	2477	1.55	2343	1.46	1.55	10
15.1	Single Point	N-S	784	0.49			1683	1.05					1542	0.96	1.05	4
15.2		E-W	1655	1.03			2050	1.28					2343	1.46	1.46	9

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project M*
Location	*New Circle Road at Nicholasville Road*
Date	July 16, 2021

Critical Lane Volume Sum			
Acceptable Configurations			
< 1200	**1200 - 1399**	**1400 - 1599**	**≥ 1600**
4	**3**	**1**	**24**

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									4844	3.03	3.03	13
2	Conventional Shared RT LN	CSRL									5150	3.22	3.22	14
3.1	Quadrant Roadway	S-W			2450	1.53			2341	1.46	2345	1.47	1.53	6
3.2		N-E	1712	1.07			3183	1.99			2172	1.36	1.99	11
3.3		S-E			1828	1.14	1828	1.14			2147	1.34	1.34	4
3.4		N-W	1530	0.96					1969	1.23	2582	1.61	1.61	9
4.1	Partial Displaced Left Turn	N-S	1058	*0.66*	1393	0.87					1833	1.15	1.15	3
4.2		E-W					1275	0.80	1047	*0.65*	1809	1.13	1.13	2
5	Displaced Left Turn	FULL	1058	*0.66*	1393	0.87	1275	0.80	1047	*0.65*	1439	0.90	0.90	1
6.1	Restricted Crossing U-Turn	N-S	2845	1.78	2722	1.70	5512	3.45	5057	3.16			3.45	15
6.2		E-W	3504	2.19	3713	2.32	2806	1.75	2692	1.68			2.32	12
7.1	Median U-Turn	N-S	1584	0.99	1413	0.88					2367	1.48	1.48	5
7.2		E-W					2176	1.36	2347	1.47	2832	1.77	1.77	10
8.1	Partial Median U-Turn	N-S	1336	0.83	1418	0.89					2577	1.61	1.61	7
8.2		E-W					1957	1.22	2176	1.36	2577	1.61	1.61	7

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	-0.71			-2.57			-1.11			-3.93			-0.71	2
9.2	75 ICD	-0.80			-2.97			-1.27			-4.82			-0.80	1
9.3	1 X 1	50.92			30.80			34.89			20.98			50.92	7
9.4	1 X 2	17.99			13.07	17.73		14.58			11.32	9.66		17.99	3
9.5	2 X 1	26.21	24.71		15.35			16.03	18.87		11.90			26.21	5
9.6	2 X 2	11.01	8.73		7.06	5.48		7.74	7.88		7.32	8.84		11.01	3
9.7	3 X 3	4.46	20.91	15.63	1.34	10.84	11.54	3.03	12.94	13.42	2.32	8.61	7.22	20.91	4

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1156	0.72	1251	0.78					0.78	4
10.2		E-W					1688	1.06	1982	1.24					1.24	10
11.1	Partial Cloverleaf	N-S					894	0.56	830	0.52					0.56	1
11.2		E-W					1843	1.07	1319	0.82					1.15	7
13.1	Displaced Left Turn	N-S	1001	0.63			1261	0.79	948	0.59			1094	0.68	0.79	5
13.2		E-W	1187	0.74			1195	0.75	1250	0.78			1668	1.04	1.04	6
14.1	Double Crossover Diamond	N-S	1001	0.63	918	0.57	1037	0.65	1224	0.76	821	0.51	1094	0.68	0.76	3
14.2		E-W	1167	0.73	1785	1.12	1167	0.73	1408	0.88	1920	1.20	1500	0.94	1.20	8
15.1	Single Point	N-S	1059	0.66			1196	0.75					1142	0.71	0.75	2
15.2		E-W	1167	0.73			1947	1.22					1500	0.94	1.22	9

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project P*
Location	*Tates Creek Rd at New Circle - Plan 55*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
0	1	3	28

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									2677	1.67	1.67	8
2	Conventional Shared RT LN	CSRL									3312	2.07	2.07	14
3.1	Quadrant Roadway	S-W			2811	1.76			2508	1.57	2494	1.56	1.76	10
3.2		N-E	1343	0.84			2097	1.31			2355	1.47	1.47	3
3.3		S-E			1699	1.06	1699	1.06			2433	1.52	1.52	6
3.4		N-W	1565	0.98					2376	1.49	2604	1.63	1.63	7
4.1	Partial Displaced Left Turn	N-S	727	*0.45*	1348	0.84					2430	1.52	1.52	5
4.2		E-W					2157	1.35	2071	1.29	2366	1.48	1.48	4
5	Displaced Left Turn	FULL	727	*0.45*	1348	0.84	2157	1.35	2071	1.29	2132	1.33	1.35	1
6.1	Restricted Crossing U-Turn	N-S	2981	1.86	2989	1.87	5271	3.29	5358	3.35			3.35	15
6.2		E-W	2671	1.67	2500	1.56	2426	1.52	3213	2.01			2.01	13
7.1	Median U-Turn	N-S	1457	0.91	1019	*0.64*					2210	1.38	1.38	2
7.2		E-W					2323	1.45	2755	1.72	2811	1.76	1.76	9
8.1	Partial Median U-Turn	N-S	1382	0.86	925	*0.58*					2885	1.80	1.80	11
8.2		E-W					2286	1.43	2962	1.85	2885	1.80	1.85	12

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	235.50			440.37			180.00			350.00			440.37	6
9.2	75 ICD	235.50			440.37			180.00			350.00			440.37	6
9.3	1 X 1	107.79			70.47			55.72			20.96			107.79	5
9.4	1 X 2	33.49			28.59	41.88		19.46			11.67	9.28		41.88	2
9.5	2 X 1	55.38	52.41		29.77			28.63	27.09		11.91			55.38	4
9.6	2 X 2	20.90	16.28		7.29	5.28		11.92	9.46		13.94	17.69		20.90	1
9.7	3 X 3	5.88	48.14	33.85	3.31	24.33	27.80	7.12	21.82	18.68	1.79	9.22	6.75	48.14	3

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1536	0.96	1533	0.96					0.96	4
10.2		E-W					2026	1.27	1955	1.22					1.27	9
11.1	Partial Cloverleaf	N-S					1238	0.77	747	*0.47*					0.77	1
11.2		E-W					1944	0.84	1557	0.97					1.22	8
13.1	Displaced Left Turn	N-S	727	*0.45*			1257	0.79	1265	0.79			1529	0.96	0.96	2
13.2		E-W	1516	0.95			1358	0.85	1509	0.94			1637	1.02	1.02	6
14.1	Double Crossover Diamond	N-S	642	*0.40*	1067	*0.67*	1247	0.78	1377	0.86	905	*0.57*	1529	0.96	0.96	2
14.2		E-W	1308	0.82	2200	1.38	1338	0.84	1620	1.01	2190	1.37	1504	0.94	1.38	10
15.1	Single Point	N-S	661	*0.41*			1458	0.91					1606	1.00	1.00	5
15.2		E-W	1308	0.82			1837	1.15					1504	0.94	1.15	7

Capacity Analysis for Planning of Junctions

Input Worksheet

		Critical Lane Volume Sum			
Project Name:	*LFUCG Bottleneck Study*	Acceptable Configurations			
Project Number:	*Project R*	< 1200	1200 - 1399	1400 - 1599	≥ 1600
Location	*Lowry Ln at Nicholasville Rd - AM Peak Hour*	24	0	0	8
Date	May 26, 2021				

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1019	*0.64*	0.64	12
2	Conventional Shared RT LN	CSRL									1033	*0.65*	0.65	13
3.1	Quadrant Roadway	S-W			882	*0.55*			188	*0.12*	954	*0.60*	0.60	3
3.2		N-E	1008	*0.63*			240	*0.15*			988	*0.62*	0.63	8
3.3		S-E			886	*0.55*	886	*0.55*			974	*0.61*	0.61	5
3.4		N-W	911	*0.57*					218	*0.14*	968	*0.61*	0.61	4
4.1	Partial Displaced Left Turn	N-S	846	*0.53*	405	*0.25*					996	*0.62*	0.62	7
4.2		E-W					159	*0.10*	240	*0.15*	941	*0.59*	0.59	2
5	Displaced Left Turn	FULL	846	*0.53*	405	*0.25*	159	*0.10*	240	*0.15*	919	*0.57*	0.57	1
6.1	Restricted Crossing U-Turn	N-S	554	*0.35*	1037	*0.65*	1128	*0.70*	480	*0.30*			0.70	14
6.2		E-W	1581	0.99	1985	1.24	1785	1.12	767	*0.48*			1.24	15
7.1	Median U-Turn	N-S	460	*0.29*	937	*0.59*					978	*0.61*	0.61	6
7.2		E-W					404	*0.25*	276	*0.17*	1008	*0.63*	0.63	11
8.1	Partial Median U-Turn	N-S	417	*0.26*	846	*0.53*					1008	*0.63*	0.63	8
8.2		E-W					349	*0.22*	250	*0.16*	1008	*0.63*	0.63	8

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	103.30			22.87			234.10			25.10			234.10	6
9.2	75 ICD	103.30			22.87			234.10			25.10			234.10	6
9.3	1 X 1	1.17			0.55			2.64			2.83			2.83	5
9.4	1 X 2	1.10			0.33	0.22		2.49			1.04	1.79		2.49	4
9.5	2 X 1	0.58	0.59		0.39			1.34	1.31		1.33			1.34	2
9.6	2 X 2	0.56	0.55		0.55	0.84		1.27	1.23		0.25	0.16		1.27	1
9.7	3 X 3	0.01	0.55	0.54	0.09	0.23	0.19	0.02	1.25	1.21	0.19	0.86	1.36	1.36	3

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					907	0.57	913	0.57					0.57	7
10.2		E-W					277	0.17	233	0.15					0.17	4
11.1	Partial Cloverleaf	N-S					400	0.25	836	0.52					0.52	6
11.2		E-W					211	0.63	231	0.14					0.14	1
13.1	Displaced Left Turn	N-S	933	0.58			859	0.54	873	0.55			405	0.25	0.58	8
13.2		E-W	240	0.15			185	0.12	168	0.11			159	0.10	0.15	2
14.1	Double Crossover Diamond	N-S	933	0.58	391	0.24	1178	0.74	1173	0.73	891	0.56	392	0.25	0.74	10
14.2		E-W	190	0.12	337	0.21	196	0.12	200	0.13	276	0.17	140	0.09	0.21	5
15.1	Single Point	N-S	946	0.59			923	0.58					396	0.25	0.59	9
15.2		E-W	190	0.12			242	0.15					140	0.09	0.15	3

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project R*
Location	*Lowry Ln at Nicholasville Rd - PM Peak Hour*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
12	11	1	8

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1303	0.81	0.81	10
2	Conventional Shared RT LN	CSRL									1503	0.94	0.94	14
3.1	Quadrant Roadway	S-W			1239	0.77			564	0.35	1037	0.65	0.77	9
3.2		N-E	1078	0.67			323	0.20			1171	0.73	0.73	3
3.3		S-E			1078	0.67	1078	0.67			1180	0.74	0.74	4
3.4		N-W	1213	0.76					845	0.53	1190	0.74	0.76	6
4.1	Partial Displaced Left Turn	N-S	427	0.27	1079	0.67					1074	0.67	0.67	1
4.2		E-W					246	0.15	439	0.27	1220	0.76	0.76	7
5	Displaced Left Turn	FULL	427	0.27	1079	0.67	246	0.15	439	0.27	1002	0.63	0.67	1
6.1	Restricted Crossing U-Turn	N-S	1110	0.69	817	0.51	563	0.35	1205	0.75			0.75	5
6.2		E-W	4130	2.58	3686	2.30	927	0.58	1888	1.18			2.58	15
7.1	Median U-Turn	N-S	1270	0.79	649	0.41					1351	0.84	0.84	11
7.2		E-W					579	0.36	689	0.43	1238	0.77	0.77	8
8.1	Partial Median U-Turn	N-S	1198	0.75	468	0.29					1365	0.85	0.85	12
8.2		E-W					320	0.20	656	0.41	1365	0.85	0.85	12

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	268.50			59.67			124.50			13.50			268.50	6
9.2	75 ICD	268.50			59.67			124.50			13.50			268.50	6
9.3	1 X 1	3.52			7.03			1.61			0.50			7.03	5
9.4	1 X 2	3.17			2.71	4.33		1.46			0.35	0.15		4.33	4
9.5	2 X 1	1.61	1.91		3.22			0.90	0.71		0.33			3.22	2
9.6	2 X 2	1.48	1.72		0.25	0.10		0.83	0.64		1.41	1.98		1.98	1
9.7	3 X 3	0.02	1.49	1.65	0.87	1.88	3.24	0.13	0.74	0.63	0.10	0.24	0.13	3.24	3

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1129	0.71	1041	0.65					0.71	7
10.2		E-W					557	0.35	392	0.25					0.35	2
11.1	Partial Cloverleaf	N-S					1069	0.67	448	0.28					0.67	6
11.2		E-W					365	0.67	289	0.18					0.23	1
13.1	Displaced Left Turn	N-S	427	0.27			899	0.56	1006	0.63			1156	0.72	0.72	8
13.2		E-W	567	0.35			313	0.20	404	0.25			246	0.15	0.35	3
14.1	Double Crossover Diamond	N-S	403	0.25	911	0.57	1250	0.78	1281	0.80	573	0.36	1156	0.72	0.80	10
14.2		E-W	600	0.38	591	0.37	332	0.21	354	0.22	322	0.20	240	0.15	0.38	4
15.1	Single Point	N-S	403	0.25			1213	0.76					1190	0.74	0.76	9
15.2		E-W	600	0.38			531	0.33					240	0.15	0.38	4

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project T*
Location	*MOW at Richmond Rd - AM Peak Hour*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
11	7	4	10

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1388	0.87	0.87	10
2	Conventional Shared RT LN	CSRL									1693	1.06	1.06	13
3.1	Quadrant Roadway	S-W			1093	0.68			1343	0.84	1113	0.70	0.84	8
3.2		N-E	1153	0.72			1137	0.71			1348	0.84	0.84	9
3.3		S-E			978	0.61	978	0.61			1144	0.72	0.72	4
3.4		N-W	1450	0.91					1446	0.90	1295	0.81	0.91	12
4.1	Partial Displaced Left Turn	N-S	602	0.38	567	0.35					1067	0.67	0.67	2
4.2		E-W					747	0.47	844	0.53	1125	0.70	0.70	3
5	Displaced Left Turn	FULL	602	0.38	567	0.35	747	0.47	844	0.53	1013	0.63	0.63	1
6.1	Restricted Crossing U-Turn	N-S	892	0.56	1521	0.95	1789	1.12	1660	1.04			1.12	15
6.2		E-W	992	0.62	1271	0.79	1757	1.10	1513	0.95			1.10	14
7.1	Median U-Turn	N-S	749	0.47	905	0.57					1401	0.88	0.88	11
7.2		E-W					1111	0.69	1181	0.74	1213	0.76	0.76	5
8.1	Partial Median U-Turn	N-S	1066	0.67	888	0.55					1239	0.77	0.77	6
8.2		E-W					873	0.55	1121	0.70	1239	0.77	0.77	6

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	88.50			195.37			185.70			114.10			195.37	6
9.2	75 ICD	88.50			195.37			185.70			114.10			195.37	6
9.3	1 X 1	3.80			4.48			8.49			8.48			8.49	5
9.4	1 X 2	2.39			1.85	2.63		5.24			3.77	4.71		5.24	3
9.5	2 X 1	2.16	1.64		3.38			5.51	2.99		4.52			5.51	4
9.6	2 X 2	1.46	1.03		2.23	2.51		3.68	1.84		1.47	1.98		3.68	1
9.7	3 X 3	0.44	1.61	1.23	0.26	1.52	2.09	1.40	3.97	2.43	0.41	3.15	3.26	3.97	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					926	0.58	969	0.61					0.61	5
10.2		E-W					1575	0.98	1043	0.65					0.98	10
11.1	Partial Cloverleaf	N-S					599	0.37	729	0.46					0.46	1
11.2		E-W					929	0.72	711	0.44					0.58	4
13.1	Displaced Left Turn	N-S	743	0.46			599	0.37	870	0.54			888	0.55	0.55	3
13.2		E-W	964	0.60			935	0.58	1335	0.83			801	0.50	0.83	8
14.1	Double Crossover Diamond	N-S	743	0.46	386	0.24	774	0.48	869	0.54	864	0.54	546	0.34	0.54	2
14.2		E-W	769	0.48	1431	0.89	917	0.57	1113	0.70	1163	0.73	742	0.46	0.89	9
15.1	Single Point	N-S	772	0.48			1182	0.74					917	0.57	0.74	7
15.2		E-W	769	0.48			1154	0.72					742	0.46	0.72	6

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project T*
Location	*MOW at Richmond Rd - PM Peak Hour*
Date	May 26, 2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
4	5	3	20

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1687	1.05	1.05	8
2	Conventional Shared RT LN	CSRL									1983	1.24	1.24	11
3.1	Quadrant Roadway	S-W			1494	0.93			1652	1.03	1509	0.94	1.03	5
3.2		N-E	1027	*0.64*			1490	0.93			1657	1.04	1.04	6
3.3		S-E			1099	*0.69*	1099	*0.69*			1673	1.05	1.05	7
3.4		N-W	1782	1.11					2033	1.27	1478	0.92	1.27	13
4.1	Partial Displaced Left Turn	N-S	547	*0.34*	819	*0.51*					1379	0.86	0.86	2
4.2		E-W					940	*0.59*	1244	0.78	1579	0.99	0.99	3
5	Displaced Left Turn	FULL	547	*0.34*	819	*0.51*	940	*0.59*	1244	0.78	1287	0.80	0.80	1
6.1	Restricted Crossing U-Turn	N-S	1900	1.19	1485	0.93	2292	1.43	3163	1.98			1.98	15
6.2		E-W	1810	1.13	1631	1.02	1989	1.24	2156	1.35			1.35	14
7.1	Median U-Turn	N-S	1202	0.75	865	*0.54*					2033	1.27	1.27	12
7.2		E-W					1590	0.99	1455	0.91	1505	0.94	0.99	4
8.1	Partial Median U-Turn	N-S	1407	0.88	913	*0.57*					1786	1.12	1.12	9
8.2		E-W					1397	0.87	1396	0.87	1786	1.12	1.12	9

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	207.40			218.37			148.40			211.40			218.37	6
9.2	75 ICD	207.40			218.37			148.40			211.40			218.37	6
9.3	1 X 1	22.07			13.17			8.90			10.40			22.07	5
9.4	1 X 2	10.56			5.36	7.81		5.06			5.09	5.31		10.56	3
9.5	2 X 1	10.32	11.75		7.44			5.81	3.09		6.27			11.75	4
9.6	2 X 2	5.58	5.62		3.34	3.20		3.63	1.76		3.33	4.41		5.62	1
9.7	3 X 3	1.82	8.15	8.08	0.77	4.41	5.65	1.70	3.98	2.38	0.59	4.17	3.83	8.15	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					1092	0.68	956	0.60					0.68	3
10.2		E-W					1795	1.12	1696	1.06					1.12	9
11.1	Partial Cloverleaf	N-S					851	0.53	650	0.41					0.53	1
11.2		E-W					1145	0.64	1210	0.76					0.76	5
13.1	Displaced Left Turn	N-S	717	0.45			679	0.42	831	0.52			1112	0.69	0.69	4
13.2		E-W	1373	0.86			1455	0.91	1422	0.89			1060	0.66	0.91	8
14.1	Double Crossover Diamond	N-S	667	0.42	799	0.50	935	0.58	1007	0.63	739	0.46	873	0.55	0.63	2
14.2		E-W	1386	0.87	1895	1.18	1121	0.70	1536	0.96	1770	1.11	924	0.58	1.18	10
15.1	Single Point	N-S	701	0.44			1165	0.73					1301	0.81	0.81	6
15.2		E-W	1386	0.87			1388	0.87					924	0.58	0.87	7

Capacity Analysis for Planning of Junctions

Input Worksheet

		Critical Lane Volume Sum			
Project Name:	*LFUCG Bottleneck Study*	Acceptable Configurations			
Project Number:	*Project BB*	< 1200	1200 - 1399	1400 - 1599	≥ 1600
Location	*Nicholasville at Southland - AM Peak Hour*	0	0	8	14
Date	June 29,2021				

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1691	1.06	1.06	12
2	Conventional Shared RT LN	CSRL									1858	1.16	1.16	14
3.1	Quadrant Roadway	S-W			1344	0.84			594	0.37	1459	0.91	0.91	3
3.2		N-E	1417	0.89			606	0.38			1603	1.00	1.00	9
3.3		S-E			1359	0.85	1359	0.85			1536	0.96	0.96	6
3.4		N-W	1354	0.85					634	0.40	1526	0.95	0.95	5
4.1	Partial Displaced Left Turn	N-S	1241	0.78	415	0.26					1648	1.03	1.03	11
4.2		E-W					305	0.19	700	0.44	1442	0.90	0.90	2
5	Displaced Left Turn	FULL	1241	0.78	415	0.26	305	0.19	700	0.44	1401	0.88	0.88	1
6.1	Restricted Crossing U-Turn	N-S	801	0.50	1715	1.07	1450	0.91	900	0.56			1.07	13
6.2		E-W	1182	0.74	2163	1.35	1863	1.16	955	0.60			1.35	15
7.1	Median U-Turn	N-S	572	0.36	1507	0.94					1645	1.03	1.03	10
7.2		E-W					888	0.55	747	0.47	1523	0.95	0.95	4
8.1	Partial Median U-Turn	N-S	499	0.31	1213	0.76					1564	0.98	0.98	7
8.2		E-W					719	0.45	699	0.44	1564	0.98	0.98	7

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	1.30			1.43			4.17			-0.27			4.17	6
9.2	75 ICD	1.19			1.32			3.86			-0.31			3.86	5
9.3	1 X 1	0.98			0.99			3.33			4.75			4.75	7
9.4	1 X 2	0.84			0.54	0.46		2.88			2.42	2.32		2.88	4
9.5	2 X 1	0.42	0.56		0.83			1.74	1.59		2.22			2.22	3
9.6	2 X 2	0.37	0.48		1.29	1.09		1.54	1.38		0.46	0.38		1.54	1
9.7	3 X 3	0.03	0.37	0.47	0.18	0.34	0.39	0.10	1.55	1.40	0.34	2.08	1.81	2.08	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					####	####	####	####					#DIV/0!	#DIV/0!
10.2		E-W					####	####	####	####					#DIV/0!	#DIV/0!
11.1	Partial Cloverleaf	N-S					####	####	####	####					#DIV/0!	#DIV/0!
11.2		E-W					####	0.89	####	####					#DIV/0!	#DIV/0!
13.1	Displaced Left Turn	N-S	####	####			####	####	####	####			####	####	#DIV/0!	#DIV/0!
13.2		E-W	####	####			####	####	####	####			####	####	#DIV/0!	#DIV/0!
14.1	Double Crossover Diamond	N-S	####	####	####	####	####	####	####	####	####	####	####	####	#DIV/0!	#DIV/0!
14.2		E-W	####	####	####	####	####	####	####	####	####	####	####	####	#DIV/0!	#DIV/0!
15.1	Single Point	N-S	####	####			####	####					####	####	#DIV/0!	#DIV/0!
15.2		E-W	####	####			####	####					####	####	#DIV/0!	#DIV/0!

Capacity Analysis for Planning of Junctions

Input Worksheet

Project Name:	*LFUCG Bottleneck Study*
Project Number:	*Project BB*
Location	*Nicholasville at Southland - PM Peak Hour*
Date	June 29,2021

Critical Lane Volume Sum

Acceptable Configurations			
< 1200	1200 - 1399	1400 - 1599	≥ 1600
0	0	3	19

Results for Intersections

#	TYPE OF INTERSECTION	Sheet	Zone 1 (North)		Zone 2 (South)		Zone 3 (East)		Zone 4 (West)		Zone 5 (Center)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
1	Conventional	FULL									1806	1.13	1.13	11
2	Conventional Shared RT LN	CSRL									2299	1.44	1.44	14
3.1	Quadrant Roadway	S-W			1627	1.02			758	0.47	1595	1.00	1.02	5
3.2		N-E	1343	0.84			526	0.33			1605	1.00	1.00	4
3.3		S-E			1385	0.87	1385	0.87			1650	1.03	1.03	7
3.4		N-W	1504	0.94					1111	0.69	1567	0.98	0.98	3
4.1	Partial Displaced Left Turn	N-S	607	0.38	1402	0.88					1554	0.97	0.97	2
4.2		E-W					526	0.33	632	0.40	1698	1.06	1.06	8
5	Displaced Left Turn	FULL	607	0.38	1402	0.88	526	0.33	632	0.40	1460	0.91	0.91	1
6.1	Restricted Crossing U-Turn	N-S	1730	1.08	1186	0.74	728	0.46	1648	1.03			1.08	9
6.2		E-W	4557	2.85	3724	2.33	1063	0.66	2277	1.42			2.85	15
7.1	Median U-Turn	N-S	1690	1.06	872	0.54					1731	1.08	1.08	10
7.2		E-W					825	0.52	1048	0.66	1628	1.02	1.02	6
8.1	Partial Median U-Turn	N-S	1577	0.99	698	0.44					1837	1.15	1.15	12
8.2		E-W					541	0.34	936	0.58	1837	1.15	1.15	12

Capacity Analysis for Planning of Junctions

Input Worksheet

Results for Roundabouts

#	TYPE OF ROUNDABOUT	Zone 1 (North)			Zone 3 (East)			Zone 2 (South)			Zone 4 (West)			Overall v/c Ratio	Ranking
		Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3		
9.1	50 ICD	5.81			-0.58			2.52			-1.43			5.81	6
9.2	75 ICD	5.21			-0.67			2.26			-2.62			5.21	5
9.3	1 X 1	4.07			8.17			1.83			1.14			8.17	7
9.4	1 X 2	3.43			3.07	5.10		1.54			0.68	0.46		5.10	4
9.5	2 X 1	1.90	2.17		3.95			1.05	0.78		0.78			3.95	3
9.6	2 X 2	1.65	1.83		0.50	0.31		0.91	0.66		1.68	2.47		2.47	1
9.7	3 X 3	0.07	1.72	1.84	0.70	2.40	3.82	0.18	0.83	0.69	0.14	0.51	0.38	3.82	2

Results for Interchanges

#	TYPE OF INTERCHANGE	Sheet	Zone 1 (Rt Mrg)		Zone 2 (Lt Mrg)		Zone 3 (Ctr. 1)		Zone 4 (Ctr. 2)		Zone 5 (Lt Mrg)		Zone 6 (Rt Mrg)		Overall v/c Ratio	Ranking
			CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C	CLV	V/C		
10.1	Diamond	N-S					####	####	####	####					#DIV/0!	#DIV/0!
10.2		E-W					####	####	####	####					#DIV/0!	#DIV/0!
11.1	Partial Cloverleaf	N-S					####	####	####	####					#DIV/0!	#DIV/0!
11.2		E-W					####	0.84	####	####					#DIV/0!	#DIV/0!
13.1	Displaced Left Turn	N-S	####	####			####	####	####	####			####	####	#DIV/0!	#DIV/0!
13.2		E-W	####	####			####	####	####	####			####	####	#DIV/0!	#DIV/0!
14.1	Double Crossover Diamond	N-S	####	####	####	####	####	####	####	####	####	####	####	####	#DIV/0!	#DIV/0!
14.2		E-W	####	####	####	####	####	####	####	####	####	####	####	####	#DIV/0!	#DIV/0!
15.1	Single Point	N-S	####	####			####	####					####	####	#DIV/0!	#DIV/0!
15.2		E-W	####	####			####	####					####	####	#DIV/0!	#DIV/0!

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	150	725	115	20	1725	155	325	175	75	100	325
Future Volume (vph)	150	725	115	20	1725	155	325	175	75	100	325
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4	3	8	
Permitted Phases			6			2	4		8		8
Detector Phase	1	6	6	5	2	2	7	4	3	8	8
Switch Phase											
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	26.5	26.5	10.5	26.5	26.5	10.6	21.6	10.6	21.6	21.6
Total Split (s)	22.0	109.0	109.0	18.0	105.0	105.0	25.0	36.0	17.0	28.0	28.0
Total Split (%)	12.2%	60.6%	60.6%	10.0%	58.3%	58.3%	13.9%	20.0%	9.4%	15.6%	15.6%
Yellow Time (s)	3.6	4.7	4.7	3.6	4.7	4.7	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.9	1.8	1.8	1.9	1.8	1.8	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.5	-2.5	-2.5	-1.5	-2.5	-2.5	-1.6	-1.6	-1.6	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	C-Max	C-Max	Max	Min	None	Min	Min
Act Effct Green (s)	18.0	114.4	114.4	9.2	101.0	101.0	49.0	32.9	36.1	24.0	24.0
Actuated g/C Ratio	0.10	0.64	0.64	0.05	0.56	0.56	0.27	0.18	0.20	0.13	0.13
v/c Ratio	0.91	0.35	0.12	0.23	0.91	0.17	1.12	0.68	0.39	0.46	1.05
Control Delay	119.3	4.9	1.3	95.3	32.0	0.8	138.8	79.0	56.2	78.7	101.4
Queue Delay	0.0	0.1	0.0	0.0	26.5	0.0	0.0	0.0	0.0	0.0	13.3
Total Delay	119.3	5.0	1.3	95.3	58.4	0.8	138.8	79.0	56.2	78.7	114.7
LOS	F	A	A	F	E	A	F	E	E	E	F
Approach Delay		21.8			54.2			116.1		98.7	
Approach LOS		C			D			F		F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 132 (73%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 60.8	Intersection LOS: E
Intersection Capacity Utilization 95.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 30: Yellowstone Dr. & Alumni



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	475	100	250	75	725	125	475	1475	25	30	650	700
Future Volume (vph)	475	100	250	75	725	125	475	1475	25	30	650	700
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8		7	4		5	2		1	6	3
Permitted Phases			8	4		4			2			6
Detector Phase	3	8	8	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	5.0	5.0	5.0	12.0	12.0	5.0	12.0	8.0
Minimum Split (s)	33.1	33.1	33.1	33.1	33.1	33.1	12.1	36.1	36.1	12.1	36.1	33.1
Total Split (s)	30.0	44.0	44.0	18.0	32.0	32.0	48.0	100.0	100.0	18.0	70.0	30.0
Total Split (%)	16.7%	24.4%	24.4%	10.0%	17.8%	17.8%	26.7%	55.6%	55.6%	10.0%	38.9%	16.7%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	5.0	5.0	5.0	5.0	5.0	4.7
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.4
Lost Time Adjust (s)	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	Max	C-Max	C-Max	None	None	Min
Act Effct Green (s)	30.2	45.0	45.0	41.2	28.0	28.0	44.0	96.0	96.0	12.5	61.8	96.0
Actuated g/C Ratio	0.17	0.25	0.25	0.23	0.16	0.16	0.24	0.53	0.53	0.07	0.34	0.53
v/c Ratio	0.93	0.23	0.48	0.26	1.43	0.34	1.28	0.85	0.03	0.29	0.58	0.93
Control Delay	95.6	70.6	37.0	45.7	254.7	2.9	183.1	33.6	0.0	72.1	36.4	64.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.6	70.6	37.0	45.7	254.7	2.9	183.1	33.6	0.0	72.1	36.4	64.8
LOS	F	E	D	D	F	A	F	C	A	E	D	E
Approach Delay		74.8			203.6			69.1			51.5	
Approach LOS		E			F			E			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 140 (78%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 155	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.43	
Intersection Signal Delay: 89.7	Intersection LOS: F
Intersection Capacity Utilization 99.7%	ICU Level of Service F
Analysis Period (min) 15	

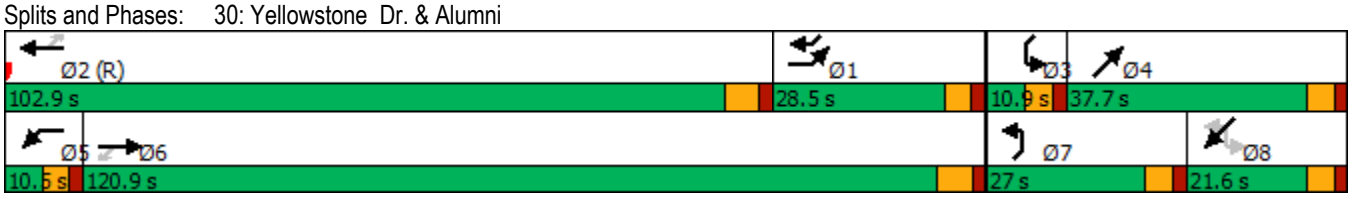
Splits and Phases: 369: Man o' War & Alumni



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	150	725	115	20	1725	155	325	175	75	100	325
Future Volume (vph)	150	725	115	20	1725	155	325	175	75	100	325
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+pt	NA	pm+ov
Protected Phases	1	6		5	2		7	4	3	8	1
Permitted Phases			6			2			8		8
Detector Phase	1	6	6	5	2	2	7	4	3	8	1
Switch Phase											
Minimum Initial (s)	5.0	20.0	20.0	5.0	20.0	20.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	26.5	26.5	10.5	26.5	26.5	10.6	21.6	10.6	21.6	10.5
Total Split (s)	28.5	120.9	120.9	10.5	102.9	102.9	27.0	37.7	10.9	21.6	28.5
Total Split (%)	15.8%	67.2%	67.2%	5.8%	57.2%	57.2%	15.0%	20.9%	6.1%	12.0%	15.8%
Yellow Time (s)	3.6	4.7	4.7	3.6	4.7	4.7	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.9	1.8	1.8	1.9	1.8	1.8	2.0	2.0	2.0	2.0	1.9
Lost Time Adjust (s)	-1.5	-2.5	-2.5	-1.5	-2.5	-2.5	-1.6	-1.6	-1.6	-1.6	-1.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.9
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	None	C-Max	C-Max	Max	Min	None	Min	None
Act Effct Green (s)	24.5	122.6	122.6	6.9	100.4	100.4	23.0	32.2	23.0	16.1	40.8
Actuated g/C Ratio	0.14	0.68	0.68	0.04	0.56	0.56	0.13	0.18	0.13	0.09	0.23
v/c Ratio	0.67	0.32	0.11	0.31	0.91	0.17	0.84	0.69	0.52	0.69	0.81
Control Delay	92.1	5.2	0.9	90.8	32.4	4.4	94.0	79.8	70.7	100.2	45.0
Queue Delay	0.0	0.1	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	92.1	5.3	0.9	90.8	35.8	4.4	94.0	79.8	70.7	100.2	45.2
LOS	F	A	A	F	D	A	F	E	E	F	D
Approach Delay		17.9			33.8			88.6		60.1	
Approach LOS		B			C			F		E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 154 (86%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 41.1	Intersection LOS: D
Intersection Capacity Utilization 87.1%	ICU Level of Service E
Analysis Period (min) 15	

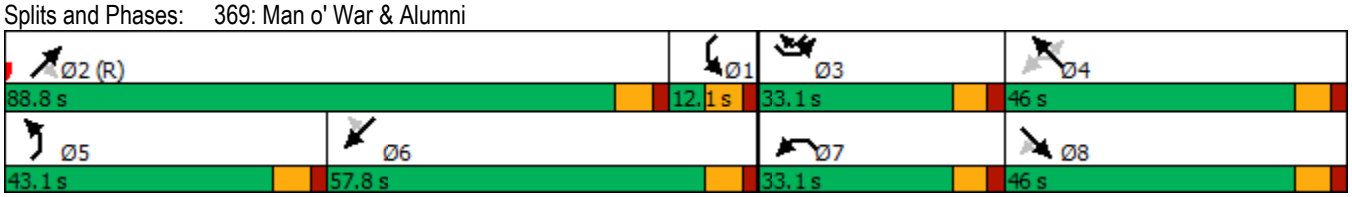
Splits and Phases: 30: Yellowstone Dr. & Alumni



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	475	100	250	75	725	125	475	1475	25	30	650	700
Future Volume (vph)	475	100	250	75	725	125	475	1475	25	30	650	700
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	3	8		7	4		5	2		1	6	3
Permitted Phases			8	4		4			2			6
Detector Phase	3	8	8	7	4	4	5	2	2	1	6	3
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	5.0	5.0	5.0	5.0	12.0	12.0	5.0	12.0	8.0
Minimum Split (s)	33.1	33.1	33.1	33.1	33.1	33.1	12.1	36.1	36.1	12.1	36.1	33.1
Total Split (s)	33.1	46.0	46.0	33.1	46.0	46.0	43.1	88.8	88.8	12.1	57.8	33.1
Total Split (%)	18.4%	25.6%	25.6%	18.4%	25.6%	25.6%	23.9%	49.3%	49.3%	6.7%	32.1%	18.4%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	5.0	5.0	5.0	5.0	5.0	4.7
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.4
Lost Time Adjust (s)	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1	-3.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	Max	C-Max	C-Max	None	None	Min
Act Effct Green (s)	30.5	58.9	58.9	56.2	42.3	42.3	39.8	85.5	85.5	8.1	51.4	85.8
Actuated g/C Ratio	0.17	0.33	0.33	0.31	0.24	0.24	0.22	0.48	0.48	0.04	0.29	0.48
v/c Ratio	0.92	0.18	0.41	0.19	0.95	0.29	0.73	0.95	0.04	0.45	0.70	0.60
Control Delay	78.0	52.7	26.9	34.2	87.8	6.3	58.3	43.5	0.1	83.0	42.8	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.0	52.7	26.9	34.2	87.8	6.3	58.3	43.5	0.1	83.0	42.8	31.2
LOS	E	D	C	C	F	A	E	D	A	F	D	C
Approach Delay		59.4			72.4			46.5			37.8	
Approach LOS		E			E			D			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 140 (78%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 165	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 50.9	Intersection LOS: D
Intersection Capacity Utilization 91.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 369: Man o' War & Alumni



Lane Group	WBL2	WBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	175	550	925	800	225	1225
Future Volume (vph)	175	550	925	800	225	1225
Turn Type	Prot	Free	NA	Perm	pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		Free		2	6	
Detector Phase	4		2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0		15.0	15.0	5.0	15.0
Minimum Split (s)	20.0		21.1	21.1	10.3	21.1
Total Split (s)	30.0		95.0	95.0	25.0	120.0
Total Split (%)	20.0%		63.3%	63.3%	16.7%	80.0%
Yellow Time (s)	3.6		4.3	4.3	3.6	4.3
All-Red Time (s)	2.2		1.8	1.8	1.7	1.8
Lost Time Adjust (s)	-1.8		-2.1	-2.1	-1.3	-2.1
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		C-Max	C-Max	None	None
Act Effct Green (s)	22.6	150.0	103.1	103.1	119.4	119.4
Actuated g/C Ratio	0.15	1.00	0.69	0.69	0.80	0.80
v/c Ratio	0.75	0.40	0.44	0.68	0.57	0.50
Control Delay	79.3	0.8	4.3	5.5	14.5	15.4
Queue Delay	0.0	0.0	0.0	0.5	0.0	1.2
Total Delay	79.3	0.8	4.3	6.0	14.5	16.6
LOS	E	A	A	A	B	B
Approach Delay			5.1			16.3
Approach LOS			A			B

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 2 (1%), Referenced to phase 2:SET, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 12.0	Intersection LOS: B
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

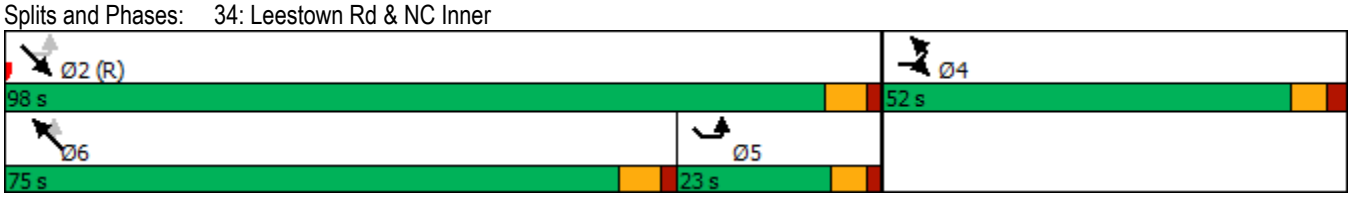
Splits and Phases: 35: Leestown Rd & NC Outer



Lane Group	EBL2	EBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	425	225	325	775	1025	300
Future Volume (vph)	425	225	325	775	1025	300
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	4.0	15.0	15.0	15.0
Minimum Split (s)	20.0	20.0	10.2	21.5	21.5	21.5
Total Split (s)	52.0	52.0	23.0	98.0	75.0	75.0
Total Split (%)	34.7%	34.7%	15.3%	65.3%	50.0%	50.0%
Yellow Time (s)	3.9	3.9	3.9	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	1.9	1.8	1.8	1.8
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.1	-2.1	-2.1
Total Lost Time (s)	4.4	4.4	5.8	4.4	4.4	4.4
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	None	None
Act Effct Green (s)	29.7	29.7	110.1	111.5	69.5	69.5
Actuated g/C Ratio	0.20	0.20	0.73	0.74	0.46	0.46
v/c Ratio	0.72	0.55	0.68	0.34	0.72	0.42
Control Delay	62.5	18.3	38.8	9.4	33.2	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	62.5	18.3	38.8	9.4	33.5	11.4
LOS	E	B	D	A	C	B
Approach Delay				18.1	28.5	
Approach LOS				B	C	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 134 (89%), Referenced to phase 2:SETL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 28.7	Intersection LOS: C
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 34: Leestown Rd & NC Inner



Lane Group	WBL2	WBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	175	550	925	800	225	1225
Future Volume (vph)	175	550	925	800	225	1225
Turn Type	Prot	Free	NA	Perm	Prot	NA
Protected Phases	4		2		1	6
Permitted Phases		Free		2		
Detector Phase	4		2	2	1	6
Switch Phase						
Minimum Initial (s)	7.0		15.0	15.0	5.0	15.0
Minimum Split (s)	20.0		21.1	21.1	10.3	21.1
Total Split (s)	30.0		84.0	84.0	36.0	120.0
Total Split (%)	20.0%		56.0%	56.0%	24.0%	80.0%
Yellow Time (s)	3.6		4.3	4.3	3.6	4.3
All-Red Time (s)	2.2		1.8	1.8	1.7	1.8
Lost Time Adjust (s)	-1.8		-2.1	-2.1	-1.3	-2.1
Total Lost Time (s)	4.0		4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None		C-Max	C-Max	None	None
Act Effct Green (s)	22.6	150.0	88.0	88.0	27.4	119.4
Actuated g/C Ratio	0.15	1.00	0.59	0.59	0.18	0.80
v/c Ratio	0.75	0.40	0.51	0.77	0.80	0.50
Control Delay	79.3	0.8	12.0	9.6	78.9	6.2
Queue Delay	0.0	0.0	0.0	1.2	0.0	0.6
Total Delay	79.3	0.8	12.0	10.8	78.9	6.7
LOS	E	A	B	B	E	A
Approach Delay			11.4			17.9
Approach LOS			B			B

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 2 (1%), Referenced to phase 2:SET, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

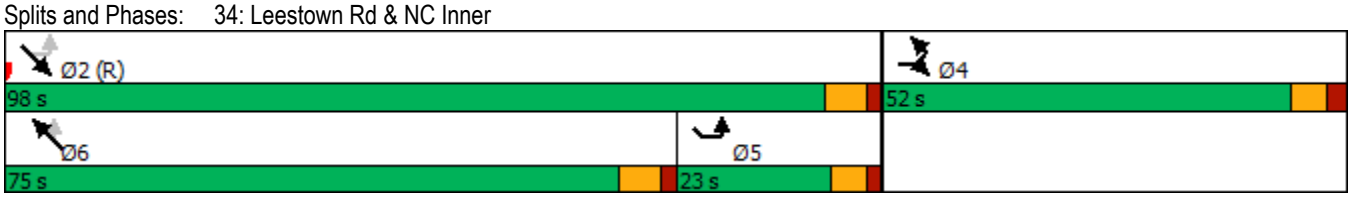
Splits and Phases: 35: Leestown Rd & NC Outer



Lane Group	EBL2	EBR	SEL	SET	NWT	NWR
Lane Configurations						
Traffic Volume (vph)	425	225	325	775	1025	300
Future Volume (vph)	425	225	325	775	1025	300
Turn Type	Prot	Prot	pm+pt	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases	4	4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	4.0	15.0	15.0	15.0
Minimum Split (s)	20.0	20.0	10.2	21.5	21.5	21.5
Total Split (s)	52.0	52.0	23.0	98.0	75.0	75.0
Total Split (%)	34.7%	34.7%	15.3%	65.3%	50.0%	50.0%
Yellow Time (s)	3.9	3.9	3.9	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	1.9	1.8	1.8	1.8
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.1	-2.1	-2.1
Total Lost Time (s)	4.4	4.4	5.8	4.4	4.4	4.4
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	None	None
Act Effct Green (s)	29.7	29.7	110.1	111.5	69.5	69.5
Actuated g/C Ratio	0.20	0.20	0.73	0.74	0.46	0.46
v/c Ratio	0.72	0.55	0.68	0.34	0.72	0.42
Control Delay	62.5	18.3	33.4	8.0	33.2	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0
Total Delay	62.5	18.3	33.4	8.0	33.5	11.4
LOS	E	B	C	A	C	B
Approach Delay				15.5	28.5	
Approach LOS				B	C	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 134 (89%), Referenced to phase 2:SETL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 27.8	Intersection LOS: C
Intersection Capacity Utilization 72.1%	ICU Level of Service C
Analysis Period (min) 15	

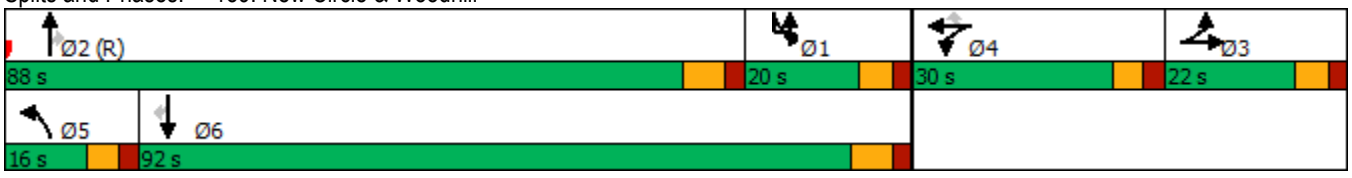
Splits and Phases: 34: Leestown Rd & NC Inner



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	150	125	300	225	150	50	1800	225	125	1500	125
Future Volume (vph)	150	125	300	225	150	50	1800	225	125	1500	125
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3	4	4		5	2		1	6	
Permitted Phases					4			2			6
Detector Phase	3	3	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	30.0	30.0	10.0	30.0	30.0
Minimum Split (s)	11.4	11.4	41.1	41.1	41.1	11.4	47.4	47.4	16.4	47.4	47.4
Total Split (s)	22.0	22.0	30.0	30.0	30.0	16.0	88.0	88.0	20.0	92.0	92.0
Total Split (%)	13.8%	13.8%	18.8%	18.8%	18.8%	10.0%	55.0%	55.0%	12.5%	57.5%	57.5%
Yellow Time (s)	3.9	3.9	3.6	3.6	3.6	3.9	5.0	5.0	3.9	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-2.1	0.0	-2.4	-3.4	-3.4	-3.4	-3.4	-3.4
Total Lost Time (s)	4.3	4.3	4.0	4.0	6.1	3.9	4.0	4.0	2.9	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	16.8	16.8	26.0	26.0	23.9	11.3	84.9	84.9	17.1	92.3	92.3
Actuated g/C Ratio	0.10	0.10	0.16	0.16	0.15	0.07	0.53	0.53	0.11	0.58	0.58
v/c Ratio	0.73	0.68	1.05	1.04	0.43	0.46	1.00	0.29	0.38	0.75	0.15
Control Delay	93.0	72.9	132.0	128.7	11.1	83.7	57.5	11.5	60.2	19.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.0	72.9	132.0	128.7	11.1	83.7	57.5	11.5	60.2	19.5	0.9
LOS	F	E	F	F	B	F	E	B	E	B	A
Approach Delay		79.6		103.6			53.0			21.1	
Approach LOS		E		F			D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 124 (78%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 50.8	Intersection LOS: D
Intersection Capacity Utilization 86.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 159: New Circle & Woodhill



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	25	15	300	25	300	30	1825	250	350	1430	50
Future Volume (vph)	25	15	300	25	300	30	1825	250	350	1430	50
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		4		5	2		1	6	
Permitted Phases	4		4		4			2			6
Detector Phase	4	4	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	43.4	43.4	43.4	43.4	43.4	11.2	46.1	46.1	14.1	46.1	46.1
Total Split (s)	36.0	36.0	36.0	36.0	36.0	15.0	92.0	92.0	32.0	109.0	109.0
Total Split (%)	22.5%	22.5%	22.5%	22.5%	22.5%	9.4%	57.5%	57.5%	20.0%	68.1%	68.1%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	1.9	1.9	1.9	2.2	1.9	1.9
Lost Time Adjust (s)	-2.4	-2.4		-2.4	-2.4	-2.2	-2.2	-2.2	-1.8	-2.2	-2.2
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	C-Max	C-Max
Act Effct Green (s)	32.0	32.0		32.0	32.0	10.3	89.9	89.9	26.1	108.0	108.0
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.06	0.56	0.56	0.16	0.68	0.68
v/c Ratio	0.59	0.12		1.36	0.65	0.29	0.98	0.32	0.74	0.64	0.05
Control Delay	105.6	26.1		230.0	23.1	44.8	15.5	1.0	72.2	17.0	1.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	26.1		230.0	23.1	44.8	15.5	1.0	72.2	17.0	1.6
LOS	F	C		F	C	D	B	A	E	B	A
Approach Delay		56.8		129.4			14.2			28.0	
Approach LOS		E		F			B			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 116 (73%), Referenced to phase 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.36	
Intersection Signal Delay: 36.4	Intersection LOS: D
Intersection Capacity Utilization 96.9%	ICU Level of Service F
Analysis Period (min) 15	

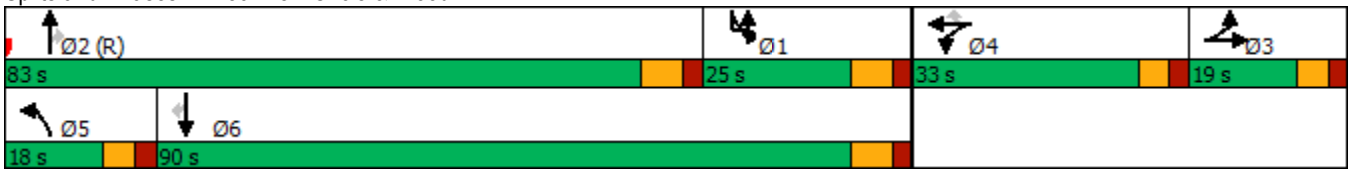
Splits and Phases: 153: New Circle & Palumbo



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	125	175	425	125	150	50	1600	350	200	1850	75
Future Volume (vph)	125	175	425	125	150	50	1600	350	200	1850	75
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3	4	4		5	2		1	6	
Permitted Phases					4			2			6
Detector Phase	3	3	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	13.0	13.0	5.0	13.0	13.0
Minimum Split (s)	41.1	41.1	41.1	41.1	41.1	11.4	47.4	47.4	12.4	47.4	47.4
Total Split (s)	19.0	19.0	33.0	33.0	33.0	18.0	83.0	83.0	25.0	90.0	90.0
Total Split (%)	11.9%	11.9%	20.6%	20.6%	20.6%	11.3%	51.9%	51.9%	15.6%	56.3%	56.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.9	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-2.1	0.0	-2.4	-3.4	-3.4	-3.4	-3.4	-3.4
Total Lost Time (s)	4.0	4.0	4.0	4.0	6.1	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	15.0	15.0	29.0	29.0	26.9	12.2	79.0	79.0	21.0	90.4	90.4
Actuated g/C Ratio	0.09	0.09	0.18	0.18	0.17	0.08	0.49	0.49	0.13	0.56	0.56
v/c Ratio	0.83	0.83	0.99	0.99	0.40	0.42	0.95	0.47	0.50	0.94	0.09
Control Delay	109.8	87.6	114.7	114.2	10.4	80.1	51.9	19.2	53.1	26.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.8	87.6	114.7	114.2	10.4	80.1	51.9	19.2	53.1	26.7	0.3
LOS	F	F	F	F	B	F	D	B	D	C	A
Approach Delay		94.7		91.9			46.8			28.4	
Approach LOS		F		F			D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 116 (73%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 49.1	Intersection LOS: D
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 159: New Circle & Woodhill



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	25	25	220	25	350	25	1700	150	350	1890	25
Future Volume (vph)	25	25	220	25	350	25	1700	150	350	1890	25
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		4		5	2		1	6	
Permitted Phases	4		4		4			2			6
Detector Phase	4	4	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	43.4	43.4	43.4	43.4	43.4	11.2	46.1	46.1	14.1	46.1	46.1
Total Split (s)	32.0	32.0	32.0	32.0	32.0	17.0	96.0	96.0	32.0	111.0	111.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	10.6%	60.0%	60.0%	20.0%	69.4%	69.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	1.9	1.9	1.9	2.2	1.9	1.9
Lost Time Adjust (s)	-2.4	-2.4		-2.4	-2.4	-2.2	-2.2	-2.2	-1.8	-2.2	-2.2
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	28.0	28.0		28.0	28.0	11.9	94.0	94.0	26.0	110.4	110.4
Actuated g/C Ratio	0.18	0.18		0.18	0.18	0.07	0.59	0.59	0.16	0.69	0.69
v/c Ratio	0.47	0.13		1.16	0.81	0.29	0.87	0.19	0.73	0.82	0.03
Control Delay	87.0	39.4		163.6	36.0	42.3	5.1	0.3	71.9	22.6	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.0	39.4		163.6	36.0	42.3	5.1	0.3	71.9	22.6	0.0
LOS	F	D		F	D	D	A	A	E	C	A
Approach Delay		57.8		87.7			5.4			30.6	
Approach LOS		E		F			A			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 132 (83%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.16	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 96.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 153: New Circle & Palumbo



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	150	125	300	225	150	50	1800	225	125	1500	125
Future Volume (vph)	150	125	300	225	150	50	1800	225	125	1500	125
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	3	8		5	2	3	1	6	7
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	3	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	5.0	30.0	5.0	10.0	30.0	5.0
Minimum Split (s)	11.0	41.1	11.0	22.0	22.0	11.4	47.4	11.0	16.4	47.4	11.0
Total Split (s)	22.0	30.1	22.9	31.0	31.0	14.0	81.0	22.9	16.0	83.0	22.0
Total Split (%)	14.7%	20.1%	15.3%	20.7%	20.7%	9.3%	54.0%	15.3%	10.7%	55.3%	14.7%
Yellow Time (s)	4.0	3.6	4.0	4.0	4.0	3.9	5.0	4.0	3.9	5.0	4.0
All-Red Time (s)	2.0	2.5	2.0	2.0	2.0	2.4	2.4	2.0	2.4	2.4	2.0
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-2.1	0.0	-2.4	-3.4	-3.4	-3.4	-3.4	-3.4
Total Lost Time (s)	3.9	4.0	3.9	3.9	6.0	3.9	4.0	2.6	2.9	4.0	2.6
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max	None
Act Effct Green (s)	17.8	24.2	18.6	25.1	23.0	9.9	79.3	100.6	13.1	83.9	105.0
Actuated g/C Ratio	0.12	0.16	0.12	0.17	0.15	0.07	0.53	0.67	0.09	0.56	0.70
v/c Ratio	0.80	0.34	0.79	0.80	0.42	0.49	1.00	0.23	0.46	0.77	0.13
Control Delay	90.4	45.4	77.9	80.1	9.0	82.3	56.6	3.2	53.7	15.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.4	45.4	77.9	80.1	9.0	82.3	56.6	3.2	53.7	15.2	0.2
LOS	F	D	E	F	A	F	E	A	D	B	A
Approach Delay		66.0		63.2			51.3			17.0	
Approach LOS		E		E			D			B	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 85.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 159: New Circle & Woodhill



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	15	300	25	30	1825	250	350	1430	50
Future Volume (vph)	25	15	300	25	30	1825	250	350	1430	50
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	4.0	4.0	5.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	43.4	43.4	20.0	20.0	11.2	46.1	46.1	14.1	46.1	46.1
Total Split (s)	40.0	40.0	40.0	40.0	18.0	87.8	87.8	22.2	92.0	92.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	12.0%	58.5%	58.5%	14.8%	61.3%	61.3%
Yellow Time (s)	3.6	3.6	3.5	3.5	4.3	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.8	2.8	0.5	0.5	1.9	1.9	1.9	2.2	1.9	1.9
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.2	-2.2	-2.2	-1.8	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	1.6	1.6	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Max	Max	None	C-Max	C-Max
Act Effct Green (s)	35.9	35.9	38.3	38.3	12.7	83.8	83.8	18.3	91.7	91.7
Actuated g/C Ratio	0.24	0.24	0.26	0.26	0.08	0.56	0.56	0.12	0.61	0.61
v/c Ratio	0.46	0.10	0.96	0.69	0.22	0.98	0.32	0.99	0.70	0.06
Control Delay	76.2	22.4	90.7	30.5	37.3	16.3	0.8	106.8	23.1	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	22.4	90.7	30.5	37.3	16.3	0.8	106.8	23.1	1.7
LOS	E	C	F	C	D	B	A	F	C	A
Approach Delay		43.2		59.1		14.7			39.9	
Approach LOS		D		E		B			D	

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 148 (99%), Referenced to phase 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 94.1%	ICU Level of Service F
Analysis Period (min) 15	

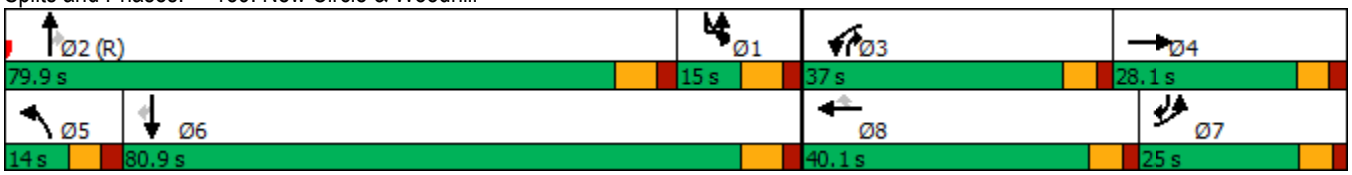
Splits and Phases: 153: New Circle & Palumbo



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	125	175	425	125	150	50	1600	350	200	1850	75
Future Volume (vph)	125	175	425	125	150	50	1600	350	200	1850	75
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	7	4	3	8		5	2	3	1	6	7
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	3	1	6	7
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	13.0	5.0	5.0	13.0	5.0
Minimum Split (s)	11.0	41.1	11.0	22.0	22.0	11.4	47.4	11.0	12.4	47.4	11.0
Total Split (s)	25.0	28.1	37.0	40.1	40.1	14.0	79.9	37.0	15.0	80.9	25.0
Total Split (%)	15.6%	17.6%	23.1%	25.1%	25.1%	8.8%	49.9%	23.1%	9.4%	50.6%	15.6%
Yellow Time (s)	4.0	3.6	4.0	4.0	4.0	3.9	5.0	4.0	5.0	5.0	4.0
All-Red Time (s)	2.0	2.5	2.0	2.0	2.0	2.5	2.4	2.0	2.4	2.4	2.0
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-2.1	0.0	-2.4	-3.4	-3.4	-3.4	-3.4	-3.4
Total Lost Time (s)	3.9	4.0	3.9	3.9	6.0	4.0	4.0	2.6	4.0	4.0	2.6
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	None	Max	None
Act Effct Green (s)	28.3	18.2	29.3	19.3	17.2	11.8	85.6	117.6	11.0	87.4	118.9
Actuated g/C Ratio	0.18	0.11	0.18	0.12	0.11	0.07	0.54	0.74	0.07	0.55	0.74
v/c Ratio	0.45	0.62	0.75	0.62	0.51	0.44	0.88	0.33	0.96	0.98	0.07
Control Delay	63.2	68.0	70.0	78.4	13.7	81.9	40.2	3.1	92.5	33.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.2	68.0	70.0	78.4	13.7	81.9	40.2	3.1	92.5	33.4	0.5
LOS	E	E	E	E	B	F	D	A	F	C	A
Approach Delay		66.3		59.3			34.7			38.2	
Approach LOS		E		E			C			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 41.8	Intersection LOS: D
Intersection Capacity Utilization 87.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 159: New Circle & Woodhill



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	25	25	220	25	25	1700	150	350	1890	25
Future Volume (vph)	25	25	220	25	25	1700	150	350	1890	25
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	4.0	4.0	5.0	15.0	15.0	8.0	15.0	15.0
Minimum Split (s)	43.4	43.4	20.0	20.0	11.2	46.1	46.1	14.1	46.1	46.1
Total Split (s)	43.4	43.4	43.4	43.4	15.6	91.6	91.6	25.0	101.0	101.0
Total Split (%)	27.1%	27.1%	27.1%	27.1%	9.8%	57.3%	57.3%	15.6%	63.1%	63.1%
Yellow Time (s)	3.6	3.6	3.5	3.5	4.3	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.8	2.8	0.5	0.5	1.9	1.9	1.9	2.2	1.9	1.9
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.2	-2.2	-2.2	-1.8	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	1.6	1.6	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	33.0	33.0	35.4	35.4	10.8	91.4	91.4	23.6	106.5	106.5
Actuated g/C Ratio	0.21	0.21	0.22	0.22	0.07	0.57	0.57	0.15	0.67	0.67
v/c Ratio	0.59	0.11	0.81	0.83	0.32	0.90	0.19	0.81	0.85	0.03
Control Delay	102.5	33.7	76.2	41.8	55.5	17.1	5.5	78.8	27.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.5	33.7	76.2	41.8	55.5	17.1	5.5	78.8	27.7	0.0
LOS	F	C	E	D	E	B	A	E	C	A
Approach Delay		60.2		54.4		16.9			35.9	
Approach LOS		E		D		B			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 31.2	Intersection LOS: C
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

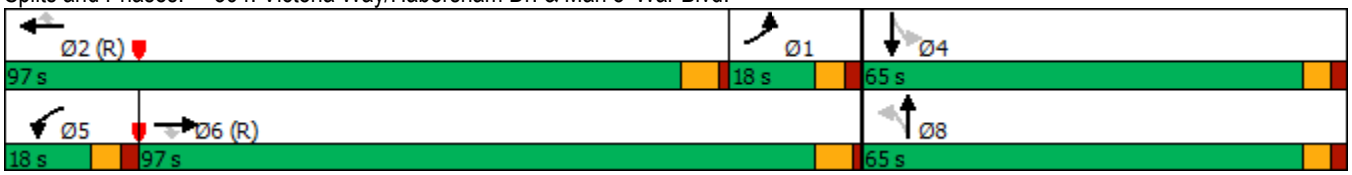
Splits and Phases: 153: New Circle & Palumbo



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	50	1205	75	100	950	150	100	100	75	25
Future Volume (vph)	50	1205	75	100	950	150	100	100	75	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	40.0	40.0	5.0	40.0	40.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.4	46.4	46.4	11.4	46.4	46.4	34.1	34.1	34.1	34.1
Total Split (s)	18.0	97.0	97.0	18.0	97.0	97.0	65.0	65.0	65.0	65.0
Total Split (%)	10.0%	53.9%	53.9%	10.0%	53.9%	53.9%	36.1%	36.1%	36.1%	36.1%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.6	3.6	3.6	3.6
All-Red Time (s)	2.5	1.4	1.4	2.5	1.4	1.4	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	12.8	115.6	115.6	19.4	124.6	124.6	33.0	33.0	33.0	33.0
Actuated g/C Ratio	0.07	0.64	0.64	0.11	0.69	0.69	0.18	0.18	0.18	0.18
v/c Ratio	0.42	0.56	0.08	0.61	0.45	0.15	0.57	0.78	1.37	0.19
Control Delay	64.6	9.3	2.0	118.6	9.5	2.9	75.5	77.5	284.8	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	9.3	2.0	118.6	9.5	2.9	75.5	77.5	284.8	34.1
LOS	E	A	A	F	A	A	E	E	F	C
Approach Delay		10.9			17.8			76.8		184.5
Approach LOS		B			B			E		F

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 73 (41%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.37	
Intersection Signal Delay: 30.0	Intersection LOS: C
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

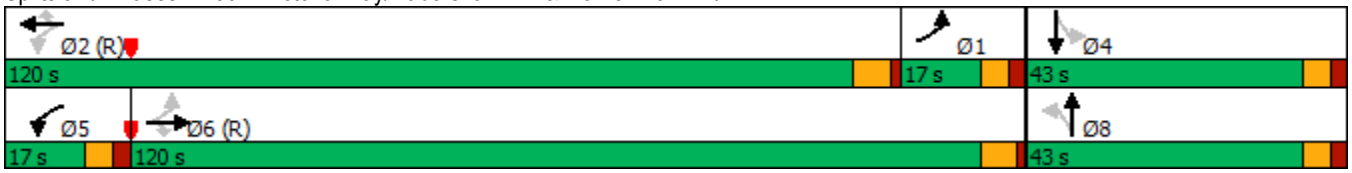
Splits and Phases: 394: Victoria Way/Habersham Dr. & Man o' War Blvd.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	1372	64	136	1272	88	44	32	72	32
Future Volume (vph)	48	1372	64	136	1272	88	44	32	72	32
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	Perm	NA
Protected Phases	1	6		5	2			8		4
Permitted Phases	6		6	2		2	8		4	
Detector Phase	1	6	6	5	2	2	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	25.0	25.0	5.0	25.0	25.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.4	31.6	31.6	11.4	31.6	31.6	34.1	34.1	34.1	34.1
Total Split (s)	17.0	120.0	120.0	17.0	120.0	120.0	43.0	43.0	43.0	43.0
Total Split (%)	9.4%	66.7%	66.7%	9.4%	66.7%	66.7%	23.9%	23.9%	23.9%	23.9%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.6	3.6	3.6	3.6
All-Red Time (s)	2.5	1.4	1.4	2.5	1.4	1.4	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead				
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	Min	Min	Min	Min
Act Effct Green (s)	128.9	128.9	128.9	131.7	131.7	131.7	26.7	26.7	26.7	26.7
Actuated g/C Ratio	0.72	0.72	0.72	0.73	0.73	0.73	0.15	0.15	0.15	0.15
v/c Ratio	0.17	0.57	0.06	0.57	0.56	0.09	0.36	0.56	0.98	0.31
Control Delay	7.0	7.9	0.5	23.8	9.8	2.2	72.2	44.2	161.9	45.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	7.9	0.5	23.8	9.8	2.2	72.2	44.2	161.9	45.7
LOS	A	A	A	C	A	A	E	D	F	D
Approach Delay		7.5			10.6			51.2		105.5
Approach LOS		A			B			D		F

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 121 (67%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 16.5	Intersection LOS: B
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

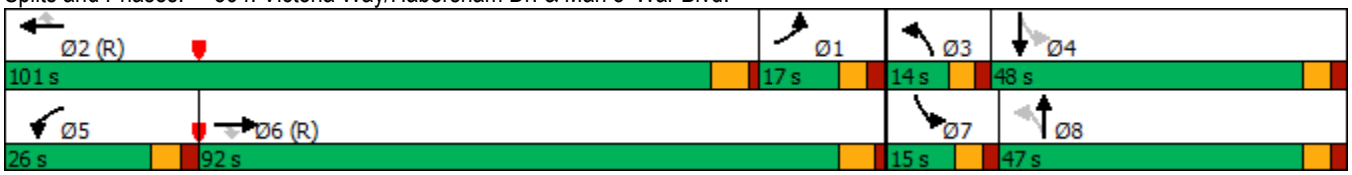
Splits and Phases: 394: Victoria Way/Habersham Dr. & Man o' War Blvd.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	50	1205	75	100	950	150	100	100	75	25
Future Volume (vph)	50	1205	75	100	950	150	100	100	75	25
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	40.0	40.0	5.0	40.0	40.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.4	46.4	46.4	11.4	46.4	46.4	10.7	34.1	10.7	34.1
Total Split (s)	17.0	92.0	92.0	26.0	101.0	101.0	14.0	47.0	15.0	48.0
Total Split (%)	9.4%	51.1%	51.1%	14.4%	56.1%	56.1%	7.8%	26.1%	8.3%	26.7%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.6	3.6	3.6	3.6
All-Red Time (s)	2.5	1.4	1.4	2.5	1.4	1.4	2.1	2.5	2.1	2.5
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.6	4.0	3.6	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	12.0	102.2	102.2	18.0	110.6	110.6	43.6	32.8	45.5	33.8
Actuated g/C Ratio	0.07	0.57	0.57	0.10	0.61	0.61	0.24	0.18	0.25	0.19
v/c Ratio	0.45	0.63	0.08	0.65	0.50	0.17	0.39	0.79	0.53	0.19
Control Delay	59.4	11.0	0.6	99.9	12.3	1.2	54.9	80.0	60.1	36.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	11.0	0.6	99.9	12.3	1.2	54.9	80.0	60.1	36.8
LOS	E	B	A	F	B	A	D	E	E	D
Approach Delay		12.3			18.2			71.6		50.8
Approach LOS		B			B			E		D

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 84 (47%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 23.7	Intersection LOS: C
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

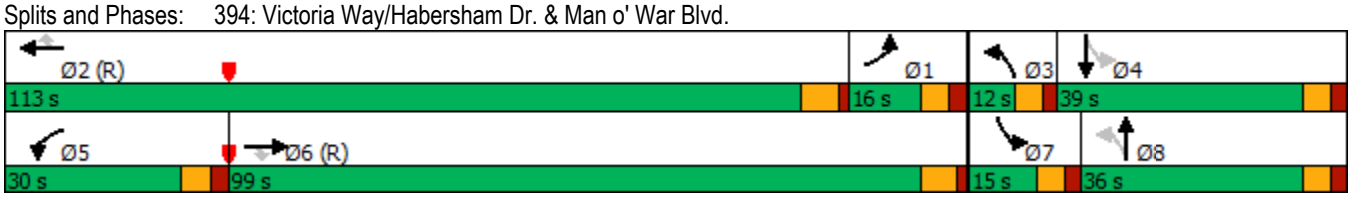
Splits and Phases: 394: Victoria Way/Habersham Dr. & Man o' War Blvd.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	48	1372	64	136	1272	88	44	32	72	32
Future Volume (vph)	48	1372	64	136	1272	88	44	32	72	32
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	1	6		5	2		3	8	7	4
Permitted Phases			6			2	8		4	
Detector Phase	1	6	6	5	2	2	3	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	25.0	25.0	5.0	25.0	25.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.4	31.6	31.6	11.4	31.6	31.6	10.7	34.1	10.7	34.1
Total Split (s)	16.0	99.0	99.0	30.0	113.0	113.0	12.0	36.0	15.0	39.0
Total Split (%)	8.9%	55.0%	55.0%	16.7%	62.8%	62.8%	6.7%	20.0%	8.3%	21.7%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.6	3.6	3.6	3.6
All-Red Time (s)	2.5	1.4	1.4	2.5	1.4	1.4	2.1	2.5	2.1	2.5
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4	-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	3.6	4.0	3.6	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	None	Min
Act Effct Green (s)	11.4	110.7	110.7	23.5	125.3	125.3	27.7	18.9	33.6	21.9
Actuated g/C Ratio	0.06	0.62	0.62	0.13	0.70	0.70	0.15	0.10	0.19	0.12
v/c Ratio	0.46	0.66	0.07	0.68	0.59	0.09	0.28	0.73	0.60	0.37
Control Delay	67.8	13.2	0.2	99.9	9.7	0.9	62.4	61.1	77.2	51.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	13.2	0.2	99.9	9.7	0.9	62.4	61.1	77.2	51.8
LOS	E	B	A	F	A	A	E	E	E	D
Approach Delay		14.5			17.4			61.5		64.8
Approach LOS		B			B			E		E

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 128 (71%), Referenced to phase 2:WBT and 6:EBT, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 21.2	Intersection LOS: C
Intersection Capacity Utilization 70.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 394: Victoria Way/Habersham Dr. & Man o' War Blvd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	213	500	102	100	350	31	43	72	32
Future Volume (vph)	213	500	102	100	350	31	43	72	32
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6			2		4		4
Permitted Phases	6		6	2		4		4	
Detector Phase	6	6	6	2	2	4	4	4	4
Switch Phase									
Minimum Initial (s)	20.0	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	25.3	23.6	23.6	23.6	23.6
Total Split (s)	65.3	65.3	65.3	65.3	65.3	33.6	33.6	33.6	33.6
Total Split (%)	66.0%	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%	34.0%	34.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.7	1.7	1.7	1.7	1.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0		0.0		0.0		0.0
Total Lost Time (s)		5.3	5.3		5.3		5.6		5.6
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	Max	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		60.3	60.3		60.3		17.6		17.6
Actuated g/C Ratio		0.68	0.68		0.68		0.20		0.20
v/c Ratio		0.84	0.10		0.66		0.55		0.79
Control Delay		23.3	4.2		14.2		29.6		46.6
Queue Delay		0.0	0.0		0.0		0.0		0.0
Total Delay		23.3	4.2		14.2		29.6		46.6
LOS		C	A		B		C		D
Approach Delay		20.9			14.2		29.6		46.6
Approach LOS		C			B		C		D

Intersection Summary	
Cycle Length: 98.9	
Actuated Cycle Length: 88.8	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 98.1%	ICU Level of Service F
Analysis Period (min) 15	

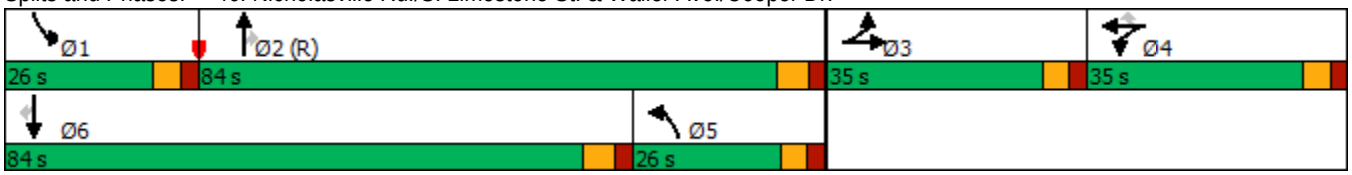
Splits and Phases: 60: Elizabeth St. & Waller Ave.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	86	464	156	324	200	161	1450	250	230	635	65
Future Volume (vph)	86	464	156	324	200	161	1450	250	230	635	65
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3	4	4		5	2		1	6	
Permitted Phases					4			2			6
Detector Phase	3	3	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	34.1	34.1	34.1	34.1	34.1	11.1	46.5	46.5	11.1	46.5	46.5
Total Split (s)	35.0	35.0	35.0	35.0	35.0	26.0	84.0	84.0	26.0	84.0	84.0
Total Split (%)	19.4%	19.4%	19.4%	19.4%	19.4%	14.4%	46.7%	46.7%	14.4%	46.7%	46.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.2	2.2	2.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.5	6.5	6.1	6.5	6.5
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	28.9	28.9	28.9	28.9	28.9	19.9	77.5	77.5	19.9	77.5	77.5
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16	0.11	0.43	0.43	0.11	0.43	0.43
v/c Ratio	0.33	1.14	0.57	1.30	0.57	0.90	0.72	0.33	1.28	0.86	0.10
Control Delay	70.9	145.6	79.0	214.9	27.2	88.7	21.0	2.3	222.1	54.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
Total Delay	70.9	145.6	79.0	214.9	27.2	88.7	21.0	2.3	222.1	55.1	6.8
LOS	E	F	E	F	C	F	C	A	F	E	A
Approach Delay		136.6		131.7			24.4			93.0	
Approach LOS		F		F			C			F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 70 (39%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 75.1	Intersection LOS: E
Intersection Capacity Utilization 93.2%	ICU Level of Service F
Analysis Period (min) 15	

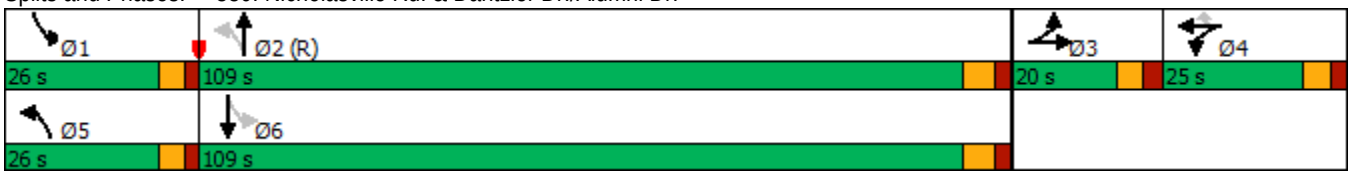
Splits and Phases: 46: Nicholasville Rd./S. Limestone St. & Waller Ave./Cooper Dr.



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	14	10	175	7	1675	128	750
Future Volume (vph)	14	10	175	7	1675	128	750
Turn Type	NA	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	3	4		5	2	1	6
Permitted Phases			4	2		6	
Detector Phase	3	4	4	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	22.1	31.1	31.1	10.4	28.7	10.4	28.7
Total Split (s)	20.0	25.0	25.0	26.0	109.0	26.0	109.0
Total Split (%)	11.1%	13.9%	13.9%	14.4%	60.6%	14.4%	60.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.3	3.6	4.3
All-Red Time (s)	2.5	2.5	2.5	1.8	2.4	1.8	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.4	6.7	5.4	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	8.5	26.6	26.6	115.1	108.1	129.6	123.7
Actuated g/C Ratio	0.05	0.15	0.15	0.64	0.60	0.72	0.69
v/c Ratio	0.42	1.20	0.53	0.02	0.74	0.74	0.64
Control Delay	78.7	179.1	24.3	1.3	7.8	66.4	11.5
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	3.1
Total Delay	78.7	179.7	24.3	1.3	7.8	66.4	14.5
LOS	E	F	C	A	A	E	B
Approach Delay	78.7	121.1			7.8		22.1
Approach LOS	E	F			A		C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 25 (14%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 27.6	Intersection LOS: C
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 330: Nicholasville Rd. & Dantzler Dr./Alumni Dr.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	213	300	100	298	31	43	38	32
Future Volume (vph)	213	300	100	298	31	43	38	32
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		4
Permitted Phases	6		2		4		4	
Detector Phase	6	6	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	23.6	23.6	23.6	23.6
Total Split (s)	63.0	63.0	63.0	63.0	27.0	27.0	27.0	27.0
Total Split (%)	70.0%	70.0%	70.0%	70.0%	30.0%	30.0%	30.0%	30.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.7	1.7	1.7	1.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		0.0		0.0		0.0		0.0
Total Lost Time (s)		5.3		5.3		5.6		5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)		57.9		57.9		12.3		12.3
Actuated g/C Ratio		0.71		0.71		0.15		0.15
v/c Ratio		0.38		0.50		0.61		0.69
Control Delay		5.5		7.8		38.9		34.5
Queue Delay		0.0		0.0		0.0		0.0
Total Delay		5.5		7.8		38.9		34.5
LOS		A		A		D		C
Approach Delay		5.5		7.8		38.9		34.5
Approach LOS		A		A		D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 81.1	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 13.1	Intersection LOS: B
Intersection Capacity Utilization 68.8%	ICU Level of Service C
Analysis Period (min) 15	

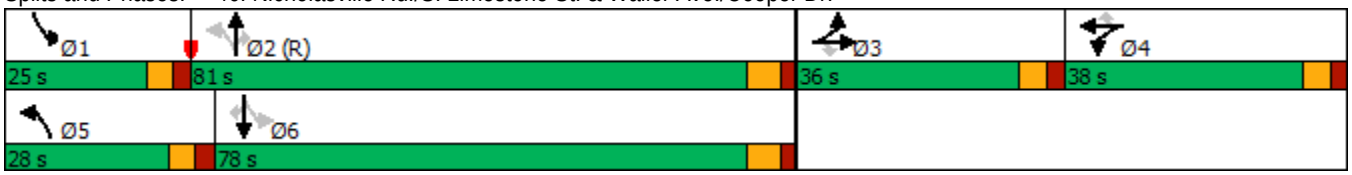
Splits and Phases: 60: Elizabeth St. & Waller Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	356	180	444	336	364	172	868	272	300	1888	144
Future Volume (vph)	140	356	180	444	336	364	172	868	272	300	1888	144
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4	2		2	6		6
Detector Phase	3	3	3	4	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	34.1	34.1	34.1	34.1	34.1	34.1	11.1	46.5	46.5	11.1	46.5	46.5
Total Split (s)	36.0	36.0	36.0	38.0	38.0	38.0	28.0	81.0	81.0	25.0	78.0	78.0
Total Split (%)	20.0%	20.0%	20.0%	21.1%	21.1%	21.1%	15.6%	45.0%	45.0%	13.9%	43.3%	43.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.2	2.2	2.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.5	6.5	6.1	6.5	6.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	29.9	29.9	29.9	31.9	31.9	31.9	93.0	74.5	74.5	94.3	75.3	75.3
Actuated g/C Ratio	0.17	0.17	0.17	0.18	0.18	0.18	0.52	0.41	0.41	0.52	0.42	0.42
v/c Ratio	0.49	1.37	0.51	1.54	1.11	0.77	0.85	1.22	0.37	1.44	0.96	0.22
Control Delay	74.9	239.3	24.9	304.5	145.8	30.3	52.4	161.3	28.9	259.9	54.7	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	239.3	24.9	304.5	145.8	30.3	52.4	161.3	28.9	259.9	54.7	8.9
LOS	E	F	C	F	F	C	D	F	C	F	D	A
Approach Delay		151.5			170.7			119.5			78.2	
Approach LOS		F			F			F			E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 13 (7%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.54	
Intersection Signal Delay: 116.6	Intersection LOS: F
Intersection Capacity Utilization 126.3%	ICU Level of Service H
Analysis Period (min) 15	

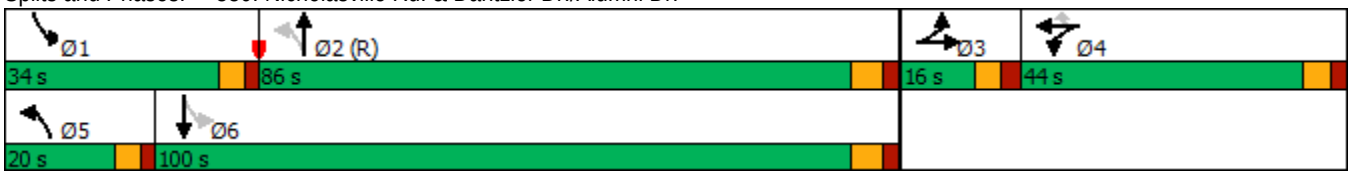
Splits and Phases: 46: Nicholasville Rd./S. Limestone St. & Waller Ave./Cooper Dr.



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	14	10	175	7	1394	126	904
Future Volume (vph)	14	10	175	7	1394	126	904
Turn Type	NA	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	3	4		5	2	1	6
Permitted Phases			4	2		6	
Detector Phase	3	4	4	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	22.1	31.1	31.1	10.4	28.7	10.4	28.7
Total Split (s)	16.0	44.0	44.0	20.0	86.0	34.0	100.0
Total Split (%)	8.9%	24.4%	24.4%	11.1%	47.8%	18.9%	55.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.3	3.6	4.3
All-Red Time (s)	2.5	2.5	2.5	1.8	2.4	1.8	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.4	6.7	5.4	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	8.0	35.1	35.1	107.5	100.4	121.6	115.7
Actuated g/C Ratio	0.04	0.20	0.20	0.60	0.56	0.68	0.64
v/c Ratio	0.42	0.91	0.43	0.02	1.87	0.74	0.30
Control Delay	79.7	99.7	13.8	17.7	417.4	78.2	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.7	99.7	13.8	17.7	417.4	78.2	6.7
LOS	E	F	B	B	F	E	A
Approach Delay	79.7	67.3			415.7		15.5
Approach LOS	E	E			F		B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 60 (33%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.87	
Intersection Signal Delay: 236.9	Intersection LOS: F
Intersection Capacity Utilization 138.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 330: Nicholasville Rd. & Dantzler Dr./Alumni Dr.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	213	500	100	350	31	43	72	32
Future Volume (vph)	213	500	100	350	31	43	72	32
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		4
Permitted Phases	6		2		4		4	
Detector Phase	6	6	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	23.6	23.6	23.6	23.6
Total Split (s)	58.0	58.0	58.0	58.0	32.0	32.0	32.0	32.0
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	35.6%	35.6%	35.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.7	1.7	1.7	1.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3		5.6		5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	53.0	53.0	53.0	53.0		15.9		15.9
Actuated g/C Ratio	0.66	0.66	0.66	0.66		0.20		0.20
v/c Ratio	0.39	0.51	0.23	0.39		0.54		0.76
Control Delay	10.0	9.5	8.5	7.7		25.7		39.9
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	10.0	9.5	8.5	7.7		25.7		39.9
LOS	A	A	A	A		C		D
Approach Delay		9.6		7.9		25.7		39.9
Approach LOS		A		A		C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 79.8	
Natural Cycle: 60	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 14.5	Intersection LOS: B
Intersection Capacity Utilization 79.1%	ICU Level of Service D
Analysis Period (min) 15	

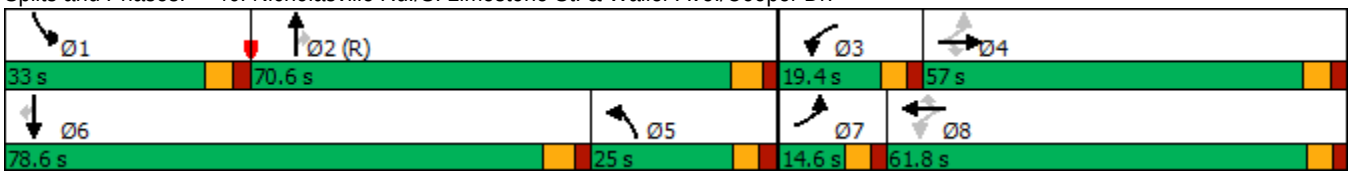
Splits and Phases: 60: Elizabeth St. & Waller Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	86	464	92	156	324	200	161	1450	250	230	635	65
Future Volume (vph)	86	464	92	156	324	200	161	1450	250	230	635	65
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.7	34.1	34.1	10.7	21.7	21.7	11.1	46.5	46.5	11.1	46.5	46.5
Total Split (s)	14.6	57.0	57.0	19.4	61.8	61.8	25.0	70.6	70.6	33.0	78.6	78.6
Total Split (%)	8.1%	31.7%	31.7%	10.8%	34.3%	34.3%	13.9%	39.2%	39.2%	18.3%	43.7%	43.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.1	2.5	2.5	2.1	2.1	2.1	2.5	2.2	2.2	2.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.1	6.1	5.7	5.7	5.7	6.1	6.5	6.5	6.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?		Yes	Yes				Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	59.1	50.0	50.0	69.0	55.3	55.3	18.9	65.5	65.5	26.5	73.0	73.0
Actuated g/C Ratio	0.33	0.28	0.28	0.38	0.31	0.31	0.10	0.36	0.36	0.15	0.41	0.41
v/c Ratio	0.36	0.98	0.19	0.97	0.62	0.35	0.95	0.85	0.38	0.96	0.91	0.10
Control Delay	40.1	97.2	3.1	107.3	58.5	9.0	99.8	34.8	4.3	127.7	56.3	2.4
Queue Delay	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0
Total Delay	40.1	98.7	3.1	107.3	58.5	9.0	99.8	34.8	4.3	127.7	56.9	2.4
LOS	D	F	A	F	E	A	F	C	A	F	E	A
Approach Delay		77.2			55.2			36.4			70.6	
Approach LOS		E			E			D			E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 53 (29%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 53.6	Intersection LOS: D
Intersection Capacity Utilization 95.7%	ICU Level of Service F
Analysis Period (min) 15	

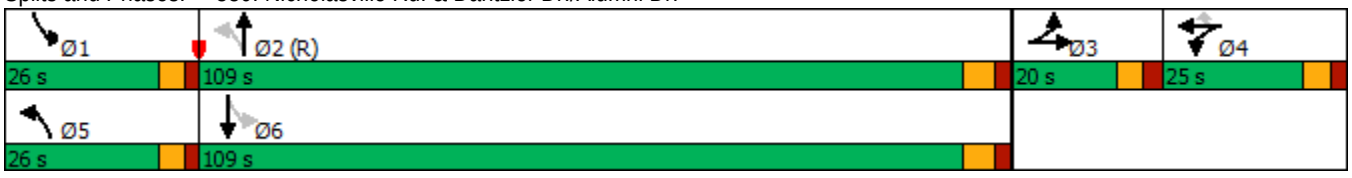
Splits and Phases: 46: Nicholasville Rd./S. Limestone St. & Waller Ave./Cooper Dr.



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	14	10	175	7	1675	128	750
Future Volume (vph)	14	10	175	7	1675	128	750
Turn Type	NA	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	3	4		5	2	1	6
Permitted Phases			4	2		6	
Detector Phase	3	4	4	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	22.1	31.1	31.1	10.4	28.7	10.4	28.7
Total Split (s)	20.0	25.0	25.0	26.0	109.0	26.0	109.0
Total Split (%)	11.1%	13.9%	13.9%	14.4%	60.6%	14.4%	60.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.3	3.6	4.3
All-Red Time (s)	2.5	2.5	2.5	1.8	2.4	1.8	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.4	6.7	5.4	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	8.5	26.6	26.6	115.1	108.1	129.6	123.7
Actuated g/C Ratio	0.05	0.15	0.15	0.64	0.60	0.72	0.69
v/c Ratio	0.42	1.20	0.53	0.02	0.74	0.74	0.64
Control Delay	78.7	179.1	24.3	1.3	7.8	73.3	7.2
Queue Delay	0.0	0.6	0.0	0.0	0.0	0.0	1.8
Total Delay	78.7	179.7	24.3	1.3	7.8	73.3	9.0
LOS	E	F	C	A	A	E	A
Approach Delay	78.7	121.1			7.8		18.3
Approach LOS	E	F			A		B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 25 (14%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.20	
Intersection Signal Delay: 26.6	Intersection LOS: C
Intersection Capacity Utilization 85.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 330: Nicholasville Rd. & Dantzler Dr./Alumni Dr.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	213	300	100	298	31	43	38	32
Future Volume (vph)	213	300	100	298	31	43	38	32
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases		6		2		4		4
Permitted Phases	6		2		4		4	
Detector Phase	6	6	2	2	4	4	4	4
Switch Phase								
Minimum Initial (s)	20.0	20.0	20.0	20.0	5.0	5.0	5.0	5.0
Minimum Split (s)	25.3	25.3	25.3	25.3	23.6	23.6	23.6	23.6
Total Split (s)	59.0	59.0	59.0	59.0	31.0	31.0	31.0	31.0
Total Split (%)	65.6%	65.6%	65.6%	65.6%	34.4%	34.4%	34.4%	34.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.7	1.7	1.7	1.7	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3		5.6		5.6
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	Max	Max	Max	Max	None	None	None	None
Act Effct Green (s)	53.9	53.9	53.9	53.9		11.8		11.8
Actuated g/C Ratio	0.70	0.70	0.70	0.70		0.15		0.15
v/c Ratio	0.33	0.33	0.16	0.32		0.59		0.67
Control Delay	6.9	5.4	5.4	5.4		35.4		31.3
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	6.9	5.4	5.4	5.4		35.4		31.3
LOS	A	A	A	A		D		C
Approach Delay		5.9		5.4		35.4		31.3
Approach LOS		A		A		D		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 76.6	
Natural Cycle: 55	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.67	
Intersection Signal Delay: 11.7	Intersection LOS: B
Intersection Capacity Utilization 62.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 60: Elizabeth St. & Waller Ave.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	164	143	243	184	200	172	868	272	263	1655	126
Future Volume (vph)	63	164	143	243	184	200	172	868	272	263	1655	126
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.7	34.1	34.1	10.7	21.7	21.7	11.1	46.5	46.5	11.1	46.5	46.5
Total Split (s)	19.1	34.1	34.1	30.0	45.0	45.0	30.1	88.9	88.9	27.0	85.8	85.8
Total Split (%)	10.6%	18.9%	18.9%	16.7%	25.0%	25.0%	16.7%	49.4%	49.4%	15.0%	47.7%	47.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.1	2.5	2.5	2.1	2.1	2.1	2.5	2.2	2.2	2.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	6.1	6.1	5.7	5.7	5.7	6.1	6.5	6.5	6.1	6.5	6.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	11.4	21.4	21.4	24.3	34.6	34.6	101.3	82.4	82.4	113.8	91.4	91.4
Actuated g/C Ratio	0.06	0.12	0.12	0.14	0.19	0.19	0.56	0.46	0.46	0.63	0.51	0.51
v/c Ratio	0.61	0.81	0.48	1.11	0.56	0.45	0.78	1.11	0.34	0.92	0.70	0.16
Control Delay	104.2	102.9	13.7	128.0	38.4	20.4	71.9	74.2	0.9	88.5	30.1	3.6
Queue Delay	4.6	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.0	0.0	0.0	0.0
Total Delay	108.8	102.9	13.7	128.0	38.4	20.6	71.9	74.6	0.9	88.5	30.1	3.6
LOS	F	F	B	F	D	C	E	E	A	F	C	A
Approach Delay		69.4			67.5			58.9			36.0	
Approach LOS		E			E			E			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 8 (4%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 50.3	Intersection LOS: D
Intersection Capacity Utilization 102.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 46: Nicholasville Rd./S. Limestone St. & Waller Ave./Cooper Dr.



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	14	10	175	7	1394	126	904
Future Volume (vph)	14	10	175	7	1394	126	904
Turn Type	NA	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	3	4		5	2	1	6
Permitted Phases			4	2		6	
Detector Phase	3	4	4	5	2	1	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	22.1	31.1	31.1	10.4	28.7	10.4	28.7
Total Split (s)	22.1	33.0	33.0	10.4	112.9	12.0	114.5
Total Split (%)	12.3%	18.3%	18.3%	5.8%	62.7%	6.7%	63.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.3	3.6	4.3
All-Red Time (s)	2.5	2.5	2.5	1.8	2.4	1.8	2.4
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	5.4	6.7	5.4	6.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?							
Recall Mode	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	8.3	37.0	37.0	112.5	106.2	118.0	114.0
Actuated g/C Ratio	0.05	0.21	0.21	0.62	0.59	0.66	0.63
v/c Ratio	0.40	0.86	0.42	0.02	1.77	1.28	0.31
Control Delay	76.0	91.0	17.2	1.9	364.0	206.9	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.0	91.0	17.2	1.9	364.0	206.9	20.7
LOS	E	F	B	A	F	F	C
Approach Delay	76.0	63.2			362.5		43.4
Approach LOS	E	E			F		D

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 144 (80%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.77	
Intersection Signal Delay: 216.7	Intersection LOS: F
Intersection Capacity Utilization 138.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 330: Nicholasville Rd. & Dantzler Dr./Alumni Dr.



Lane Group	WBL	WBR2	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	289	175	1682	128	755
Future Volume (vph)	289	175	1682	128	755
Turn Type	Prot	Perm	Perm	pm+pt	NA
Protected Phases	8			1	6
Permitted Phases		8	2	6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	26.6	26.6	83.4	10.0	93.4
Total Split (%)	22.2%	22.2%	69.5%	8.3%	77.8%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	22.1	22.1	78.9	88.9	88.9
Actuated g/C Ratio	0.18	0.18	0.66	0.74	0.74
v/c Ratio	0.97	0.51	1.02	0.11	0.31
Control Delay	91.1	27.2	43.9	3.6	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	91.1	27.2	43.9	3.6	4.6
LOS	F	C	D	A	A
Approach Delay	67.0				4.5
Approach LOS	E				A

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 81 (68%), Referenced to phase 2:NBR and 6:SBTL, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 36.7	Intersection LOS: D
Intersection Capacity Utilization 89.4%	ICU Level of Service E
Analysis Period (min) 15	

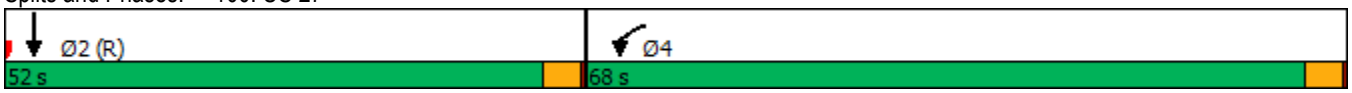
Splits and Phases: 4: Alumni Dr & US 27



Lane Group	WBL	SBT
Lane Configurations		
Traffic Volume (vph)	641	930
Future Volume (vph)	641	930
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	10.0	20.0
Minimum Split (s)	20.0	24.0
Total Split (s)	68.0	52.0
Total Split (%)	56.7%	43.3%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Max
Act Effct Green (s)	54.2	57.8
Actuated g/C Ratio	0.45	0.48
v/c Ratio	0.85	0.59
Control Delay	34.1	25.9
Queue Delay	0.0	0.0
Total Delay	34.1	25.9
LOS	C	C
Approach Delay	34.1	25.9
Approach LOS	C	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 5 (4%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 80.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 100: US 27



Lane Group	EBR	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	642	1021	550
Future Volume (vph)	642	1021	550
Turn Type	Perm	NA	Perm
Protected Phases		2	
Permitted Phases	8		2
Detector Phase	8	2	2
Switch Phase			
Minimum Initial (s)	10.0	20.0	20.0
Minimum Split (s)	20.0	24.0	24.0
Total Split (s)	51.0	69.0	69.0
Total Split (%)	42.5%	57.5%	57.5%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	32.0	80.0	80.0
Actuated g/C Ratio	0.27	0.67	0.67
v/c Ratio	0.84	0.47	0.48
Control Delay	42.9	7.8	1.2
Queue Delay	0.0	0.1	0.1
Total Delay	42.9	8.0	1.3
LOS	D	A	A
Approach Delay		5.6	
Approach LOS		A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 104 (87%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 16.4	Intersection LOS: B
Intersection Capacity Utilization 57.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 130: US 27 & Waller Ave



Lane Group	WBR	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	680	1697	944
Future Volume (vph)	680	1697	944
Turn Type	Perm	NA	Perm
Protected Phases		6	
Permitted Phases	4		6
Detector Phase	4	6	6
Switch Phase			
Minimum Initial (s)	10.0	20.0	20.0
Minimum Split (s)	20.0	24.0	24.0
Total Split (s)	41.0	79.0	79.0
Total Split (%)	34.2%	65.8%	65.8%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	34.4	77.6	77.6
Actuated g/C Ratio	0.29	0.65	0.65
v/c Ratio	0.90	0.81	0.76
Control Delay	53.8	8.1	1.0
Queue Delay	0.0	4.0	2.5
Total Delay	53.8	12.1	3.5
LOS	D	B	A
Approach Delay		9.1	
Approach LOS		A	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 117 (98%), Referenced to phase 6:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 18.2	Intersection LOS: B
Intersection Capacity Utilization 77.4%	ICU Level of Service D
Analysis Period (min) 15	

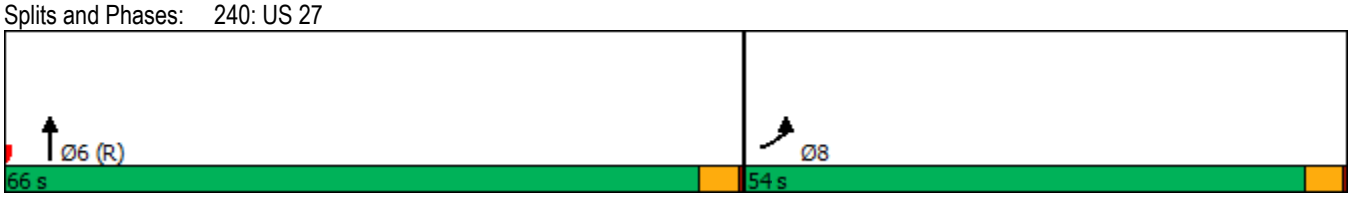
Splits and Phases: 220: US 27 & Cooper Dr



Lane Group	EBL	NBT
Lane Configurations		
Traffic Volume (vph)	780	1861
Future Volume (vph)	780	1861
Turn Type	Prot	NA
Protected Phases	8	6
Permitted Phases		
Detector Phase	8	6
Switch Phase		
Minimum Initial (s)	10.0	20.0
Minimum Split (s)	20.0	24.0
Total Split (s)	54.0	66.0
Total Split (%)	45.0%	55.0%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Max
Act Effct Green (s)	50.0	62.0
Actuated g/C Ratio	0.42	0.52
v/c Ratio	1.15	1.11
Control Delay	108.6	67.7
Queue Delay	0.0	0.0
Total Delay	108.6	67.8
LOS	F	E
Approach Delay	108.6	67.8
Approach LOS	F	E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 6:NBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 79.8	Intersection LOS: E
Intersection Capacity Utilization 130.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 240: US 27



Lane Group	WBL	WBR2	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	289	175	1401	126	909
Future Volume (vph)	289	175	1401	126	909
Turn Type	Prot	Perm	Perm	pm+pt	NA
Protected Phases	8			1	6
Permitted Phases		8	2	6	
Detector Phase	8	8	2	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	9.5	22.5
Total Split (s)	25.0	25.0	65.2	9.8	75.0
Total Split (%)	25.0%	25.0%	65.2%	9.8%	75.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	C-Max
Act Effct Green (s)	19.8	19.8	61.2	71.2	71.2
Actuated g/C Ratio	0.20	0.20	0.61	0.71	0.71
v/c Ratio	0.90	0.46	0.94	0.11	0.39
Control Delay	68.0	17.5	27.8	1.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	68.0	17.5	27.8	1.3	1.3
LOS	E	B	C	A	A
Approach Delay	49.0				1.3
Approach LOS	D				A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 17 (17%), Referenced to phase 2:NBR and 6:SBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Alumni Dr & US 27



Lane Group	WBL	SBT
Lane Configurations		
Traffic Volume (vph)	600	2044
Future Volume (vph)	600	2044
Turn Type	Prot	NA
Protected Phases	2	1
Permitted Phases		
Detector Phase	2	1
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	38.0	62.0
Total Split (%)	38.0%	62.0%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	C-Max
Act Effct Green (s)	34.0	58.0
Actuated g/C Ratio	0.34	0.58
v/c Ratio	1.08	1.08
Control Delay	89.1	68.9
Queue Delay	0.0	7.8
Total Delay	89.1	76.6
LOS	F	E
Approach Delay	89.1	76.6
Approach LOS	F	E

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 74 (74%), Referenced to phase 1:SBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 79.5	Intersection LOS: E
Intersection Capacity Utilization 96.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 100: US 27



Lane Group	EBR	SBT	SBR
Lane Configurations			
Traffic Volume (vph)	370	2162	482
Future Volume (vph)	370	2162	482
Turn Type	Perm	NA	Perm
Protected Phases		1	
Permitted Phases	2		1
Detector Phase	2	1	1
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	38.0	62.0	62.0
Total Split (%)	38.0%	62.0%	62.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	34.0	58.0	58.0
Actuated g/C Ratio	0.34	0.58	0.58
v/c Ratio	0.42	1.15	0.48
Control Delay	26.7	83.5	1.5
Queue Delay	0.0	0.1	0.3
Total Delay	26.7	83.7	1.8
LOS	C	F	A
Approach Delay		68.7	
Approach LOS		E	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 74 (74%), Referenced to phase 1:SBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 63.6	Intersection LOS: E
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

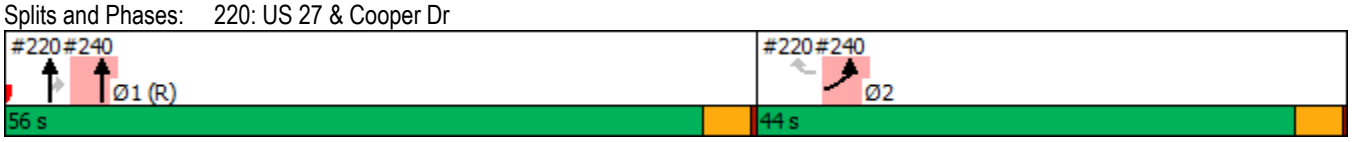
Splits and Phases: 130: US 27 & Waller Ave



Lane Group	WBR	NBT	NBR
Lane Configurations			
Traffic Volume (vph)	627	1085	717
Future Volume (vph)	627	1085	717
Turn Type	Perm	NA	Perm
Protected Phases		1	
Permitted Phases	2		1
Detector Phase	2	1	1
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0
Total Split (s)	44.0	56.0	56.0
Total Split (%)	44.0%	56.0%	56.0%
Yellow Time (s)	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max
Act Effct Green (s)	34.8	57.2	57.2
Actuated g/C Ratio	0.35	0.57	0.57
v/c Ratio	0.66	0.58	0.63
Control Delay	26.4	10.6	1.8
Queue Delay	0.0	0.2	0.2
Total Delay	26.4	10.8	1.9
LOS	C	B	A
Approach Delay		7.2	
Approach LOS		A	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 48 (48%), Referenced to phase 1:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 12.2	Intersection LOS: B
Intersection Capacity Utilization 58.6%	ICU Level of Service B
Analysis Period (min) 15	

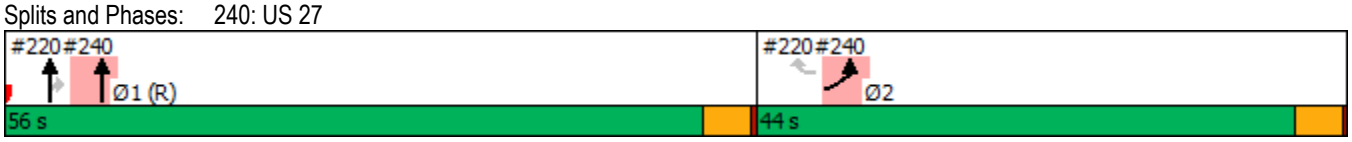
Splits and Phases: 220: US 27 & Cooper Dr



Lane Group	EBL	NBT
Lane Configurations		
Traffic Volume (vph)	490	1312
Future Volume (vph)	490	1312
Turn Type	Prot	NA
Protected Phases	2	1
Permitted Phases		
Detector Phase	2	1
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	44.0	56.0
Total Split (%)	44.0%	56.0%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	C-Max
Act Effct Green (s)	34.8	57.2
Actuated g/C Ratio	0.35	0.57
v/c Ratio	0.84	0.70
Control Delay	19.0	5.6
Queue Delay	0.0	0.0
Total Delay	19.0	5.6
LOS	B	A
Approach Delay	19.0	5.6
Approach LOS	B	A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 48 (48%), Referenced to phase 1:NBT, Start of Green	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 9.3	Intersection LOS: A
Intersection Capacity Utilization 70.1%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 240: US 27



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	58	4	16	4	24	2500	7	14	1183
Future Volume (vph)	58	4	16	4	24	2500	7	14	1183
Turn Type	Split	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	8	8	8	4	5	2		1	6
Permitted Phases							2		
Detector Phase	8	8	8	4	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	20.0	20.0	20.0	20.0	20.0
Minimum Split (s)	40.2	40.2	40.2	40.2	46.2	46.2	46.2	46.2	46.2
Total Split (s)	20.0	20.0	20.0	13.0	20.0	135.0	135.0	12.0	127.0
Total Split (%)	11.1%	11.1%	11.1%	7.2%	11.1%	75.0%	75.0%	6.7%	70.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.6	2.6	2.6	2.6	1.6	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	14.2	14.2	14.2	8.4	19.7	145.4	145.4	8.0	139.3
Actuated g/C Ratio	0.08	0.08	0.08	0.05	0.11	0.81	0.81	0.04	0.77
v/c Ratio	0.55	0.56	0.15	0.13	0.14	0.68	0.01	0.21	0.29
Control Delay	95.1	95.8	1.3	69.7	99.8	1.7	0.0	87.4	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	95.1	95.8	1.3	69.7	99.8	1.9	0.0	87.4	9.5
LOS	F	F	A	E	F	A	A	F	A
Approach Delay		76.2		69.7		2.8			10.3
Approach LOS		E		E		A			B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 5 (3%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 175	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

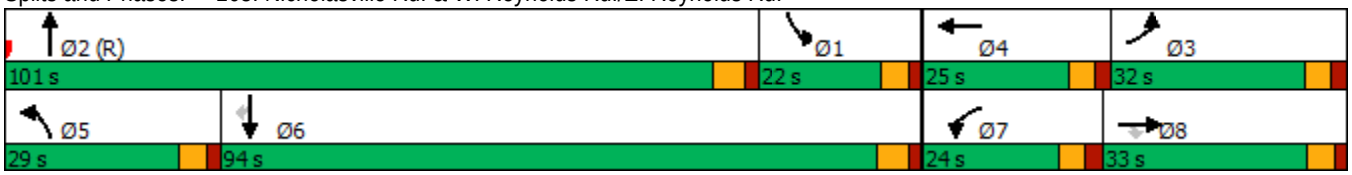
Splits and Phases: 58: Nicholasville Rd. & Dundee Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	400	150	52	68	300	57	2629	78	966	174
Future Volume (vph)	400	150	52	68	300	57	2629	78	966	174
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA	Perm
Protected Phases	3	8		7	4	5	2	1	6	
Permitted Phases			8							6
Detector Phase	3	8	8	7	4	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	15.0	4.0	15.0	15.0
Minimum Split (s)	9.9	35.6	35.6	9.9	35.6	9.6	46.1	9.6	46.1	46.1
Total Split (s)	32.0	33.0	33.0	24.0	25.0	29.0	101.0	22.0	94.0	94.0
Total Split (%)	17.8%	18.3%	18.3%	13.3%	13.9%	16.1%	56.1%	12.2%	52.2%	52.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.3	3.6	4.3	4.3
All-Red Time (s)	2.3	2.0	2.0	2.3	2.0	2.0	1.8	2.0	1.8	1.8
Lost Time Adjust (s)	-1.9	-1.6	-1.6	-1.9	-1.6	-1.6	-2.1	-1.6	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	Max	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)	28.0	33.8	33.8	15.2	21.0	13.4	97.0	18.0	101.6	101.6
Actuated g/C Ratio	0.16	0.19	0.19	0.08	0.12	0.07	0.54	0.10	0.56	0.56
v/c Ratio	0.81	0.25	0.14	0.53	1.49	0.48	1.07	0.50	0.30	0.20
Control Delay	68.6	45.8	4.4	91.0	269.7	106.5	62.6	83.0	15.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0
Total Delay	68.6	45.8	4.4	91.0	269.7	106.5	63.6	83.0	15.0	9.8
LOS	E	D	A	F	F	F	E	F	B	A
Approach Delay		57.3			252.3		64.5		18.7	
Approach LOS		E			F		E		B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 45 (25%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.49	
Intersection Signal Delay: 79.0	Intersection LOS: E
Intersection Capacity Utilization 99.7%	ICU Level of Service F
Analysis Period (min) 15	

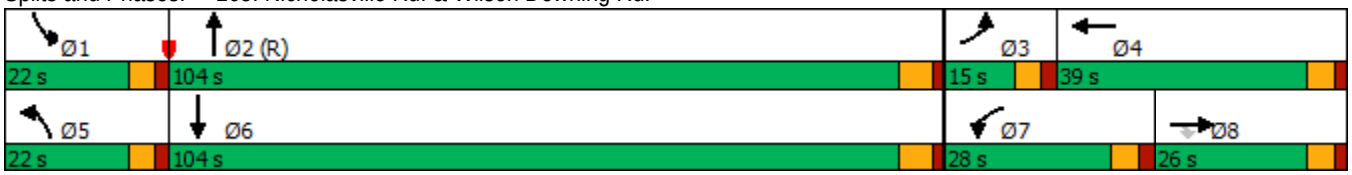
Splits and Phases: 163: Nicholasville Rd. & W. Reynolds Rd./E. Reynolds Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	24	9	14	159	57	15	2555	66	1010
Future Volume (vph)	24	9	14	159	57	15	2555	66	1010
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	3	8		7	4	5	2	1	6
Permitted Phases			8						
Detector Phase	3	8	8	7	4	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.8	34.6	34.6	10.8	34.6	10.5	46.2	10.5	46.2
Total Split (s)	15.0	26.0	26.0	28.0	39.0	22.0	104.0	22.0	104.0
Total Split (%)	8.3%	14.4%	14.4%	15.6%	21.7%	12.2%	57.8%	12.2%	57.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.6	3.6	4.6
All-Red Time (s)	2.2	2.0	2.0	2.2	2.0	1.9	1.6	1.9	1.6
Lost Time Adjust (s)	-1.8	-1.6	-1.6	-1.8	-1.6	-1.5	-2.2	-1.5	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	10.4	17.2	17.2	24.0	30.9	8.7	111.0	14.1	121.0
Actuated g/C Ratio	0.06	0.10	0.10	0.13	0.17	0.05	0.62	0.08	0.67
v/c Ratio	0.36	0.08	0.08	0.96	0.84	0.19	0.90	0.53	0.27
Control Delay	91.6	72.0	0.6	124.8	77.2	104.3	19.9	96.3	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	91.6	72.0	0.6	124.8	77.2	104.3	20.3	96.3	8.8
LOS	F	E	A	F	E	F	C	F	A
Approach Delay		60.4			98.5		20.8		14.1
Approach LOS		E			F		C		B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 20 (11%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 28.2	Intersection LOS: C
Intersection Capacity Utilization 80.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 165: Nicholasville Rd. & Wilson Downing Rd.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	39	0	5	0	46	2784	5	7	1019	94
Future Volume (vph)	39	0	5	0	46	2784	5	7	1019	94
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8		4	5	2		1	6	
Permitted Phases	8		4				2			6
Detector Phase	8	8	4	4	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	40.6	40.6	40.6	40.6	10.5	28.2	28.2	10.5	28.2	28.2
Total Split (s)	30.0	30.0	30.0	30.0	20.0	135.0	135.0	15.0	130.0	130.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	11.1%	75.0%	75.0%	8.3%	72.2%	72.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.6	4.6	3.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.6	1.6	1.9	1.6	1.6
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.5	-2.2	-2.2	-1.5	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	16.3	16.3	16.3	16.3	14.4	150.5	150.5	8.0	139.7	139.7
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.08	0.84	0.84	0.04	0.78	0.78
v/c Ratio	0.53	0.03	0.04	0.23	0.34	0.68	0.00	0.10	0.30	0.09
Control Delay	93.8	0.2	72.2	2.9	72.2	2.4	0.0	66.0	16.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	93.8	0.2	72.2	2.9	72.2	2.6	0.0	66.0	16.0	8.2
LOS	F	A	E	A	E	A	A	E	B	A
Approach Delay		80.8		9.1		3.7			15.6	
Approach LOS		F		A		A			B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 165 (92%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 8.5	Intersection LOS: A
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

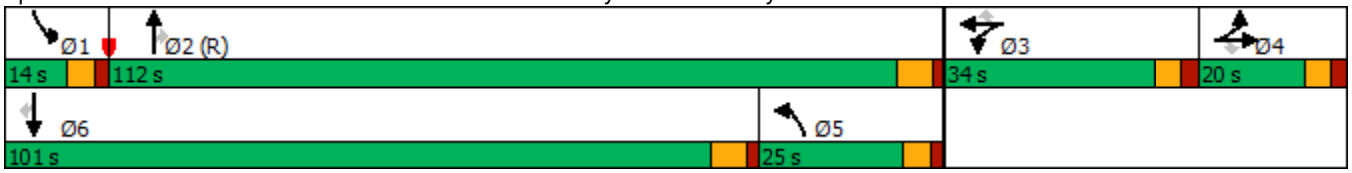
Splits and Phases: 283: Nicholasville Rd. & Rojay Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	156	20	20	52	48	144	64	2360	40	48	952	116
Future Volume (vph)	156	20	20	52	48	144	64	2360	40	48	952	116
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	35.0	35.0	35.0	35.0	35.0	35.0	10.6	46.5	46.5	10.6	46.5	46.5
Total Split (s)	20.0	20.0	20.0	34.0	34.0	34.0	25.0	112.0	112.0	14.0	101.0	101.0
Total Split (%)	11.1%	11.1%	11.1%	18.9%	18.9%	18.9%	13.9%	62.2%	62.2%	7.8%	56.1%	56.1%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.9	4.9	3.6	4.9	4.9
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.0	1.6	1.6	2.0	1.6	1.6
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-1.6	-2.5	0.0	-1.6	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	6.5	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	29.4	29.4	29.4	16.6	16.6	14.6	21.0	110.8	108.3	9.7	97.0	97.0
Actuated g/C Ratio	0.16	0.16	0.16	0.09	0.09	0.08	0.12	0.62	0.60	0.05	0.54	0.54
v/c Ratio	0.76	0.76	0.13	0.44	0.39	0.79	0.33	0.79	0.04	0.59	0.40	0.15
Control Delay	88.7	88.5	0.8	84.0	81.6	50.0	57.1	8.9	0.0	142.9	15.6	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.7	88.5	0.8	84.0	81.6	50.0	57.1	8.9	0.0	142.9	15.6	3.8
LOS	F	F	A	F	F	D	E	A	A	F	B	A
Approach Delay		79.6			63.5			10.0			19.8	
Approach LOS		E			E			B			B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 160 (89%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 23.4	Intersection LOS: C
Intersection Capacity Utilization 71.3%	ICU Level of Service C
Analysis Period (min) 15	

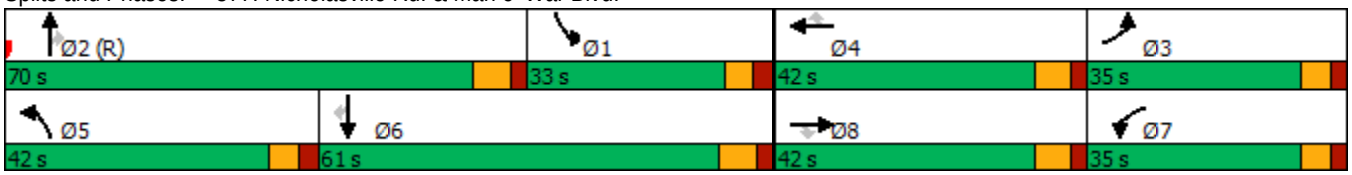
Splits and Phases: 350: Nicholasville Rd. & W. Tiverton Way/E. Tiverton Way



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	374	755	192	375	500	200	128	1744	400	175	686	186
Future Volume (vph)	374	755	192	375	500	200	128	1744	400	175	686	186
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases			8			4			2			6
Detector Phase	3	8	8	7	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	40.0	40.0	5.0	40.0	40.0
Minimum Split (s)	11.4	42.1	42.1	42.1	42.1	42.1	11.6	47.3	47.3	11.6	47.3	47.3
Total Split (s)	35.0	42.0	42.0	35.0	42.0	42.0	42.0	70.0	70.0	33.0	61.0	61.0
Total Split (%)	19.4%	23.3%	23.3%	19.4%	23.3%	23.3%	23.3%	38.9%	38.9%	18.3%	33.9%	33.9%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.9	5.0	5.0	3.9	5.0	5.0
All-Red Time (s)	2.4	2.1	2.1	2.4	2.1	2.1	2.7	2.3	2.3	2.7	2.3	2.3
Lost Time Adjust (s)	-2.3	-3.1	-3.1	-2.3	-3.1	-3.1	-2.6	-3.3	-3.3	-2.6	-3.3	-3.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	29.6	38.0	38.0	28.8	37.3	37.3	15.6	68.2	68.2	29.0	81.6	81.6
Actuated g/C Ratio	0.16	0.21	0.21	0.16	0.21	0.21	0.09	0.38	0.38	0.16	0.45	0.45
v/c Ratio	0.68	1.03	0.44	0.79	0.79	0.46	0.49	1.03	0.62	0.33	0.31	0.24
Control Delay	76.2	102.6	17.7	58.7	74.3	11.0	90.5	72.0	21.4	52.6	14.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	102.6	17.7	58.7	74.3	11.0	90.5	72.0	21.4	52.6	14.8	2.0
LOS	E	F	B	E	E	B	F	E	C	D	B	A
Approach Delay		82.8			57.1			64.1			18.9	
Approach LOS		F			E			E			B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 154 (86%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 58.8	Intersection LOS: E
Intersection Capacity Utilization 83.6%	ICU Level of Service E
Analysis Period (min) 15	

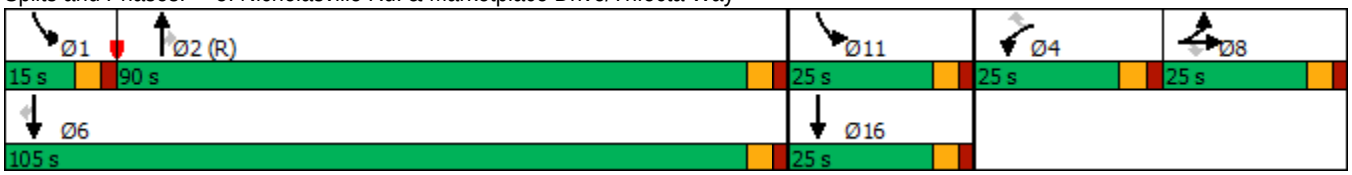
Splits and Phases: 377: Nicholasville Rd. & Man o' War Blvd.



Lane Group	EBT	EBR	WBL	WBR	NBT	NBR	SBL	SBT	SBR	Ø1	Ø11	Ø16
Lane Configurations												
Traffic Volume (vph)	50	50	50	50	1376	50	50	2708	50			
Future Volume (vph)	50	50	50	50	1376	50	50	2708	50			
Turn Type	NA	Perm	Prot	Perm	NA	Perm	Prot	NA	custom			
Protected Phases	8		4		2		1 11	6 16		1	11	16
Permitted Phases		8		4		2			6			
Detector Phase	8	8	4	4	2	2	1 11	6 16	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0
Minimum Split (s)	21.7	21.7	21.7	21.7	21.7	21.7			21.7	10.7	10.7	21.7
Total Split (s)	25.0	25.0	25.0	25.0	90.0	90.0			105.0	15.0	25.0	25.0
Total Split (%)	13.9%	13.9%	13.9%	13.9%	50.0%	50.0%			58.3%	8%	14%	14%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6			3.6	3.6	3.6	3.6
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	2.1			2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0			0.0			
Total Lost Time (s)	5.7	5.7	5.7	5.7	5.7	5.7			5.7			
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lag				Lead		
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	C-Max	C-Max			Max	None	None	None
Act Effct Green (s)	16.0	16.0	8.2	8.2	103.4	103.4	23.8	138.7	113.7			
Actuated g/C Ratio	0.09	0.09	0.05	0.05	0.57	0.57	0.13	0.77	0.63			
v/c Ratio	0.67	0.22	0.34	0.29	0.51	0.06	0.23	0.75	0.05			
Control Delay	98.9	2.0	88.8	3.9	2.8	0.1	36.5	7.8	1.0			
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0			
Total Delay	98.9	2.0	88.8	3.9	2.9	0.1	36.5	8.2	1.0			
LOS	F	A	F	A	A	A	D	A	A			
Approach Delay	66.6				2.8			8.6				
Approach LOS	E				A			A				

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 17 (9%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 9.5	Intersection LOS: A
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Nicholasville Rd. & Marketplace Drive/Trifecta Way



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	195	14	86	3	33	1348	3	65	3014
Future Volume (vph)	195	14	86	3	33	1348	3	65	3014
Turn Type	Split	NA	Perm	NA	Prot	NA	Perm	pm+pt	NA
Protected Phases	4	4		8	5	2		1	6
Permitted Phases			4				2	6	
Detector Phase	4	4	4	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0
Minimum Split (s)	40.6	40.6	40.6	40.6	10.7	48.1	48.1	10.7	48.1
Total Split (s)	30.0	30.0	30.0	14.0	14.0	122.0	122.0	14.0	122.0
Total Split (%)	16.7%	16.7%	16.7%	7.8%	7.8%	67.8%	67.8%	7.8%	67.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.7	4.7	3.6	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	2.1	1.4	1.4	2.1	1.4
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	4.4	4.4	4.4	4.4	3.5	3.9	3.9	3.5	3.9
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	25.6	25.6	25.6	8.6	10.1	125.0	125.0	134.9	126.7
Actuated g/C Ratio	0.14	0.14	0.14	0.05	0.06	0.69	0.69	0.75	0.70
v/c Ratio	1.03	1.04	0.67	0.21	0.37	0.42	0.00	0.27	0.79
Control Delay	138.2	140.5	51.3	50.5	106.2	6.6	0.0	0.9	6.6
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	2.1
Total Delay	138.2	140.5	51.4	50.5	106.2	6.6	0.0	0.9	8.6
LOS	F	F	D	D	F	A	A	A	A
Approach Delay		113.7		50.5		9.0			8.5
Approach LOS		F		D		A			A

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 126 (70%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 21.4	Intersection LOS: C
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

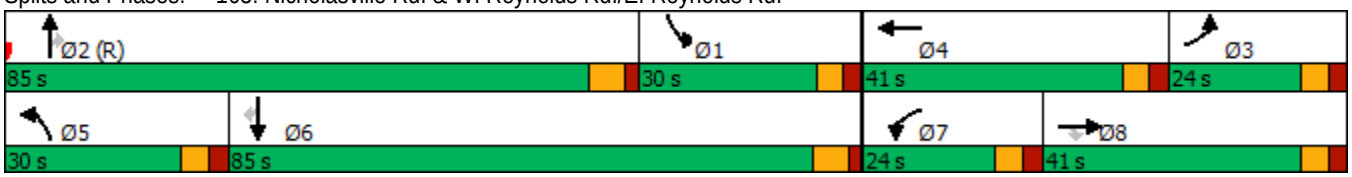
Splits and Phases: 58: Nicholasville Rd. & Dundee Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	425	312	224	163	290	113	1469	87	203	2969	573
Future Volume (vph)	425	312	224	163	290	113	1469	87	203	2969	573
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4	5	2		1	6	
Permitted Phases			8					2			6
Detector Phase	3	8	8	7	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	5.0	40.0	40.0	5.0	40.0	40.0
Minimum Split (s)	11.3	42.3	42.3	11.3	42.3	11.3	54.7	54.7	11.3	54.7	54.7
Total Split (s)	24.0	41.0	41.0	24.0	41.0	30.0	85.0	85.0	30.0	85.0	85.0
Total Split (%)	13.3%	22.8%	22.8%	13.3%	22.8%	16.7%	47.2%	47.2%	16.7%	47.2%	47.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.7	4.7	3.6	4.7	4.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.0	2.7	2.0	2.0
Lost Time Adjust (s)	-1.9	-1.6	-1.6	-1.9	-1.6	-1.6	-2.1	-2.1	-1.6	-2.1	-2.1
Total Lost Time (s)	4.4	4.7	4.7	4.4	4.7	4.7	4.6	4.6	4.7	4.6	4.6
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	23.4	36.3	36.3	19.6	32.5	19.4	80.4	80.4	25.3	86.3	86.3
Actuated g/C Ratio	0.13	0.20	0.20	0.11	0.18	0.11	0.45	0.45	0.14	0.48	0.48
v/c Ratio	1.04	0.48	0.47	0.99	0.85	0.65	0.71	0.12	0.92	1.09	0.72
Control Delay	109.0	46.1	11.9	139.4	72.8	84.5	60.0	11.4	73.7	63.2	5.4
Queue Delay	0.0	0.0	0.2	37.7	0.6	0.0	2.2	0.0	0.0	6.3	2.5
Total Delay	109.0	46.1	12.1	177.1	73.4	84.5	62.2	11.4	73.7	69.5	7.8
LOS	F	D	B	F	E	F	E	B	E	E	A
Approach Delay		66.0			99.5		61.0			60.3	
Approach LOS		E			F		E			E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 80 (44%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 65.0	Intersection LOS: E
Intersection Capacity Utilization 91.0%	ICU Level of Service F
Analysis Period (min) 15	

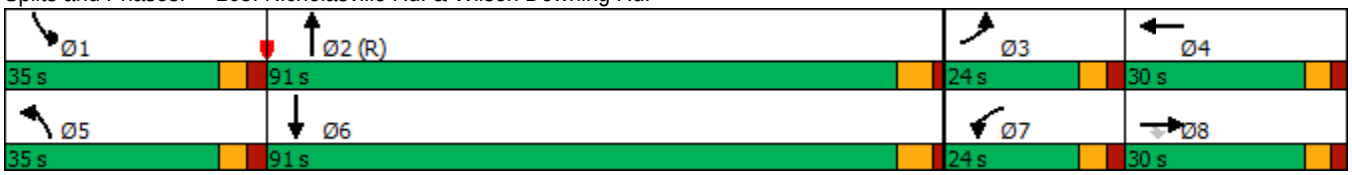
Splits and Phases: 163: Nicholasville Rd. & W. Reynolds Rd./E. Reynolds Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	99	114	131	183	122	95	1261	233	2877
Future Volume (vph)	99	114	131	183	122	95	1261	233	2877
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	3	8		7	4	5	2	1	6
Permitted Phases			8						
Detector Phase	3	8	8	7	4	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	11.1	36.9	36.9	11.1	36.9	11.4	47.5	11.4	47.5
Total Split (s)	24.0	30.0	30.0	24.0	30.0	35.0	91.0	35.0	91.0
Total Split (%)	13.3%	16.7%	16.7%	13.3%	16.7%	19.4%	50.6%	19.4%	50.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.9	4.7	3.9	4.7
All-Red Time (s)	2.5	2.3	2.3	2.5	2.3	2.5	1.8	2.5	1.8
Lost Time Adjust (s)	-1.8	-1.6	-1.6	-1.8	-1.6	-1.5	-2.2	-1.5	-2.2
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.9	4.3	4.9	4.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	19.2	25.7	25.7	19.7	26.2	17.0	87.5	29.3	99.8
Actuated g/C Ratio	0.11	0.14	0.14	0.11	0.15	0.09	0.49	0.16	0.55
v/c Ratio	0.81	0.66	0.51	1.35	0.95	0.60	0.63	0.91	0.93
Control Delay	107.9	85.9	12.4	243.6	113.9	121.3	25.6	128.2	16.5
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	4.2
Total Delay	107.9	85.9	12.4	243.6	113.9	121.3	25.6	128.2	20.7
LOS	F	F	B	F	F	F	C	F	C
Approach Delay		64.2			179.7		31.5		28.6
Approach LOS		E			F		C		C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 142 (79%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 44.9	Intersection LOS: D
Intersection Capacity Utilization 78.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 165: Nicholasville Rd. & Wilson Downing Rd.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	86	3	14	2	57	1509	20	49	2852	216
Future Volume (vph)	86	3	14	2	57	1509	20	49	2852	216
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8		4	5	2		1	6	
Permitted Phases	8		4				2			6
Detector Phase	8	8	4	4	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	41.2	41.2	41.2	41.2	10.7	32.3	32.3	10.7	32.3	32.3
Total Split (s)	36.0	36.0	36.0	36.0	34.0	110.0	110.0	34.0	110.0	110.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	18.9%	61.1%	61.1%	18.9%	61.1%	61.1%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.6	4.7	4.7	3.6	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	2.1	1.6	1.6	2.1	1.6	1.6
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.5	-2.2	-2.2	-1.5	-2.2	-2.2
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.2	4.1	4.1	4.2	4.1	4.1
Lead/Lag					Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	25.1	25.1	25.1	25.1	12.9	119.0	119.0	25.5	129.1	129.1
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.07	0.66	0.66	0.14	0.72	0.72
v/c Ratio	0.72	0.50	0.20	0.14	0.47	0.47	0.02	0.22	0.90	0.21
Control Delay	94.0	13.3	72.4	20.8	83.6	21.5	1.1	48.5	8.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.6	0.0
Total Delay	94.0	13.3	72.4	20.8	83.6	21.5	1.1	48.5	32.1	0.1
LOS	F	B	E	C	F	C	A	D	C	A
Approach Delay		47.2		36.6		23.5			30.2	
Approach LOS		D		D		C			C	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 126 (70%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 73.8%	ICU Level of Service D
Analysis Period (min) 15	

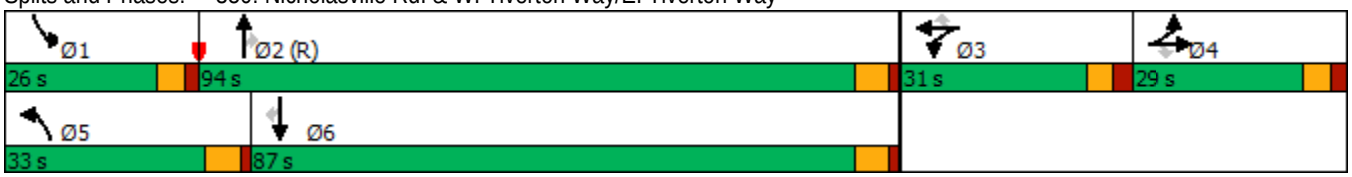
Splits and Phases: 283: Nicholasville Rd. & Rojay Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	260	96	108	84	120	112	144	1088	84	152	2616	280
Future Volume (vph)	260	96	108	84	120	112	144	1088	84	152	2616	280
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3			2			6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	39.1	39.1	39.1	39.1	39.1	39.1	46.5	46.5	46.5	10.6	46.5	46.5
Total Split (s)	29.0	29.0	29.0	31.0	31.0	31.0	33.0	94.0	94.0	26.0	87.0	87.0
Total Split (%)	16.1%	16.1%	16.1%	17.2%	17.2%	17.2%	18.3%	52.2%	52.2%	14.4%	48.3%	48.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.7	4.7	4.7	3.6	4.7	4.7
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	1.5	1.5	1.5	2.0	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	-1.6	-2.5	0.0	-1.6	-2.5	-2.5
Total Lost Time (s)	4.1	4.1	4.1	4.1	4.1	6.1	4.6	3.7	6.2	4.0	3.7	3.7
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	Min	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	29.4	29.4	29.4	22.4	22.4	20.4	22.9	91.1	88.6	21.2	88.8	88.8
Actuated g/C Ratio	0.16	0.16	0.16	0.12	0.12	0.11	0.13	0.51	0.49	0.12	0.49	0.49
v/c Ratio	1.54	1.52	0.63	0.52	0.71	0.52	0.68	0.45	0.11	0.85	1.21	0.36
Control Delay	304.6	296.1	29.0	81.7	91.8	22.8	126.0	2.9	0.3	110.6	123.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	304.6	296.1	29.0	81.7	91.8	22.8	126.0	2.9	0.3	110.6	123.4	3.1
LOS	F	F	C	F	F	C	F	A	A	F	F	A
Approach Delay		237.2			64.7			16.3			111.7	
Approach LOS		F			E			B			F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 15 (8%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 175	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.54	
Intersection Signal Delay: 109.6	Intersection LOS: F
Intersection Capacity Utilization 90.0%	ICU Level of Service E
Analysis Period (min) 15	

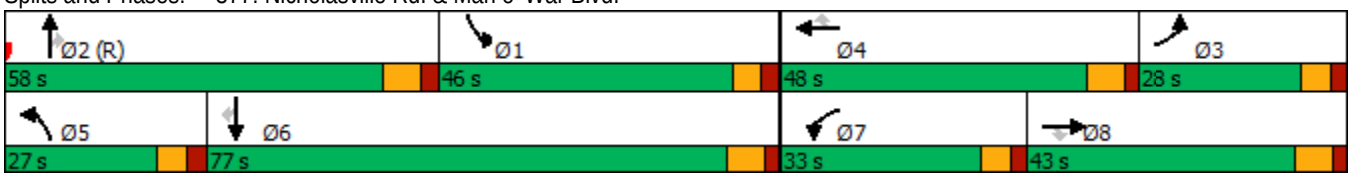
Splits and Phases: 350: Nicholasville Rd. & W. Tiverton Way/E. Tiverton Way



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	743	334	400	608	190	322	928	427	442	2058	389
Future Volume (vph)	310	743	334	400	608	190	322	928	427	442	2058	389
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases			8			4			2			6
Detector Phase	3	8	8	7	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.4	44.1	44.1	11.4	44.1	44.1	11.6	47.3	47.3	11.6	47.3	47.3
Total Split (s)	28.0	43.0	43.0	33.0	48.0	48.0	27.0	58.0	58.0	46.0	77.0	77.0
Total Split (%)	15.6%	23.9%	23.9%	18.3%	26.7%	26.7%	15.0%	32.2%	32.2%	25.6%	42.8%	42.8%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.9	5.0	5.0	3.9	5.0	5.0
All-Red Time (s)	2.4	2.1	2.1	2.4	2.1	2.1	2.7	2.3	2.3	2.7	2.3	2.3
Lost Time Adjust (s)	-2.3	-3.1	-3.1	-2.3	-3.1	-3.1	-2.6	-3.3	-3.3	-2.6	-3.3	-3.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	Min	Min	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	24.8	39.6	39.6	28.4	43.2	43.2	22.8	54.0	54.0	42.0	73.2	73.2
Actuated g/C Ratio	0.14	0.22	0.22	0.16	0.24	0.24	0.13	0.30	0.30	0.23	0.41	0.41
v/c Ratio	0.67	0.97	0.67	0.86	0.83	0.40	0.85	0.69	0.68	0.58	1.05	0.50
Control Delay	54.8	67.9	19.5	89.7	63.4	8.9	98.4	46.2	12.7	38.5	57.3	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0	0.4
Total Delay	54.8	67.9	19.5	89.7	63.4	8.9	98.4	46.2	12.7	38.5	79.3	4.5
LOS	D	E	B	F	E	A	F	D	B	D	E	A
Approach Delay		53.3			63.5			47.7			63.0	
Approach LOS		D			E			D			E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 27 (15%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 57.6	Intersection LOS: E
Intersection Capacity Utilization 94.2%	ICU Level of Service F
Analysis Period (min) 15	

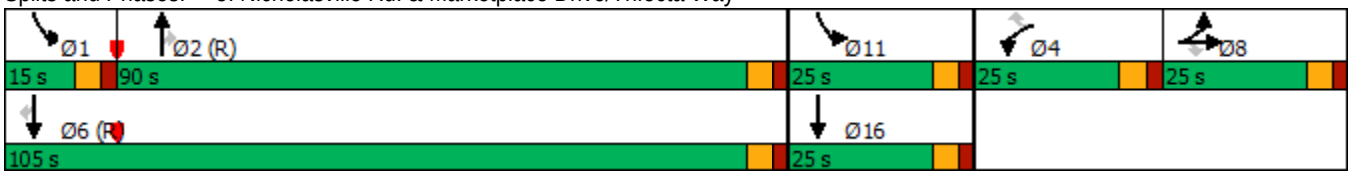
Splits and Phases: 377: Nicholasville Rd. & Man o' War Blvd.



Lane Group	EBT	EBR	WBL	WBR	NBT	NBR	SBL	SBT	SBR	Ø1	Ø11	Ø16
Lane Configurations												
Traffic Volume (vph)	50	50	50	50	2249	50	25	978	25			
Future Volume (vph)	50	50	50	50	2249	50	25	978	25			
Turn Type	NA	Perm	Prot	Perm	NA	Perm	Prot	NA	custom			
Protected Phases	8		4		2		1 11	6 16		1	11	16
Permitted Phases		8		4		2			6			
Detector Phase	8	8	4	4	2	2	1 11	6 16	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0
Minimum Split (s)	21.7	21.7	21.7	21.7	21.7	21.7			21.7	10.7	10.7	21.7
Total Split (s)	25.0	25.0	25.0	25.0	90.0	90.0			105.0	15.0	25.0	25.0
Total Split (%)	13.9%	13.9%	13.9%	13.9%	50.0%	50.0%			58.3%	8%	14%	14%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6			3.6	3.6	3.6	3.6
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	2.1			2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0			0.0			
Total Lost Time (s)	5.7	5.7	5.7	5.7	5.7	5.7			5.7			
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lag				Lead		
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	C-Max	C-Max			C-Max	None	None	None
Act Effct Green (s)	16.0	16.0	8.2	8.2	113.0	113.0	15.9	138.7	122.6			
Actuated g/C Ratio	0.09	0.09	0.05	0.05	0.63	0.63	0.09	0.77	0.68			
v/c Ratio	0.67	0.22	0.34	0.29	0.77	0.05	0.17	0.27	0.02			
Control Delay	98.9	2.0	88.8	3.9	16.4	0.2	60.9	1.9	0.0			
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0			
Total Delay	98.9	2.0	88.8	3.9	16.9	0.2	60.9	1.9	0.0			
LOS	F	A	F	A	B	A	E	A	A			
Approach Delay	66.6				16.5			3.3				
Approach LOS	E				B			A				

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 17 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 15.6	Intersection LOS: B
Intersection Capacity Utilization 67.3%	ICU Level of Service C
Analysis Period (min) 15	

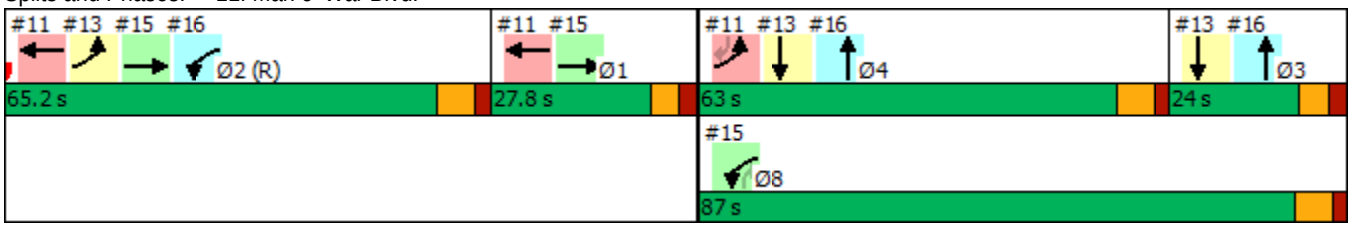
Splits and Phases: 5: Nicholasville Rd. & Marketplace Drive/Trifecta Way



Lane Group	EBL	EBT	WBT	SBR	Ø1	Ø2	Ø3	Ø8
Lane Configurations								
Traffic Volume (vph)	374	947	628	186				
Future Volume (vph)	374	947	628	186				
Turn Type	Prot	NA	NA	Perm				
Protected Phases	4	Free	1 2		1	2	3	8
Permitted Phases				4				
Detector Phase	4		1 2	4				
Switch Phase								
Minimum Initial (s)	10.0			10.0	5.0	10.0	5.0	10.0
Minimum Split (s)	44.1			44.1	11.6	47.3	11.6	44.1
Total Split (s)	63.0			63.0	27.8	65.2	24.0	87.0
Total Split (%)	35.0%			35.0%	15%	36%	13%	48%
Yellow Time (s)	5.0			5.0	3.9	5.0	3.9	5.0
All-Red Time (s)	2.1			2.1	2.7	2.3	2.7	2.1
Lost Time Adjust (s)	0.0			0.0				
Total Lost Time (s)	7.1			7.1				
Lead/Lag	Lead			Lead	Lag	Lead	Lag	
Lead-Lag Optimize?								
Recall Mode	Min			Min	None	C-Max	None	None
Act Effct Green (s)	59.1	180.0	83.2	59.1				
Actuated g/C Ratio	0.33	1.00	0.46	0.33				
v/c Ratio	0.70	0.29	0.42	0.27				
Control Delay	52.8	0.2	16.6	4.0				
Queue Delay	1.3	0.0	0.1	0.0				
Total Delay	54.1	0.2	16.6	4.0				
LOS	D	A	B	A				
Approach Delay		15.5	16.6					
Approach LOS		B	B					

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 115 (64%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 14.8	Intersection LOS: B
Intersection Capacity Utilization 49.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 11: Man o' War Blvd.

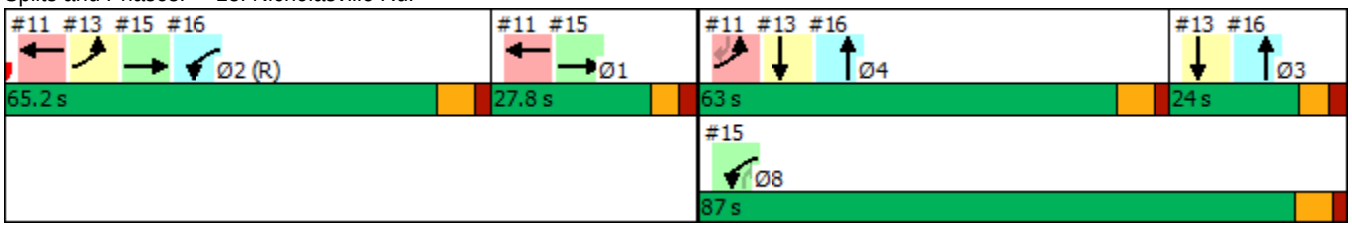


Lane Group	EBL	NBT	SBT	SBR	Ø1	Ø3	Ø4	Ø8
Lane Configurations								
Traffic Volume (vph)	374	1944	861	186				
Future Volume (vph)	374	1944	861	186				
Turn Type	Prot	NA	NA	Free				
Protected Phases	2!	Free!	3 4		1	3	4	8
Permitted Phases				Free				
Detector Phase	2		3 4					
Switch Phase								
Minimum Initial (s)	10.0				5.0	5.0	10.0	10.0
Minimum Split (s)	47.3				11.6	11.6	44.1	44.1
Total Split (s)	65.2				27.8	24.0	63.0	87.0
Total Split (%)	36.2%				15%	13%	35%	48%
Yellow Time (s)	5.0				3.9	3.9	5.0	5.0
All-Red Time (s)	2.3				2.7	2.7	2.1	2.1
Lost Time Adjust (s)	0.0							
Total Lost Time (s)	7.3							
Lead/Lag	Lead				Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	C-Max				None	None	Min	None
Act Effct Green (s)	57.9	180.0	83.6	180.0				
Actuated g/C Ratio	0.32	1.00	0.46	1.00				
v/c Ratio	0.72	0.42	0.27	0.13				
Control Delay	79.4	0.2	19.9	0.2				
Queue Delay	3.4	0.0	0.1	0.0				
Total Delay	82.8	0.2	20.0	0.2				
LOS	F	A	C	A				
Approach Delay	82.8	0.2	16.5					
Approach LOS	F	A	B					

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 115 (64%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 14.4	Intersection LOS: B
Intersection Capacity Utilization 67.7%	ICU Level of Service C
Analysis Period (min) 15	

! Phase conflict between lane groups.

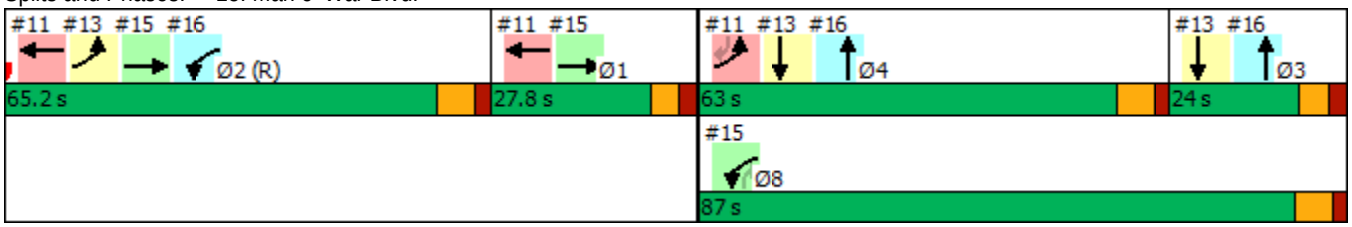
Splits and Phases: 13: Nicholasville Rd.



Lane Group	EBT	WBL	WBT	NBR	Ø1	Ø2	Ø3	Ø4
Lane Configurations								
Traffic Volume (vph)	930	375	700	400				
Future Volume (vph)	930	375	700	400				
Turn Type	NA	Prot	NA	Perm				
Protected Phases	1 2	8	Free		1	2	3	4
Permitted Phases				8				
Detector Phase	1 2	8		8				
Switch Phase								
Minimum Initial (s)		10.0		10.0	5.0	10.0	5.0	10.0
Minimum Split (s)		44.1		44.1	11.6	47.3	11.6	44.1
Total Split (s)		87.0		87.0	27.8	65.2	24.0	63.0
Total Split (%)		48.3%		48.3%	15%	36%	13%	35%
Yellow Time (s)		5.0		5.0	3.9	5.0	3.9	5.0
All-Red Time (s)		2.1		2.1	2.7	2.3	2.7	2.1
Lost Time Adjust (s)		0.0		0.0				
Total Lost Time (s)		7.1		7.1				
Lead/Lag					Lag	Lead	Lag	Lead
Lead-Lag Optimize?								
Recall Mode		None		None	None	C-Max	None	Min
Act Effct Green (s)	83.2	83.1	180.0	83.1				
Actuated g/C Ratio	0.46	0.46	1.00	0.46				
v/c Ratio	0.62	0.50	0.22	0.56				
Control Delay	3.3	55.5	0.1	36.7				
Queue Delay	0.1	0.0	0.0	0.6				
Total Delay	3.4	55.5	0.1	37.3				
LOS	A	E	A	D				
Approach Delay	3.4		19.5					
Approach LOS	A		B					

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 115 (64%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 16.2	Intersection LOS: B
Intersection Capacity Utilization 61.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 15: Man o' War Blvd.

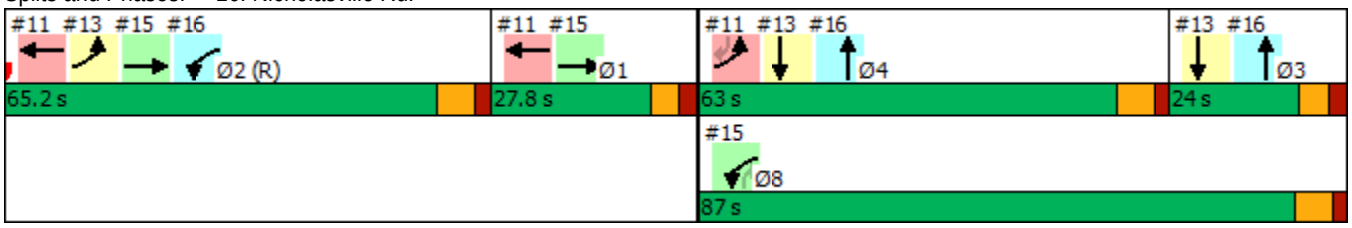


Lane Group	WBL	NBT	NBR	SBT	Ø1	Ø3	Ø4	Ø8
Lane Configurations								
Traffic Volume (vph)	375	1872	400	878				
Future Volume (vph)	375	1872	400	878				
Turn Type	Prot	NA	Free	NA				
Protected Phases	2!	3 4		Free!	1	3	4	8
Permitted Phases			Free					
Detector Phase	2	3 4						
Switch Phase								
Minimum Initial (s)	10.0				5.0	5.0	10.0	10.0
Minimum Split (s)	47.3				11.6	11.6	44.1	44.1
Total Split (s)	65.2				27.8	24.0	63.0	87.0
Total Split (%)	36.2%				15%	13%	35%	48%
Yellow Time (s)	5.0				3.9	3.9	5.0	5.0
All-Red Time (s)	2.3				2.7	2.7	2.1	2.1
Lost Time Adjust (s)	0.0							
Total Lost Time (s)	7.3							
Lead/Lag	Lead				Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	C-Max				None	None	Min	None
Act Effct Green (s)	57.9	83.6	180.0	180.0				
Actuated g/C Ratio	0.32	0.46	1.00	1.00				
v/c Ratio	0.72	0.58	0.27	0.19				
Control Delay	72.1	34.8	0.3	0.2				
Queue Delay	2.2	1.3	0.0	0.0				
Total Delay	74.3	36.1	0.3	0.2				
LOS	E	D	A	A				
Approach Delay	74.3	29.8		0.2				
Approach LOS	E	C		A				

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 115 (64%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 54.1%	ICU Level of Service A
Analysis Period (min) 15	

! Phase conflict between lane groups.

Splits and Phases: 16: Nicholasville Rd.



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	58	4	16	4	24	2500	7	14	1183
Future Volume (vph)	58	4	16	4	24	2500	7	14	1183
Turn Type	Split	NA	Prot	NA	Prot	NA	Perm	Prot	NA
Protected Phases	8	8	8	4	5	2		1	6
Permitted Phases							2		
Detector Phase	8	8	8	4	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	10.0	20.0	20.0	10.0	20.0
Minimum Split (s)	40.2	40.2	40.2	11.2	16.2	46.2	46.2	16.2	46.2
Total Split (s)	40.2	40.2	40.2	11.2	16.2	112.4	112.4	16.2	112.4
Total Split (%)	22.3%	22.3%	22.3%	6.2%	9.0%	62.4%	62.4%	9.0%	62.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	4.6	4.6	4.6	4.6	4.6
All-Red Time (s)	2.6	2.6	2.6	2.6	1.6	1.6	1.6	1.6	1.6
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	15.5	15.5	15.5	7.2	12.7	142.3	142.3	12.2	138.6
Actuated g/C Ratio	0.09	0.09	0.09	0.04	0.07	0.79	0.79	0.07	0.77
v/c Ratio	0.50	0.52	0.15	0.15	0.22	0.69	0.01	0.13	0.29
Control Delay	89.8	90.3	1.2	72.1	103.6	1.9	0.0	56.4	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	89.8	90.3	1.2	72.1	103.6	2.1	0.0	56.4	2.5
LOS	F	F	A	E	F	A	A	E	A
Approach Delay		71.9		72.1		3.1			3.0
Approach LOS		E		E		A			A

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 19 (11%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 6.1	Intersection LOS: A
Intersection Capacity Utilization 62.7%	ICU Level of Service B
Analysis Period (min) 15	

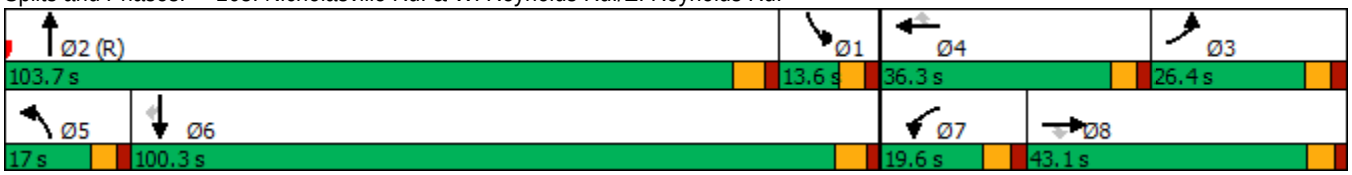
Splits and Phases: 58: Nicholasville Rd. & Dundee Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	400	150	52	68	300	328	57	2629	78	966	174
Future Volume (vph)	400	150	52	68	300	328	57	2629	78	966	174
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2	1	6	
Permitted Phases			8			4					6
Detector Phase	3	8	8	7	4	4	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	15.0	4.0	15.0	15.0
Minimum Split (s)	9.9	35.6	35.6	9.9	35.6	35.6	9.6	46.1	9.6	46.1	46.1
Total Split (s)	26.4	43.1	43.1	19.6	36.3	36.3	17.0	103.7	13.6	100.3	100.3
Total Split (%)	14.7%	23.9%	23.9%	10.9%	20.2%	20.2%	9.4%	57.6%	7.6%	55.7%	55.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	3.6	4.3	4.3
All-Red Time (s)	2.3	2.0	2.0	2.3	2.0	2.0	2.0	1.8	2.0	1.8	1.8
Lost Time Adjust (s)	-1.9	-1.6	-1.6	-1.9	-1.6	0.0	-1.6	-2.1	-1.6	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	5.6	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	Max	None	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)	22.4	40.7	40.7	14.0	32.3	30.7	11.9	99.7	9.6	97.4	97.4
Actuated g/C Ratio	0.12	0.23	0.23	0.08	0.18	0.17	0.07	0.55	0.05	0.54	0.54
v/c Ratio	1.02	0.20	0.13	0.58	0.55	1.02	0.54	1.04	0.94	0.31	0.21
Control Delay	107.2	39.0	2.4	96.5	71.0	99.2	111.4	50.0	155.6	10.5	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0
Total Delay	107.2	39.0	2.4	96.5	71.0	99.2	111.4	53.0	155.6	10.5	6.0
LOS	F	D	A	F	E	F	F	D	F	B	A
Approach Delay		81.1			86.8			54.2		19.2	
Approach LOS		F			F			D		B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 44 (24%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 53.5	Intersection LOS: D
Intersection Capacity Utilization 94.8%	ICU Level of Service F
Analysis Period (min) 15	

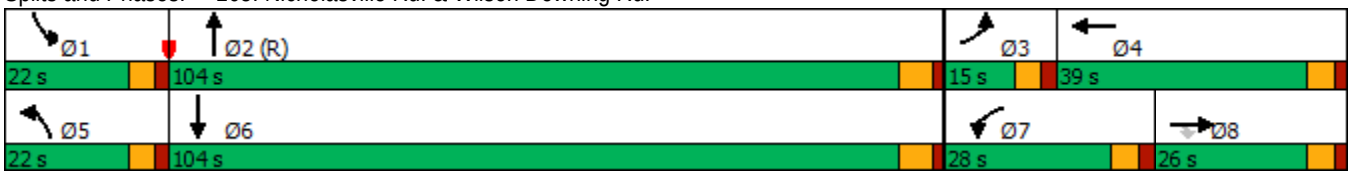
Splits and Phases: 163: Nicholasville Rd. & W. Reynolds Rd./E. Reynolds Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	24	9	14	159	57	15	2555	66	1010
Future Volume (vph)	24	9	14	159	57	15	2555	66	1010
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	3	8		7	4	5	2	1	6
Permitted Phases			8						
Detector Phase	3	8	8	7	4	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	10.8	34.6	34.6	10.8	34.6	10.5	46.2	10.5	46.2
Total Split (s)	15.0	26.0	26.0	28.0	39.0	22.0	104.0	22.0	104.0
Total Split (%)	8.3%	14.4%	14.4%	15.6%	21.7%	12.2%	57.8%	12.2%	57.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.6	3.6	4.6
All-Red Time (s)	2.2	2.0	2.0	2.2	2.0	1.9	1.6	1.9	1.6
Lost Time Adjust (s)	-1.8	-1.6	-1.6	-1.8	-1.6	-1.5	-2.2	-1.5	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	10.4	19.7	19.7	21.1	30.5	8.7	111.5	14.1	121.4
Actuated g/C Ratio	0.06	0.11	0.11	0.12	0.17	0.05	0.62	0.08	0.67
v/c Ratio	0.36	0.07	0.08	0.56	0.85	0.19	0.89	0.53	0.27
Control Delay	91.6	70.2	0.6	80.8	78.6	90.9	21.1	97.7	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	91.6	70.2	0.6	80.8	78.6	90.9	21.5	97.7	8.3
LOS	F	E	A	F	E	F	C	F	A
Approach Delay		60.1			79.6		21.9		13.7
Approach LOS		E			E		C		B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 14 (8%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 26.7	Intersection LOS: C
Intersection Capacity Utilization 80.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 165: Nicholasville Rd. & Wilson Downing Rd.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	39	0	5	0	46	2784	5	7	1019	94
Future Volume (vph)	39	0	5	0	46	2784	5	7	1019	94
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8		4	5	2		1	6	
Permitted Phases	8		4				2			6
Detector Phase	8	8	4	4	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	40.6	40.6	40.6	40.6	10.5	28.2	28.2	10.5	28.2	28.2
Total Split (s)	30.0	30.0	30.0	30.0	20.0	135.0	135.0	15.0	130.0	130.0
Total Split (%)	16.7%	16.7%	16.7%	16.7%	11.1%	75.0%	75.0%	8.3%	72.2%	72.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.6	4.6	3.6	4.6	4.6
All-Red Time (s)	2.0	2.0	2.0	2.0	1.9	1.6	1.6	1.9	1.6	1.6
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.5	-2.2	-2.2	-1.5	-2.2	-2.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	16.3	16.3	16.3	16.3	14.4	150.5	150.5	8.0	139.7	139.7
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.08	0.84	0.84	0.04	0.78	0.78
v/c Ratio	0.53	0.03	0.04	0.23	0.34	0.68	0.00	0.10	0.30	0.09
Control Delay	93.8	0.2	72.2	2.9	71.5	1.4	0.0	105.6	5.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	93.8	0.2	72.2	2.9	71.5	1.4	0.0	105.6	5.6	1.3
LOS	F	A	E	A	E	A	A	F	A	A
Approach Delay		80.8		9.1		2.6			5.8	
Approach LOS		F		A		A			A	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 22 (12%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 4.9	Intersection LOS: A
Intersection Capacity Utilization 69.3%	ICU Level of Service C
Analysis Period (min) 15	

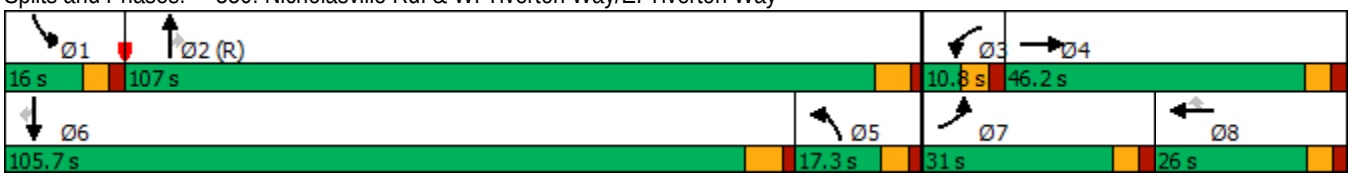
Splits and Phases: 283: Nicholasville Rd. & Rojay Dr.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	156	20	52	48	144	64	2360	40	48	952	116
Future Volume (vph)	156	20	52	48	144	64	2360	40	48	952	116
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8		5	2		1	6	
Permitted Phases					8			2			6
Detector Phase	7	4	3	8	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.7	35.0	10.7	21.7	21.7	10.6	46.5	46.5	10.6	46.5	46.5
Total Split (s)	31.0	46.2	10.8	26.0	26.0	17.3	107.0	107.0	16.0	105.7	105.7
Total Split (%)	17.2%	25.7%	6.0%	14.4%	14.4%	9.6%	59.4%	59.4%	8.9%	58.7%	58.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.9	4.9	3.6	4.9	4.9
All-Red Time (s)	2.1	2.4	2.1	2.1	2.1	2.0	1.6	1.6	2.0	1.6	1.6
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-1.6	-2.5	0.0	-1.6	-2.5	-2.5
Total Lost Time (s)	3.7	4.0	3.7	3.7	5.7	4.0	4.0	6.5	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	25.3	32.3	7.1	14.4	12.4	13.3	115.5	113.0	11.8	111.6	111.6
Actuated g/C Ratio	0.14	0.18	0.04	0.08	0.07	0.07	0.64	0.63	0.07	0.62	0.62
v/c Ratio	0.77	0.29	1.03	0.44	0.75	0.52	0.76	0.04	0.48	0.35	0.13
Control Delay	85.7	46.8	195.0	87.0	35.0	65.4	10.0	0.1	85.2	13.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.7	46.8	195.0	87.0	35.0	65.4	10.1	0.1	85.2	13.5	5.1
LOS	F	D	F	F	C	E	B	A	F	B	A
Approach Delay		77.7		79.3			11.3			15.7	
Approach LOS		E		E			B			B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 175 (97%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 350: Nicholasville Rd. & W. Tiverton Way/E. Tiverton Way



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	344	584	16	976	192	12	8	128	32	44
Future Volume (vph)	344	584	16	976	192	12	8	128	32	44
Turn Type	pm+pt	NA	pm+pt	NA	Perm	Perm	NA	Perm	NA	Perm
Protected Phases	5	2	1	6			4		8	
Permitted Phases	2		6		6	4		8		8
Detector Phase	5	2	1	6	6	4	4	8	8	8
Switch Phase										
Minimum Initial (s)	5.0	40.0	5.0	40.0	40.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.4	46.8	11.4	46.8	46.8	30.6	30.6	26.4	26.4	26.4
Total Split (s)	59.0	133.7	12.3	87.0	87.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	32.8%	74.3%	6.8%	48.3%	48.3%	18.9%	18.9%	18.9%	18.9%	18.9%
Yellow Time (s)	3.9	5.0	3.9	5.0	5.0	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.5	1.8	2.5	1.8	1.8	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	-2.4	-2.8	-2.4	-2.8	-2.8		-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lag	Lag	Lag					
Lead-Lag Optimize?										
Recall Mode	None	C-Max	None	C-Max	C-Max	None	None	None	None	None
Act Effct Green (s)	144.3	144.3	118.1	118.1	118.1		20.3	20.3	20.3	20.3
Actuated g/C Ratio	0.80	0.80	0.66	0.66	0.66		0.11	0.11	0.11	0.11
v/c Ratio	0.68	0.22	0.03	0.44	0.18		0.47	0.69	0.61	0.17
Control Delay	10.5	3.3	12.9	11.4	1.2		68.5	103.4	93.7	1.4
Queue Delay	0.0	0.0	0.0	0.1	0.0		0.0	0.0	0.0	0.0
Total Delay	10.5	3.3	12.9	11.4	1.2		68.5	103.4	93.7	1.4
LOS	B	A	B	B	A		E	F	F	A
Approach Delay		5.9		9.8			68.5		77.4	
Approach LOS		A		A			E		E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 122 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 15.7	Intersection LOS: B
Intersection Capacity Utilization 70.9%	ICU Level of Service C
Analysis Period (min) 15	

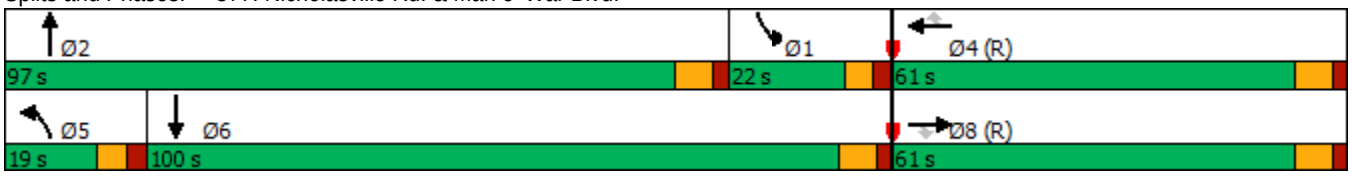
Splits and Phases: 365: Emmert Farm Ln./Nichols Park & Man o' War Blvd.



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	755	192	500	200	128	1744	175	686
Future Volume (vph)	755	192	500	200	128	1744	175	686
Turn Type	NA	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases	8		4		5	2	1	6
Permitted Phases		8		4				
Detector Phase	8	8	4	4	5	2	1	6
Switch Phase								
Minimum Initial (s)	10.0	10.0	10.0	10.0	5.0	40.0	5.0	40.0
Minimum Split (s)	42.1	42.1	42.1	42.1	11.6	47.3	11.6	47.3
Total Split (s)	61.0	61.0	61.0	61.0	19.0	97.0	22.0	100.0
Total Split (%)	33.9%	33.9%	33.9%	33.9%	10.6%	53.9%	12.2%	55.6%
Yellow Time (s)	5.0	5.0	5.0	5.0	3.9	5.0	3.9	5.0
All-Red Time (s)	2.1	2.1	2.1	2.1	2.7	2.3	2.7	2.3
Lost Time Adjust (s)	-3.1	-3.1	-3.1	-3.1	-2.6	-3.3	-2.6	-3.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag					Lead	Lead	Lag	Lag
Lead-Lag Optimize?								
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	Max	None	Max
Act Effct Green (s)	57.0	57.0	57.0	57.0	14.2	93.0	18.0	96.8
Actuated g/C Ratio	0.32	0.32	0.32	0.32	0.08	0.52	0.10	0.54
v/c Ratio	0.69	0.33	0.52	0.38	0.54	0.75	0.54	0.26
Control Delay	61.0	17.3	35.9	7.0	138.8	13.0	68.2	1.4
Queue Delay	1.5	0.0	0.0	0.0	105.4	1.9	97.2	0.3
Total Delay	62.4	17.3	35.9	7.0	244.2	14.9	165.4	1.6
LOS	E	B	D	A	F	B	F	A
Approach Delay	53.3		27.6			30.5		34.9
Approach LOS	D		C			C		C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 128 (71%), Referenced to phase 4:WBT and 8:EBT, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 69.6%	ICU Level of Service C
Analysis Period (min) 15	

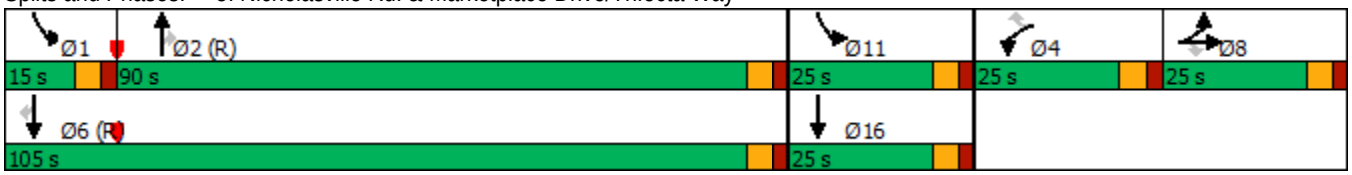
Splits and Phases: 377: Nicholasville Rd. & Man o' War Blvd.



Lane Group	EBT	EBR	WBL	WBR	NBT	NBR	SBL	SBT	SBR	Ø1	Ø11	Ø16
Lane Configurations												
Traffic Volume (vph)	50	50	50	50	1376	50	50	2708	50			
Future Volume (vph)	50	50	50	50	1376	50	50	2708	50			
Turn Type	NA	Perm	Prot	Perm	NA	Perm	Prot	NA	custom			
Protected Phases	8		4		2		1 11	6 16		1	11	16
Permitted Phases		8		4		2			6			
Detector Phase	8	8	4	4	2	2	1 11	6 16	6			
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0			5.0	5.0	5.0	5.0
Minimum Split (s)	21.7	21.7	21.7	21.7	21.7	21.7			21.7	10.7	10.7	21.7
Total Split (s)	25.0	25.0	25.0	25.0	90.0	90.0			105.0	15.0	25.0	25.0
Total Split (%)	13.9%	13.9%	13.9%	13.9%	50.0%	50.0%			58.3%	8%	14%	14%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6			3.6	3.6	3.6	3.6
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	2.1			2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0			0.0			
Total Lost Time (s)	5.7	5.7	5.7	5.7	5.7	5.7			5.7			
Lead/Lag	Lag	Lag	Lead	Lead	Lag	Lag				Lead		
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	C-Max	C-Max			C-Max	None	None	None
Act Effct Green (s)	16.0	16.0	8.2	8.2	103.4	103.4	23.8	138.7	113.7			
Actuated g/C Ratio	0.09	0.09	0.05	0.05	0.57	0.57	0.13	0.77	0.63			
v/c Ratio	0.67	0.22	0.34	0.29	0.51	0.06	0.23	0.75	0.05			
Control Delay	98.9	2.0	88.8	3.9	9.4	0.1	40.6	2.4	0.7			
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	0.0			
Total Delay	98.9	2.0	88.8	3.9	9.8	0.1	40.6	2.8	0.7			
LOS	F	A	F	A	A	A	D	A	A			
Approach Delay	66.6				9.4			3.4				
Approach LOS	E				A			A				

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 17 (9%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

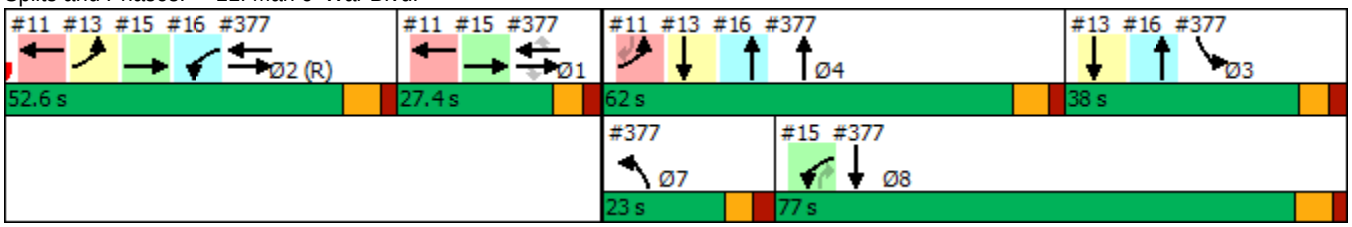
Splits and Phases: 5: Nicholasville Rd. & Marketplace Drive/Trifecta Way



Lane Group	EBL	EBT	WBT	SBR	Ø1	Ø2	Ø3	Ø7	Ø8
Lane Configurations									
Traffic Volume (vph)	310	1077	930	389					
Future Volume (vph)	310	1077	930	389					
Turn Type	Prot	NA	NA	Perm					
Protected Phases	4	Free	1 2		1	2	3	7	8
Permitted Phases				4					
Detector Phase	4		1 2	4					
Switch Phase									
Minimum Initial (s)	10.0			10.0	5.0	10.0	5.0	5.0	10.0
Minimum Split (s)	44.1			44.1	11.6	47.3	11.6	11.6	44.1
Total Split (s)	62.0			62.0	27.4	52.6	38.0	23.0	77.0
Total Split (%)	34.4%			34.4%	15%	29%	21%	13%	43%
Yellow Time (s)	5.0			5.0	3.9	5.0	3.9	3.9	5.0
All-Red Time (s)	2.1			2.1	2.7	2.3	2.7	2.7	2.1
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	7.1			7.1					
Lead/Lag	Lead			Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	Min			Min	None	C-Max	None	None	None
Act Effct Green (s)	54.9	180.0	73.4	54.9					
Actuated g/C Ratio	0.30	1.00	0.41	0.30					
v/c Ratio	0.63	0.33	0.70	0.56					
Control Delay	69.7	0.2	48.6	13.5					
Queue Delay	0.0	0.0	0.5	0.1					
Total Delay	69.7	0.2	49.1	13.6					
LOS	E	A	D	B					
Approach Delay		15.7	49.1						
Approach LOS		B	D						

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 137 (76%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 26.9	Intersection LOS: C
Intersection Capacity Utilization 61.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 11: Man o' War Blvd.

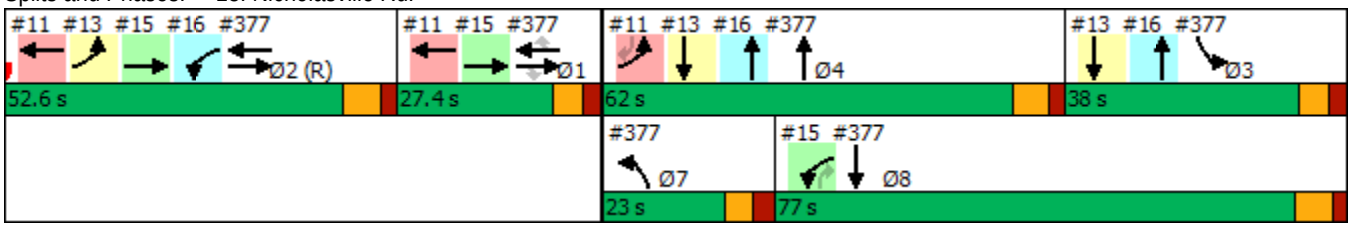


Lane Group	EBL	NBT	SBT	SBR	Ø1	Ø3	Ø4	Ø7	Ø8
Lane Configurations									
Traffic Volume (vph)	310	1118	2500	389					
Future Volume (vph)	310	1118	2500	389					
Turn Type	Prot	NA	NA	Free					
Protected Phases	2!	Free!	3 4		1	3	4	7	8
Permitted Phases				Free					
Detector Phase	2		3 4						
Switch Phase									
Minimum Initial (s)	10.0				5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	47.3				11.6	11.6	44.1	11.6	44.1
Total Split (s)	52.6				27.4	38.0	62.0	23.0	77.0
Total Split (%)	29.2%				15%	21%	34%	13%	43%
Yellow Time (s)	5.0				3.9	3.9	5.0	3.9	5.0
All-Red Time (s)	2.3				2.7	2.7	2.1	2.7	2.1
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	7.3								
Lead/Lag	Lead				Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	C-Max				None	None	Min	None	None
Act Effct Green (s)	45.3	180.0	93.4	180.0					
Actuated g/C Ratio	0.25	1.00	0.52	1.00					
v/c Ratio	0.76	0.24	0.69	0.27					
Control Delay	94.9	0.1	10.9	0.3					
Queue Delay	0.0	0.0	1.6	0.0					
Total Delay	94.9	0.1	12.6	0.3					
LOS	F	A	B	A					
Approach Delay	94.9	0.1	10.9						
Approach LOS	F	A	B						

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 137 (76%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 14.1	Intersection LOS: B
Intersection Capacity Utilization 57.7%	ICU Level of Service B
Analysis Period (min) 15	

! Phase conflict between lane groups.

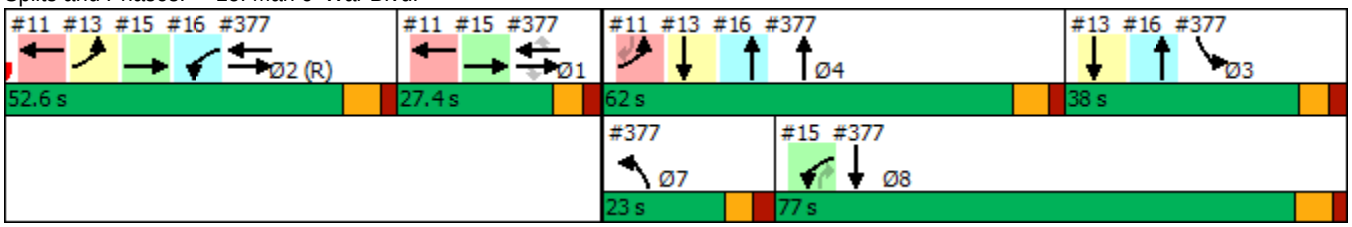
Splits and Phases: 13: Nicholasville Rd.



Lane Group	EBT	WBL	WBT	NBR	Ø1	Ø2	Ø3	Ø4	Ø7
Lane Configurations									
Traffic Volume (vph)	1185	400	798	427					
Future Volume (vph)	1185	400	798	427					
Turn Type	NA	Prot	NA	Perm					
Protected Phases	1 2	8	Free		1	2	3	4	7
Permitted Phases				8					
Detector Phase	1 2	8		8					
Switch Phase									
Minimum Initial (s)		10.0		10.0	5.0	10.0	5.0	10.0	5.0
Minimum Split (s)		44.1		44.1	11.6	47.3	11.6	44.1	11.6
Total Split (s)		77.0		77.0	27.4	52.6	38.0	62.0	23.0
Total Split (%)		42.8%		42.8%	15%	29%	21%	34%	13%
Yellow Time (s)		5.0		5.0	3.9	5.0	3.9	5.0	3.9
All-Red Time (s)		2.1		2.1	2.7	2.3	2.7	2.1	2.7
Lost Time Adjust (s)		0.0		0.0					
Total Lost Time (s)		7.1		7.1					
Lead/Lag		Lag		Lag	Lag	Lead	Lag	Lead	Lead
Lead-Lag Optimize?									
Recall Mode		None		None	None	C-Max	None	Min	None
Act Effct Green (s)	73.4	69.9	180.0	69.9					
Actuated g/C Ratio	0.41	0.39	1.00	0.39					
v/c Ratio	0.89	0.63	0.24	0.61					
Control Delay	35.7	50.4	0.1	24.6					
Queue Delay	0.1	0.0	0.0	0.3					
Total Delay	35.7	50.4	0.1	24.9					
LOS	D	D	A	C					
Approach Delay	35.7		16.9						
Approach LOS	D		B						

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 137 (76%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 70.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: Man o' War Blvd.

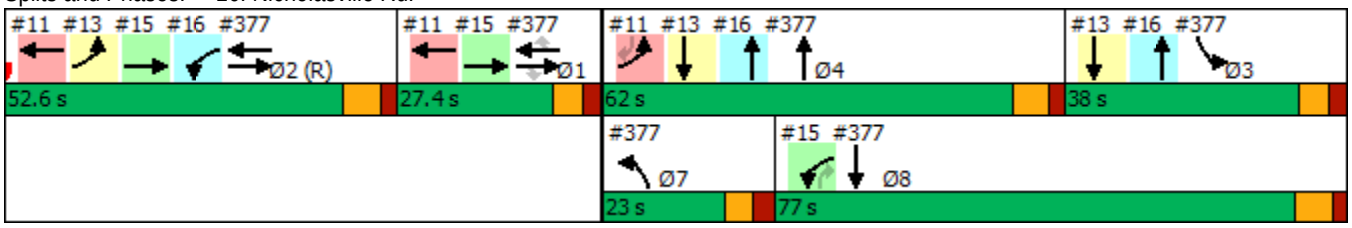


Lane Group	WBL	NBT	NBR	SBT	Ø1	Ø3	Ø4	Ø7	Ø8
Lane Configurations									
Traffic Volume (vph)	400	1250	427	2392					
Future Volume (vph)	400	1250	427	2392					
Turn Type	Prot	NA	Free	NA					
Protected Phases	2!	3 4		Free!	1	3	4	7	8
Permitted Phases			Free						
Detector Phase	2	3 4							
Switch Phase									
Minimum Initial (s)	10.0				5.0	5.0	10.0	5.0	10.0
Minimum Split (s)	47.3				11.6	11.6	44.1	11.6	44.1
Total Split (s)	52.6				27.4	38.0	62.0	23.0	77.0
Total Split (%)	29.2%				15%	21%	34%	13%	43%
Yellow Time (s)	5.0				3.9	3.9	5.0	3.9	5.0
All-Red Time (s)	2.3				2.7	2.7	2.1	2.7	2.1
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	7.3								
Lead/Lag	Lead				Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	C-Max				None	None	Min	None	None
Act Effct Green (s)	45.3	93.4	180.0	180.0					
Actuated g/C Ratio	0.25	0.52	1.00	1.00					
v/c Ratio	0.98	0.35	0.29	0.51					
Control Delay	89.8	21.1	0.3	3.8					
Queue Delay	0.0	0.1	0.0	0.0					
Total Delay	89.8	21.2	0.3	3.8					
LOS	F	C	A	A					
Approach Delay	89.8	15.9		3.8					
Approach LOS	F	B		A					

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 137 (76%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 16.1	Intersection LOS: B
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

! Phase conflict between lane groups.

Splits and Phases: 16: Nicholasville Rd.



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	195	14	86	3	33	1348	3	65	3014
Future Volume (vph)	195	14	86	3	33	1348	3	65	3014
Turn Type	Split	NA	Perm	NA	Prot	NA	Perm	pm+pt	NA
Protected Phases	4	4		8	5	2		1	6
Permitted Phases			4				2	6	
Detector Phase	4	4	4	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0
Minimum Split (s)	40.6	40.6	40.6	11.6	10.7	48.1	48.1	10.7	48.1
Total Split (s)	52.4	52.4	52.4	11.6	13.0	103.0	103.0	13.0	103.0
Total Split (%)	29.1%	29.1%	29.1%	6.4%	7.2%	57.2%	57.2%	7.2%	57.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.7	4.7	3.6	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	2.1	1.4	1.4	2.1	1.4
Lost Time Adjust (s)	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2	-2.2
Total Lost Time (s)	4.4	4.4	4.4	4.4	3.5	3.9	3.9	3.5	3.9
Lead/Lag					Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	35.3	35.3	35.3	8.5	10.3	115.3	115.3	125.1	116.8
Actuated g/C Ratio	0.20	0.20	0.20	0.05	0.06	0.64	0.64	0.70	0.65
v/c Ratio	0.75	0.76	0.53	0.21	0.37	0.46	0.00	0.30	0.85
Control Delay	81.5	82.1	38.5	50.7	129.7	5.2	0.0	11.4	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5
Total Delay	81.5	82.1	38.5	50.7	129.7	5.3	0.0	11.4	19.4
LOS	F	F	D	D	F	A	A	B	B
Approach Delay		69.1		50.7		8.3			19.2
Approach LOS		E		D		A			B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 13 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 22.4	Intersection LOS: C
Intersection Capacity Utilization 72.6%	ICU Level of Service C
Analysis Period (min) 15	

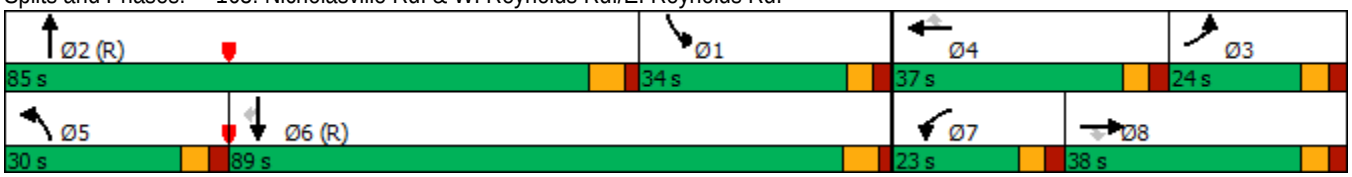
Splits and Phases: 58: Nicholasville Rd. & Dundee Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	425	312	224	163	290	196	113	1469	203	2969	573
Future Volume (vph)	425	312	224	163	290	196	113	1469	203	2969	573
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2	1	6	
Permitted Phases			8			4					6
Detector Phase	3	8	8	7	4	4	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	40.0	5.0	40.0	40.0
Minimum Split (s)	11.3	42.3	42.3	11.3	42.3	42.3	11.3	54.7	11.3	54.7	54.7
Total Split (s)	24.0	38.0	38.0	23.0	37.0	37.0	30.0	85.0	34.0	89.0	89.0
Total Split (%)	13.3%	21.1%	21.1%	12.8%	20.6%	20.6%	16.7%	47.2%	18.9%	49.4%	49.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.7	3.6	4.7	4.7
All-Red Time (s)	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.0	2.7	2.0	2.0
Lost Time Adjust (s)	-1.9	-1.6	-1.6	-1.9	-1.6	0.0	-1.6	-2.1	-1.6	-2.1	-2.1
Total Lost Time (s)	4.4	4.7	4.7	4.4	4.7	6.3	4.7	4.6	4.7	4.6	4.6
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	27.6	33.3	33.3	18.6	24.3	22.7	19.4	80.4	29.3	90.3	90.3
Actuated g/C Ratio	0.15	0.18	0.18	0.10	0.14	0.13	0.11	0.45	0.16	0.50	0.50
v/c Ratio	0.88	0.52	0.50	1.04	0.71	0.57	0.65	0.76	0.79	1.04	0.69
Control Delay	114.6	95.2	38.2	152.6	82.4	13.1	117.1	37.0	62.4	47.3	5.0
Queue Delay	0.0	0.0	0.2	0.0	0.1	0.2	0.0	3.3	0.0	21.0	2.0
Total Delay	114.6	95.2	38.4	152.6	82.5	13.3	117.1	40.3	62.4	68.3	7.1
LOS	F	F	D	F	F	B	F	D	E	E	A
Approach Delay		90.6			79.3			45.5		58.6	
Approach LOS		F			E			D		E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 29 (16%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 61.8	Intersection LOS: E
Intersection Capacity Utilization 84.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 163: Nicholasville Rd. & W. Reynolds Rd./E. Reynolds Rd.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	99	114	131	183	122	95	1261	233	2877
Future Volume (vph)	99	114	131	183	122	95	1261	233	2877
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	3	8		7	4	5	2	1	6
Permitted Phases			8						
Detector Phase	3	8	8	7	4	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	11.1	36.9	36.9	11.1	36.9	11.4	47.5	11.4	47.5
Total Split (s)	24.0	30.0	30.0	24.0	30.0	35.0	91.0	35.0	91.0
Total Split (%)	13.3%	16.7%	16.7%	13.3%	16.7%	19.4%	50.6%	19.4%	50.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.9	4.7	3.9	4.7
All-Red Time (s)	2.5	2.3	2.3	2.5	2.3	2.5	1.8	2.5	1.8
Lost Time Adjust (s)	-1.8	-1.6	-1.6	-1.8	-1.6	-1.5	-2.2	-1.5	-2.2
Total Lost Time (s)	4.3	4.3	4.3	4.3	4.3	4.9	4.3	4.9	4.3
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	19.2	26.3	26.3	19.1	26.2	17.0	87.5	29.3	99.8
Actuated g/C Ratio	0.11	0.15	0.15	0.11	0.15	0.09	0.49	0.16	0.55
v/c Ratio	0.81	0.65	0.50	0.72	0.95	0.60	0.63	0.91	0.93
Control Delay	107.9	84.8	12.2	89.4	113.9	99.6	26.7	98.4	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	1.7
Total Delay	107.9	84.8	12.2	89.4	113.9	99.6	26.9	98.4	42.3
LOS	F	F	B	F	F	F	C	F	D
Approach Delay		63.7			101.4		31.4		46.5
Approach LOS		E			F		C		D

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 175 (97%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 48.5	Intersection LOS: D
Intersection Capacity Utilization 77.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 165: Nicholasville Rd. & Wilson Downing Rd.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	86	3	14	2	57	1509	20	49	2852	216
Future Volume (vph)	86	3	14	2	57	1509	20	49	2852	216
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		8		4	5	2		1	6	
Permitted Phases	8		4				2			6
Detector Phase	8	8	4	4	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	41.2	41.2	41.2	41.2	10.7	32.3	32.3	10.7	32.3	32.3
Total Split (s)	36.0	36.0	36.0	36.0	34.0	110.0	110.0	34.0	110.0	110.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	18.9%	61.1%	61.1%	18.9%	61.1%	61.1%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.6	4.7	4.7	3.6	4.7	4.7
All-Red Time (s)	3.0	3.0	3.0	3.0	2.1	1.6	1.6	2.1	1.6	1.6
Lost Time Adjust (s)	-1.6	-1.6	-1.6	-1.6	-1.5	-2.2	-2.2	-1.5	-2.2	-2.2
Total Lost Time (s)	4.6	4.6	4.6	4.6	4.2	4.1	4.1	4.2	4.1	4.1
Lead/Lag					Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	25.1	25.1	25.1	25.1	12.9	119.0	119.0	25.5	129.1	129.1
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.07	0.66	0.66	0.14	0.72	0.72
v/c Ratio	0.72	0.50	0.20	0.14	0.47	0.47	0.02	0.22	0.90	0.21
Control Delay	94.0	13.3	72.4	20.8	78.2	20.3	1.1	40.4	13.6	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	94.0	13.3	72.4	20.8	78.2	20.3	1.1	40.4	13.7	1.0
LOS	F	B	E	C	E	C	A	D	B	A
Approach Delay		47.2		36.6		22.1			13.2	
Approach LOS		D		D		C			B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 169 (94%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 18.0	Intersection LOS: B
Intersection Capacity Utilization 73.8%	ICU Level of Service D
Analysis Period (min) 15	

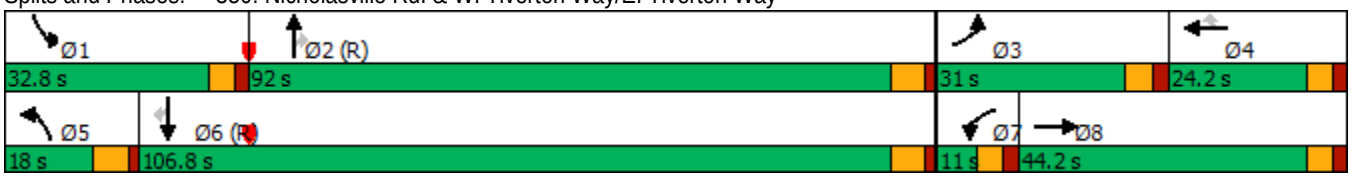
Splits and Phases: 283: Nicholasville Rd. & Rojay Dr.



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	260	96	84	120	112	144	1088	84	152	2616	280
Future Volume (vph)	260	96	84	120	112	144	1088	84	152	2616	280
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8	7	4		5	2		1	6	
Permitted Phases					4			2			6
Detector Phase	3	8	7	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.7	21.7	10.7	21.7	21.7	11.2	46.5	46.5	10.6	46.5	46.5
Total Split (s)	31.0	44.2	11.0	24.2	24.2	18.0	92.0	92.0	32.8	106.8	106.8
Total Split (%)	17.2%	24.6%	6.1%	13.4%	13.4%	10.0%	51.1%	51.1%	18.2%	59.3%	59.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.7	4.7	4.7	3.6	4.7	4.7
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	1.5	1.5	1.5	2.0	1.5	1.5
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	0.0	-1.6	-2.5	0.0	-1.6	-2.5	-2.5
Total Lost Time (s)	3.7	3.7	3.7	3.7	5.7	4.6	3.7	6.2	4.0	3.7	3.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	27.3	40.5	7.3	20.5	18.5	13.4	93.0	90.5	24.1	103.1	103.1
Actuated g/C Ratio	0.15	0.22	0.04	0.11	0.10	0.07	0.52	0.50	0.13	0.57	0.57
v/c Ratio	1.19	1.19	1.62	0.77	0.50	1.16	0.44	0.10	0.75	1.04	0.31
Control Delay	165.1	161.2	380.7	100.8	14.2	204.9	5.6	0.2	104.4	42.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	165.1	161.2	380.7	100.8	14.2	204.9	5.6	0.2	104.4	42.6	0.8
LOS	F	F	F	F	B	F	A	A	F	D	A
Approach Delay		163.4		144.6			27.1			41.9	
Approach LOS		F		F			C			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 20 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.62	
Intersection Signal Delay: 66.4	Intersection LOS: E
Intersection Capacity Utilization 88.7%	ICU Level of Service E
Analysis Period (min) 15	

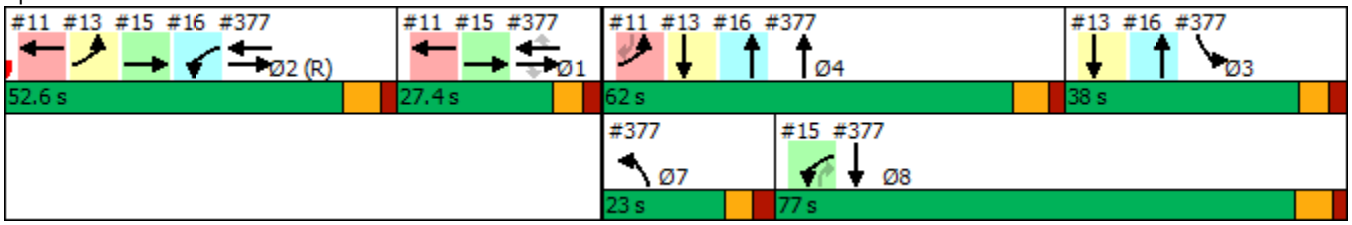
Splits and Phases: 350: Nicholasville Rd. & W. Tiverton Way/E. Tiverton Way



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	Ø2
Lane Configurations									
Traffic Volume (vph)	743	334	608	190	322	928	442	2058	
Future Volume (vph)	743	334	608	190	322	928	442	2058	
Turn Type	NA	custom	NA	custom	Prot	NA	Prot	NA	
Protected Phases	1 2		1 2		7	4	3	8	2
Permitted Phases		1		1					
Detector Phase	1 2	1	1 2	1	7	4	3	8	
Switch Phase									
Minimum Initial (s)		5.0		5.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)		11.6		11.6	11.6	44.1	11.6	44.1	47.3
Total Split (s)		27.4		27.4	23.0	62.0	38.0	77.0	52.6
Total Split (%)		15.2%		15.2%	12.8%	34.4%	21.1%	42.8%	29%
Yellow Time (s)		3.9		3.9	3.9	5.0	3.9	5.0	5.0
All-Red Time (s)		2.7		2.7	2.7	2.1	2.7	2.1	2.3
Lost Time Adjust (s)		-3.1		-3.1	-2.6	-3.3	-2.6	-3.3	
Total Lost Time (s)		3.5		3.5	4.0	3.8	4.0	3.8	
Lead/Lag		Lag		Lag	Lead	Lead	Lag	Lag	Lead
Lead-Lag Optimize?									
Recall Mode		None		None	None	Min	None	None	C-Max
Act Effct Green (s)	76.5	23.9	76.5	23.9	19.0	58.2	34.0	73.2	
Actuated g/C Ratio	0.42	0.13	0.42	0.13	0.11	0.32	0.19	0.41	
v/c Ratio	0.50	0.87	0.47	0.55	1.01	0.64	0.72	1.05	
Control Delay	22.4	40.7	40.8	21.7	118.1	14.7	38.4	50.5	
Queue Delay	0.8	0.0	0.6	0.0	39.0	1.2	58.9	5.7	
Total Delay	23.2	40.7	41.3	21.7	157.1	15.9	97.3	56.2	
LOS	C	D	D	C	F	B	F	E	
Approach Delay	28.6		36.7			52.3		63.5	
Approach LOS	C		D			D		E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 137 (76%), Referenced to phase 2:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 50.5	Intersection LOS: D
Intersection Capacity Utilization 79.5%	ICU Level of Service D
Analysis Period (min) 15	

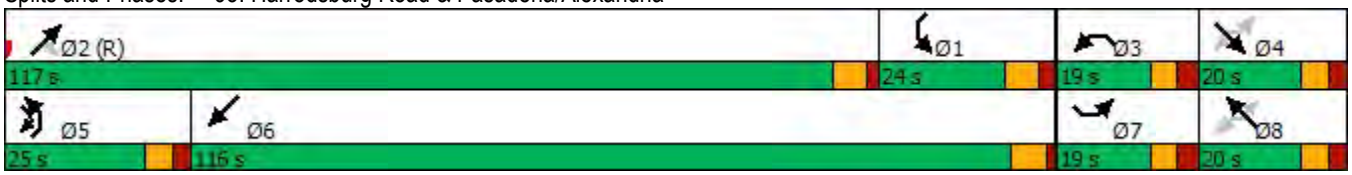
Splits and Phases: 377: Nicholasville Rd. & Man o' War Blvd.



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations											
Traffic Volume (vph)	121	322	489	300	241	109	237	1021	360	150	1526
Future Volume (vph)	121	322	489	300	241	109	237	1021	360	150	1526
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	5	3	8		5	2		1	6
Permitted Phases	4		4	8		8			2		
Detector Phase	7	4	5	3	8	8	5	2	2	1	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	40.4	14.0	14.0	40.4	40.4	14.0	36.3	36.3	14.0	36.3
Total Split (s)	19.0	20.0	25.0	19.0	20.0	20.0	25.0	117.0	117.0	24.0	116.0
Total Split (%)	10.6%	11.1%	13.9%	10.6%	11.1%	11.1%	13.9%	65.0%	65.0%	13.3%	64.4%
Yellow Time (s)	3.6	3.6	3.9	3.6	3.6	3.6	3.9	4.7	4.7	4.7	4.7
All-Red Time (s)	3.0	2.8	2.4	3.0	2.8	2.8	2.4	1.5	1.5	2.4	1.5
Lost Time Adjust (s)	-2.6	-2.4	-2.4	-2.6	-2.4	-2.4	-2.3	-2.2	-2.2	-3.1	-2.2
Total Lost Time (s)	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes				Yes	Yes					
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	30.9	16.0	41.1	31.1	16.1	16.1	21.0	113.0	113.0	20.0	112.0
Actuated g/C Ratio	0.17	0.09	0.23	0.17	0.09	0.09	0.12	0.63	0.63	0.11	0.62
v/c Ratio	0.75	2.24	1.26	0.94	1.67	0.45	0.68	0.37	0.36	0.88	0.57
Control Delay	88.5	610.8	179.1	101.1	372.0	11.0	68.2	16.2	5.6	114.7	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.0	0.0	0.0
Total Delay	88.5	610.8	179.1	101.1	372.0	11.0	68.2	17.0	6.6	114.7	19.0
LOS	F	F	F	F	F	B	E	B	A	F	B
Approach Delay		316.3			186.5			22.2			27.4
Approach LOS		F			F			C			C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 96 (53%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.24	
Intersection Signal Delay: 101.7	Intersection LOS: F
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

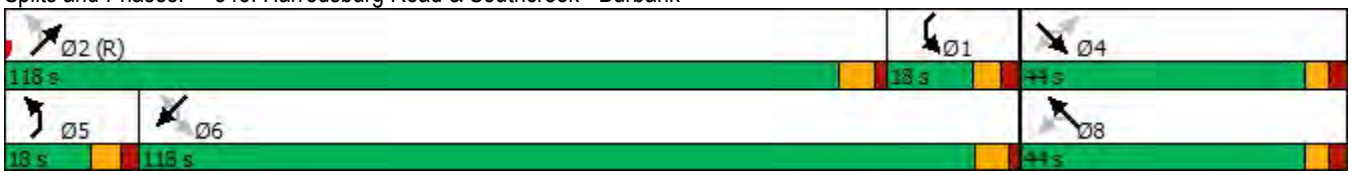
Splits and Phases: 93: Harrodsburg Road & Pasadena/Alexandria



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	50	20	188	51	15	27	1160	82	1203	27
Future Volume (vph)	50	20	188	51	15	27	1160	82	1203	27
Turn Type	Perm	NA	Perm	Perm	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases		4			8	5	2	1	6	
Permitted Phases	4		4	8		2		6		6
Detector Phase	4	4	4	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0	14.0	36.3	14.0	36.3	36.3
Total Split (s)	44.0	44.0	44.0	44.0	44.0	18.0	118.0	18.0	118.0	118.0
Total Split (%)	24.4%	24.4%	24.4%	24.4%	24.4%	10.0%	65.6%	10.0%	65.6%	65.6%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.9	4.7	3.9	4.7	4.7
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0	-2.4	-2.2	-2.4	-2.2	-2.2
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)		17.4	17.4	17.4	17.4	136.6	136.6	144.3	144.3	144.3
Actuated g/C Ratio		0.10	0.10	0.10	0.10	0.76	0.76	0.80	0.80	0.80
v/c Ratio		0.65	0.68	0.56	0.31	0.10	0.52	0.24	0.49	0.02
Control Delay		102.4	27.6	97.5	30.9	1.9	6.9	8.3	7.3	0.1
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		102.4	27.6	97.5	30.9	1.9	6.9	8.3	7.3	0.1
LOS		F	C	F	C	A	A	A	A	A
Approach Delay		47.9			63.1		6.8		7.3	
Approach LOS		D			E		A		A	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 90 (50%), Referenced to phase 2:NETL, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 12.7	Intersection LOS: B
Intersection Capacity Utilization 61.0%	ICU Level of Service B
Analysis Period (min) 15	

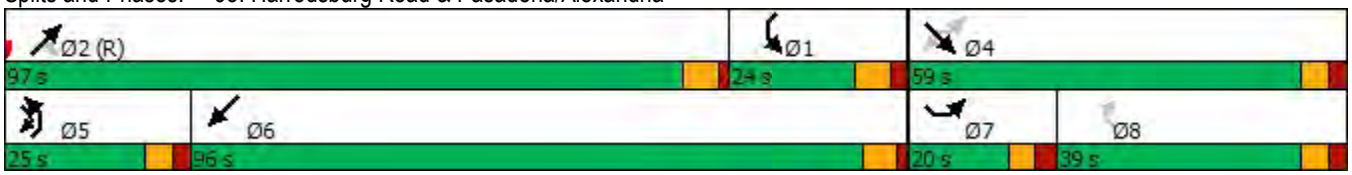
Splits and Phases: 343: Harrodsburg Road & Southcreek - Burbank



Lane Group	SEL	SET	SER	NWR	NEL	NET	NER	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	121	322	489	550	237	1258	360	150	1826
Future Volume (vph)	121	322	489	550	237	1258	360	150	1826
Turn Type	pm+pt	NA	pm+ov	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	5		5	2		1	6
Permitted Phases	4		4	8			2		
Detector Phase	7	4	5	8	5	2	2	1	6
Switch Phase									
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	40.4	14.0	40.4	14.0	36.3	36.3	14.0	36.3
Total Split (s)	20.0	59.0	25.0	39.0	25.0	97.0	97.0	24.0	96.0
Total Split (%)	11.1%	32.8%	13.9%	21.7%	13.9%	53.9%	53.9%	13.3%	53.3%
Yellow Time (s)	3.6	3.6	3.9	3.6	3.9	4.7	4.7	4.7	4.7
All-Red Time (s)	3.0	2.8	2.4	2.8	2.4	1.5	1.5	2.4	1.5
Lost Time Adjust (s)	-2.6	-2.4	-2.4	-2.4	-2.3	-2.2	-2.2	-3.1	-2.2
Total Lost Time (s)	4.0	4.0	3.9	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead		Lead	Lag	Lead	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes			Yes					
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	43.5	43.5	69.0	23.9	21.4	104.5	104.5	20.0	103.1
Actuated g/C Ratio	0.24	0.24	0.38	0.13	0.12	0.58	0.58	0.11	0.57
v/c Ratio	0.33	0.82	0.87	0.81	0.67	0.49	0.41	0.88	0.84
Control Delay	56.8	79.9	59.6	26.5	76.2	13.8	5.8	97.5	28.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.2	1.1	0.0	0.0
Total Delay	56.8	79.9	59.6	26.5	76.2	15.0	6.9	97.5	28.1
LOS	E	E	E	C	E	B	A	F	C
Approach Delay		66.2				21.3			32.7
Approach LOS		E				C			C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 96 (53%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 82.2%	ICU Level of Service E
Analysis Period (min) 15	

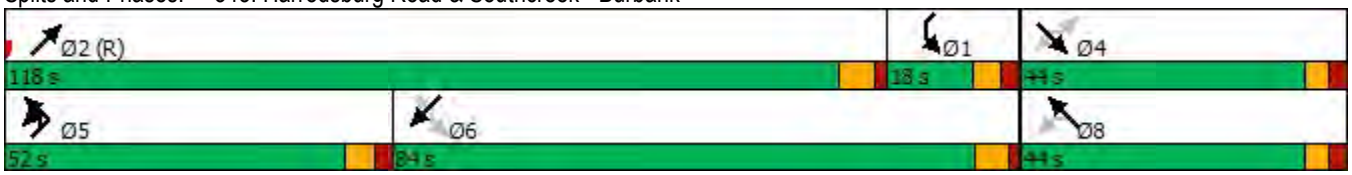
Splits and Phases: 93: Harrodsburg Road & Pasadena/Alexandria



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	50	20	188	151	15	27	1160	82	1203	27
Future Volume (vph)	50	20	188	151	15	27	1160	82	1203	27
Turn Type	Perm	NA	Perm	Perm	NA	Prot	NA	pm+pt	NA	Perm
Protected Phases		4			8	5	2	1	6	
Permitted Phases	4		4	8				6		6
Detector Phase	4	4	4	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	40.0	40.0	40.0	40.0	40.0	14.0	36.3	14.0	36.3	36.3
Total Split (s)	44.0	44.0	44.0	44.0	44.0	52.0	118.0	18.0	84.0	84.0
Total Split (%)	24.4%	24.4%	24.4%	24.4%	24.4%	28.9%	65.6%	10.0%	46.7%	46.7%
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.9	4.7	3.9	4.7	4.7
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)		-2.0	-2.0	-2.0	-2.0	-2.4	-2.2	-2.4	-2.2	-2.2
Total Lost Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)		31.6	31.6	31.6	31.6	56.4	122.4	80.0	80.0	80.0
Actuated g/C Ratio		0.18	0.18	0.18	0.18	0.31	0.68	0.44	0.44	0.44
v/c Ratio		0.32	0.60	0.82	0.19	0.97	0.58	0.34	0.88	0.04
Control Delay		66.6	41.4	99.9	22.9	77.4	6.0	42.7	53.6	0.7
Queue Delay		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		66.6	41.4	99.9	22.9	77.4	6.0	42.7	53.6	0.7
LOS		E	D	F	C	E	A	D	D	A
Approach Delay		48.2			79.5		25.9		51.8	
Approach LOS		D			E		C		D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 90 (50%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 40.6	Intersection LOS: D
Intersection Capacity Utilization 96.9%	ICU Level of Service F
Analysis Period (min) 15	

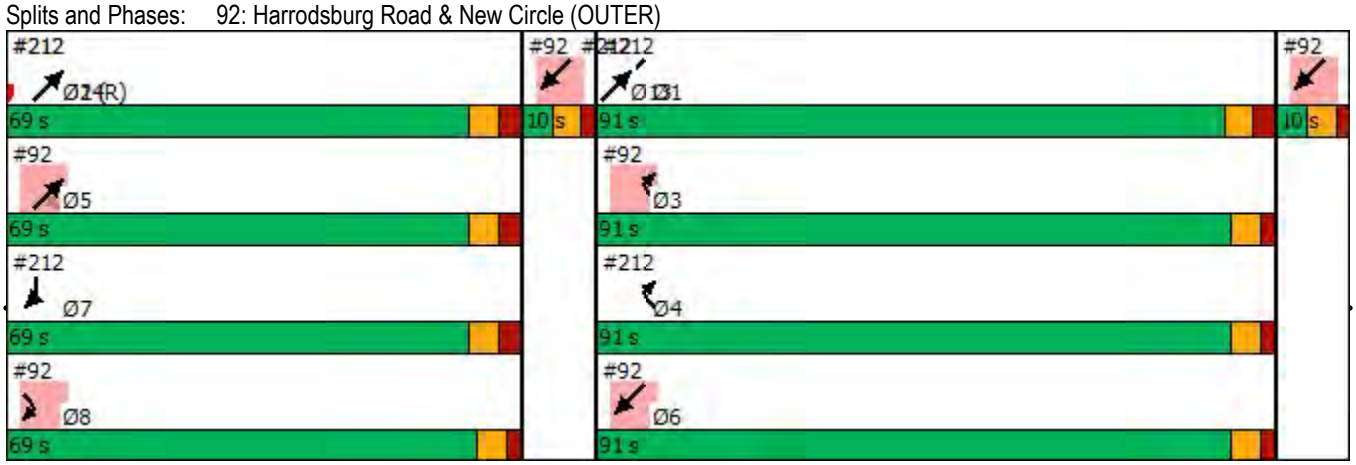
Splits and Phases: 343: Harrodsburg Road & Southcreek - Burbank



Lane Group	SER	NWR	NET	NER	SWT	Ø1	Ø2	Ø4	Ø6	Ø7	Ø13	Ø14
Lane Configurations												
Traffic Volume (vph)	866	372	1380	691	2096							
Future Volume (vph)	866	372	1380	691	2096							
Turn Type	Prot	Prot	NA	Perm	NA							
Protected Phases	8	3	5		6 13 14	1	2	4	6	7	13	14
Permitted Phases				5								
Detector Phase	8	3	5	5	6 13 14							
Switch Phase												
Minimum Initial (s)	3.0	3.0	4.0	4.0		3.0	4.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	22.0	14.0	22.0	22.0		14.0	22.0	22.0	22.0	14.0	14.0	22.0
Total Split (s)	69.0	91.0	69.0	69.0		91.0	69.0	91.0	91.0	69.0	10.0	10.0
Total Split (%)	38.3%	50.6%	38.3%	38.3%		51%	38%	51%	51%	38%	6%	6%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	3.0	3.0		3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	-2.2	-2.2								
Total Lost Time (s)	6.0	6.0	4.8	4.8								
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None		None	C-Max	None	None	None	None	None
Act Effct Green (s)	63.0	85.0	64.2	64.2	107.2							
Actuated g/C Ratio	0.35	0.47	0.36	0.36	0.60							
v/c Ratio	0.95	0.30	0.87	0.90	1.01							
Control Delay	70.0	12.8	53.2	34.5	49.1							
Queue Delay	0.0	0.0	26.0	2.4	3.3							
Total Delay	70.0	12.8	79.2	36.9	52.4							
LOS	E	B	E	D	D							
Approach Delay			65.1		52.4							
Approach LOS			E		D							

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 56 (31%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 56.9	Intersection LOS: E
Intersection Capacity Utilization 95.0%	ICU Level of Service F
Analysis Period (min) 15	

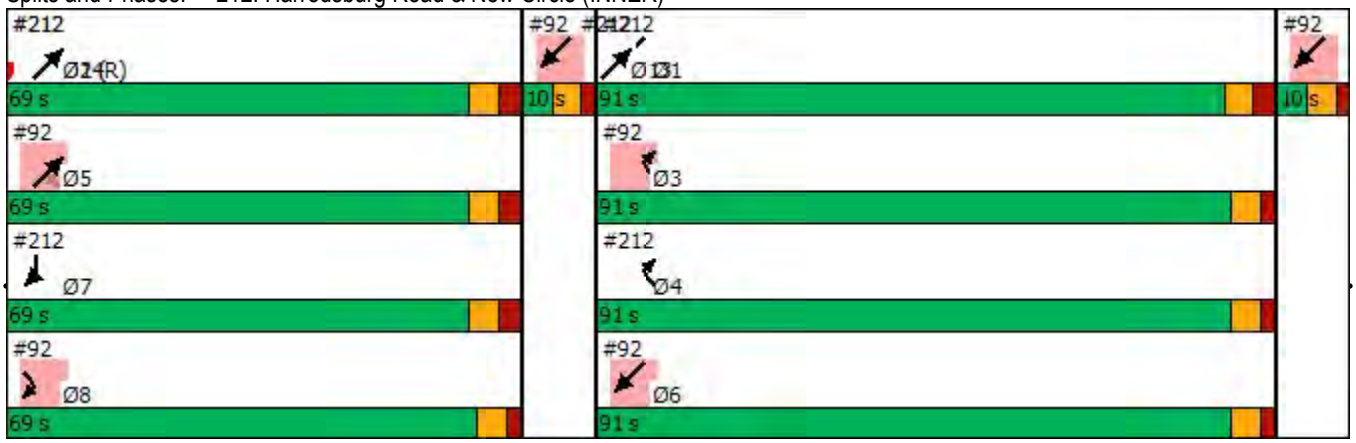
Splits and Phases: 92: Harrodsburg Road & New Circle (OUTER)



Lane Group	SBR	NWR2	NET	SWT	Ø2	Ø3	Ø5	Ø6	Ø8	Ø13	Ø14
Lane Configurations											
Traffic Volume (vph)	475	450	1750	825							
Future Volume (vph)	475	450	1750	825							
Turn Type	Prot	Prot	NA	NA							
Protected Phases	7	4	2 13 14	1	2	3	5	6	8	13	14
Permitted Phases											
Detector Phase	7	4	2 13 14	1							
Switch Phase											
Minimum Initial (s)	3.0	3.0		3.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0
Minimum Split (s)	14.0	22.0		14.0	22.0	14.0	22.0	22.0	22.0	14.0	22.0
Total Split (s)	69.0	91.0		91.0	69.0	91.0	69.0	91.0	69.0	10.0	10.0
Total Split (%)	38.3%	50.6%		50.6%	38%	51%	38%	51%	38%	6%	6%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	3.0	2.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.2		-2.2							
Total Lost Time (s)	7.0	3.8		4.8							
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	62.0	87.2	84.2	86.2							
Actuated g/C Ratio	0.34	0.48	0.47	0.48							
v/c Ratio	0.46	0.37	1.11	0.54							
Control Delay	18.4	23.7	73.4	27.3							
Queue Delay	0.1	0.0	0.0	0.8							
Total Delay	18.4	23.7	73.4	28.1							
LOS	B	C	E	C							
Approach Delay			73.4	28.1							
Approach LOS			E	C							

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 56 (31%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 50.3	Intersection LOS: D
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

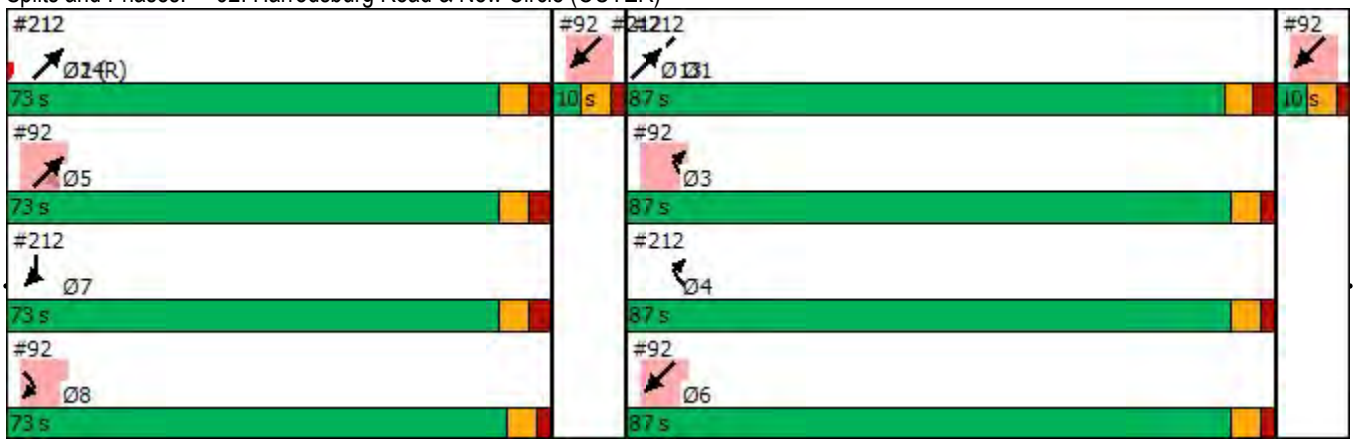
Splits and Phases: 212: Harrodsburg Road & New Circle (INNER)



Lane Group	SER	NWR	NET	NER	SWT	Ø1	Ø2	Ø4	Ø6	Ø7	Ø13	Ø14
Lane Configurations												
Traffic Volume (vph)	866	372	1380	691	2096							
Future Volume (vph)	866	372	1380	691	2096							
Turn Type	Prot	Prot	NA	Perm	NA							
Protected Phases	8	3	5		6 13 14	1	2	4	6	7	13	14
Permitted Phases				5								
Detector Phase	8	3	5	5	6 13 14							
Switch Phase												
Minimum Initial (s)	3.0	3.0	4.0	4.0		3.0	4.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	22.0	14.0	22.0	22.0		14.0	22.0	22.0	22.0	14.0	14.0	22.0
Total Split (s)	73.0	87.0	73.0	73.0		87.0	73.0	87.0	87.0	73.0	10.0	10.0
Total Split (%)	40.6%	48.3%	40.6%	40.6%		48%	41%	48%	48%	41%	6%	6%
Yellow Time (s)	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	3.0	3.0		3.0	3.0	2.0	2.0	3.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	-2.2	-2.2								
Total Lost Time (s)	6.0	6.0	4.8	4.8								
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None		None	C-Max	None	None	None	None	None
Act Effct Green (s)	67.0	81.0	68.2	68.2	103.2							
Actuated g/C Ratio	0.37	0.45	0.38	0.38	0.57							
v/c Ratio	0.90	0.31	0.82	0.77	1.05							
Control Delay	60.2	14.6	45.9	17.7	61.1							
Queue Delay	0.0	0.0	5.5	0.6	1.9							
Total Delay	60.2	14.6	51.4	18.2	62.9							
LOS	E	B	D	B	E							
Approach Delay			40.3		62.9							
Approach LOS			D		E							

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 56 (31%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 51.6	Intersection LOS: D
Intersection Capacity Utilization 95.0%	ICU Level of Service F
Analysis Period (min) 15	

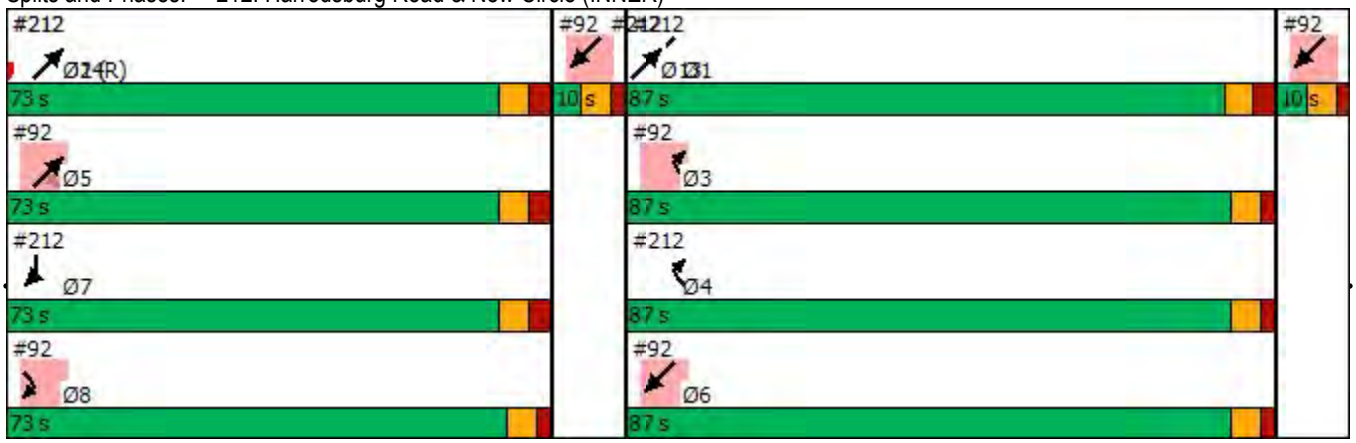
Splits and Phases: 92: Harrodsburg Road & New Circle (OUTER)



Lane Group	SBR	NWR2	NET	SWT	Ø2	Ø3	Ø5	Ø6	Ø8	Ø13	Ø14
Lane Configurations											
Traffic Volume (vph)	475	450	1750	825							
Future Volume (vph)	475	450	1750	825							
Turn Type	Prot	Prot	NA	NA							
Protected Phases	7	4	2 13 14	1	2	3	5	6	8	13	14
Permitted Phases											
Detector Phase	7	4	2 13 14	1							
Switch Phase											
Minimum Initial (s)	3.0	3.0		3.0	4.0	3.0	4.0	3.0	3.0	3.0	3.0
Minimum Split (s)	14.0	22.0		14.0	22.0	14.0	22.0	22.0	22.0	14.0	22.0
Total Split (s)	73.0	87.0		87.0	73.0	87.0	73.0	87.0	73.0	10.0	10.0
Total Split (%)	40.6%	48.3%		48.3%	41%	48%	41%	48%	41%	6%	6%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	2.0		3.0	3.0	2.0	3.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	-2.2		-2.2							
Total Lost Time (s)	7.0	3.8		4.8							
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None		None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	66.0	83.2	88.2	82.2							
Actuated g/C Ratio	0.37	0.46	0.49	0.46							
v/c Ratio	0.45	0.38	1.06	0.57							
Control Delay	18.0	25.8	53.5	18.9							
Queue Delay	0.0	0.0	12.2	1.5							
Total Delay	18.1	25.8	65.7	20.4							
LOS	B	C	E	C							
Approach Delay			65.7	20.4							
Approach LOS			E	C							

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 56 (31%), Referenced to phase 2:NET, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 44.4	Intersection LOS: D
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 212: Harrodsburg Road & New Circle (INNER)



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	50	1300	2100	50	50	50
Future Volume (vph)	50	1300	2100	50	50	50
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2			6		8
Detector Phase	2	2	6	6	8	8
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	22.0	22.0	41.0	41.0	36.6	36.6
Total Split (s)	140.0	140.0	140.0	140.0	40.0	40.0
Total Split (%)	77.8%	77.8%	77.8%	77.8%	22.2%	22.2%
Yellow Time (s)	5.0	5.0	5.0	5.0	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.6	6.6
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None
Act Effct Green (s)	153.2	153.2	153.2	153.2	13.2	13.2
Actuated g/C Ratio	0.85	0.85	0.85	0.85	0.07	0.07
v/c Ratio	0.68	0.50	0.80	0.04	0.23	0.44
Control Delay	51.0	4.9	16.0	0.1	77.6	64.9
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	51.0	4.9	16.4	0.1	77.6	64.9
LOS	D	A	B	A	E	E
Approach Delay		6.6	16.1		71.2	
Approach LOS		A	B		E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 21 (12%), Referenced to phase 2:EBTL and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 14.0	Intersection LOS: B
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 126: Harrodsburg Road

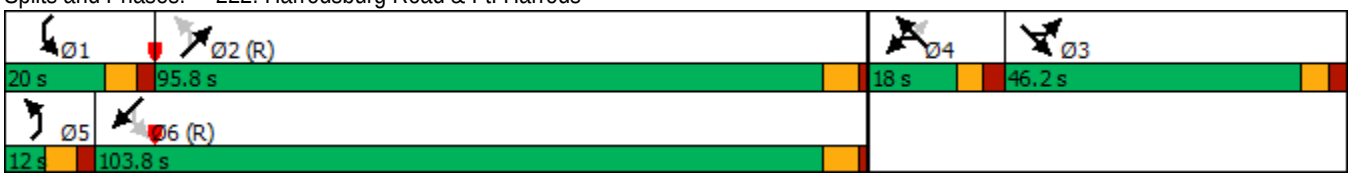


Lane Group	SEL	SET	NWL	NWT	NWR	NEL	NET	SWL	SWT
Lane Configurations									
Traffic Volume (vph)	124	50	18	61	52	32	1250	107	1808
Future Volume (vph)	124	50	18	61	52	32	1250	107	1808
Turn Type	Split	NA	Split	NA	Perm	pm+pt	NA	pm+pt	NA
Protected Phases	3	3	4	4		5	2	1	6
Permitted Phases					4	2		6	
Detector Phase	3	3	4	4	4	5	2	1	6
Switch Phase									
Minimum Initial (s)	10.0	10.0	10.0	10.0	10.0	5.0	20.0	5.0	20.0
Minimum Split (s)	45.4	45.4	16.4	16.4	16.4	11.7	26.3	11.7	26.3
Total Split (s)	46.2	46.2	18.0	18.0	18.0	12.0	95.8	20.0	103.8
Total Split (%)	25.7%	25.7%	10.0%	10.0%	10.0%	6.7%	53.2%	11.1%	57.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	5.0	4.3	5.0
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8	2.4	1.3	2.4	1.3
Lost Time Adjust (s)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.7	-2.3	-2.7	-2.3
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	C-Max	None	C-Max
Act Effct Green (s)	21.4	21.4	13.4	13.4	13.4	126.6	117.4	132.3	122.3
Actuated g/C Ratio	0.12	0.12	0.07	0.07	0.07	0.70	0.65	0.74	0.68
v/c Ratio	0.64	0.56	0.16	0.50	0.24	0.23	0.44	0.41	0.65
Control Delay	90.2	71.0	80.9	93.7	2.3	13.8	29.4	6.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.2	71.0	80.9	93.7	2.3	13.8	29.4	6.5	3.3
LOS	F	E	F	F	A	B	C	A	A
Approach Delay		80.5		55.5			29.0		3.5
Approach LOS		F		E			C		A

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 155 (86%), Referenced to phase 2:NETL and 6:SWTL, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 18.9 — Intersection LOS: B
Intersection Capacity Utilization 67.5% — ICU Level of Service C
Analysis Period (min) 15

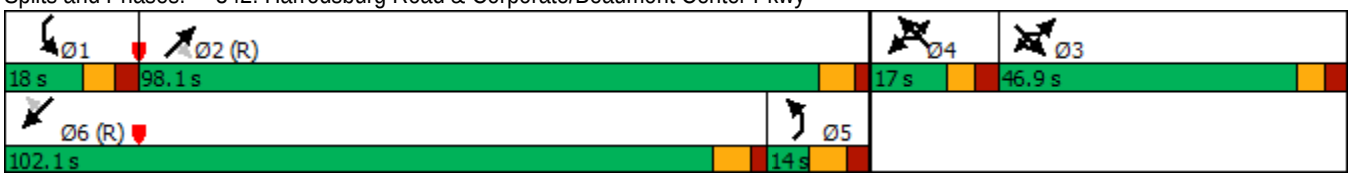
Splits and Phases: 222: Harrodsburg Road & Ft. Harrods



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	570	136	302	72	92	96	162	1350	10	185	2225	273
Future Volume (vph)	570	136	302	72	92	96	162	1350	10	185	2225	273
Turn Type	Split	NA	Prot	Split	NA	Prot	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	3	3	4	4	4	5	2		1	6	
Permitted Phases									2			6
Detector Phase	3	3	3	4	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	46.9	46.9	46.9	9.9	9.9	9.9	14.0	47.2	47.2	14.0	47.6	47.6
Total Split (s)	46.9	46.9	46.9	17.0	17.0	17.0	14.0	98.1	98.1	18.0	102.1	102.1
Total Split (%)	26.1%	26.1%	26.1%	9.4%	9.4%	9.4%	7.8%	54.5%	54.5%	10.0%	56.7%	56.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.0	5.0	5.0	4.3	5.0	5.0
All-Red Time (s)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.2	2.2	3.3	2.2	2.2
Lost Time Adjust (s)	-2.9	-2.9	-2.9	-2.9	-2.9	-2.9	-4.3	-3.2	-3.2	-3.6	-3.2	-3.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	34.8	34.8	34.8	13.0	13.0	13.0	10.0	98.7	98.7	17.5	106.2	106.2
Actuated g/C Ratio	0.19	0.19	0.19	0.07	0.07	0.07	0.06	0.55	0.55	0.10	0.59	0.59
v/c Ratio	0.68	0.44	0.78	0.64	0.79	0.30	0.98	0.80	0.01	0.64	0.85	0.30
Control Delay	71.0	67.1	46.6	104.9	118.7	2.3	116.4	25.9	0.0	87.4	34.9	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.0	67.1	46.6	104.9	118.7	2.3	116.4	25.9	0.0	87.4	34.9	2.6
LOS	E	E	D	F	F	A	F	C	A	F	C	A
Approach Delay		63.2			72.0			35.4			35.2	
Approach LOS		E			E			D			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 129 (72%), Referenced to phase 2:NET and 6:SWT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 42.2	Intersection LOS: D
Intersection Capacity Utilization 80.1%	ICU Level of Service D
Analysis Period (min) 15	

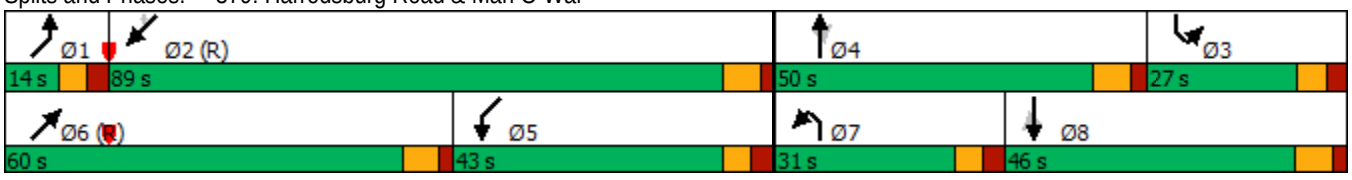
Splits and Phases: 342: Harrodsburg Road & Corporate/Beaumont Center Pkwy



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	173	473	204	113	610	295	120	900	476	1850	110
Future Volume (vph)	173	473	204	113	610	295	120	900	476	1850	110
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8		1	6	5	2	
Permitted Phases			4			8					2
Detector Phase	7	4	4	3	8	8	1	6	5	2	2
Switch Phase											
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	10.0	41.2	41.2	10.0	41.2	41.2	10.0	37.0	10.0	37.0	37.0
Total Split (s)	31.0	50.0	50.0	27.0	46.0	46.0	14.0	60.0	43.0	89.0	89.0
Total Split (%)	17.2%	27.8%	27.8%	15.0%	25.6%	25.6%	7.8%	33.3%	23.9%	49.4%	49.4%
Yellow Time (s)	3.9	5.0	5.0	3.9	5.0	5.0	3.9	5.0	3.9	5.0	5.0
All-Red Time (s)	3.0	2.2	2.2	3.0	2.2	2.2	3.0	1.8	3.0	1.8	1.8
Lost Time Adjust (s)	-2.4	-3.0	-3.0	-2.4	-3.0	-3.0	-2.2	-2.8	-2.2	-2.8	-2.8
Total Lost Time (s)	4.5	4.2	4.2	4.5	4.2	4.2	4.7	4.0	4.7	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	24.9	36.4	36.4	29.3	40.8	40.8	10.1	58.6	38.3	86.8	86.8
Actuated g/C Ratio	0.14	0.20	0.20	0.16	0.23	0.23	0.06	0.33	0.21	0.48	0.48
v/c Ratio	0.81	0.76	0.46	0.45	0.87	0.71	0.71	0.66	0.75	0.87	0.15
Control Delay	100.8	75.1	9.2	74.6	80.2	42.9	106.0	50.2	44.9	19.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.8	75.1	9.2	74.6	80.2	42.9	106.0	50.2	44.9	19.0	0.4
LOS	F	E	A	E	F	D	F	D	D	B	A
Approach Delay		64.5			68.7			56.5		23.3	
Approach LOS		E			E			E		C	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 39 (22%), Referenced to phase 2:SWT and 6:NET, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 45.0	Intersection LOS: D
Intersection Capacity Utilization 83.8%	ICU Level of Service E
Analysis Period (min) 15	

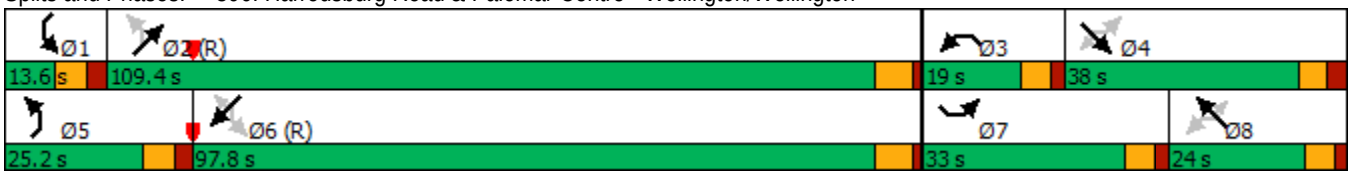
Splits and Phases: 379: Harrodsburg Road & Man O War



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	264	170	195	147	150	60	170	1072	91	2046	293
Future Volume (vph)	264	170	195	147	150	60	170	1072	91	2046	293
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2	1	6	
Permitted Phases	4		4	8		8	2		6		6
Detector Phase	7	4	4	3	8	8	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	20.0	5.0	20.0	20.0
Minimum Split (s)	11.0	16.6	16.6	11.0	22.0	22.0	11.8	30.5	11.8	30.5	30.5
Total Split (s)	33.0	38.0	38.0	19.0	24.0	24.0	25.2	109.4	13.6	97.8	97.8
Total Split (%)	18.3%	21.1%	21.1%	10.6%	13.3%	13.3%	14.0%	60.8%	7.6%	54.3%	54.3%
Yellow Time (s)	4.0	3.6	3.6	4.0	4.0	4.0	4.3	5.0	4.3	5.0	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	2.0	2.0	2.5	1.5	2.5	1.5	1.5
Lost Time Adjust (s)	-2.6	-2.6	-2.6	-2.6	-2.6	-2.6	-2.8	-2.5	-2.8	-2.5	-2.5
Total Lost Time (s)	3.4	4.0	4.0	3.4	3.4	3.4	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?											
Recall Mode	None	Min	Min	None	None	None	None	C-Max	None	C-Max	C-Max
Act Effct Green (s)	52.9	33.4	33.4	35.6	20.1	20.1	119.7	106.1	105.3	95.7	95.7
Actuated g/C Ratio	0.29	0.19	0.19	0.20	0.11	0.11	0.66	0.59	0.58	0.53	0.53
v/c Ratio	0.90	0.57	0.54	0.59	0.83	0.20	0.82	0.44	0.37	0.87	0.35
Control Delay	84.4	74.1	26.2	61.3	109.4	1.4	104.2	4.2	8.7	23.4	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.4	74.1	26.2	61.3	109.4	1.4	104.2	4.2	8.7	23.4	2.4
LOS	F	E	C	E	F	A	F	A	A	C	A
Approach Delay		63.6			71.5			17.2		20.3	
Approach LOS		E			E			B		C	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 12 (7%), Referenced to phase 2:NETL and 6:SWTL, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

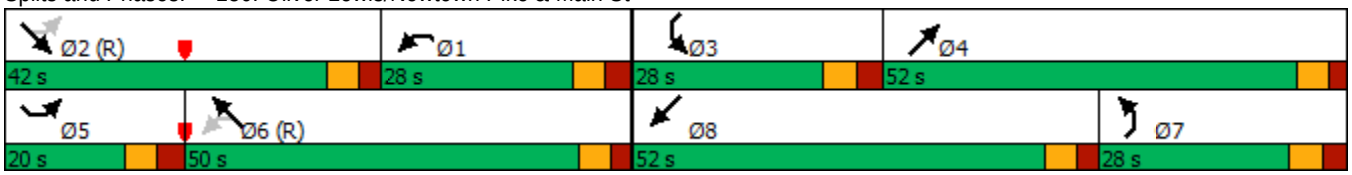
Splits and Phases: 396: Harrodsburg Road & Palomar Centre - Wellington/Wellington



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	125	450	100	600	75	500	510	400
Future Volume (vph)	125	450	100	600	75	500	510	400
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases	2		6					
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.6	38.0	10.6	38.0	10.6	31.9	10.6	31.9
Total Split (s)	20.0	42.0	28.0	50.0	28.0	52.0	28.0	52.0
Total Split (%)	13.3%	28.0%	18.7%	33.3%	18.7%	34.7%	18.7%	34.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	2.4	3.0	2.4	3.0	2.3	3.0	2.3
Lost Time Adjust (s)	-3.2	-2.9	-2.9	-2.9	-2.9	-2.5	-2.9	-2.5
Total Lost Time (s)	3.4	3.1	3.7	3.1	3.7	3.4	3.7	3.4
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	48.9	49.2	55.5	56.1	26.9	38.3	24.3	35.7
Actuated g/C Ratio	0.33	0.33	0.37	0.37	0.18	0.26	0.16	0.24
v/c Ratio	0.62	0.53	0.28	0.99	0.30	0.79	1.18	0.78
Control Delay	52.5	44.1	40.8	65.2	42.3	44.8	152.9	58.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	44.1	40.8	65.2	42.3	44.8	152.9	58.6
LOS	D	D	D	E	D	D	F	E
Approach Delay		45.8		63.0		44.5		105.8
Approach LOS		D		E		D		F

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 128 (85%), Referenced to phase 2:SETL and 6:NWTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.18	
Intersection Signal Delay: 69.5	Intersection LOS: E
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

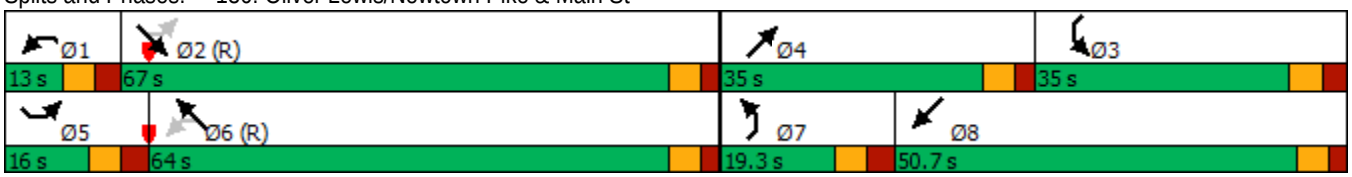
Splits and Phases: 136: Oliver Lewis/Newtown Pike & Main St



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT
Lane Configurations								
Traffic Volume (vph)	125	450	100	600	75	500	510	400
Future Volume (vph)	125	450	100	600	75	500	510	400
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Prot	NA
Protected Phases	5	2	1	6	7	4	3	8
Permitted Phases	2		6					
Detector Phase	5	2	1	6	7	4	3	8
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.6	38.0	10.6	38.0	10.6	31.9	10.6	31.9
Total Split (s)	16.0	67.0	13.0	64.0	19.3	35.0	35.0	50.7
Total Split (%)	10.7%	44.7%	8.7%	42.7%	12.9%	23.3%	23.3%	33.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	3.0	2.4	3.0	2.4	3.0	2.3	3.0	2.3
Lost Time Adjust (s)	-3.2	-2.9	-2.9	-2.9	-2.9	-2.5	-2.9	-2.5
Total Lost Time (s)	3.4	3.1	3.7	3.1	3.7	3.4	3.7	3.4
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	None	None	None
Act Effct Green (s)	76.2	63.9	69.8	61.0	14.3	31.6	31.2	48.4
Actuated g/C Ratio	0.51	0.43	0.47	0.41	0.10	0.21	0.21	0.32
v/c Ratio	0.76	0.41	0.32	0.91	0.57	0.95	0.92	0.58
Control Delay	55.4	30.8	19.9	45.0	68.2	68.9	78.8	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	30.8	19.9	45.0	68.2	68.9	78.8	43.5
LOS	E	C	B	D	E	E	E	D
Approach Delay		35.9		42.8		68.8		61.2
Approach LOS		D		D		E		E

Intersection Summary	
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 144 (96%), Referenced to phase 2:SETL and 6:NWTL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 52.0	Intersection LOS: D
Intersection Capacity Utilization 87.9%	ICU Level of Service E
Analysis Period (min) 15	

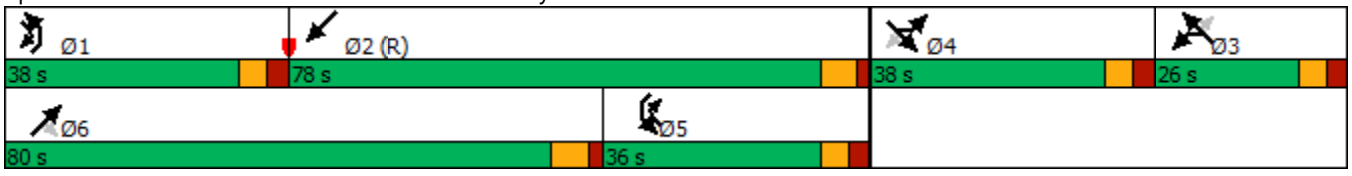
Splits and Phases: 136: Oliver Lewis/Newtown Pike & Main St



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	700	350	300	150	475	330	525	1060	150	425	1125	650
Future Volume (vph)	700	350	300	150	475	330	525	1060	150	425	1125	650
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4	1	3	3	5	1	6		5	2	
Permitted Phases			4			3			6			Free
Detector Phase	4	4	1	3	3	5	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	10.0	10.0	6.0	10.0	10.0	6.0	6.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	39.6	39.6	12.6	39.6	39.6	12.6	12.6	34.0	34.0	12.6	34.0	
Total Split (s)	38.0	38.0	38.0	26.0	26.0	36.0	38.0	80.0	80.0	36.0	78.0	
Total Split (%)	21.1%	21.1%	21.1%	14.4%	14.4%	20.0%	21.1%	44.4%	44.4%	20.0%	43.3%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	5.0	5.0	3.6	5.0	
All-Red Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.8	1.8	3.0	1.8	
Lost Time Adjust (s)	-2.6	-2.6	-2.6	-2.6	-2.6	0.0	-2.6	-2.8	-2.8	-2.6	-2.8	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	6.6	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None	None	None	None	None	None	Max	Max	None	C-Max	
Act Effct Green (s)	34.0	34.0	67.5	22.0	22.0	48.8	33.5	76.0	76.0	32.0	74.5	180.0
Actuated g/C Ratio	0.19	0.19	0.38	0.12	0.12	0.27	0.19	0.42	0.42	0.18	0.41	1.00
v/c Ratio	1.25	1.22	0.47	0.75	1.60	0.58	0.89	0.77	0.21	0.76	0.58	0.42
Control Delay	192.7	169.9	19.4	99.2	325.7	24.2	101.8	40.5	13.1	77.2	42.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	192.7	169.9	19.4	99.2	325.7	24.2	101.8	40.5	13.1	77.2	42.3	0.5
LOS	F	F	B	F	F	C	F	D	B	E	D	A
Approach Delay		142.4			215.5			56.7			36.7	
Approach LOS		F			F			E			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 130 (72%), Referenced to phase 2:SWT, Start of Green	
Natural Cycle: 160	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.60	
Intersection Signal Delay: 92.5	Intersection LOS: F
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

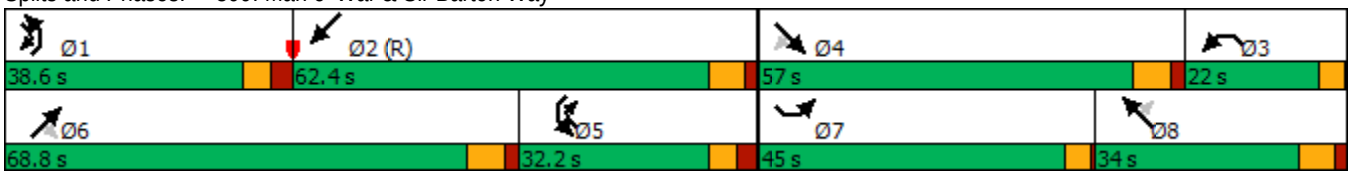
Splits and Phases: 399: Man o' War & Sir Barton Way



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	700	350	300	150	475	330	525	1060	150	425	1125	650
Future Volume (vph)	700	350	300	150	475	330	525	1060	150	425	1125	650
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4	1	3	8	5	1	6		5	2	
Permitted Phases			4			8			6			Free
Detector Phase	7	4	1	3	8	5	1	6	6	5	2	
Switch Phase												
Minimum Initial (s)	4.0	20.0	6.0	4.0	20.0	6.0	6.0	20.0	20.0	6.0	20.0	
Minimum Split (s)	8.0	34.0	12.6	8.0	34.0	12.6	12.6	34.0	34.0	12.6	34.0	
Total Split (s)	45.0	57.0	38.6	22.0	34.0	32.2	38.6	68.8	68.8	32.2	62.4	
Total Split (%)	25.0%	31.7%	21.4%	12.2%	18.9%	17.9%	21.4%	38.2%	38.2%	17.9%	34.7%	
Yellow Time (s)	3.5	5.0	3.6	3.5	5.0	3.6	3.6	5.0	5.0	3.6	5.0	
All-Red Time (s)	0.5	1.8	3.0	0.5	1.8	3.0	3.0	1.8	1.8	3.0	1.8	
Lost Time Adjust (s)	-2.6	-2.6	-2.6	-2.6	-2.6	0.0	-2.6	-2.8	-2.8	-2.6	-2.8	
Total Lost Time (s)	1.4	4.2	4.0	1.4	4.2	6.6	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes			Yes								
Recall Mode	None	Max	None	None	Max	None	None	Max	Max	None	C-Max	
Act Effct Green (s)	43.0	52.8	86.9	20.6	30.4	53.6	33.9	64.8	64.8	28.2	59.1	180.0
Actuated g/C Ratio	0.24	0.29	0.48	0.11	0.17	0.30	0.19	0.36	0.36	0.16	0.33	1.00
v/c Ratio	0.93	0.70	0.38	0.81	0.87	0.67	0.88	0.90	0.24	0.86	0.73	0.42
Control Delay	84.7	64.4	12.7	105.3	88.1	28.6	70.3	44.3	3.7	85.2	55.4	0.5
Queue Delay	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.7	65.6	12.7	105.3	88.1	28.6	70.3	44.3	3.7	85.2	55.4	0.5
LOS	F	E	B	F	F	C	E	D	A	F	E	A
Approach Delay		63.7			70.2			48.7			44.9	
Approach LOS		E			E			D			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:SWT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 53.9	Intersection LOS: D
Intersection Capacity Utilization 91.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 399: Man o' War & Sir Barton Way



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	15	15	225	10	125	25	1820	205	150	1910	15
Future Volume (vph)	15	15	225	10	125	25	1820	205	150	1910	15
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		4		5	2		1	6	
Permitted Phases	4		4		4			2			6
Detector Phase	4	4	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	37.1	37.1	37.1	37.1	37.1	11.1	46.1	46.1	11.1	46.1	46.1
Total Split (s)	30.0	30.0	30.0	30.0	30.0	14.0	105.0	105.0	25.0	116.0	116.0
Total Split (%)	18.8%	18.8%	18.8%	18.8%	18.8%	8.8%	65.6%	65.6%	15.6%	72.5%	72.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.8	1.8	1.8	2.5	1.8	1.8
Lost Time Adjust (s)	-2.1	-2.1		-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	26.0	26.0		26.0	26.0	9.6	101.6	101.6	20.4	114.8	114.8
Actuated g/C Ratio	0.16	0.16		0.16	0.16	0.06	0.64	0.64	0.13	0.72	0.72
v/c Ratio	0.48	0.14		1.26	0.46	0.44	0.87	0.26	0.84	0.81	0.02
Control Delay	95.3	35.3		200.6	14.8	62.9	10.8	1.8	121.5	10.3	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	3.7	0.0	0.0	0.1	0.0
Total Delay	95.3	35.3		200.6	14.8	62.9	14.6	1.8	121.5	10.4	0.0
LOS	F	D		F	B	E	B	A	F	B	A
Approach Delay		55.6		125.5			14.0			19.3	
Approach LOS		E		F			B			B	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 91 (57%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

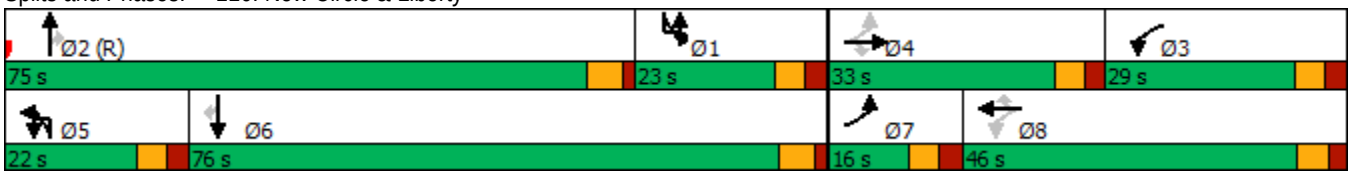
Splits and Phases: 241: New Circle & Trade Center



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	500	250	400	400	200	170	1795	175	225	1745	150
Future Volume (vph)	125	500	250	400	400	200	170	1795	175	225	1745	150
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	12.0	12.0	5.0	12.0	12.0
Minimum Split (s)	11.5	15.0	15.0	11.5	41.1	41.1	11.3	56.8	56.8	11.3	56.8	56.8
Total Split (s)	16.0	33.0	33.0	29.0	46.0	46.0	22.0	75.0	75.0	23.0	76.0	76.0
Total Split (%)	10.0%	20.6%	20.6%	18.1%	28.8%	28.8%	13.8%	46.9%	46.9%	14.4%	47.5%	47.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.9	2.5	2.5	2.9	2.5	2.5	2.7	1.5	1.5	2.7	1.5	1.5
Lost Time Adjust (s)	-2.5	-2.1	-2.1	-2.5	-2.1	-2.1	-2.3	-1.8	-1.8	-2.3	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	29.0	29.0	29.0	42.0	42.0	42.0	18.0	71.0	71.0	19.0	72.0	72.0
Actuated g/C Ratio	0.18	0.18	0.18	0.26	0.26	0.26	0.11	0.44	0.44	0.12	0.45	0.45
v/c Ratio	0.80	1.67	0.63	1.41	0.97	0.43	1.37	1.26	0.26	1.25	1.12	0.20
Control Delay	91.2	351.2	29.3	237.6	75.1	13.3	231.8	158.1	12.2	182.5	95.8	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.2	351.2	29.3	237.6	75.1	13.3	231.8	158.1	12.2	182.5	95.8	5.5
LOS	F	F	C	F	E	B	F	F	B	F	F	A
Approach Delay		225.5			126.3			152.9			99.4	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 66 (41%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.67	
Intersection Signal Delay: 141.0	Intersection LOS: F
Intersection Capacity Utilization 125.3%	ICU Level of Service H
Analysis Period (min) 15	

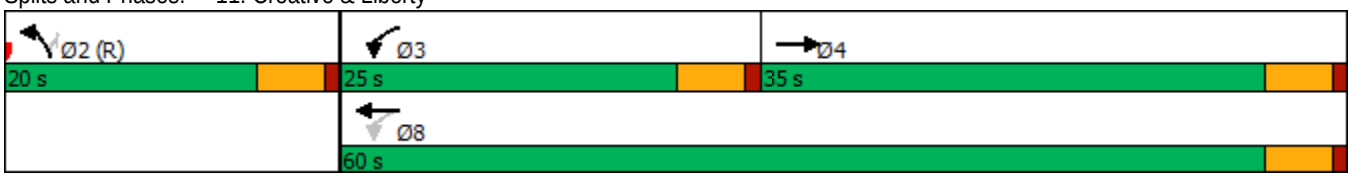
Splits and Phases: 116: New Circle & Liberty



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Configurations					
Traffic Volume (vph)	500	425	550	175	225
Future Volume (vph)	500	425	550	175	225
Turn Type	NA	pm+pt	NA	Prot	Perm
Protected Phases	4	3	8	2	
Permitted Phases		8			2
Detector Phase	4	3	8	2	2
Switch Phase					
Minimum Initial (s)	10.0	5.0	10.0	5.0	5.0
Minimum Split (s)	15.0	10.0	15.0	10.0	10.0
Total Split (s)	35.0	25.0	60.0	20.0	20.0
Total Split (%)	43.8%	31.3%	75.0%	25.0%	25.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes			
Recall Mode	None	None	None	C-Max	C-Max
Act Effct Green (s)	24.8	49.0	49.0	21.0	21.0
Actuated g/C Ratio	0.31	0.61	0.61	0.26	0.26
v/c Ratio	0.78	0.89	0.52	0.41	0.41
Control Delay	22.2	59.6	7.8	38.1	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	22.2	59.6	7.8	38.1	16.7
LOS	C	E	A	D	B
Approach Delay	22.2		30.4	26.1	
Approach LOS	C		C	C	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 71.6%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 11: Creative & Liberty



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	150	650	175	1970	1745	225
Future Volume (vph)	150	650	175	1970	1745	225
Turn Type	Prot	pm+ov	pm+pt	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	10.0	10.0	10.0	20.0	15.0	15.0
Total Split (s)	44.0	21.0	21.0	116.0	95.0	95.0
Total Split (%)	27.5%	13.1%	13.1%	72.5%	59.4%	59.4%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	None	None
Act Effct Green (s)	39.0	59.2	111.0	111.0	90.8	90.8
Actuated g/C Ratio	0.24	0.37	0.69	0.69	0.57	0.57
v/c Ratio	1.01	0.75	0.89	0.87	0.94	0.25
Control Delay	94.3	47.4	66.3	29.0	15.9	0.9
Queue Delay	1.9	0.0	0.0	3.1	5.0	0.0
Total Delay	96.2	47.4	66.3	32.1	21.0	0.9
LOS	F	D	E	C	C	A
Approach Delay	72.4			34.9	18.7	
Approach LOS	E			C	B	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 73 (46%), Referenced to phase 2:NBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 34.5	Intersection LOS: C
Intersection Capacity Utilization 92.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 46: New Circle & Creative



Lane Group	EBT	WBT	WBR	NBT	NBR	SBT	SBR
Lane Configurations							
Traffic Volume (vph)	725	800	200	1945	175	1970	175
Future Volume (vph)	725	800	200	1945	175	1970	175
Turn Type	NA	NA	Perm	NA	Perm	NA	Perm
Protected Phases	4	8		2		6	
Permitted Phases			8		2		6
Detector Phase	4	8	8	2	2	6	6
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	12.0	12.0	12.0	12.0
Minimum Split (s)	15.0	41.1	41.1	56.8	56.8	56.8	56.8
Total Split (s)	52.0	52.0	52.0	108.0	108.0	108.0	108.0
Total Split (%)	32.5%	32.5%	32.5%	67.5%	67.5%	67.5%	67.5%
Yellow Time (s)	3.6	3.6	3.6	4.3	4.3	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	1.5	1.5	1.5	1.5
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-1.8	-1.8	-1.8	-1.8
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	None	None	C-Max	C-Max	Max	Max
Act Effct Green (s)	47.3	47.3	47.3	104.7	104.7	104.7	104.7
Actuated g/C Ratio	0.30	0.30	0.30	0.65	0.65	0.65	0.65
v/c Ratio	0.78	0.91	0.48	0.92	0.19	0.87	0.18
Control Delay	51.1	56.2	37.3	19.6	7.2	14.9	8.2
Queue Delay	0.0	0.0	0.0	2.5	0.0	4.2	0.0
Total Delay	51.1	56.2	37.3	22.1	7.2	19.1	8.2
LOS	D	E	D	C	A	B	A
Approach Delay	51.1	52.5		20.7		18.1	
Approach LOS	D	D		C		B	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 72 (45%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 29.4	Intersection LOS: C
Intersection Capacity Utilization 83.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 116: New Circle & Liberty



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	15	15	225	10	125	25	1820	205	150	1910	15
Future Volume (vph)	15	15	225	10	125	25	1820	205	150	1910	15
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		4		5	2		1	6	
Permitted Phases	4		4		4			2			6
Detector Phase	4	4	4	4	4	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	37.1	37.1	37.1	37.1	37.1	11.1	46.1	46.1	11.1	46.1	46.1
Total Split (s)	39.0	39.0	39.0	39.0	39.0	11.1	98.0	98.0	23.0	109.9	109.9
Total Split (%)	24.4%	24.4%	24.4%	24.4%	24.4%	6.9%	61.3%	61.3%	14.4%	68.7%	68.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.8	1.8	1.8	2.5	1.8	1.8
Lost Time Adjust (s)	-2.1	-2.1		-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag						Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	None	Max	Max
Act Effct Green (s)	34.6	34.6		34.6	34.6	7.1	94.4	94.4	19.1	108.6	108.6
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.04	0.59	0.59	0.12	0.68	0.68
v/c Ratio	0.19	0.11		0.95	0.38	0.60	0.94	0.28	0.90	0.86	0.02
Control Delay	56.1	30.4		102.1	11.0	84.1	25.9	6.6	129.4	13.3	0.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	17.9	0.0	0.0	0.1	0.0
Total Delay	56.1	30.4		102.1	11.0	84.1	43.8	6.6	129.4	13.4	0.0
LOS	E	C		F	B	F	D	A	F	B	A
Approach Delay		39.1		65.3			40.1			22.7	
Approach LOS		D		E			D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 88 (55%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 34.5	Intersection LOS: C
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

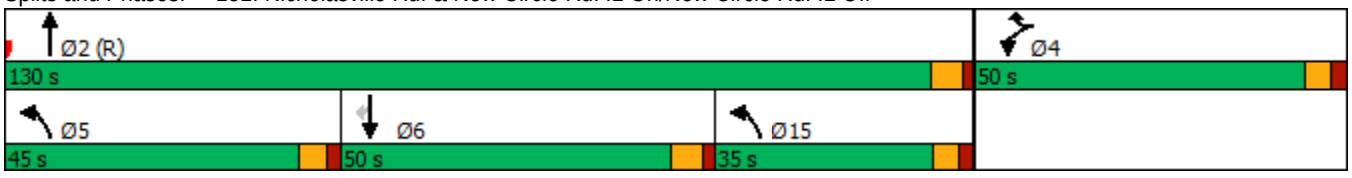
Splits and Phases: 241: New Circle & Trade Center



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR	Ø5	Ø15
Lane Configurations								
Traffic Volume (vph)	548	453	852	2265	791	100		
Future Volume (vph)	548	453	852	2265	791	100		
Turn Type	Prot	Prot	Prot	NA	NA	Perm		
Protected Phases	4	4	5 15	2	6		5	15
Permitted Phases	4	4				6		
Detector Phase	4	4	5 15	2	6	6		
Switch Phase								
Minimum Initial (s)	10.0	10.0		20.0	20.0	20.0	6.0	5.0
Minimum Split (s)	22.0	22.0		25.9	25.9	25.9	11.5	10.7
Total Split (s)	50.0	50.0		130.0	50.0	50.0	45.0	35.0
Total Split (%)	27.8%	27.8%		72.2%	27.8%	27.8%	25%	19%
Yellow Time (s)	3.6	3.6		4.3	4.3	4.3	3.6	3.6
All-Red Time (s)	2.4	2.4		1.6	1.6	1.6	1.9	2.1
Lost Time Adjust (s)	-2.0	-2.0		-1.9	-1.9	0.0		
Total Lost Time (s)	4.0	4.0		4.0	4.0	5.9		
Lead/Lag					Lag	Lag	Lead	
Lead-Lag Optimize?								
Recall Mode	None	None		C-Max	Max	Max	None	None
Act Effct Green (s)	46.0	46.0	72.0	126.0	46.0	44.1		
Actuated g/C Ratio	0.26	0.26	0.40	0.70	0.26	0.24		
v/c Ratio	0.52	1.16	1.27	0.67	0.56	0.24		
Control Delay	59.2	142.1	166.0	6.6	57.7	13.0		
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0		
Total Delay	59.2	142.1	166.0	6.7	57.7	13.0		
LOS	E	F	F	A	E	B		
Approach Delay				50.3	52.7			
Approach LOS				D	D			

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 50 (28%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 60.9	Intersection LOS: E
Intersection Capacity Utilization 85.9%	ICU Level of Service E
Analysis Period (min) 15	

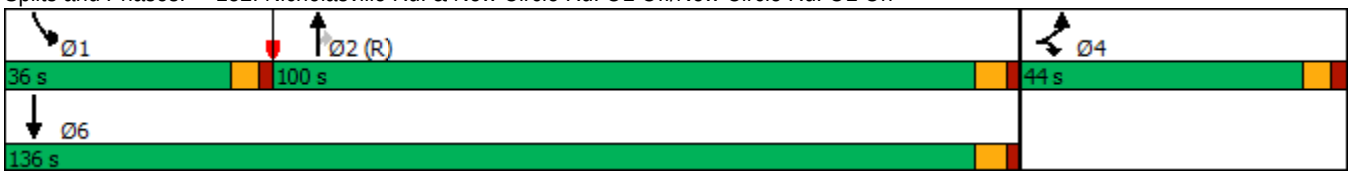
Splits and Phases: 151: Nicholasville Rd. & New Circle Rd. IL On/New Circle Rd. IL Off



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	334	526	2394	200	179	987
Future Volume (vph)	334	526	2394	200	179	987
Turn Type	Prot	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	2		1	6
Permitted Phases	4	4		2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	10.0	10.0	20.0	20.0	6.0	20.0
Minimum Split (s)	22.1	22.1	26.0	26.0	11.6	26.0
Total Split (s)	44.0	44.0	100.0	100.0	36.0	136.0
Total Split (%)	24.4%	24.4%	55.6%	55.6%	20.0%	75.6%
Yellow Time (s)	3.6	3.6	4.3	4.3	3.6	4.3
All-Red Time (s)	2.5	2.5	1.7	1.7	2.0	1.7
Lost Time Adjust (s)	-2.1	-2.1	-2.0	0.0	-1.6	-2.0
Total Lost Time (s)	4.0	4.0	4.0	6.0	4.0	4.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	40.0	40.0	99.3	97.3	28.7	132.0
Actuated g/C Ratio	0.22	0.22	0.55	0.54	0.16	0.73
v/c Ratio	0.89	1.19	0.71	0.23	0.73	0.30
Control Delay	91.6	145.8	12.6	1.3	71.3	2.3
Queue Delay	9.1	0.0	0.1	0.0	0.0	0.0
Total Delay	100.7	145.8	12.7	1.3	71.3	2.3
LOS	F	F	B	A	E	A
Approach Delay			11.8			12.9
Approach LOS			B			B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 60 (33%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 85.9%	ICU Level of Service E
Analysis Period (min) 15	

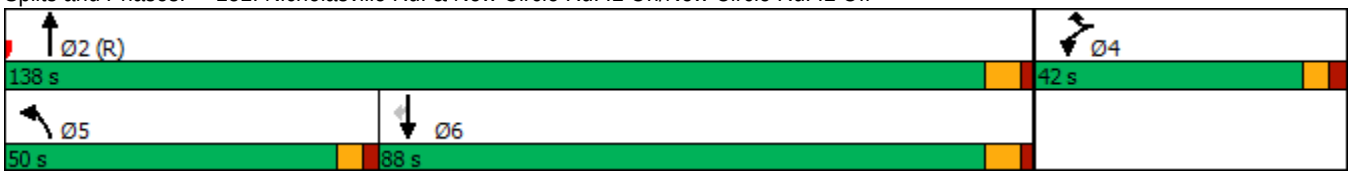
Splits and Phases: 152: Nicholasville Rd. & New Circle Rd. OL Off/New Circle Rd. OL On



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	200	200	440	1281	3105	493
Future Volume (vph)	200	200	440	1281	3105	493
Turn Type	Prot	Prot	Prot	NA	NA	Perm
Protected Phases	4	4	5	2	6	
Permitted Phases	4	4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	15.0	15.0	15.0
Minimum Split (s)	22.0	22.0	11.6	26.7	26.7	26.7
Total Split (s)	42.0	42.0	50.0	138.0	88.0	88.0
Total Split (%)	23.3%	23.3%	27.8%	76.7%	48.9%	48.9%
Yellow Time (s)	3.6	3.6	3.6	4.7	4.7	4.7
All-Red Time (s)	2.6	2.6	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0	-2.0	-1.5	-1.9	-1.9	0.0
Total Lost Time (s)	4.2	4.2	4.1	4.8	4.8	6.7
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?						
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	23.8	23.8	56.5	147.2	86.5	84.6
Actuated g/C Ratio	0.13	0.13	0.31	0.82	0.48	0.47
v/c Ratio	0.37	0.82	0.83	0.32	1.17	0.67
Control Delay	71.4	66.1	43.1	15.6	104.0	5.4
Queue Delay	0.0	0.3	0.0	0.1	0.0	0.8
Total Delay	71.4	66.4	43.1	15.6	104.0	6.2
LOS	E	E	D	B	F	A
Approach Delay				22.7	90.6	
Approach LOS				C	F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 160 (89%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.17	
Intersection Signal Delay: 70.0	Intersection LOS: E
Intersection Capacity Utilization 114.7%	ICU Level of Service H
Analysis Period (min) 15	

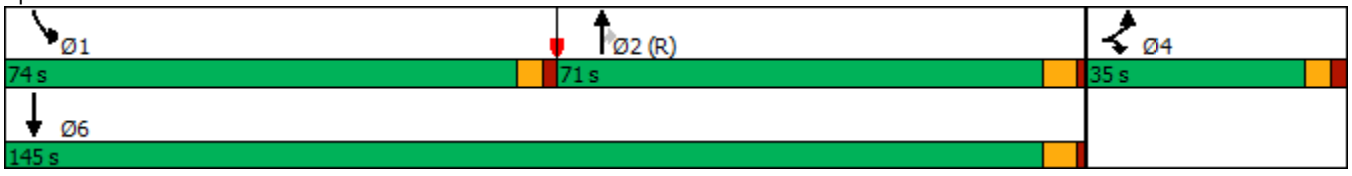
Splits and Phases: 151: Nicholasville Rd. & New Circle Rd. IL On/New Circle Rd. IL Off



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	200	800	1617	694	424	3026
Future Volume (vph)	200	800	1617	694	424	3026
Turn Type	Prot	Prot	NA	Perm	Prot	NA
Protected Phases	4	4	2		1	6
Permitted Phases	4	4		2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	15.0	15.0	5.0	15.0
Minimum Split (s)	22.1	22.1	26.4	26.4	11.6	26.4
Total Split (s)	35.0	35.0	71.0	71.0	74.0	145.0
Total Split (%)	19.4%	19.4%	39.4%	39.4%	41.1%	80.6%
Yellow Time (s)	3.6	3.6	4.7	4.7	3.6	4.7
All-Red Time (s)	2.3	2.3	1.3	1.3	1.9	1.3
Lost Time Adjust (s)	-2.1	-2.1	-2.0	0.0	-1.6	-2.0
Total Lost Time (s)	3.8	3.8	4.0	6.0	3.9	4.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	None	Max
Act Effct Green (s)	31.2	31.2	77.5	75.5	59.6	141.0
Actuated g/C Ratio	0.17	0.17	0.43	0.42	0.33	0.78
v/c Ratio	0.68	2.63	0.61	0.77	0.83	0.87
Control Delay	82.0	764.7	17.3	9.2	43.0	16.8
Queue Delay	0.0	0.0	0.0	1.3	0.0	46.0
Total Delay	82.0	764.7	17.3	10.4	43.0	62.8
LOS	F	F	B	B	D	E
Approach Delay			15.2			60.4
Approach LOS			B			E

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 115 (64%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.63	
Intersection Signal Delay: 125.5	Intersection LOS: F
Intersection Capacity Utilization 114.7%	ICU Level of Service H
Analysis Period (min) 15	

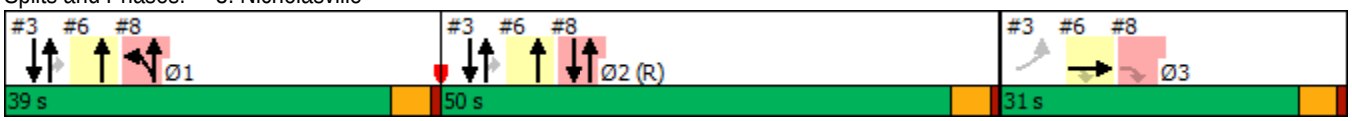
Splits and Phases: 152: Nicholasville Rd. & New Circle Rd. OL Off/New Circle Rd. OL On



Lane Group	EBL	NBT	NBR	SBT	Ø1	Ø2
Lane Configurations						
Traffic Volume (vph)	334	1876	200	1708		
Future Volume (vph)	334	1876	200	1708		
Turn Type	Perm	NA	Perm	NA		
Protected Phases		1 2		1 2	1	2
Permitted Phases	3		1 2			
Detector Phase	3	1 2	1 2	1 2		
Switch Phase						
Minimum Initial (s)	5.0				5.0	5.0
Minimum Split (s)	22.5				22.5	22.5
Total Split (s)	31.0				39.0	50.0
Total Split (%)	25.8%				33%	42%
Yellow Time (s)	3.5				3.5	3.5
All-Red Time (s)	1.0				1.0	1.0
Lost Time Adjust (s)	0.0					
Total Lost Time (s)	4.5					
Lead/Lag					Lead	Lag
Lead-Lag Optimize?					Yes	Yes
Recall Mode	None				None	C-Max
Act Effct Green (s)	26.5	84.5	84.5	84.5		
Actuated g/C Ratio	0.22	0.70	0.70	0.70		
v/c Ratio	0.93	0.57	0.18	0.52		
Control Delay	27.3	2.8	0.3	5.2		
Queue Delay	3.1	0.0	0.0	0.1		
Total Delay	30.4	2.9	0.3	5.3		
LOS	C	A	A	A		
Approach Delay		2.6		5.3		
Approach LOS		A		A		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 65.8%	ICU Level of Service C
Analysis Period (min) 15	

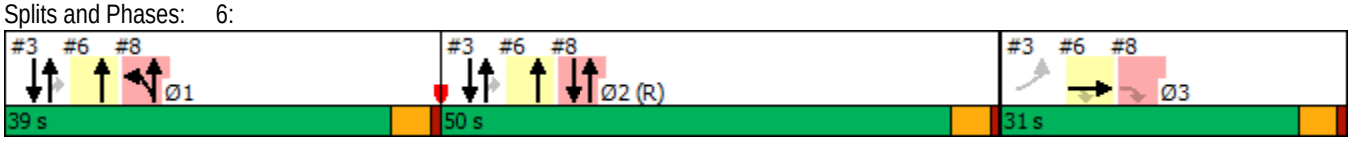
Splits and Phases: 3: Nicholasville



Lane Group	EBT	EBR	NBT	Ø1	Ø2
Lane Configurations					
Traffic Volume (vph)	334	526	852		
Future Volume (vph)	334	526	852		
Turn Type	NA	Perm	NA		
Protected Phases	3		1 2	1	2
Permitted Phases		3			
Detector Phase	3	3	1 2		
Switch Phase					
Minimum Initial (s)	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5
Total Split (s)	31.0	31.0		39.0	50.0
Total Split (%)	25.8%	25.8%		33%	42%
Yellow Time (s)	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			
Total Lost Time (s)	4.5	4.5			
Lead/Lag				Lead	Lag
Lead-Lag Optimize?				Yes	Yes
Recall Mode	None	None		None	C-Max
Act Effct Green (s)	26.5	26.5	84.5		
Actuated g/C Ratio	0.22	0.22	0.70		
v/c Ratio	0.88	0.54	0.37		
Control Delay	68.9	5.2	0.7		
Queue Delay	0.8	0.0	0.0		
Total Delay	69.8	5.2	0.7		
LOS	E	A	A		
Approach Delay	30.3		0.7		
Approach LOS	C		A		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 15.5	Intersection LOS: B
Intersection Capacity Utilization 48.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 6:



Lane Group	WBR	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	453	2210	179	1260
Future Volume (vph)	453	2210	179	1260
Turn Type	Perm	NA	Prot	NA
Protected Phases		2	1	1 2
Permitted Phases	3			
Detector Phase	3	2	1	1 2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	
Total Split (s)	30.0	66.6	23.4	
Total Split (%)	25.0%	55.5%	19.5%	
Yellow Time (s)	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	
Recall Mode	None	C-Max	None	
Act Effct Green (s)	25.5	62.1	18.9	85.5
Actuated g/C Ratio	0.21	0.52	0.16	0.71
v/c Ratio	0.91	0.91	0.70	0.38
Control Delay	37.8	19.8	62.4	7.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.8	19.8	62.4	7.1
LOS	D	B	E	A
Approach Delay		19.8		14.0
Approach LOS		B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 19.8	Intersection LOS: B
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

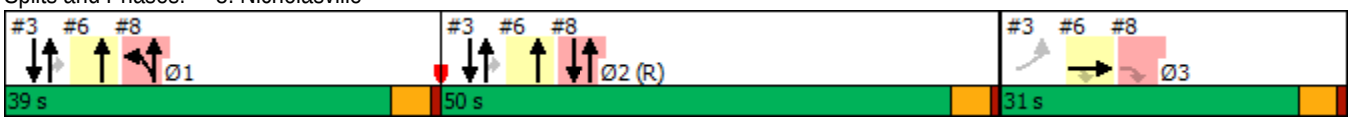
Splits and Phases: 7: Nicholasville



Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	526	852	2076	1708
Future Volume (vph)	526	852	2076	1708
Turn Type	Perm	Prot	NA	NA
Protected Phases		1	1 2	2
Permitted Phases	3			
Detector Phase	3	1	1 2	2
Switch Phase				
Minimum Initial (s)	5.0	5.0		5.0
Minimum Split (s)	22.5	22.5		22.5
Total Split (s)	31.0	39.0		50.0
Total Split (%)	25.8%	32.5%		41.7%
Yellow Time (s)	3.5	3.5		3.5
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5		4.5
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Recall Mode	None	None		C-Max
Act Effct Green (s)	26.5	34.5	84.5	45.5
Actuated g/C Ratio	0.22	0.29	0.70	0.38
v/c Ratio	0.45	0.94	0.63	0.96
Control Delay	1.0	59.4	10.4	37.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.0	59.4	10.4	37.0
LOS	A	E	B	D
Approach Delay			24.7	37.0
Approach LOS			C	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 112 (93%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 26.3	Intersection LOS: C
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 8: Nicholasville



Lane Group	WBL	NBT	SBT	SBR	Ø1	Ø2
Lane Configurations						
Traffic Volume (vph)	548	2210	1160	100		
Future Volume (vph)	548	2210	1160	100		
Turn Type	Perm	NA	NA	Perm		
Protected Phases		1 2	1 2		1	2
Permitted Phases	3			1 2		
Detector Phase	3	1 2	1 2	1 2		
Switch Phase						
Minimum Initial (s)	5.0				5.0	5.0
Minimum Split (s)	22.5				22.5	22.5
Total Split (s)	30.0				23.4	66.6
Total Split (%)	25.0%				20%	56%
Yellow Time (s)	3.5				3.5	3.5
All-Red Time (s)	1.0				1.0	1.0
Lost Time Adjust (s)	0.0					
Total Lost Time (s)	4.5					
Lead/Lag					Lead	Lag
Lead-Lag Optimize?					Yes	Yes
Recall Mode	None				None	C-Max
Act Effct Green (s)	25.5	85.5	85.5	85.5		
Actuated g/C Ratio	0.21	0.71	0.71	0.71		
v/c Ratio	0.82	0.66	0.35	0.09		
Control Delay	11.0	10.0	2.5	0.2		
Queue Delay	0.5	0.5	0.0	0.0		
Total Delay	11.5	10.5	2.5	0.2		
LOS	B	B	A	A		
Approach Delay		10.5	2.3			
Approach LOS		B	A			

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 8.1	Intersection LOS: A
Intersection Capacity Utilization 65.8%	ICU Level of Service C
Analysis Period (min) 15	

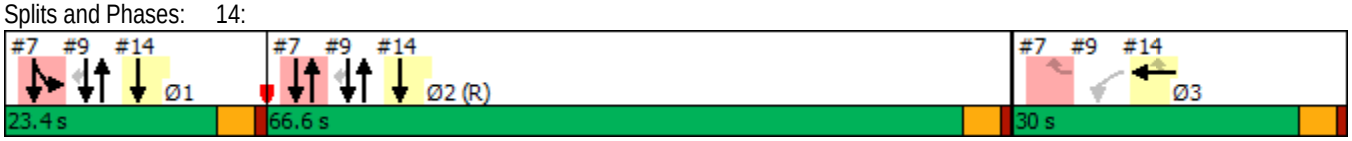
Splits and Phases: 9: Nicholasville



Lane Group	WBT	WBR	SBT	Ø1	Ø2
Lane Configurations					
Traffic Volume (vph)	548	453	179		
Future Volume (vph)	548	453	179		
Turn Type	NA	Perm	NA		
Protected Phases	3		1 2	1	2
Permitted Phases		3			
Detector Phase	3	3	1 2		
Switch Phase					
Minimum Initial (s)	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5
Total Split (s)	30.0	30.0		23.4	66.6
Total Split (%)	25.0%	25.0%		20%	56%
Yellow Time (s)	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			
Total Lost Time (s)	4.5	4.5			
Lead/Lag				Lead	Lag
Lead-Lag Optimize?				Yes	Yes
Recall Mode	None	None		None	C-Max
Act Effct Green (s)	25.5	25.5	85.5		
Actuated g/C Ratio	0.21	0.21	0.71		
v/c Ratio	0.79	0.68	0.15		
Control Delay	53.5	8.9	0.2		
Queue Delay	0.1	0.0	0.0		
Total Delay	53.6	8.9	0.2		
LOS	D	A	A		
Approach Delay	33.4		0.2		
Approach LOS	C		A		

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 28.4	Intersection LOS: C
Intersection Capacity Utilization 32.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 14:



Lane Group	EBL	NBT	NBR	SBT	Ø1	Ø2
Lane Configurations						
Traffic Volume (vph)	200	1377	694	3081		
Future Volume (vph)	200	1377	694	3081		
Turn Type	Perm	NA	Perm	NA		
Protected Phases		1 2		1 2	1	2
Permitted Phases	3		1 2			
Detector Phase	3	1 2	1 2	1 2		
Switch Phase						
Minimum Initial (s)	5.0				5.0	5.0
Minimum Split (s)	22.5				22.5	22.5
Total Split (s)	31.0				29.0	100.0
Total Split (%)	19.4%				18%	63%
Yellow Time (s)	3.5				3.5	3.5
All-Red Time (s)	1.0				1.0	1.0
Lost Time Adjust (s)	0.0					
Total Lost Time (s)	4.5					
Lead/Lag					Lead	Lag
Lead-Lag Optimize?					Yes	Yes
Recall Mode	None				None	C-Max
Act Effct Green (s)	26.5	124.5	124.5	124.5		
Actuated g/C Ratio	0.17	0.78	0.78	0.78		
v/c Ratio	0.74	0.38	0.54	0.85		
Control Delay	17.5	1.9	1.9	11.0		
Queue Delay	0.6	0.1	0.2	23.9		
Total Delay	18.1	2.0	2.1	34.9		
LOS	B	A	A	C		
Approach Delay		2.1		34.9		
Approach LOS		A		C		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 146 (91%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 78.1%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Nicholasville



Lane Group	EBT	EBR	NBT	Ø1	Ø2
Lane Configurations					
Traffic Volume (vph)	200	800	440		
Future Volume (vph)	200	800	440		
Turn Type	NA	Perm	NA		
Protected Phases	3		1 2	1	2
Permitted Phases		3			
Detector Phase	3	3	1 2		
Switch Phase					
Minimum Initial (s)	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5
Total Split (s)	31.0	31.0		29.0	100.0
Total Split (%)	19.4%	19.4%		18%	63%
Yellow Time (s)	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			
Total Lost Time (s)	4.5	4.5			
Lead/Lag				Lead	Lag
Lead-Lag Optimize?				Yes	Yes
Recall Mode	None	None		None	C-Max
Act Effct Green (s)	26.5	26.5	124.5		
Actuated g/C Ratio	0.17	0.17	0.78		
v/c Ratio	0.70	0.73	0.17		
Control Delay	76.5	7.5	0.5		
Queue Delay	0.4	0.0	0.0		
Total Delay	76.9	7.5	0.5		
LOS	E	A	A		
Approach Delay	21.4		0.5		
Approach LOS	C		A		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 146 (91%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 45.2%	ICU Level of Service A
Analysis Period (min) 15	

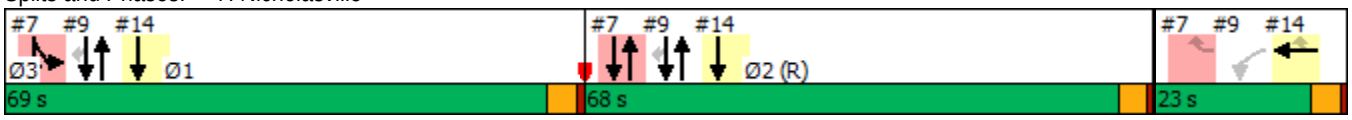
Splits and Phases: 6:



Lane Group	WBR	NBT	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	200	1577	424	3374
Future Volume (vph)	200	1577	424	3374
Turn Type	Perm	NA	Prot	NA
Protected Phases		2	1	1 2
Permitted Phases	3			
Detector Phase	3	2	1	1 2
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	
Total Split (s)	23.0	68.0	69.0	
Total Split (%)	14.4%	42.5%	43.1%	
Yellow Time (s)	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	
Lead/Lag		Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	
Recall Mode	None	C-Max	None	
Act Effct Green (s)	16.6	63.5	66.4	134.4
Actuated g/C Ratio	0.10	0.40	0.42	0.84
v/c Ratio	0.33	0.85	0.63	0.86
Control Delay	1.8	41.0	42.2	10.5
Queue Delay	0.0	1.3	0.0	0.0
Total Delay	1.8	42.3	42.2	10.5
LOS	A	D	D	B
Approach Delay		42.3		14.0
Approach LOS		D		B

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 21.6	Intersection LOS: C
Intersection Capacity Utilization 68.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 7: Nicholasville



Lane Group	EBR	NBL	NBT	SBT
Lane Configurations				
Traffic Volume (vph)	800	440	2071	3081
Future Volume (vph)	800	440	2071	3081
Turn Type	Perm	Prot	NA	NA
Protected Phases		1	1 2	2
Permitted Phases	3			
Detector Phase	3	1	1 2	2
Switch Phase				
Minimum Initial (s)	5.0	5.0		5.0
Minimum Split (s)	22.5	22.5		22.5
Total Split (s)	31.0	29.0		100.0
Total Split (%)	19.4%	18.1%		62.5%
Yellow Time (s)	3.5	3.5		3.5
All-Red Time (s)	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5		4.5
Lead/Lag		Lead		Lag
Lead-Lag Optimize?		Yes		Yes
Recall Mode	None	None		C-Max
Act Effct Green (s)	26.5	24.5	124.5	95.5
Actuated g/C Ratio	0.17	0.15	0.78	0.60
v/c Ratio	1.10	0.91	0.57	1.10
Control Delay	89.3	88.6	7.7	69.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	89.3	88.6	7.7	69.7
LOS	F	F	A	E
Approach Delay			21.9	69.7
Approach LOS			C	E

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 146 (91%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 53.4	Intersection LOS: D
Intersection Capacity Utilization 95.0%	ICU Level of Service F
Analysis Period (min) 15	

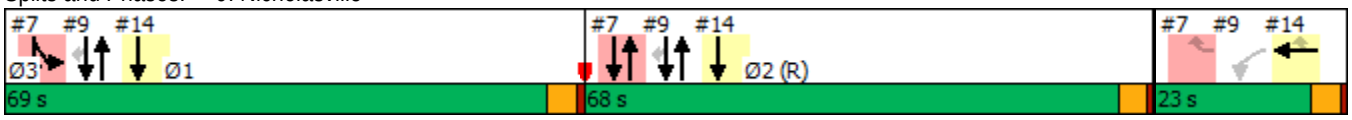
Splits and Phases: 8: Nicholasville



Lane Group	WBL	NBT	SBT	SBR	Ø1	Ø2
Lane Configurations						
Traffic Volume (vph)	200	1577	2881	493		
Future Volume (vph)	200	1577	2881	493		
Turn Type	Perm	NA	NA	Perm		
Protected Phases		1 2	1 2		1	2
Permitted Phases	3			1 2		
Detector Phase	3	1 2	1 2	1 2		
Switch Phase						
Minimum Initial (s)	5.0				5.0	5.0
Minimum Split (s)	22.5				22.5	22.5
Total Split (s)	23.0				69.0	68.0
Total Split (%)	14.4%				43%	43%
Yellow Time (s)	3.5				3.5	3.5
All-Red Time (s)	1.0				1.0	1.0
Lost Time Adjust (s)	0.0					
Total Lost Time (s)	4.5					
Lead/Lag					Lead	Lag
Lead-Lag Optimize?					Yes	Yes
Recall Mode	None				None	C-Max
Act Effct Green (s)	16.6	134.4	134.4	134.4		
Actuated g/C Ratio	0.10	0.84	0.84	0.84		
v/c Ratio	0.61	0.40	0.73	0.38		
Control Delay	9.1	2.8	1.9	0.4		
Queue Delay	0.2	0.1	0.3	0.6		
Total Delay	9.3	2.9	2.1	1.0		
LOS	A	A	A	A		
Approach Delay		2.9	2.0			
Approach LOS		A	A			

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 2.5	Intersection LOS: A
Intersection Capacity Utilization 78.1%	ICU Level of Service D
Analysis Period (min) 15	

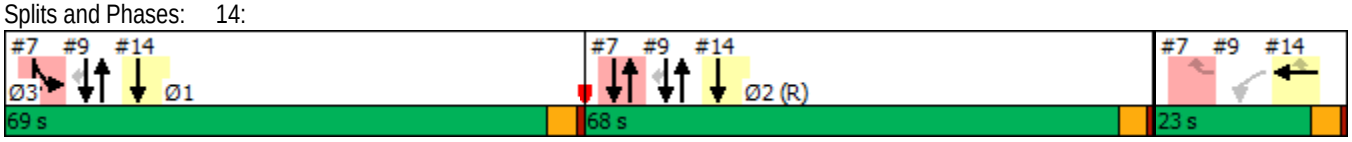
Splits and Phases: 9: Nicholasville



Lane Group	WBT	WBR	SBT	Ø1	Ø2
Lane Configurations					
Traffic Volume (vph)	200	200	424		
Future Volume (vph)	200	200	424		
Turn Type	NA	Perm	NA		
Protected Phases	3		1 2	1	2
Permitted Phases		3			
Detector Phase	3	3	1 2		
Switch Phase					
Minimum Initial (s)	5.0	5.0		5.0	5.0
Minimum Split (s)	22.5	22.5		22.5	22.5
Total Split (s)	23.0	23.0		69.0	68.0
Total Split (%)	14.4%	14.4%		43%	43%
Yellow Time (s)	3.5	3.5		3.5	3.5
All-Red Time (s)	1.0	1.0		1.0	1.0
Lost Time Adjust (s)	0.0	0.0			
Total Lost Time (s)	4.5	4.5			
Lead/Lag				Lead	Lag
Lead-Lag Optimize?				Yes	Yes
Recall Mode	None	None		None	C-Max
Act Effct Green (s)	16.6	16.6	134.4		
Actuated g/C Ratio	0.10	0.10	0.84		
v/c Ratio	0.59	0.61	0.29		
Control Delay	75.1	15.2	0.4		
Queue Delay	0.0	0.0	0.4		
Total Delay	75.1	15.2	0.8		
LOS	E	B	A		
Approach Delay	45.1		0.8		
Approach LOS	D		A		

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:NBSB, Start of Green	
Natural Cycle: 100	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 22.3	Intersection LOS: C
Intersection Capacity Utilization 65.9%	ICU Level of Service C
Analysis Period (min) 15	

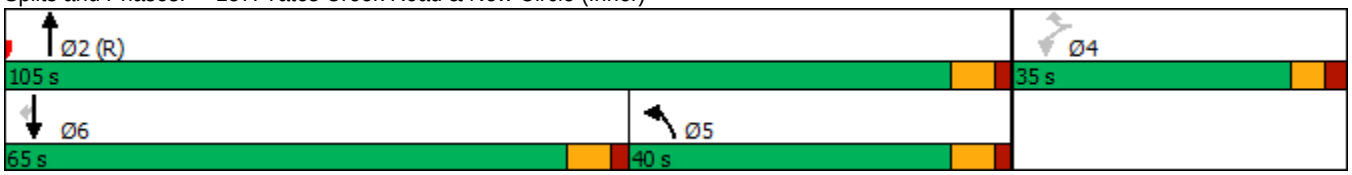
Splits and Phases: 14:



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	325	200	400	925	1060	300
Future Volume (vph)	325	200	400	925	1060	300
Turn Type	Perm	Perm	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	14.0	22.0	22.0	22.0
Total Split (s)	35.0	35.0	40.0	105.0	65.0	65.0
Total Split (%)	25.0%	25.0%	28.6%	75.0%	46.4%	46.4%
Yellow Time (s)	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.1	-2.1	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	22.7	22.7	36.0	109.3	69.3	69.3
Actuated g/C Ratio	0.16	0.16	0.26	0.78	0.50	0.50
v/c Ratio	0.67	0.56	1.01	0.38	0.48	0.36
Control Delay	61.2	17.8	79.7	1.3	24.8	3.4
Queue Delay	0.0	0.0	10.4	0.1	0.0	0.0
Total Delay	61.2	17.8	90.1	1.4	24.8	3.4
LOS	E	B	F	A	C	A
Approach Delay				28.2	20.1	
Approach LOS				C	C	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 128 (91%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 27.4	Intersection LOS: C
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

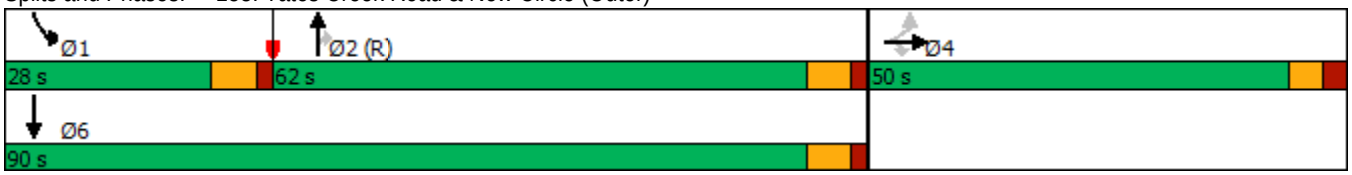
Splits and Phases: 157: Tates Creek Road & New Circle (Inner)



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	225	0	450	1100	225	225	1160
Future Volume (vph)	225	0	450	1100	225	225	1160
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	14.0	22.0
Total Split (s)	50.0	50.0	50.0	62.0	62.0	28.0	90.0
Total Split (%)	35.7%	35.7%	35.7%	44.3%	44.3%	20.0%	64.3%
Yellow Time (s)	3.6	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.7	2.7	2.7	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.3	-2.3	-2.3	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	Max	Max
Act Effct Green (s)	28.7	28.7	28.7	58.0	58.0	41.3	103.3
Actuated g/C Ratio	0.20	0.20	0.20	0.41	0.41	0.30	0.74
v/c Ratio	0.67	0.76	0.72	0.60	0.32	0.49	0.51
Control Delay	60.8	49.3	46.2	33.5	4.1	52.5	2.3
Queue Delay	0.1	0.2	0.0	0.1	0.0	0.0	0.0
Total Delay	61.0	49.5	46.2	33.6	4.1	52.5	2.3
LOS	E	D	D	C	A	D	A
Approach Delay		51.8		28.6			10.5
Approach LOS		D		C			B

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 2 (1%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 25.8	Intersection LOS: C
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

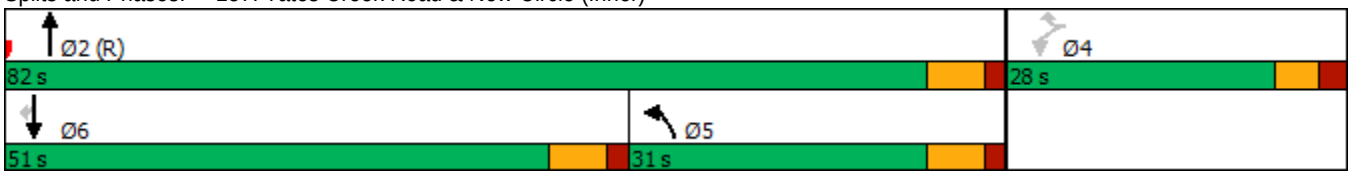
Splits and Phases: 158: Tates Creek Road & New Circle (Outer)



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	550	150	425	1000	1645	160
Future Volume (vph)	550	150	425	1000	1645	160
Turn Type	Perm	Perm	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	14.0	22.0	22.0	22.0
Total Split (s)	28.0	28.0	31.0	82.0	51.0	51.0
Total Split (%)	25.5%	25.5%	28.2%	74.5%	46.4%	46.4%
Yellow Time (s)	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.1	-2.1	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	23.6	23.6	27.0	78.4	47.4	47.4
Actuated g/C Ratio	0.21	0.21	0.25	0.71	0.43	0.43
v/c Ratio	0.86	0.37	1.12	0.46	0.86	0.23
Control Delay	54.9	10.7	106.6	3.2	33.8	3.8
Queue Delay	0.0	0.0	0.0	0.1	2.0	0.0
Total Delay	54.9	10.7	106.6	3.4	35.8	3.8
LOS	D	B	F	A	D	A
Approach Delay				34.2	32.9	
Approach LOS				C	C	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 34 (31%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 35.6	Intersection LOS: D
Intersection Capacity Utilization 116.4%	ICU Level of Service H
Analysis Period (min) 15	

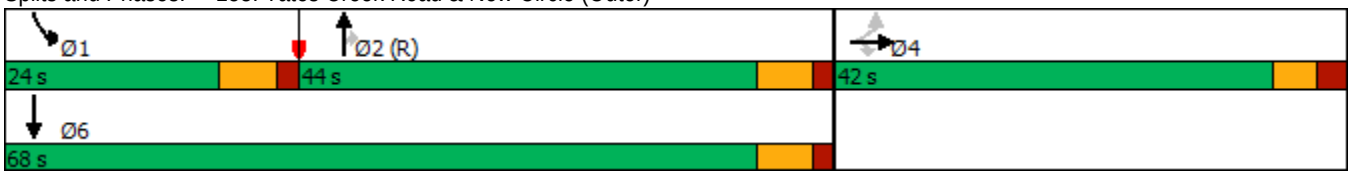
Splits and Phases: 157: Tates Creek Road & New Circle (Inner)



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (vph)	375	0	1200	1050	375	225	1970
Future Volume (vph)	375	0	1200	1050	375	225	1970
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA
Protected Phases		4		2		1	6
Permitted Phases	4		4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	14.0	22.0
Total Split (s)	42.0	42.0	42.0	44.0	44.0	24.0	68.0
Total Split (%)	38.2%	38.2%	38.2%	40.0%	40.0%	21.8%	61.8%
Yellow Time (s)	3.6	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.7	2.7	2.7	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.3	-2.3	-2.3	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	C-Max	C-Max	Max	Max
Act Effct Green (s)	38.0	38.0	38.0	40.0	40.0	20.0	64.0
Actuated g/C Ratio	0.35	0.35	0.35	0.36	0.36	0.18	0.58
v/c Ratio	0.37	1.39	1.33	0.65	0.51	0.81	1.10
Control Delay	29.5	212.1	190.1	31.3	4.8	66.5	58.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Total Delay	29.5	212.1	190.1	31.3	4.8	66.5	59.2
LOS	C	F	F	C	A	E	E
Approach Delay		180.8		24.4			59.9
Approach LOS		F		C			E

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Offset: 49 (45%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.39	
Intersection Signal Delay: 86.8	Intersection LOS: F
Intersection Capacity Utilization 116.4%	ICU Level of Service H
Analysis Period (min) 15	

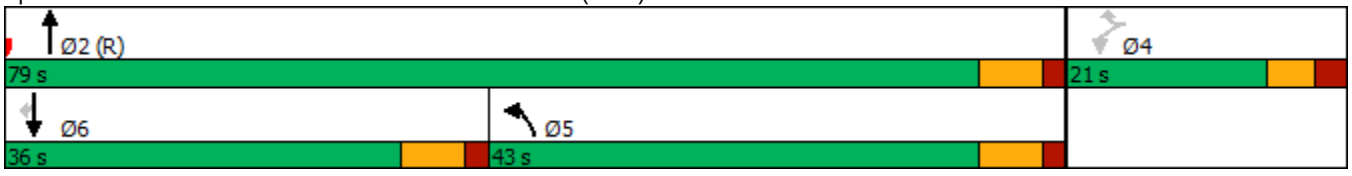
Splits and Phases: 158: Tates Creek Road & New Circle (Outer)



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	325	200	400	925	1060	300
Future Volume (vph)	325	200	400	925	1060	300
Turn Type	Perm	Perm	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	14.0	22.0	22.0	22.0
Total Split (s)	21.0	21.0	43.0	79.0	36.0	36.0
Total Split (%)	21.0%	21.0%	43.0%	79.0%	36.0%	36.0%
Yellow Time (s)	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.1	-2.1	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	16.2	16.2	39.0	75.8	32.8	32.8
Actuated g/C Ratio	0.16	0.16	0.39	0.76	0.33	0.33
v/c Ratio	0.67	0.54	0.67	0.40	0.73	0.46
Control Delay	46.1	13.7	13.7	1.1	33.2	5.2
Queue Delay	0.0	0.0	0.6	0.1	0.0	0.0
Total Delay	46.1	13.7	14.3	1.1	33.2	5.2
LOS	D	B	B	A	C	A
Approach Delay				5.1	27.0	
Approach LOS				A	C	

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 82 (82%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 19.1	Intersection LOS: B
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

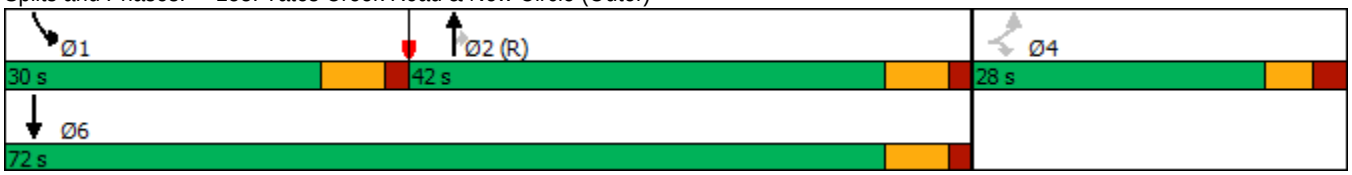
Splits and Phases: 157: Tates Creek Road & New Circle (Inner)



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	225	450	1100	225	225	1160
Future Volume (vph)	225	450	1100	225	225	1160
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	4	4		2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	14.0	22.0
Total Split (s)	28.0	28.0	42.0	42.0	30.0	72.0
Total Split (%)	28.0%	28.0%	42.0%	42.0%	30.0%	72.0%
Yellow Time (s)	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.7	2.7	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.3	-2.3	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	Max	Max
Act Effct Green (s)	20.2	20.2	38.0	38.0	29.8	71.8
Actuated g/C Ratio	0.20	0.20	0.38	0.38	0.30	0.72
v/c Ratio	0.37	0.74	0.65	0.34	0.49	0.52
Control Delay	35.3	31.1	27.6	4.2	40.2	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay	35.3	31.1	27.6	4.2	40.2	2.6
LOS	D	C	C	A	D	A
Approach Delay			23.7			8.7
Approach LOS			C			A

Intersection Summary	
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 19.3	Intersection LOS: B
Intersection Capacity Utilization 64.8%	ICU Level of Service C
Analysis Period (min) 15	

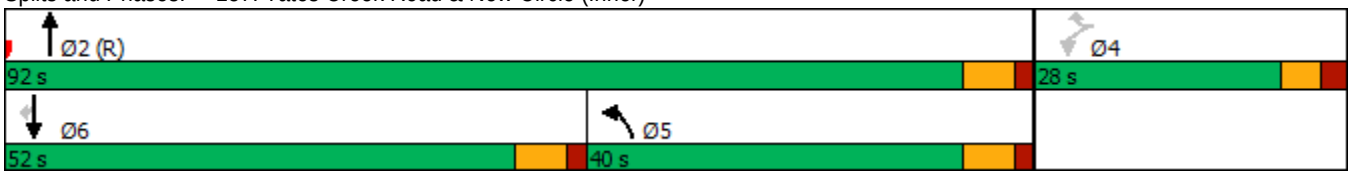
Splits and Phases: 158: Tates Creek Road & New Circle (Outer)



Lane Group	WBL	WBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	550	150	425	1000	1645	160
Future Volume (vph)	550	150	425	1000	1645	160
Turn Type	Perm	Perm	Prot	NA	NA	Perm
Protected Phases			5	2	6	
Permitted Phases	4	4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	14.0	22.0	22.0	22.0
Total Split (s)	28.0	28.0	40.0	92.0	52.0	52.0
Total Split (%)	23.3%	23.3%	33.3%	76.7%	43.3%	43.3%
Yellow Time (s)	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.1	-2.1	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Recall Mode	None	None	None	C-Max	Max	Max
Act Effct Green (s)	24.0	24.0	36.0	88.0	48.0	48.0
Actuated g/C Ratio	0.20	0.20	0.30	0.73	0.40	0.40
v/c Ratio	0.92	0.38	0.92	0.44	0.93	0.25
Control Delay	67.8	10.2	49.3	1.7	44.0	6.2
Queue Delay	0.0	0.0	3.0	0.1	1.7	0.0
Total Delay	67.8	10.2	52.4	1.8	45.8	6.2
LOS	E	B	D	A	D	A
Approach Delay				16.9	42.2	
Approach LOS				B	D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 106 (88%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 108.5%	ICU Level of Service G
Analysis Period (min) 15	

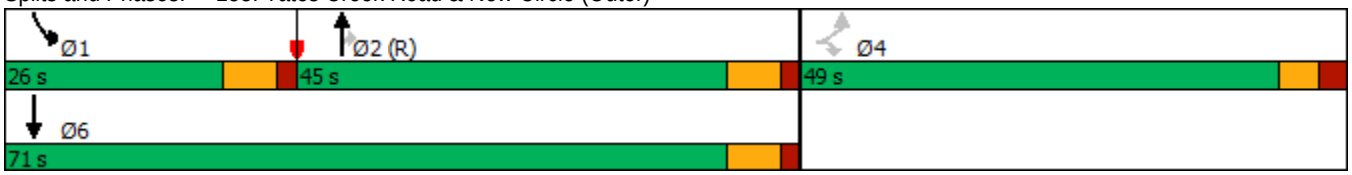
Splits and Phases: 157: Tates Creek Road & New Circle (Inner)



Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	375	1200	1050	375	225	1970
Future Volume (vph)	375	1200	1050	375	225	1970
Turn Type	Perm	Perm	NA	Perm	Prot	NA
Protected Phases			2		1	6
Permitted Phases	4	4		2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	22.0	22.0	22.0	22.0	14.0	22.0
Total Split (s)	49.0	49.0	45.0	45.0	26.0	71.0
Total Split (%)	40.8%	40.8%	37.5%	37.5%	21.7%	59.2%
Yellow Time (s)	3.6	3.6	4.7	4.7	4.7	4.7
All-Red Time (s)	2.7	2.7	1.8	1.8	1.8	1.8
Lost Time Adjust (s)	-2.3	-2.3	-2.5	-2.5	-2.5	-2.5
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	Max	Max
Act Effct Green (s)	45.0	45.0	41.0	41.0	22.0	67.0
Actuated g/C Ratio	0.38	0.38	0.34	0.34	0.18	0.56
v/c Ratio	0.33	1.25	0.69	0.52	0.80	1.14
Control Delay	27.8	150.6	36.8	5.4	69.9	79.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	150.6	36.8	5.4	69.9	79.1
LOS	C	F	D	A	E	E
Approach Delay			28.5			78.1
Approach LOS			C			E

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.25	
Intersection Signal Delay: 77.6	Intersection LOS: E
Intersection Capacity Utilization 108.5%	ICU Level of Service G
Analysis Period (min) 15	

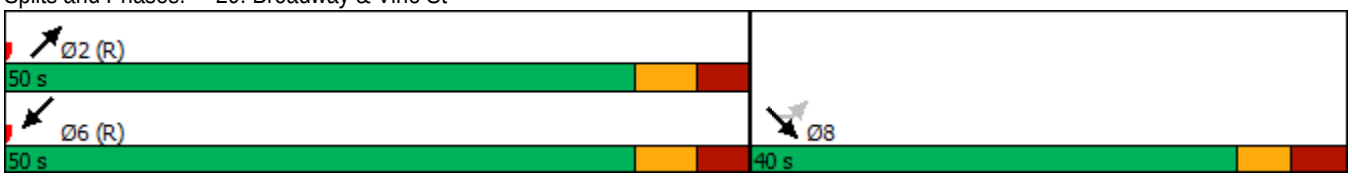
Splits and Phases: 158: Tates Creek Road & New Circle (Outer)



Lane Group	SET	NET	SWT
Lane Configurations			
Traffic Volume (vph)	870	950	950
Future Volume (vph)	870	950	950
Turn Type	NA	NA	NA
Protected Phases	8	2	6
Permitted Phases			
Detector Phase	8	2	6
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	31.5	31.3	29.3
Total Split (s)	40.0	50.0	50.0
Total Split (%)	44.4%	55.6%	55.6%
Yellow Time (s)	3.6	4.1	4.1
All-Red Time (s)	3.9	3.7	3.7
Lost Time Adjust (s)	-4.5	-4.8	-4.8
Total Lost Time (s)	3.0	3.0	3.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	37.0	47.0	47.0
Actuated g/C Ratio	0.41	0.52	0.52
v/c Ratio	0.77	1.14	0.75
Control Delay	26.1	87.0	9.8
Queue Delay	0.0	0.0	13.8
Total Delay	26.1	87.0	23.5
LOS	C	F	C
Approach Delay	26.1	87.0	23.5
Approach LOS	C	F	C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 52 (58%), Referenced to phase 2:NET and 6:SWT, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 50.0	Intersection LOS: D
Intersection Capacity Utilization 87.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 29: Broadway & Vine St



Lane Group	SET	NET	SWT
Lane Configurations			
Traffic Volume (vph)	870	950	950
Future Volume (vph)	870	950	950
Turn Type	NA	NA	NA
Protected Phases	8	2	6
Permitted Phases			
Detector Phase	8	2	6
Switch Phase			
Minimum Initial (s)	4.0	4.0	4.0
Minimum Split (s)	31.5	31.3	29.3
Total Split (s)	32.0	58.0	58.0
Total Split (%)	35.6%	64.4%	64.4%
Yellow Time (s)	3.6	4.1	4.1
All-Red Time (s)	3.9	3.7	3.7
Lost Time Adjust (s)	-4.5	-4.8	-4.8
Total Lost Time (s)	3.0	3.0	3.0
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max	Max	Max
Act Effct Green (s)	29.0	55.0	55.0
Actuated g/C Ratio	0.32	0.61	0.61
v/c Ratio	0.97	0.98	0.64
Control Delay	48.6	28.5	8.6
Queue Delay	0.1	1.8	2.9
Total Delay	48.7	30.3	11.5
LOS	D	C	B
Approach Delay	48.7	30.3	11.5
Approach LOS	D	C	B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 52 (58%), Referenced to phase 2:NET and 6:SWT, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 31.1	Intersection LOS: C
Intersection Capacity Utilization 87.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 29: Broadway & Vine St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	71	98	31	34	116	101	42	2285	20	991
Future Volume (vph)	71	98	31	34	116	101	42	2285	20	991
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	3	3		4	4		5	2	1	6
Permitted Phases			3			4				
Detector Phase	3	3	3	4	4	4	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	20.0	5.0	20.0
Minimum Split (s)	34.0	34.0	34.0	34.0	34.0	34.0	10.5	45.9	10.5	45.9
Total Split (s)	25.0	25.0	25.0	28.0	28.0	28.0	24.0	109.0	18.0	103.0
Total Split (%)	13.9%	13.9%	13.9%	15.6%	15.6%	15.6%	13.3%	60.6%	10.0%	57.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	3.6	4.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	1.9	1.6	1.9	1.6
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-1.5	-1.9	-1.5	-1.9
Total Lost Time (s)	4.0	4.0	6.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	20.3	20.3	18.3	19.6	19.6	17.6	11.7	119.1	9.7	114.7
Actuated g/C Ratio	0.11	0.11	0.10	0.11	0.11	0.10	0.06	0.66	0.05	0.64
v/c Ratio	0.64	0.83	0.20	0.20	0.66	0.44	0.41	0.60	0.28	0.58
Control Delay	91.2	107.7	1.7	74.0	91.9	14.8	122.8	4.9	89.4	23.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	91.2	107.7	1.7	74.0	91.9	14.8	122.8	4.9	89.4	23.2
LOS	F	F	A	E	F	B	F	A	F	C
Approach Delay		85.5			58.4			7.0		24.5
Approach LOS		F			E			A		C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 114 (63%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 21.4	Intersection LOS: C
Intersection Capacity Utilization 55.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 221: Nicholasville Rd. & Lowry Ln.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	141	155	272	55	77	3	197	1004	25	2406
Future Volume (vph)	141	155	272	55	77	3	197	1004	25	2406
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	3	3		4	4		5	2	1	6
Permitted Phases			3			4				
Detector Phase	3	3	3	4	4	4	5	2	1	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0
Minimum Split (s)	36.0	36.0	36.0	36.0	36.0	36.0	11.0	45.9	10.7	45.9
Total Split (s)	29.0	29.0	29.0	24.0	24.0	24.0	37.0	97.0	30.0	90.0
Total Split (%)	16.1%	16.1%	16.1%	13.3%	13.3%	13.3%	20.6%	53.9%	16.7%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	4.3	3.6	4.3
All-Red Time (s)	2.4	2.4	2.4	2.4	2.4	2.4	2.1	1.4	2.1	1.4
Lost Time Adjust (s)	-2.0	-2.0	0.0	-2.0	-2.0	0.0	-1.5	-1.9	-1.5	-1.9
Total Lost Time (s)	4.0	4.0	6.0	4.0	4.0	6.0	4.2	3.8	4.2	3.8
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	None	C-Max	None	Max
Act Effct Green (s)	25.0	25.0	23.0	15.7	15.7	13.7	28.0	116.1	9.3	95.3
Actuated g/C Ratio	0.14	0.14	0.13	0.09	0.09	0.08	0.16	0.64	0.05	0.53
v/c Ratio	1.03	1.07	1.07	0.41	0.55	0.01	0.80	0.51	0.35	1.02
Control Delay	137.6	146.3	88.0	84.8	90.9	0.0	83.1	27.3	104.1	41.1
Queue Delay	0.0	0.0	10.9	0.0	0.0	0.0	0.0	0.1	0.0	33.5
Total Delay	137.6	146.3	98.8	84.8	90.9	0.0	83.1	27.3	104.1	74.7
LOS	F	F	F	F	F	A	F	C	F	E
Approach Delay		121.4			86.6			36.2		74.9
Approach LOS		F			F			D		E

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 148 (82%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 74.2	Intersection LOS: E
Intersection Capacity Utilization 75.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 221: Nicholasville Rd. & Lowry Ln.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	129	145	124	242	75	2261	25	33	599	50
Future Volume (vph)	129	145	124	242	75	2261	25	33	599	50
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.8	30.6	10.8	30.6	10.5	45.9	45.9	10.5	45.9	45.9
Total Split (s)	13.0	35.8	16.2	39.0	21.3	117.5	117.5	10.5	106.7	106.7
Total Split (%)	7.2%	19.9%	9.0%	21.7%	11.8%	65.3%	65.3%	5.8%	59.3%	59.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.2	2.0	2.2	2.0	1.9	1.6	1.6	1.9	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.6	5.8	5.6	5.5	5.9	5.9	5.5	5.9	5.9
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	37.2	30.2	43.6	33.4	13.1	113.7	113.7	5.0	103.5	103.5
Actuated g/C Ratio	0.21	0.17	0.24	0.19	0.07	0.63	0.63	0.03	0.58	0.58
v/c Ratio	1.26	0.80	0.77	1.16	0.64	1.10	0.03	0.73	0.32	0.06
Control Delay	216.9	87.6	82.7	159.7	102.7	84.5	0.0	147.5	18.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	216.9	87.6	82.7	159.7	102.7	84.5	0.0	147.5	18.3	0.6
LOS	F	F	F	F	F	F	A	F	B	A
Approach Delay		134.4		140.0		84.2			23.3	
Approach LOS		F		F		F			C	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 7 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.26	
Intersection Signal Delay: 85.1	Intersection LOS: F
Intersection Capacity Utilization 104.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Pasadena/Malabu



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	24	12	70	27	3	2149	31	33	586	44
Future Volume (vph)	24	12	70	27	3	2149	31	33	586	44
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	20.0	20.0	5.0	20.0	20.0
Minimum Split (s)	37.9	37.9	37.9	37.9	10.5	45.9	45.9	10.5	45.9	45.9
Total Split (s)	37.9	37.9	37.9	37.9	10.5	131.1	131.1	11.0	131.6	131.6
Total Split (%)	21.1%	21.1%	21.1%	21.1%	5.8%	72.8%	72.8%	6.1%	73.1%	73.1%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.3	2.3	2.3	2.3	1.9	1.6	1.6	1.9	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	5.5	5.9	5.9	5.5	5.9	5.9
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.7	19.7	19.7	19.7	6.0	136.6	136.6	8.8	146.1	146.1
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.03	0.76	0.76	0.05	0.81	0.81
v/c Ratio	0.49	0.14	0.51	0.79	0.05	0.87	0.03	0.42	0.22	0.04
Control Delay	103.1	40.7	85.7	78.7	100.7	10.9	0.1	97.4	4.9	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0
Total Delay	103.1	40.7	85.7	78.7	100.7	12.2	0.1	97.4	4.9	1.4
LOS	F	D	F	E	F	B	A	F	A	A
Approach Delay		70.7		80.8		12.1			9.3	
Approach LOS		E		F		B			A	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 19 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 17.6	Intersection LOS: B
Intersection Capacity Utilization 88.2%	ICU Level of Service E
Analysis Period (min) 15	

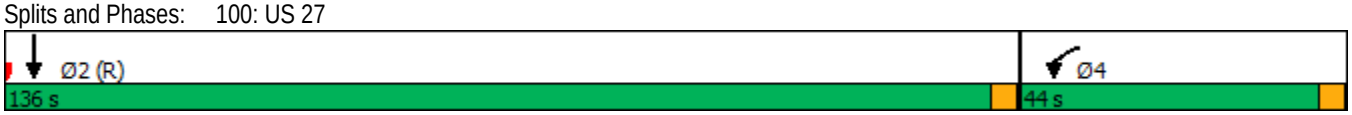
Splits and Phases: 10: Zandale



Lane Group	WBL	SBT
Lane Configurations		
Traffic Volume (vph)	150	1033
Future Volume (vph)	150	1033
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	44.0	136.0
Total Split (%)	24.4%	75.6%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Max
Act Effct Green (s)	8.9	163.1
Actuated g/C Ratio	0.05	0.91
v/c Ratio	0.72	0.35
Control Delay	21.2	1.6
Queue Delay	0.0	0.0
Total Delay	21.2	1.6
LOS	C	A
Approach Delay	21.2	1.6
Approach LOS	C	A

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 161 (89%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 4.0	Intersection LOS: A
Intersection Capacity Utilization 103.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 100: US 27



Lane Group	EBR2	SBT	SBR	NWL
Lane Configurations				
Traffic Volume (vph)	200	1025	138	42
Future Volume (vph)	200	1025	138	42
Turn Type	Perm	NA	Perm	Prot
Protected Phases		2		4
Permitted Phases	8		2	
Detector Phase	8	2	2	4
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	36.0	144.0	144.0	36.0
Total Split (%)	20.0%	80.0%	80.0%	20.0%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	C-Max	C-Max	None
Act Effct Green (s)	10.1	161.9	161.9	10.1
Actuated g/C Ratio	0.06	0.90	0.90	0.06
v/c Ratio	0.50	0.35	0.10	0.46
Control Delay	4.8	1.6	0.4	23.4
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	4.8	1.7	0.4	23.4
LOS	A	A	A	C
Approach Delay		1.6		23.4
Approach LOS		A		C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 21 (12%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 2.7	Intersection LOS: A
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 130: US 27/US 27 & LOWRY



Lane Group	WBR2	NBT	NBR	SEL
Lane Configurations				
Traffic Volume (vph)	251	2356	112	20
Future Volume (vph)	251	2356	112	20
Turn Type	Perm	NA	Perm	Prot
Protected Phases		6		8
Permitted Phases	4		6	
Detector Phase	4	6	6	8
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	38.0	142.0	142.0	38.0
Total Split (%)	21.1%	78.9%	78.9%	21.1%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	C-Max	C-Max	None
Act Effct Green (s)	32.1	139.9	139.9	32.1
Actuated g/C Ratio	0.18	0.78	0.78	0.18
v/c Ratio	0.92	0.93	0.10	0.07
Control Delay	104.6	8.3	0.4	44.2
Queue Delay	0.0	1.9	0.0	0.0
Total Delay	104.6	10.2	0.4	44.2
LOS	F	B	A	D
Approach Delay		9.7		44.2
Approach LOS		A		D

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 177 (98%), Referenced to phase 6:NBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 18.7	Intersection LOS: B
Intersection Capacity Utilization 87.3%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 220: US 27 & LOWRY



Lane Group	EBL	NBT
Lane Configurations		
Traffic Volume (vph)	169	2341
Future Volume (vph)	169	2341
Turn Type	Prot	NA
Protected Phases	8	6
Permitted Phases		
Detector Phase	8	6
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	29.0	151.0
Total Split (%)	16.1%	83.9%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Max
Act Effct Green (s)	21.4	150.6
Actuated g/C Ratio	0.12	0.84
v/c Ratio	0.83	0.86
Control Delay	98.2	4.8
Queue Delay	0.0	0.2
Total Delay	98.2	5.0
LOS	F	A
Approach Delay	98.2	5.0
Approach LOS	F	A

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 176 (98%), Referenced to phase 6:NBT, Start of Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 11.3	Intersection LOS: B
Intersection Capacity Utilization 80.7%	ICU Level of Service D
Analysis Period (min) 15	

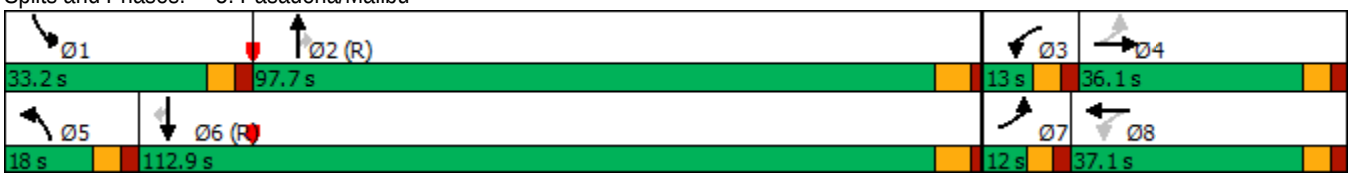
Splits and Phases: 240: US 27



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	105	219	150	310	129	908	29	154	2453	134
Future Volume (vph)	105	219	150	310	129	908	29	154	2453	134
Turn Type	pm+pt	NA	pm+pt	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	7	4	3	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	11.1	36.1	11.1	36.1	11.1	28.3	28.3	11.1	28.3	28.3
Total Split (s)	12.0	36.1	13.0	37.1	18.0	97.7	97.7	33.2	112.9	112.9
Total Split (%)	6.7%	20.1%	7.2%	20.6%	10.0%	54.3%	54.3%	18.4%	62.7%	62.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.7	4.7	3.6	4.7	4.7
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	1.6	1.6	2.5	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	6.1	6.1	6.1	6.1	6.3	6.3	6.1	6.3	6.3
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	35.9	30.0	37.9	31.0	11.9	96.8	96.8	21.7	106.6	106.6
Actuated g/C Ratio	0.20	0.17	0.21	0.17	0.07	0.54	0.54	0.12	0.59	0.59
v/c Ratio	1.15	1.16	1.50	1.38	1.20	0.52	0.04	0.78	1.27	0.15
Control Delay	188.4	163.3	304.5	239.1	210.7	28.4	0.1	82.3	152.6	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	188.4	163.3	304.5	239.1	210.7	28.4	0.1	82.3	152.9	4.0
LOS	F	F	F	F	F	C	A	F	F	A
Approach Delay		169.4		256.9		49.7			141.6	
Approach LOS		F		F		D			F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 43 (24%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.50	
Intersection Signal Delay: 136.9	Intersection LOS: F
Intersection Capacity Utilization 123.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Pasadena/Malibu



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	52	31	95	27	23	1023	71	109	2547	60
Future Volume (vph)	52	31	95	27	23	1023	71	109	2547	60
Turn Type	Perm	NA	Perm	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases		4		8	5	2		1	6	
Permitted Phases	4		8				2			6
Detector Phase	4	4	8	8	5	2	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	29.9	29.9	29.9	29.9	10.5	23.9	23.9	10.5	23.9	23.9
Total Split (s)	29.9	29.9	29.9	29.9	10.5	123.8	123.8	26.3	139.6	139.6
Total Split (%)	16.6%	16.6%	16.6%	16.6%	5.8%	68.8%	68.8%	14.6%	77.6%	77.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	4.3	4.3	3.6	4.3	4.3
All-Red Time (s)	2.3	2.3	2.3	2.3	1.9	1.6	1.6	1.9	1.6	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.9	5.9	5.9	5.9	5.5	5.9	5.9	5.5	5.9	5.9
Lead/Lag					Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Act Effct Green (s)	19.2	19.2	19.2	19.2	6.2	126.7	126.7	16.8	141.9	141.9
Actuated g/C Ratio	0.11	0.11	0.11	0.11	0.03	0.70	0.70	0.09	0.79	0.79
v/c Ratio	0.58	0.38	0.80	0.49	0.41	0.45	0.07	0.72	0.99	0.05
Control Delay	97.5	49.5	116.4	38.3	109.6	6.7	0.2	102.3	34.6	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.5	49.5	116.4	38.3	109.6	6.7	0.2	102.3	34.6	2.1
LOS	F	D	F	D	F	A	A	F	C	A
Approach Delay		69.6		75.2		8.4			36.6	
Approach LOS		E		E		A			D	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 7 (4%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 31.9	Intersection LOS: C
Intersection Capacity Utilization 100.9%	ICU Level of Service G
Analysis Period (min) 15	

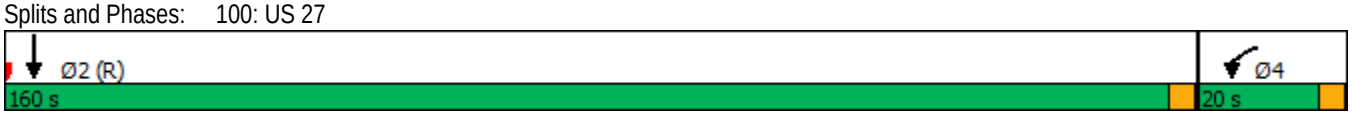
Splits and Phases: 10: Zandale



Lane Group	WBL	SBT
Lane Configurations		
Traffic Volume (vph)	132	2685
Future Volume (vph)	132	2685
Turn Type	Prot	NA
Protected Phases	4	2
Permitted Phases		
Detector Phase	4	2
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	20.0	160.0
Total Split (%)	11.1%	88.9%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Max
Act Effct Green (s)	15.5	156.5
Actuated g/C Ratio	0.09	0.87
v/c Ratio	0.88	0.95
Control Delay	122.0	13.8
Queue Delay	67.7	8.1
Total Delay	189.7	21.9
LOS	F	C
Approach Delay	189.7	21.9
Approach LOS	F	C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 1 (1%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 29.7	Intersection LOS: C
Intersection Capacity Utilization 112.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 100: US 27



Lane Group	EBR2	SBT	SBR	NWL
Lane Configurations				
Traffic Volume (vph)	568	2461	331	197
Future Volume (vph)	568	2461	331	197
Turn Type	Perm	NA	Perm	Prot
Protected Phases		2		4
Permitted Phases	8		2	
Detector Phase	8	2	2	4
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	41.0	139.0	139.0	41.0
Total Split (%)	22.8%	77.2%	77.2%	22.8%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	C-Max	C-Max	None
Act Effct Green (s)	37.0	135.0	135.0	37.0
Actuated g/C Ratio	0.21	0.75	0.75	0.21
v/c Ratio	1.06	1.01	0.29	0.59
Control Delay	117.5	27.6	2.9	19.8
Queue Delay	0.7	36.0	1.0	0.0
Total Delay	118.1	63.6	4.0	19.8
LOS	F	E	A	B
Approach Delay		56.5		19.8
Approach LOS		E		B

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 167 (93%), Referenced to phase 2:SBT, Start of Green	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 64.3	Intersection LOS: E
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 130: US 27/US 27 & LOWRY



Lane Group	WBR2	NBT	NBR	SEL
Lane Configurations				
Traffic Volume (vph)	135	1145	199	25
Future Volume (vph)	135	1145	199	25
Turn Type	Perm	NA	Perm	Prot
Protected Phases		6		8
Permitted Phases	4		6	
Detector Phase	4	6	6	8
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	42.0	138.0	138.0	42.0
Total Split (%)	23.3%	76.7%	76.7%	23.3%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	C-Max	C-Max	None
Act Effct Green (s)	10.1	161.9	161.9	10.1
Actuated g/C Ratio	0.06	0.90	0.90	0.06
v/c Ratio	0.72	0.39	0.15	0.27
Control Delay	39.7	0.5	0.2	31.9
Queue Delay	0.0	0.2	0.5	0.0
Total Delay	39.7	0.7	0.7	31.9
LOS	D	A	A	C
Approach Delay		0.7		31.9
Approach LOS		A		C

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 62 (34%), Referenced to phase 6:NBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 4.7	Intersection LOS: A
Intersection Capacity Utilization 46.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 220: US 27 & LOWRY



Lane Group	EBL	NBT
Lane Configurations		
Traffic Volume (vph)	296	1245
Future Volume (vph)	296	1245
Turn Type	Prot	NA
Protected Phases	8	6
Permitted Phases		
Detector Phase	8	6
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	62.0	118.0
Total Split (%)	34.4%	65.6%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	C-Max
Act Effct Green (s)	33.1	138.9
Actuated g/C Ratio	0.18	0.77
v/c Ratio	0.86	0.50
Control Delay	58.8	6.7
Queue Delay	0.0	0.0
Total Delay	58.8	6.7
LOS	E	A
Approach Delay	58.8	6.7
Approach LOS	E	A

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 177 (98%), Referenced to phase 6:NBT, Start of Green	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 16.7	Intersection LOS: B
Intersection Capacity Utilization 57.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 240: US 27



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Configurations									
Traffic Volume (vph)	150	250	240	360	256	1000	140	1290	100
Future Volume (vph)	150	250	240	360	256	1000	140	1290	100
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0
Minimum Split (s)	14.0	25.5	14.0	25.5	14.0	46.0	7.0	46.0	46.0
Total Split (s)	14.0	28.0	23.0	37.0	17.0	99.0	30.0	112.0	112.0
Total Split (%)	7.8%	15.6%	12.8%	20.6%	9.4%	55.0%	16.7%	62.2%	62.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.9	3.6	3.9	3.9
All-Red Time (s)	2.4	1.9	2.4	1.9	2.4	2.1	2.4	2.1	2.1
Lost Time Adjust (s)	-2.0	-1.5	-2.0	-1.5	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)	34.0	24.0	47.0	33.0	120.1	107.1	121.4	108.0	108.0
Actuated g/C Ratio	0.19	0.13	0.26	0.18	0.67	0.60	0.67	0.60	0.60
v/c Ratio	1.10	1.06	1.21	0.82	1.22	0.67	0.57	0.69	0.11
Control Delay	156.4	111.9	178.2	80.3	164.9	30.7	30.6	16.6	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	156.4	111.9	178.2	80.3	164.9	30.7	30.6	16.6	2.1
LOS	F	F	F	F	F	C	C	B	A
Approach Delay		122.1		113.9		54.3		16.9	
Approach LOS		F		F		D		B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 110 (61%), Referenced to phase 2:NETL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 60.9	Intersection LOS: E
Intersection Capacity Utilization 95.8%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 19: S. Broadway & Virginia Ave/Red Mile Road



Lane Group	SEL	SET	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Configurations									
Traffic Volume (vph)	150	250	240	360	256	1000	140	1290	100
Future Volume (vph)	150	250	240	360	256	1000	140	1290	100
Turn Type	pm+pt	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	7	4	3	8	5	2	1	6	
Permitted Phases	4		8		2		6		6
Detector Phase	7	4	3	8	5	2	1	6	6
Switch Phase									
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	1.0	3.0	3.0
Minimum Split (s)	14.0	25.5	14.0	25.5	14.0	46.0	7.0	46.0	46.0
Total Split (s)	18.0	30.0	29.0	41.0	31.0	90.0	31.0	90.0	90.0
Total Split (%)	10.0%	16.7%	16.1%	22.8%	17.2%	50.0%	17.2%	50.0%	50.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.9	3.6	3.9	3.9
All-Red Time (s)	2.4	1.9	2.4	1.9	2.4	2.1	2.4	2.1	2.1
Lost Time Adjust (s)	-2.0	-1.5	-2.0	-1.5	-2.0	-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)	40.0	26.0	55.0	37.0	116.9	96.4	102.6	86.0	86.0
Actuated g/C Ratio	0.22	0.14	0.31	0.21	0.65	0.54	0.57	0.48	0.48
v/c Ratio	0.79	0.99	0.96	0.74	0.98	0.75	0.59	0.87	0.14
Control Delay	76.8	95.2	99.9	71.8	99.4	38.9	38.4	32.1	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	95.2	99.9	71.8	99.4	38.9	38.4	32.1	3.7
LOS	E	F	F	E	F	D	D	C	A
Approach Delay		90.9		81.4		49.6		30.8	
Approach LOS		F		F		D		C	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 110 (61%), Referenced to phase 2:NETL, Start of Green	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 54.3	Intersection LOS: D
Intersection Capacity Utilization 95.8%	ICU Level of Service F
Analysis Period (min) 15	

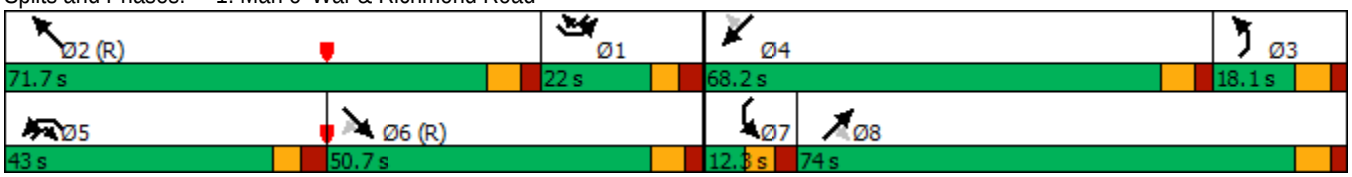
Splits and Phases: 19: S. Broadway & Virginia Ave/Red Mile Road



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	194	616	75	592	1224	221	1150	554	100	814	227
Future Volume (vph)	194	616	75	592	1224	221	1150	554	100	814	227
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2	3	8	5	7	4	1
Permitted Phases			6					8			4
Detector Phase	1	6	6	5	2	3	8	5	7	4	1
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.2	48.2	48.2	12.2	48.2	12.2	45.2	12.2	11.9	45.2	12.2
Total Split (s)	22.0	50.7	50.7	43.0	71.7	18.1	74.0	43.0	12.3	68.2	22.0
Total Split (%)	12.2%	28.2%	28.2%	23.9%	39.8%	10.1%	41.1%	23.9%	6.8%	37.9%	12.2%
Yellow Time (s)	3.9	4.7	4.7	3.9	4.7	4.7	4.7	3.9	3.9	4.7	3.9
All-Red Time (s)	3.3	2.5	2.5	3.3	2.5	2.5	2.5	3.3	3.0	2.5	3.3
Lost Time Adjust (s)	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-2.9	-3.2	-3.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	18.0	48.4	48.4	38.5	68.9	22.4	68.8	111.3	8.3	54.8	76.8
Actuated g/C Ratio	0.10	0.27	0.27	0.21	0.38	0.12	0.38	0.62	0.05	0.30	0.43
v/c Ratio	0.62	0.51	0.16	0.88	0.73	0.40	0.92	0.61	0.71	0.82	0.34
Control Delay	86.1	57.7	0.6	68.1	31.0	75.9	64.9	19.3	108.7	64.8	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.1	57.7	0.6	68.1	31.0	75.9	64.9	19.3	108.7	64.8	18.5
LOS	F	E	A	E	C	E	E	B	F	E	B
Approach Delay		59.1			42.8		53.1			59.5	
Approach LOS		E			D		D			E	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 96 (53%), Referenced to phase 2:NWT and 6:SET, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 52.0	Intersection LOS: D
Intersection Capacity Utilization 79.4%	ICU Level of Service D
Analysis Period (min) 15	

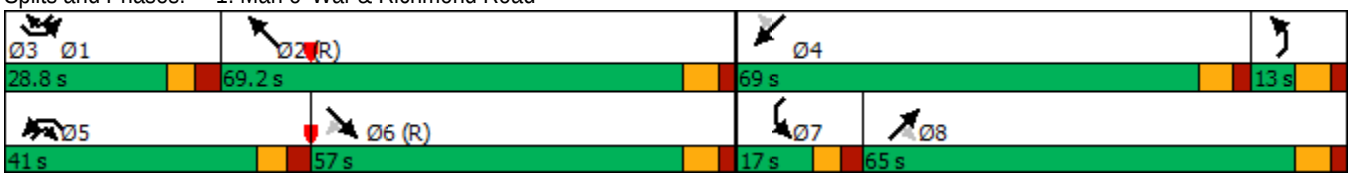
Splits and Phases: 1: Man o' War & Richmond Road



Lane Group	SEL	SET	SER	NWL	NWT	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	314	1312	448	540	858	239	1277	639	222	1624	268
Future Volume (vph)	314	1312	448	540	858	239	1277	639	222	1624	268
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	1	6		5	2	3	8	5	7	4	1
Permitted Phases			6					8			4
Detector Phase	1	6	6	5	2	3	8	5	7	4	1
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	15.0	5.0	5.0	15.0	5.0
Minimum Split (s)	12.2	48.2	48.2	12.2	48.2	12.2	45.2	12.2	11.9	45.2	12.2
Total Split (s)	28.8	57.0	57.0	41.0	69.2	13.0	65.0	41.0	17.0	69.0	28.8
Total Split (%)	16.0%	31.7%	31.7%	22.8%	38.4%	7.2%	36.1%	22.8%	9.4%	38.3%	16.0%
Yellow Time (s)	3.9	4.7	4.7	3.9	4.7	4.7	4.7	3.9	3.9	4.7	3.9
All-Red Time (s)	3.3	2.5	2.5	3.3	2.5	2.5	2.5	3.3	3.0	2.5	3.3
Lost Time Adjust (s)	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-2.9	-3.2	-3.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes			Yes			Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	None	None	None	None	None
Act Effct Green (s)	23.8	53.6	53.6	36.4	66.2	9.0	61.0	101.4	13.0	65.0	88.8
Actuated g/C Ratio	0.13	0.30	0.30	0.20	0.37	0.05	0.34	0.56	0.07	0.36	0.49
v/c Ratio	0.75	0.97	0.82	0.85	0.57	1.08	1.16	0.78	1.01	1.38	0.36
Control Delay	86.3	79.7	46.5	94.9	35.3	156.1	132.0	34.7	140.2	219.0	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.3	79.7	46.5	94.9	35.3	156.1	132.0	34.7	140.2	219.0	12.6
LOS	F	E	D	F	D	F	F	C	F	F	B
Approach Delay		73.5			57.0		105.8			184.6	
Approach LOS		E			E		F			F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 129 (72%), Referenced to phase 2:NWT and 6:SET, Start of Green	
Natural Cycle: 160	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.38	
Intersection Signal Delay: 109.3	Intersection LOS: F
Intersection Capacity Utilization 103.5%	ICU Level of Service G
Analysis Period (min) 15	

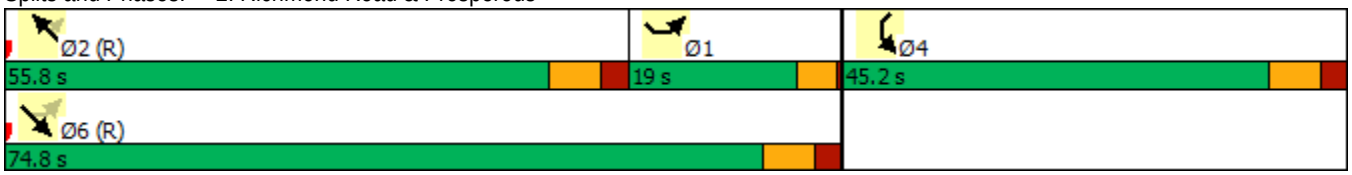
Splits and Phases: 1: Man o' War & Richmond Road



Lane Group	SEL	SET	NWT	NWR	SWL
Lane Configurations					
Traffic Volume (vph)	194	1170	1224	733	150
Future Volume (vph)	194	1170	1224	733	150
Turn Type	pm+pt	NA	NA	Perm	Prot
Protected Phases	1	6	2		4
Permitted Phases	6			2	
Detector Phase	1	6	2	2	4
Switch Phase					
Minimum Initial (s)	4.0	15.0	15.0	15.0	15.0
Minimum Split (s)	8.0	48.2	48.2	48.2	45.2
Total Split (s)	19.0	74.8	55.8	55.8	45.2
Total Split (%)	15.8%	62.3%	46.5%	46.5%	37.7%
Yellow Time (s)	3.5	4.7	4.7	4.7	4.7
All-Red Time (s)	0.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	7.2	7.2
Lead/Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	
Recall Mode	Max	C-Max	C-Max	C-Max	None
Act Effct Green (s)	92.2	89.0	70.0	70.0	16.6
Actuated g/C Ratio	0.77	0.74	0.58	0.58	0.14
v/c Ratio	0.50	0.34	0.45	0.64	0.72
Control Delay	19.8	3.5	15.0	3.5	18.7
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	19.8	3.7	15.0	3.5	18.7
LOS	B	A	B	A	B
Approach Delay		6.0	10.7		18.7
Approach LOS		A	B		B

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 14 (12%), Referenced to phase 2:NWT and 6:SETL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 9.9	Intersection LOS: A
Intersection Capacity Utilization 65.5%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Richmond Road & Prosperous



Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	642	285	1150	221	200	1041
Future Volume (vph)	642	285	1150	221	200	1041
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	4.0	15.0
Minimum Split (s)	45.2	45.2	48.2	48.2	8.0	48.2
Total Split (s)	45.2	45.2	53.8	53.8	21.0	74.8
Total Split (%)	37.7%	37.7%	44.8%	44.8%	17.5%	62.3%
Yellow Time (s)	4.7	4.7	4.7	4.7	3.5	4.7
All-Red Time (s)	2.5	2.5	2.5	2.5	0.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2	4.0	7.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	30.7	30.7	52.2	52.2	18.7	74.9
Actuated g/C Ratio	0.26	0.26	0.44	0.44	0.16	0.62
v/c Ratio	0.79	0.49	0.81	0.30	0.79	0.51
Control Delay	47.5	6.9	10.3	2.0	69.1	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	6.9	10.3	2.0	69.1	14.2
LOS	D	A	B	A	E	B
Approach Delay	35.0		9.0			23.1
Approach LOS	D		A			C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 74 (62%), Referenced to phase 2:SWT and 6:NET, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 20.7	Intersection LOS: C
Intersection Capacity Utilization 76.5%	ICU Level of Service D
Analysis Period (min) 15	

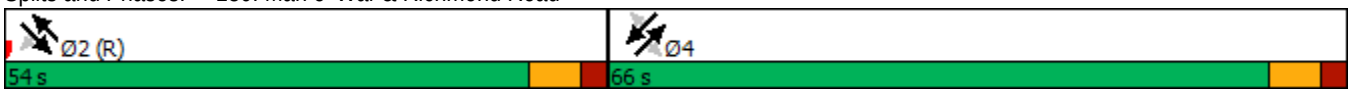
Splits and Phases: 5: Man o' War & Prosperous



Lane Group	SET	SER	NWT	NET	NER	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	810	75	1495	1371	554	1456	227
Future Volume (vph)	810	75	1495	1371	554	1456	227
Turn Type	NA	Perm	NA	NA	Perm	NA	Perm
Protected Phases	2		2	4		4	
Permitted Phases		2			4		4
Detector Phase	2	2	2	4	4	4	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	48.2	48.2	48.2	45.2	45.2	45.2	45.2
Total Split (s)	54.0	54.0	54.0	66.0	66.0	66.0	66.0
Total Split (%)	45.0%	45.0%	45.0%	55.0%	55.0%	55.0%	55.0%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	50.0	50.0	50.0	62.0	62.0	62.0	62.0
Actuated g/C Ratio	0.42	0.42	0.42	0.52	0.52	0.52	0.52
v/c Ratio	0.43	0.12	0.79	0.82	0.73	0.60	0.31
Control Delay	25.7	13.0	21.3	28.8	26.3	17.6	11.4
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay	25.7	13.0	21.4	28.8	26.3	17.6	11.4
LOS	C	B	C	C	C	B	B
Approach Delay	24.6		21.4	28.1		16.8	
Approach LOS	C		C	C		B	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 112 (93%), Referenced to phase 2:NWSE and 6:, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 22.7	Intersection LOS: C
Intersection Capacity Utilization 73.5%	ICU Level of Service D
Analysis Period (min) 15	

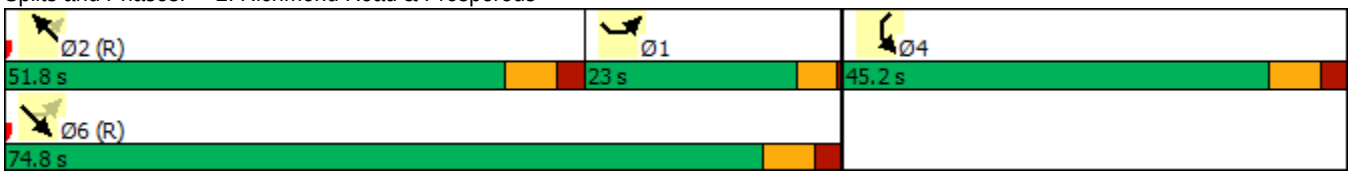
Splits and Phases: 130: Man o' War & Richmond Road



Lane Group	SEL	SET	NWT	NWR	SWL
Lane Configurations					
Traffic Volume (vph)	314	1951	858	726	272
Future Volume (vph)	314	1951	858	726	272
Turn Type	pm+pt	NA	NA	Perm	Prot
Protected Phases	1	6	2		4
Permitted Phases	6			2	
Detector Phase	1	6	2	2	4
Switch Phase					
Minimum Initial (s)	4.0	15.0	15.0	15.0	15.0
Minimum Split (s)	8.0	48.2	48.2	48.2	45.2
Total Split (s)	23.0	74.8	51.8	51.8	45.2
Total Split (%)	19.2%	62.3%	43.2%	43.2%	37.7%
Yellow Time (s)	3.5	4.7	4.7	4.7	4.7
All-Red Time (s)	0.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.2	7.2	7.2	7.2
Lead/Lag	Lag		Lead	Lead	
Lead-Lag Optimize?	Yes		Yes	Yes	
Recall Mode	Max	C-Max	C-Max	C-Max	None
Act Effct Green (s)	88.0	84.8	61.8	61.8	20.8
Actuated g/C Ratio	0.73	0.71	0.52	0.52	0.17
v/c Ratio	0.60	0.59	0.36	0.66	0.80
Control Delay	14.7	4.4	18.4	4.4	21.3
Queue Delay	0.1	0.6	0.0	0.0	0.0
Total Delay	14.8	4.9	18.4	4.4	21.3
LOS	B	A	B	A	C
Approach Delay		6.3	12.0		21.3
Approach LOS		A	B		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 119 (99%), Referenced to phase 2:NWT and 6:SETL, Start of Green	
Natural Cycle: 105	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 10.3	Intersection LOS: B
Intersection Capacity Utilization 71.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Richmond Road & Prosperous



Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	590	450	1277	239	322	1892
Future Volume (vph)	590	450	1277	239	322	1892
Turn Type	Prot	Perm	NA	Perm	Prot	NA
Protected Phases	4		6		5	2
Permitted Phases		4		6		
Detector Phase	4	4	6	6	5	2
Switch Phase						
Minimum Initial (s)	15.0	15.0	15.0	15.0	4.0	15.0
Minimum Split (s)	45.2	45.2	48.2	48.2	8.0	48.2
Total Split (s)	42.0	42.0	55.0	55.0	23.0	78.0
Total Split (%)	35.0%	35.0%	45.8%	45.8%	19.2%	65.0%
Yellow Time (s)	4.7	4.7	4.7	4.7	3.5	4.7
All-Red Time (s)	2.5	2.5	2.5	2.5	0.5	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.2	7.2	7.2	7.2	4.0	7.2
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	C-Max
Act Effct Green (s)	28.9	28.9	47.8	47.8	24.9	76.7
Actuated g/C Ratio	0.24	0.24	0.40	0.40	0.21	0.64
v/c Ratio	0.78	0.79	0.99	0.35	0.96	0.91
Control Delay	49.9	24.0	25.6	1.5	85.2	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.5
Total Delay	49.9	24.0	25.6	1.5	85.2	27.5
LOS	D	C	C	A	F	C
Approach Delay	38.7		21.8			35.9
Approach LOS	D		C			D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 67 (56%), Referenced to phase 2:SWT and 6:NET, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 32.0	Intersection LOS: C
Intersection Capacity Utilization 85.3%	ICU Level of Service E
Analysis Period (min) 15	

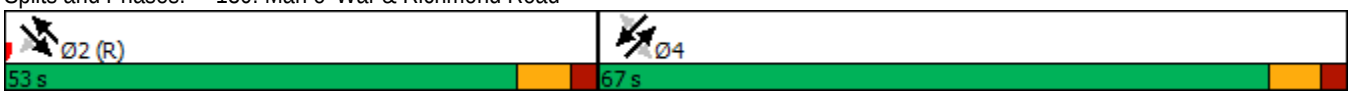
Splits and Phases: 5: Man o' War & Prosperous



Lane Group	SET	SER	NWT	NET	NER	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	1626	448	1147	1516	639	2214	268
Future Volume (vph)	1626	448	1147	1516	639	2214	268
Turn Type	NA	Perm	NA	NA	Perm	NA	Perm
Protected Phases	2		2	4		4	
Permitted Phases		2			4		4
Detector Phase	2	2	2	4	4	4	4
Switch Phase							
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	48.2	48.2	48.2	45.2	45.2	45.2	45.2
Total Split (s)	53.0	53.0	53.0	67.0	67.0	67.0	67.0
Total Split (%)	44.2%	44.2%	44.2%	55.8%	55.8%	55.8%	55.8%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Lost Time Adjust (s)	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2	-3.2
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	C-Max	C-Max	C-Max	None	None	None	None
Act Effct Green (s)	49.0	49.0	49.0	63.0	63.0	63.0	63.0
Actuated g/C Ratio	0.41	0.41	0.41	0.52	0.52	0.52	0.52
v/c Ratio	0.88	0.75	0.62	0.89	0.85	0.90	0.35
Control Delay	39.1	36.6	16.4	32.6	34.5	24.4	12.9
Queue Delay	0.1	0.0	0.2	0.0	0.0	0.0	0.0
Total Delay	39.2	36.6	16.6	32.6	34.5	24.4	12.9
LOS	D	D	B	C	C	C	B
Approach Delay	38.6		16.6	33.2		23.1	
Approach LOS	D		B	C		C	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 112 (93%), Referenced to phase 2:NWSE and 6:, Start of Green	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 80.9%	ICU Level of Service D
Analysis Period (min) 15	

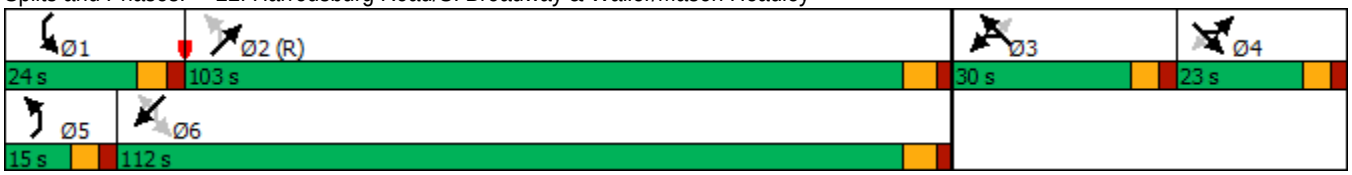
Splits and Phases: 130: Man o' War & Richmond Road



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	263	98	132	393	136	136	84	1150	139	1402	259
Future Volume (vph)	263	98	132	393	136	136	84	1150	139	1402	259
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2	1	6	
Permitted Phases			4			3	2		6		6
Detector Phase	4	4	4	3	3	3	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	35.1	35.1	35.1	35.1	35.1	35.1	14.0	36.6	14.0	36.6	36.6
Total Split (s)	23.0	23.0	23.0	30.0	30.0	30.0	15.0	103.0	24.0	112.0	112.0
Total Split (%)	12.8%	12.8%	12.8%	16.7%	16.7%	16.7%	8.3%	57.2%	13.3%	62.2%	62.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.9	4.3	3.9	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.2	-2.6	-2.2	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	None	Max	Max
Act Effct Green (s)	19.0	19.0	19.0	26.0	26.0	26.0	114.6	104.2	122.0	108.6	108.6
Actuated g/C Ratio	0.11	0.11	0.11	0.14	0.14	0.14	0.64	0.58	0.68	0.60	0.60
v/c Ratio	1.15	1.16	0.51	1.24	1.22	0.45	0.49	0.74	0.63	0.75	0.28
Control Delay	183.0	182.9	19.7	195.2	188.1	20.3	20.3	28.8	41.6	5.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	183.0	182.9	19.7	195.2	188.1	20.3	20.3	28.8	41.6	5.7	0.3
LOS	F	F	B	F	F	C	C	C	D	A	A
Approach Delay		139.4			156.6			28.3		7.7	
Approach LOS		F			F			C		A	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 160 (89%), Referenced to phase 2:NETL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 52.0	Intersection LOS: D
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

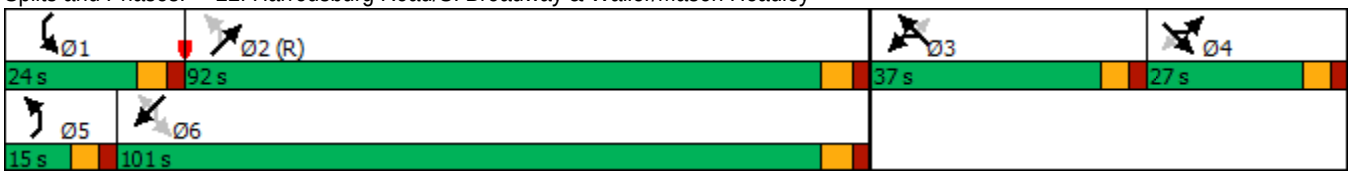
Splits and Phases: 22: Harrodsburg Road/S. Broadway & Waller/Mason Headley



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	263	98	132	393	136	136	84	1150	139	1402	259
Future Volume (vph)	263	98	132	393	136	136	84	1150	139	1402	259
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2	1	6	
Permitted Phases			4			3	2		6		6
Detector Phase	4	4	4	3	3	3	5	2	1	6	6
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	35.1	35.1	35.1	35.1	35.1	35.1	14.0	36.6	14.0	36.6	36.6
Total Split (s)	27.0	27.0	27.0	37.0	37.0	37.0	15.0	92.0	24.0	101.0	101.0
Total Split (%)	15.0%	15.0%	15.0%	20.6%	20.6%	20.6%	8.3%	51.1%	13.3%	56.1%	56.1%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.9	4.3	3.9	4.3	4.3
All-Red Time (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.3	2.3	2.3	2.3	2.3
Lost Time Adjust (s)	-2.1	-2.1	-2.1	-2.1	-2.1	-2.1	-2.2	-2.6	-2.2	-2.6	-2.6
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	None	Max	Max
Act Effct Green (s)	23.0	23.0	23.0	33.0	33.0	33.0	101.7	91.2	111.6	97.5	97.5
Actuated g/C Ratio	0.13	0.13	0.13	0.18	0.18	0.18	0.56	0.51	0.62	0.54	0.54
v/c Ratio	0.96	0.95	0.46	0.98	0.97	0.39	0.58	0.84	0.70	0.84	0.31
Control Delay	128.2	126.6	17.4	116.2	112.7	17.9	39.5	39.3	68.6	14.1	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.2	126.6	17.4	116.2	112.7	17.9	39.5	39.3	68.6	14.1	1.4
LOS	F	F	B	F	F	B	D	D	E	B	A
Approach Delay		98.0			94.7			39.3		16.5	
Approach LOS		F			F			D		B	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 160 (89%), Referenced to phase 2:NETL, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 45.0	Intersection LOS: D
Intersection Capacity Utilization 85.7%	ICU Level of Service E
Analysis Period (min) 15	

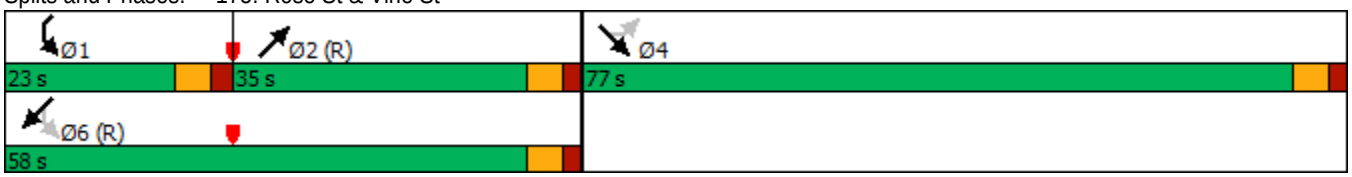
Splits and Phases: 22: Harrodsburg Road/S. Broadway & Waller/Mason Headley



Lane Group	SEL	SET	NET	SWL	SWT
Lane Configurations					
Traffic Volume (vph)	50	1425	300	275	475
Future Volume (vph)	50	1425	300	275	475
Turn Type	Perm	NA	NA	pm+pt	NA
Protected Phases		4	2	1	6
Permitted Phases	4			6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.7	32.7	30.5	11.9	33.5
Total Split (s)	77.0	77.0	35.0	23.0	58.0
Total Split (%)	57.0%	57.0%	25.9%	17.0%	43.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.1	2.1	1.9	2.3	1.9
Lost Time Adjust (s)	-4.7	-4.7	-4.5	-4.9	-4.5
Total Lost Time (s)	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	Max	Max	C-Max	None	C-Max
Act Effct Green (s)	76.0	76.0	34.0	57.0	57.0
Actuated g/C Ratio	0.56	0.56	0.25	0.42	0.42
v/c Ratio	0.07	0.68	0.86	1.01	0.41
Control Delay	11.8	18.1	57.5	90.5	28.6
Queue Delay	0.0	0.1	0.0	0.0	0.0
Total Delay	11.8	18.2	57.5	90.5	28.6
LOS	B	B	E	F	C
Approach Delay		18.0	57.5		51.3
Approach LOS		B	E		D

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 14 (10%), Referenced to phase 2:NET and 6:SWTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 33.9	Intersection LOS: C
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

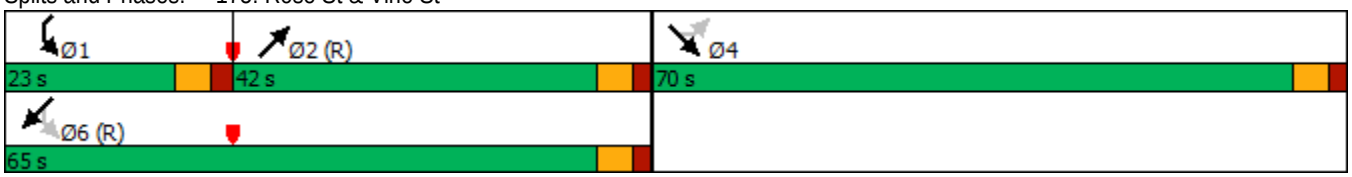
Splits and Phases: 175: Rose St & Vine St



Lane Group	SEL	SET	NET	SWL	SWT
Lane Configurations					
Traffic Volume (vph)	50	1425	300	275	475
Future Volume (vph)	50	1425	300	275	475
Turn Type	Perm	NA	NA	pm+pt	NA
Protected Phases		4	2	1	6
Permitted Phases	4			6	
Detector Phase	4	4	2	1	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	32.7	32.7	30.5	11.9	33.5
Total Split (s)	70.0	70.0	42.0	23.0	65.0
Total Split (%)	51.9%	51.9%	31.1%	17.0%	48.1%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.1	2.1	1.9	2.3	1.9
Lost Time Adjust (s)	-4.7	-4.7	-4.5	-4.9	-4.5
Total Lost Time (s)	1.0	1.0	1.0	1.0	1.0
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	Max	Max	C-Max	None	C-Max
Act Effct Green (s)	69.0	69.0	41.0	64.0	64.0
Actuated g/C Ratio	0.51	0.51	0.30	0.47	0.47
v/c Ratio	0.07	0.75	0.72	0.89	0.37
Control Delay	13.8	24.4	43.8	53.4	23.6
Queue Delay	0.0	0.2	0.0	0.0	0.0
Total Delay	13.8	24.5	43.8	53.4	23.6
LOS	B	C	D	D	C
Approach Delay		24.2	43.8		34.5
Approach LOS		C	D		C

Intersection Summary	
Cycle Length: 135	
Actuated Cycle Length: 135	
Offset: 14 (10%), Referenced to phase 2:NET and 6:SWTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 30.5	Intersection LOS: C
Intersection Capacity Utilization 85.5%	ICU Level of Service E
Analysis Period (min) 15	

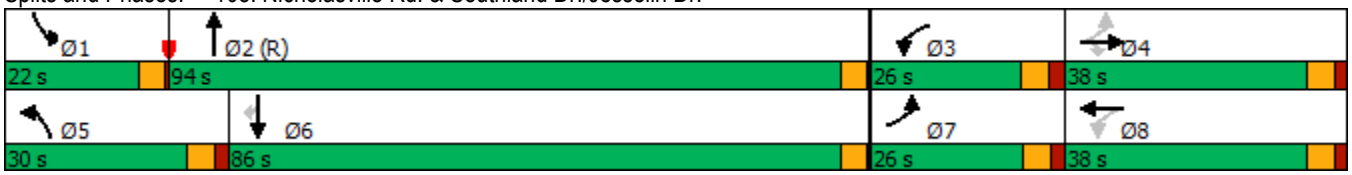
Splits and Phases: 175: Rose St & Vine St



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	228	199	181	56	309	131	2102	38	474	130
Future Volume (vph)	228	199	181	56	309	131	2102	38	474	130
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases	4	4	4	8	8					6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
Minimum Split (s)	30.6	30.6	30.6	10.8	30.6	10.6	20.1	20.1	20.1	20.1
Total Split (s)	26.0	38.0	38.0	26.0	38.0	30.0	94.0	22.0	86.0	86.0
Total Split (%)	14.4%	21.1%	21.1%	14.4%	21.1%	16.7%	52.2%	12.2%	47.8%	47.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	2.0	2.0	2.0	2.2	2.0	2.0	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	-1.6	-1.6	-1.8	-1.6	-1.6	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.6	4.0	4.0	4.0	4.0	4.0	4.1	4.1	4.1	4.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	Min	Max	Max
Act Effct Green (s)	58.4	44.6	44.6	45.4	34.0	21.0	98.2	9.6	86.9	86.9
Actuated g/C Ratio	0.32	0.25	0.25	0.25	0.19	0.12	0.55	0.05	0.48	0.48
v/c Ratio	1.03	0.51	0.39	0.20	1.09	0.70	0.66	0.44	0.30	0.17
Control Delay	116.9	63.4	8.2	43.9	137.7	111.3	15.5	77.6	34.3	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	116.9	63.4	8.2	43.9	137.7	111.3	15.5	77.6	34.3	10.0
LOS	F	E	A	D	F	F	B	E	C	B
Approach Delay		65.6			125.0		21.1		32.0	
Approach LOS		E			F		C		C	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 152 (84%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 40.7	Intersection LOS: D
Intersection Capacity Utilization 79.6%	ICU Level of Service D
Analysis Period (min) 15	

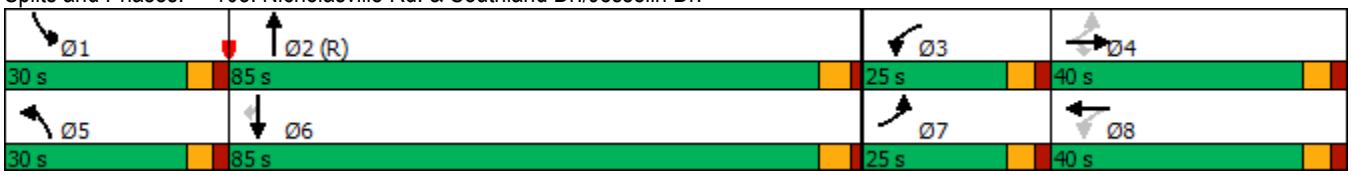
Splits and Phases: 108: Nicholasville Rd. & Southland Dr./Jesselin Dr.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	135	331	333	87	251	220	860	87	2172	252
Future Volume (vph)	135	331	333	87	251	220	860	87	2172	252
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2	1	6	
Permitted Phases	4	4	4	8	8					6
Detector Phase	7	4	4	3	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0	15.0
Minimum Split (s)	10.7	36.1	36.1	10.7	36.1	10.7	45.9	10.7	45.9	45.9
Total Split (s)	25.0	40.0	40.0	25.0	40.0	30.0	85.0	30.0	85.0	85.0
Total Split (%)	13.9%	22.2%	22.2%	13.9%	22.2%	16.7%	47.2%	16.7%	47.2%	47.2%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	4.3	3.6	4.3	4.3
All-Red Time (s)	2.1	2.5	2.5	2.1	2.5	2.1	1.6	2.1	1.6	1.6
Lost Time Adjust (s)	0.0	-1.6	-1.6	-1.8	-1.6	-1.6	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	4.5	4.5	3.9	4.5	4.1	5.9	5.7	5.9	5.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?										
Recall Mode	None	None	None	None	None	None	C-Max	None	Max	Max
Act Effct Green (s)	57.4	42.8	42.8	53.4	38.9	25.9	88.4	15.0	79.1	79.1
Actuated g/C Ratio	0.32	0.24	0.24	0.30	0.22	0.14	0.49	0.08	0.44	0.44
v/c Ratio	0.59	0.88	0.66	0.48	0.70	0.95	0.58	0.65	1.06	0.36
Control Delay	45.0	71.3	20.4	50.7	76.0	108.2	32.7	90.7	97.3	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.0	71.3	20.4	50.7	76.0	108.2	32.7	90.7	97.3	33.3
LOS	D	E	C	D	E	F	C	F	F	C
Approach Delay		45.6			69.8		47.4		90.6	
Approach LOS		D			E		D		F	

Intersection Summary	
Cycle Length: 180	
Actuated Cycle Length: 180	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 71.1	Intersection LOS: E
Intersection Capacity Utilization 92.7%	ICU Level of Service F
Analysis Period (min) 15	

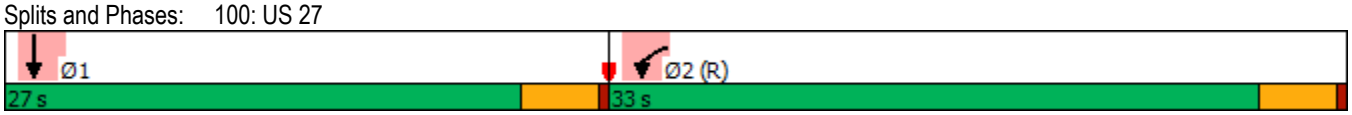
Splits and Phases: 108: Nicholasville Rd. & Southland Dr./Jesselin Dr.



Lane Group	WBL	SBT
Lane Configurations		
Traffic Volume (vph)	365	642
Future Volume (vph)	365	642
Turn Type	Prot	NA
Protected Phases	2	1
Permitted Phases		
Detector Phase	2	1
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	33.0	27.0
Total Split (%)	55.0%	45.0%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Max
Act Effct Green (s)	29.0	23.0
Actuated g/C Ratio	0.48	0.38
v/c Ratio	0.44	0.51
Control Delay	9.1	15.9
Queue Delay	0.0	0.0
Total Delay	9.1	15.9
LOS	A	B
Approach Delay	9.1	15.9
Approach LOS	A	B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 32 (53%), Referenced to phase 2:WBL, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.51	
Intersection Signal Delay: 13.4	Intersection LOS: B
Intersection Capacity Utilization 90.1%	ICU Level of Service E
Analysis Period (min) 15	

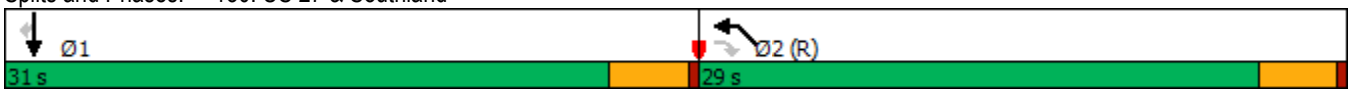
Splits and Phases: 100: US 27



Lane Group	EBR2	SBT	SBR	NWL
Lane Configurations				
Traffic Volume (vph)	608	530	439	131
Future Volume (vph)	608	530	439	131
Turn Type	Perm	NA	Perm	Prot
Protected Phases		1		2
Permitted Phases	2		1	
Detector Phase	2	1	1	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	29.0	31.0	31.0	29.0
Total Split (%)	48.3%	51.7%	51.7%	48.3%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	25.0	27.0	27.0	25.0
Actuated g/C Ratio	0.42	0.45	0.45	0.42
v/c Ratio	0.48	0.36	0.49	0.19
Control Delay	6.8	7.6	2.2	12.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	6.8	7.6	2.2	12.9
LOS	A	A	A	B
Approach Delay		5.2		12.9
Approach LOS		A		B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 51 (85%), Referenced to phase 2:NWL, Start of Green	
Natural Cycle: 40	
Control Type: Pretimed	
Maximum v/c Ratio: 0.49	
Intersection Signal Delay: 6.3	Intersection LOS: A
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

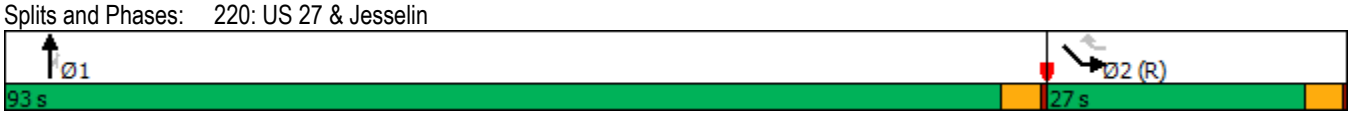
Splits and Phases: 130: US 27 & Southland



Lane Group	WBR2	NBT	NBR	SEL
Lane Configurations				
Traffic Volume (vph)	413	2330	227	38
Future Volume (vph)	413	2330	227	38
Turn Type	Perm	NA	Perm	Prot
Protected Phases		1		2
Permitted Phases	2		1	
Detector Phase	2	1	1	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	27.0	93.0	93.0	27.0
Total Split (%)	22.5%	77.5%	77.5%	22.5%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	Max	C-Max
Act Effct Green (s)	23.0	89.0	89.0	23.0
Actuated g/C Ratio	0.19	0.74	0.74	0.19
v/c Ratio	0.82	0.92	0.20	0.12
Control Delay	57.9	11.2	0.2	38.2
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	57.9	11.4	0.2	38.2
LOS	E	B	A	D
Approach Delay		10.4		38.2
Approach LOS		B		D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 11 (9%), Referenced to phase 2:SEL and 6:, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 17.3	Intersection LOS: B
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

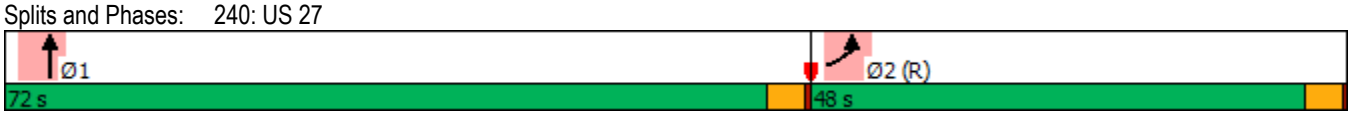
Splits and Phases: 220: US 27 & Jesselin



Lane Group	EBL	NBT
Lane Configurations		
Traffic Volume (vph)	427	2261
Future Volume (vph)	427	2261
Turn Type	Prot	NA
Protected Phases	2	1
Permitted Phases		
Detector Phase	2	1
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	48.0	72.0
Total Split (%)	40.0%	60.0%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	C-Max	Max
Act Effct Green (s)	44.0	68.0
Actuated g/C Ratio	0.37	0.57
v/c Ratio	0.71	0.85
Control Delay	34.9	25.6
Queue Delay	0.0	0.0
Total Delay	34.9	25.6
LOS	C	C
Approach Delay	34.9	25.6
Approach LOS	C	C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBL and 6:, Start of Green	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 27.1	Intersection LOS: C
Intersection Capacity Utilization 74.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 240: US 27



Lane Group	WBL	SBT
Lane Configurations		
Traffic Volume (vph)	338	2511
Future Volume (vph)	338	2511
Turn Type	Prot	NA
Protected Phases	2	1
Permitted Phases		
Detector Phase	2	1
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	27.0	93.0
Total Split (%)	22.5%	77.5%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	Max	Max
Act Effct Green (s)	23.0	89.0
Actuated g/C Ratio	0.19	0.74
v/c Ratio	1.07	1.04
Control Delay	102.7	45.8
Queue Delay	0.0	0.0
Total Delay	102.7	45.8
LOS	F	D
Approach Delay	102.7	45.8
Approach LOS	F	D

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 102 (85%), Referenced to phase 2:WBL, Start of Green	
Natural Cycle: 120	
Control Type: Pretimed	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 52.6	Intersection LOS: D
Intersection Capacity Utilization 104.1%	ICU Level of Service G
Analysis Period (min) 15	

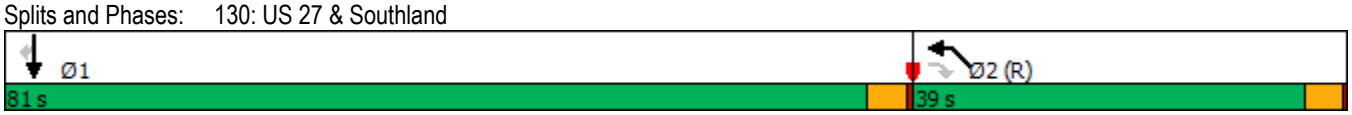
Splits and Phases: 100: US 27



Lane Group	EBR2	SBT	SBR	NWL
Lane Configurations				
Traffic Volume (vph)	799	2259	503	220
Future Volume (vph)	799	2259	503	220
Turn Type	Perm	NA	Perm	Prot
Protected Phases		1		2
Permitted Phases	2		1	
Detector Phase	2	1	1	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	39.0	81.0	81.0	39.0
Total Split (%)	32.5%	67.5%	67.5%	32.5%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max
Act Effct Green (s)	35.0	77.0	77.0	35.0
Actuated g/C Ratio	0.29	0.64	0.64	0.29
v/c Ratio	1.06	1.08	0.48	0.46
Control Delay	89.2	53.8	0.6	32.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	89.2	53.8	0.6	32.1
LOS	F	D	A	C
Approach Delay		44.1		32.1
Approach LOS		D		C

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NWL, Start of Green	
Natural Cycle: 130	
Control Type: Pretimed	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 52.9	Intersection LOS: D
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

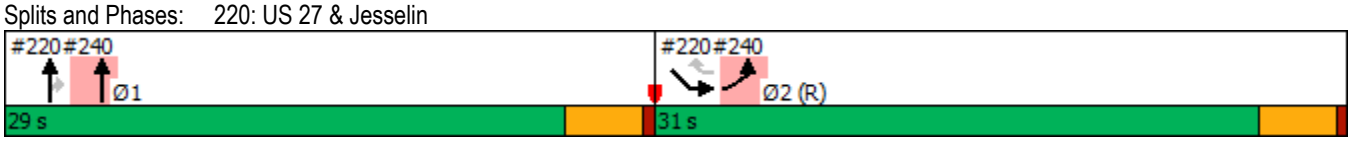
Splits and Phases: 130: US 27 & Southland



Lane Group	WBR2	NBT	NBR	SEL
Lane Configurations				
Traffic Volume (vph)	355	995	387	87
Future Volume (vph)	355	995	387	87
Turn Type	Perm	NA	Perm	Prot
Protected Phases		1		2
Permitted Phases	2		1	
Detector Phase	2	1	1	2
Switch Phase				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0
Total Split (s)	31.0	29.0	29.0	31.0
Total Split (%)	51.7%	48.3%	48.3%	51.7%
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lead	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	C-Max	Max	Max	C-Max
Act Effct Green (s)	27.0	25.0	25.0	27.0
Actuated g/C Ratio	0.45	0.42	0.42	0.45
v/c Ratio	0.30	0.73	0.47	0.12
Control Delay	9.6	11.2	1.5	9.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	9.6	11.2	1.5	9.0
LOS	A	B	A	A
Approach Delay		8.5		9.0
Approach LOS		A		A

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 40 (67%), Referenced to phase 2:SEL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 8.7	Intersection LOS: A
Intersection Capacity Utilization Err%	ICU Level of Service H
Analysis Period (min) 15	

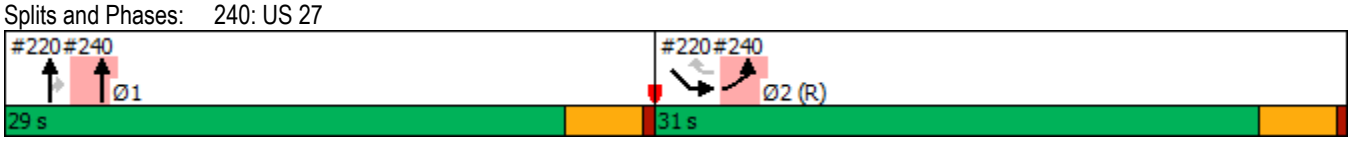
Splits and Phases: 220: US 27 & Jesselin

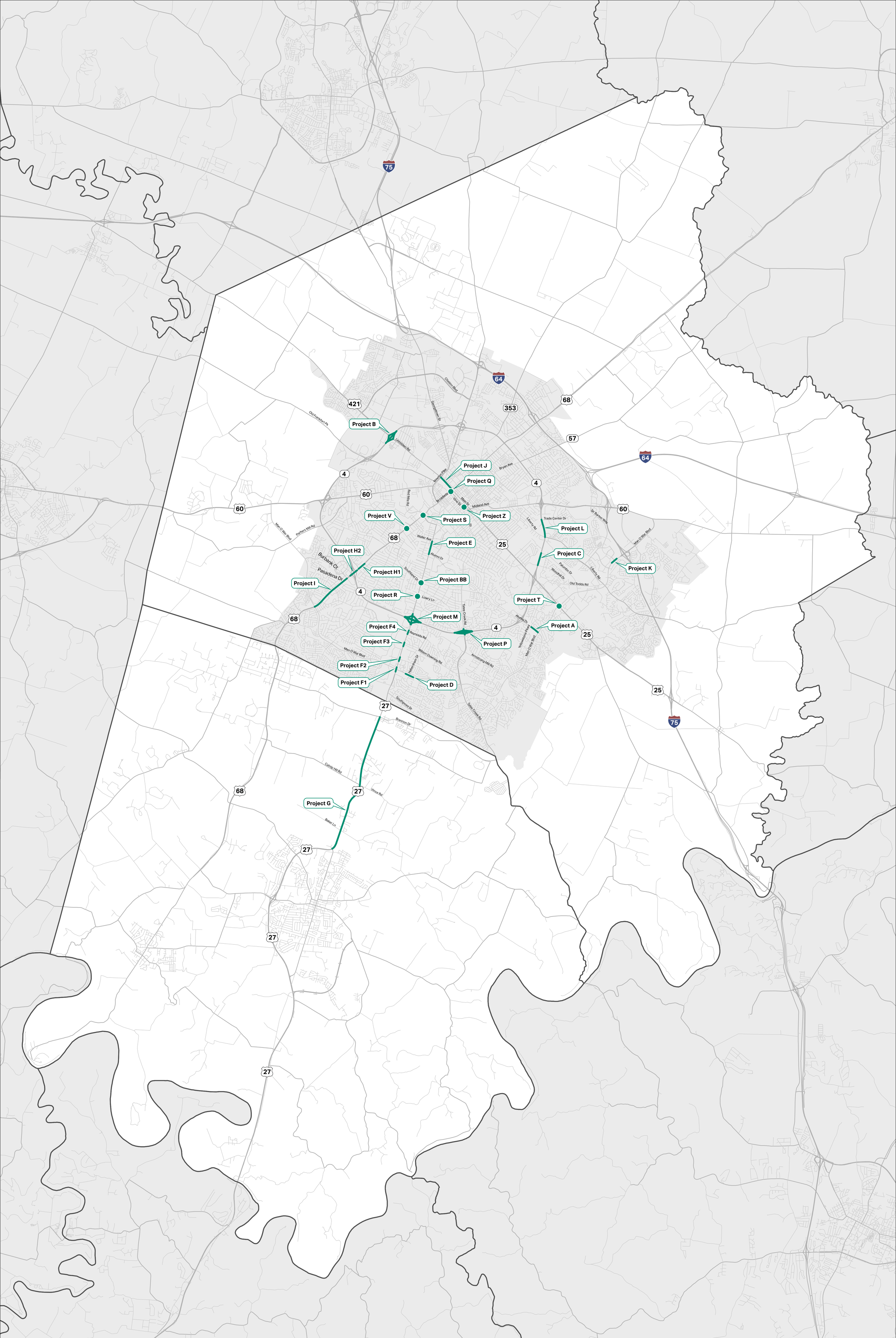


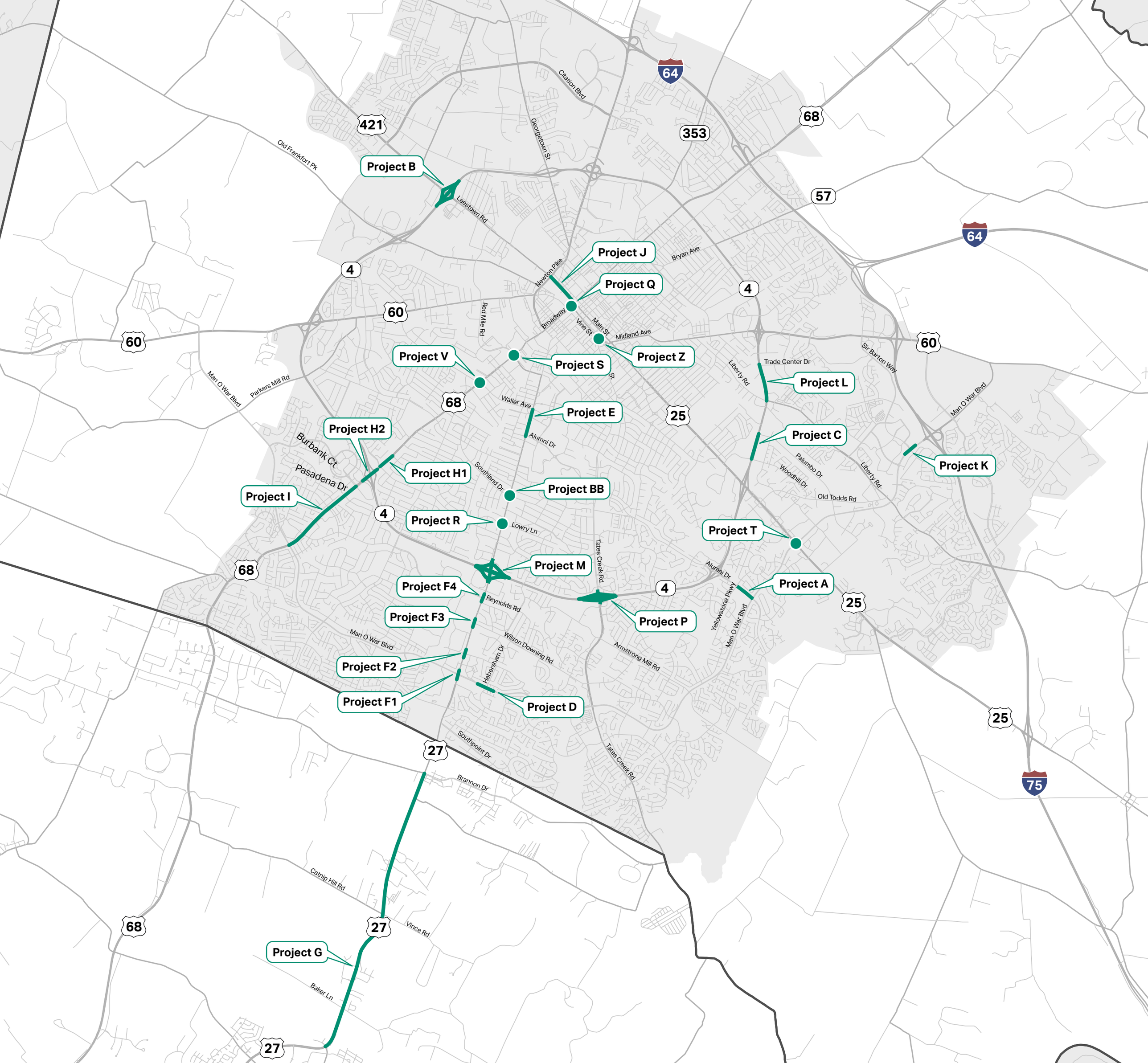
Lane Group	EBL	NBT
Lane Configurations		
Traffic Volume (vph)	466	1136
Future Volume (vph)	466	1136
Turn Type	Prot	NA
Protected Phases	2	1
Permitted Phases		
Detector Phase	2	1
Switch Phase		
Minimum Initial (s)	4.0	4.0
Minimum Split (s)	20.0	20.0
Total Split (s)	31.0	29.0
Total Split (%)	51.7%	48.3%
Yellow Time (s)	3.5	3.5
All-Red Time (s)	0.5	0.5
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)	4.0	4.0
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	C-Max	Max
Act Effct Green (s)	27.0	25.0
Actuated g/C Ratio	0.45	0.42
v/c Ratio	0.63	0.58
Control Delay	12.4	14.9
Queue Delay	0.0	0.0
Total Delay	12.4	14.9
LOS	B	B
Approach Delay	12.4	14.9
Approach LOS	B	B

Intersection Summary	
Cycle Length: 60	
Actuated Cycle Length: 60	
Offset: 40 (67%), Referenced to phase 2:SEL and 6:, Start of Green	
Natural Cycle: 40	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.73	
Intersection Signal Delay: 14.1	Intersection LOS: B
Intersection Capacity Utilization 54.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 240: US 27




Project B
Project J
Project Q
Project V
Project S
Project Z
Project E
Project H2
Project H1
Project I
Project BB
Project R
Project M
Project F4
Project F3
Project F2
Project F1
Project D
Project G
Project P
Project T
Project A
Project L
Project C
Project K
75
64
421
353
68
57
4
60
25
27
Clinton Blvd
Georgetown St
Old Frankfort Pk
Leestown Rd
Newton Pike
Broadway
Main St
Vine St
Midland Ave
Bryan Ave
Red Mile Rd
Man O War Blvd
Parkers Mill Rd
Waller Ave
Alumni Dr
Burbank Ct
Pasadena Dr
Southland Dr
Lowry Ln
Tates Creek Rd
Reynolds Rd
Wilson Downing Rd
Hatherleigh Dr
Armstrong Mill Rd
Yellowstone Pkwy
Southpoint Dr
Brannon Dr
Catnip Hill Rd
Vince Rd
Baker Ln
Trade Center Dr
Liberty Rd
Sir Barton Way
Palumbo Dr
Woodhill Dr
Old Todds Rd


Project B
Project J
Project Q
Project V
Project S
Project Z
Project E
Project H2
Project H1
Project I
Project BB
Project R
Project M
Project F4
Project F3
Project F2
Project F1
Project D
Project G
Project L
Project C
Project K
Project T
Project A
Project P
64
421
353
68
57
4
60
25
75
Citation Blvd
Georgetown St
Old Frankfort Pk
Leestown Rd
Newton Pike
Bryan Ave
Broadway
Vine St
Main St
Midland Ave
Red Mile Rd
Man O War Blvd
Parkers Mill Rd
Waller Ave
Alumni Dr
Burbank Ct
Pasadena Dr
Southland Dr
Lowry Ln
Tates Creek Rd
Reynolds Rd
Wilson Downing Rd
Habersham Dr
Armstrong Mill Rd
Yellowstone Pkwy
Southpoint Dr
Brannon Dr
Catnip Hill Rd
Vince Rd
Baker Ln
Trade Center Dr
Liberty Rd
Sir Barton Way
Palumbo Dr
Woodhill Dr
Old Todds Rd

LFUCG CM Bottleneck Study	Fayette County	Project ID:	A
		Name:	Alumni Dr from Man O' War Blvd to Yellowstone Pkwy

Project Description: **Work Type:** Minor Widening

Alumni @ MOW: Construct an additional SW right-turn lane on MOW and provide a pedestrian island on the NW corner by channelizing the SW right-turns. Also, construct an additional NE left-turn lane on MOW.
Alumni @ Yellowstone: Construct an additional NE left-turn lane on Yellowstone.
(New sidewalk shown with blue hatch)

MP **3.60** to MP **3.88** Project Length: **0.27** MI

Identified Needs:	**Proposed Improvements:**
• Add intersection capacity - heavy AM peak inbound movement from MOW westbound along Alumni with high v/c ratios • Reduce congestion related crashes - total of 172 crashes over the last 3 years combined at the two intersections	• Add a second SW right-turn lane (lane use: 1-left, 2-thru, 2-right) and second NE left-turn lane (lane use: 2-left, 2-thru, 1-right) on MOW at Alumni • Add a second NE left-turn lane (lane use: 2-left, 1-thru/right) on Yellowstone at Alumni • Upgrade traffic signal heads • Update signal timing/phasing

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:		Planning:	$	0
		Design:	$	122,000
Functional Class:	Principal Arterial	Right-of-Way:	$	490,000
2020 ADT | % Trucks:	30,550 vpd | Unavailable	Utilities:	$	280,000
		Construction:	$	1,220,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**2,112,000**

Project Location: 37.99294, -84.46057 **Proposed Concepts: Add turn lanes**



Legend
Add Lane
Reassign Lane
Remove Lane

LFUCG CM Bottleneck Study	Fayette County	Project ID:	B (Interim)
		Name:	Leestown Rd at New Circle Rd (KY 4)

Project Description: **Work Type:** Safety Improvements

Short-term safety improvement project, trade-off for vehicle delay. Signal upgrades to add backplates to the existing signal heads at both ramp terminals. Update signal timing and phasing at the ramp intersections.

MP **1.70** to MP **1.86** Project Length **0.16** MI

Identified Needs:	Proposed Improvements:
• Safety concerns at both ramp termini. Future project will improve the interchange, but crashes could be reduced with interim improvements • Inner loop - 31 total crashes, 22 of which were rear end, 5 left-turn, and 4 angle • Outer loop – 47 total crashes, 25 left-turn, 21 rear end, and 1 angle • Sun glare problem at both intersections	• Add retroreflective backplates to the existing signal heads at both ramp terminals • Change the NW left-turn phasing at the outer loop ramp terminal to protected only left-turns and replace the signal head • Update signal timing splits

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:		Planning:	$	0
Functional Class: (New Circle Rd)	Freeways and Expressway	Design:	$	0
Functional Class: (Tates Creek Rd)	Minor Arterial	Right-of-Way:	$	0
2020 ADT | % Trucks: (New Circle Rd)	56,463 vpd | 12%	Utilities:	$	0
2018 ADT | % Trucks: (Leestown Rd)	38,543 vpd | 12%	Construction:	$	20,000
Bike/Ped Facilities:	N/A	**Total Estimated Cost:**	**$**	**20,000**

Project Location: 38.07072, -84.53114 **Proposed Concepts: Signal upgrades**



LFUCG CM Bottleneck Study	Fayette County	Project ID:	C
		Name:	New Circle Rd at Woodhill Dr and Palumbo Dr

Project Description: **Work Type:** Intersection Improvement

Update signal phasing/timing and add/reassign turn lanes at the New Circle/Woodhill and New Circle/Palumbo intersections. (New sidewalk shown with blue hatch)

MP **14.15** to MP **14.51** Project Length: **0.36** MI

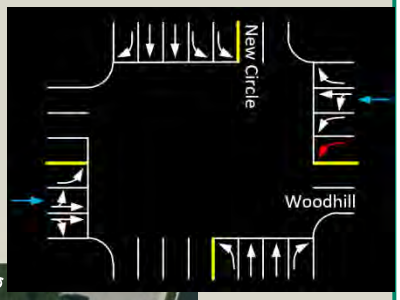
Identified Needs:	**Proposed Improvements:**
• Improve intersection operational efficiency – both intersections are currently over capacity (v/c > 1.0) • Reduce congestion related crashes – total of 187 crashes over the last 3 years combined at the two intersections • Balance lane configuration • Additional turn lane storage	• Woodhill – Add a second WB left-turn lane (lane use: 2-left, 1-thru, 1-right) and reassign lane use on the EB approach (lane use: 1-left, 1-thru, 1-thru/right) • Woodhill – Remove minor street split phase and provide protected only EB/WB left-turn phase • Extend sidewalk in NW corner at Woodhill • Palumbo – Reassign the WB lane use (1-left, 1-thru/right) • Both intersections – Update signal timings

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:				
		Design:	$	99,000
Functional Class:	Principal Arterial	Right-of-Way:	$	350,000
2018 ADT | % Trucks:	42,767 vpd | 6%	Utilities:	$	140,000
		Construction:	$	990,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**1,579,000**

Project Location: 38.02269, -84.45468 **Proposed Concepts: Signal Timing & Turn Lanes**









Legend
Add Lane
Reassign Lane
Remove Lane

LFUCG CM Bottleneck Study	Fayette County	Project ID:	D
		Name:	Man O' War Blvd at Habersham Dr

Project Description: **Work Type:** Signal Timing

Update signal phasing and timing at the Man O' War/Habersham intersection.

MP **6.97** Project Length: **0.10** MI

Identified Needs:	**Proposed Improvements:**
• Reduce delay for the SB left turn movement • Address safety concern related to conflicts between the WB left-turn and EB through movements	• Change the NB/SB left-turn phasing to permitted/protected and the EB/WB left-turn phasing to protected only – entire day • Upgrade traffic signal heads • Optimize signal timing splits and offset

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:				
		Design:	$	10,000
Functional Class:	Principal Arterial	Right-of-Way:	$	0
2019 ADT | % Trucks:	29,798 vpd | Unavailable	Utilities:	$	0
		Construction:	$	0
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	10,000
Project Location: 37.97623, -84.53006		**Proposed Concepts: Signal Timing**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	E - Short
		Name:	Waller Ave between Elizabeth St and Nicholasville Rd (US 27)

Project Description: **Work Type:** Intersection Improvement

Update signal phasing at timing at the Nicholasville/Waller intersection. Reassign lane use on the Waller and Cooper approaches to Nicholasville. In addition, restripe pavement markings at the Waller/Elizabeth intersection.

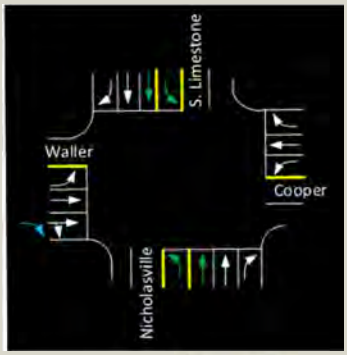
MP **4.46** to MP **4.57** Project Length: **0.12** MI

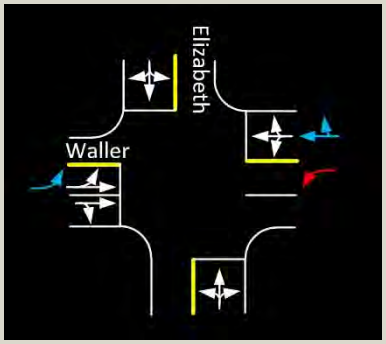
Identified Needs:	**Proposed Improvements:**
• Reduce intersection delay and add capacity at the Nicholasville/Waller and Nicholasville/Alumni intersections • Improve traffic flow along Nicholasville between Farm Rd and Westwood Dr • Reduce the WB queue at the Waller/Elizabeth intersection caused by WB left-turns	• Remove minor street split phase and provide permitted/protected left-turns at Nicholasville/Waller • Install new 5-section left-turn signal heads • Reassign the EB lane use (1-left, 1-thru, 1-right) and WB lane use (1-left, 1-thru, 1-right) at Nicholasville/Waller • Restripe markings at Waller/Elizabeth to provide EB and WB left-turn lanes

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:		Planning:	$	0
		Design:	$	27,000
Functional Class:	Principal Arterial	Right-of-Way:	$	0
2018 ADT | % Trucks:	32,099 vpd | Unavailable	Utilities:	$	0
		Construction:	$	270,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**297,000**

Project Location: 38.02805, -84.51055 **Proposed Concepts: Signal Timing & Turn Lane**









Legend
- Add Lane
- Reassign Lane
- Remove Lane
- Existing Reversible Lane

LFUCG CM Bottleneck Study	Fayette County	Project ID:	E - Long
		Name:	Nicholasville Rd (US 27) between and Alumni Dr and State St

Project Description: **Work Type:** Intersection Improvement

Construct a N/S Restricted Crossing U-Turn innovative intersection at Waller Ave and eliminate reversable lanes on Nicholasville. In addition, remove traffic signal at Dantzler Dr and convert to right-in, right-out.
(New sidewalk shown with blue hatch)

MP **4.49** to MP **4.77** Project Length: **0.28** MI

Identified Needs:	**Proposed Improvements:**
• Reduce intersection delay and add capacity at the Nicholasville/Waller and Nicholasville/Alumni intersections • Improve traffic flow along Nicholasville between Farm Rd and Westwood Dr	• R-Cut intersection at Waller consists of 2 thru lanes on Nicholasville in each direction • Include a center Bus Rapid Transit (BRT) lane • Remove traffic signal at Dantzler and convert intersection to a right-in, right-out • Update signal timing at the Nicholasville/Alumni intersection

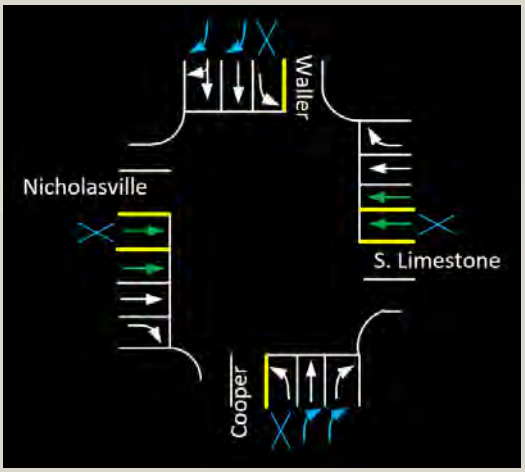
Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:				
		Design:	$	195,000
Functional Class:	Principal Arterial	Right-of-Way:	$	420,000
2018 ADT | % Trucks:	32,099 vpd | Unavailable	Utilities:	$	700,000
		Construction:	$	1,950,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**3,265,000**

Project Location: 38.02805, -84.51055 **Proposed Concepts: R-CUT Intersection**









Legend
- Add Lane
- Reassign Lane
- Remove Lane
- Existing Reversible Lane

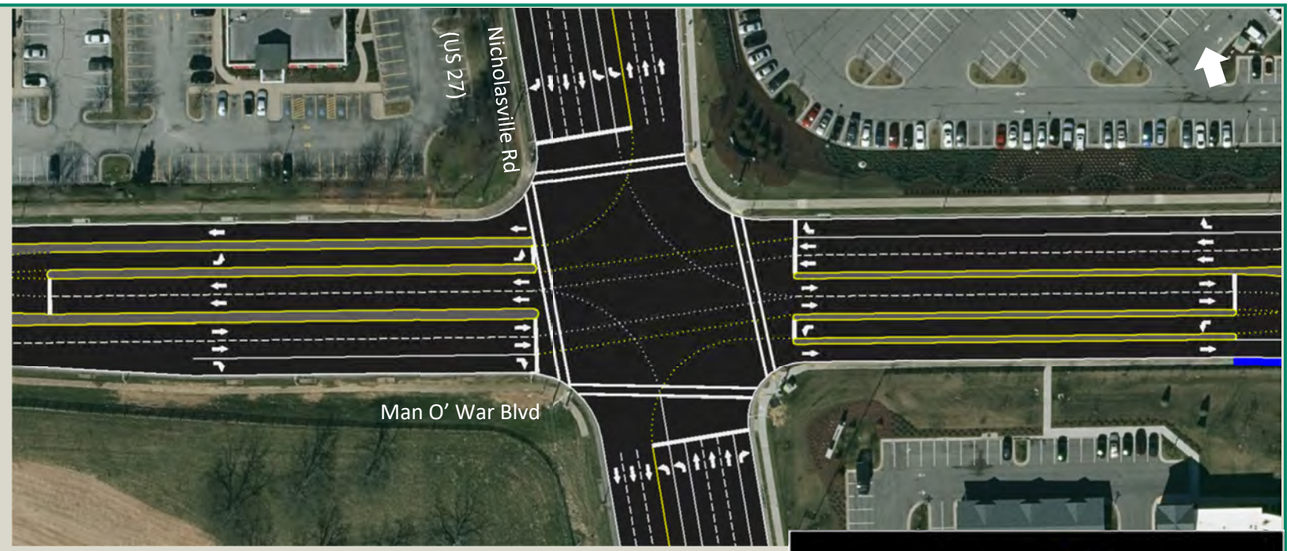
LFUCG CM Bottleneck Study	Fayette County	Project ID:	F-1
		Name:	Nicholasville Rd (US 27) at Man O' War Blvd
Project Description:		**Work Type:**	Intersection Improvement

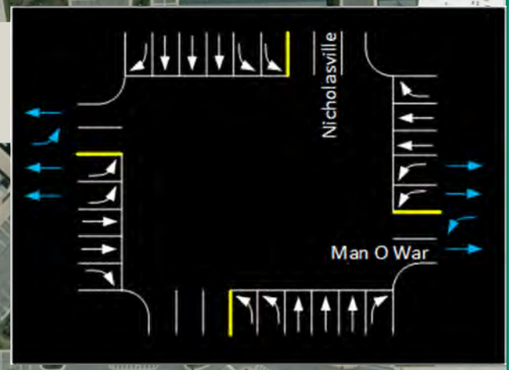
Construct an E/W Displaced Left Turn (DLT) innovative intersection at Nicholasville/MOW.
(New sidewalk shown with blue hatch)

MP **0.24** to MP **2.03** Project Length: **1.79** MI

Identified Needs:	**Proposed Improvements:**
• Minimize conflict points with left turn movements at the Nicholasville/MOW intersection • Increase intersection capacity and efficiency • Reduce congestion and left-turn related crashes – total of 144 crashes over the last 3 years	• E/W DLT intersection consisting of 3 thru lanes in the N/S directions and 2 thru lanes in the E/W directions

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:		Planning:	$	0
		Design:	$	352,000
Functional Class:	Principal Arterial	Right-of-Way:	$	308,000
2020 ADT | % Trucks:	41,240 vpd | 7%	Utilities:	$	980,000
		Construction:	$	3,520,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**5,160,000**
Project Location: 37.97621, -84.53005		**Proposed Concepts: Displaced Left Turn Intersection**		





LFUCG CM Bottleneck Study	Fayette County	Project ID:	F-2
		Name:	Nicholasville Rd (US 27) at West Tiverton Way

Project Description: **Work Type:** Intersection Improvements

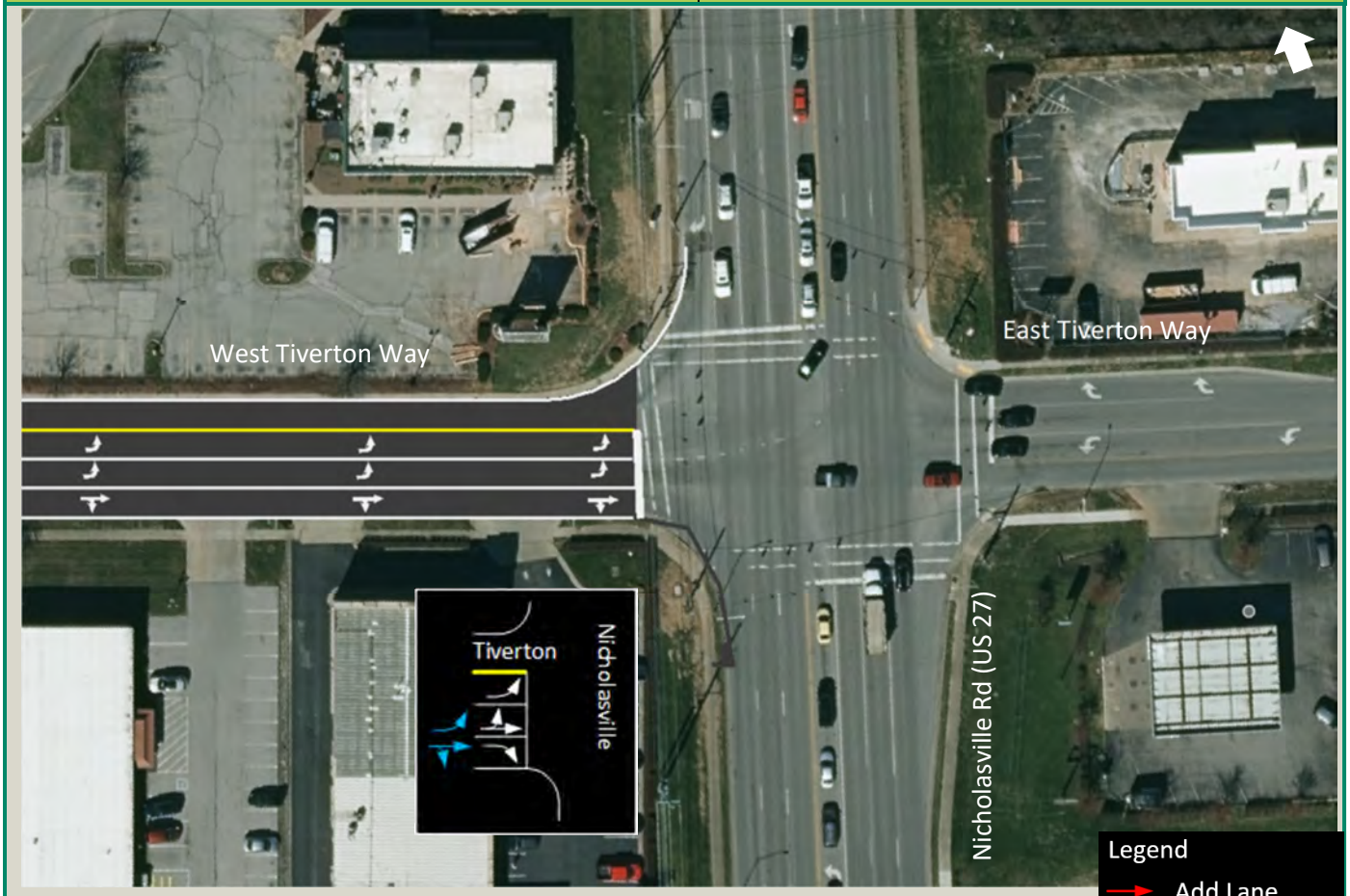
Update signal phasing and timing at the Nicholasville/Tiverton intersection. Reassign lane use on the eastbound approach.

MP **0.24** to MP **2.03** Project Length: **1.79** MI

Identified Needs:	Proposed Improvements:
• Reduce intersection delay and increase capacity, the intersection is operating at 50% over capacity • Minor street split phasing is contributing to overall intersection deficiency	• Remove minor street split phase and provide protected only left-turn phases at Nicholasville/Tiverton • Upgrade the left-turn signal heads • Reassign lane use on the EB approach (2-left, 1-thru/right)

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:		Planning:	$	0
		Design:	$	15,000
Functional Class:	Principal Arterial	Right-of-Way:	$	0
2020 ADT | % Trucks:	41,240 vpd | 7%	Utilities:	$	0
		Construction:	$	150,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**165,000**

Project Location: 37.98028, -84.52844 **Proposed Concepts: Signal Timing & Turn Lane**



LFUCG CM Bottleneck Study	Fayette County	Project ID:	F-3
		Name:	Nicholasville Rd (US 27) at Wilson Downing Rd

Project Description: **Work Type:** Minor Widening

Construct an additional WB left-turn lane on Wilson Downing at the Nicholasville intersection. Grey sidewalk on south side of Wilson Downing is being funded through a separate project.

MP **0.24** to MP **2.03** Project Length: **1.79** MI

Identified Needs:	Proposed Improvements:
• Add intersection capacity – WB left-turn movement is currently over capacity (v/c 1.35) in the PM peak hour	• Add a second WB left-turn lane (lane use: 2-left, 1-thru/right) on Wilson Downing at Nicholasville • Adjust signal timing splits

Project Status: Predesign		Project Phase Estimates: (2021 Dollars)		
Identified Project:		Planning:	$	0
		Design:	$	35,000
Functional Class:	Principal Arterial	Right-of-Way:	$	42,000
2020 ADT | % Trucks:	41,240 vpd | 7%	Utilities:	$	70,000
		Construction:	$	350,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**497,000**
Project Location: 37.98633, -84.52607		**Proposed Concepts: Signal Timing & Turn lane**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	F-4
		Name:	Nicholasville Rd (US 27) at Reynolds Rd

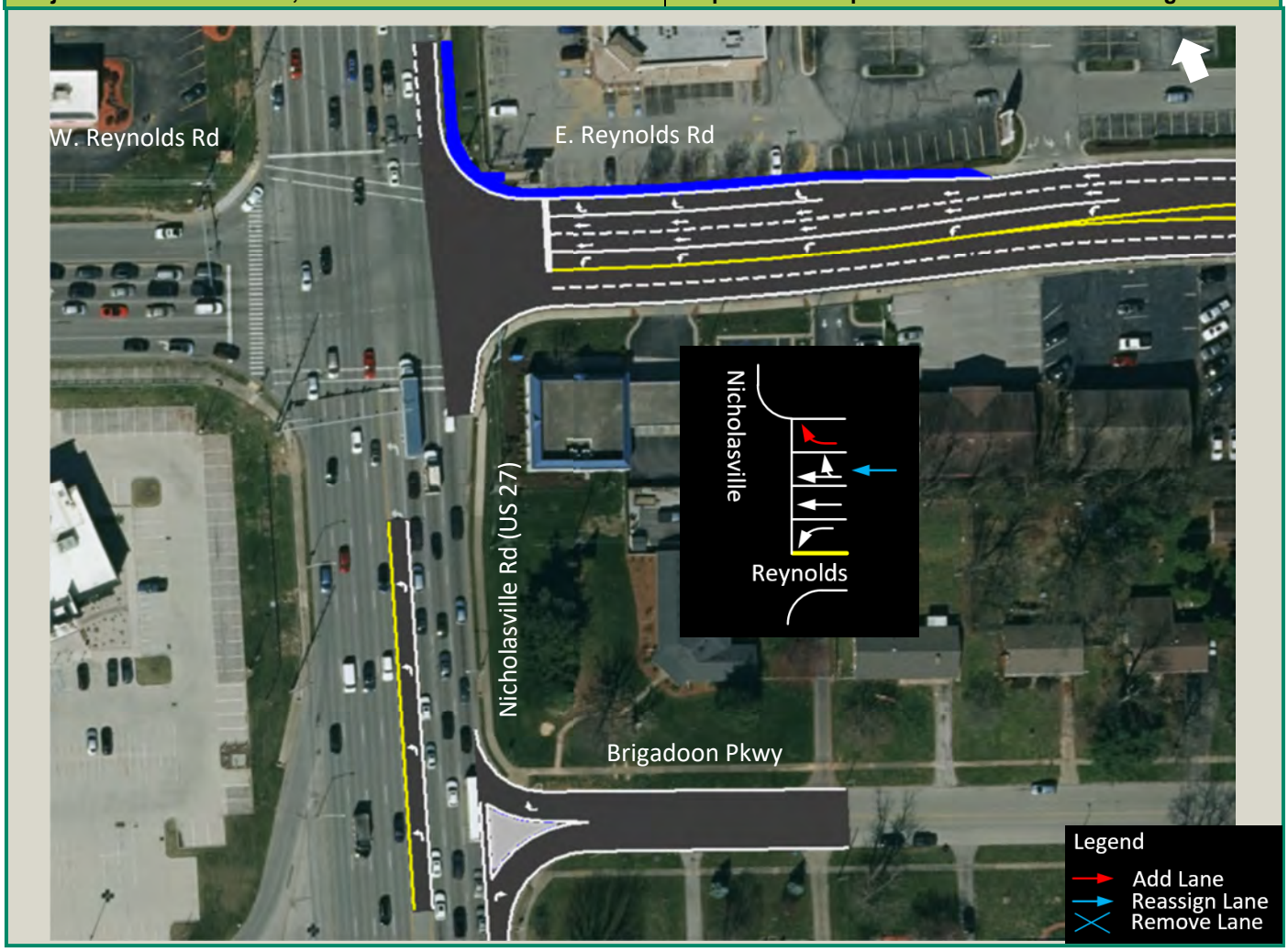
Project Description: **Work Type:** Minor Widening

Construct a WB right-turn lane and lengthen the NB left-turn lane at the Nicholasville/Reynolds intersection. In addition, convert the Nicholasville/Brigadoon Pkwy intersection to a right-in right-out only.
(New sidewalk shown with blue hatch)

MP **0.24** to MP **2.03** Project Length: **1.79** MI

Identified Needs:	**Proposed Improvements:**
• Increase intersection capacity - existing volume/capacity ratio in the AM peak is 1.49 • Provide additional shortage for the NB left-turn vehicles • Improve safety and access management	• Add WB right-turn lane (lane use: 1-left, 2-thru, 1-right) on Reynolds at Nicholasville • Convert the WB approach on Brigadoon to a right-in right-out intersection and restripe the SB left-turn lane to provide additional storage for the NB left-turns at Nicholasville/Reynolds • Update signal timing splits

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:		Planning:	$	0
		Design:	$	60,000
Functional Class:	Principal Arterial	Right-of-Way:	$	280,000
2020 ADT | % Trucks:	41,240 vpd | 7%	Utilities:	$	70,000
		Construction:	$	600,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**1,010,000**
Project Location: 37.99115, -84.52372		**Proposed Concepts: Turn lane & Access Management**		



LFUCG CM Bottleneck Study	Fayette/Jessamine County	Project ID:	G
		Name:	Nicholasville Road (US 27) Access Management

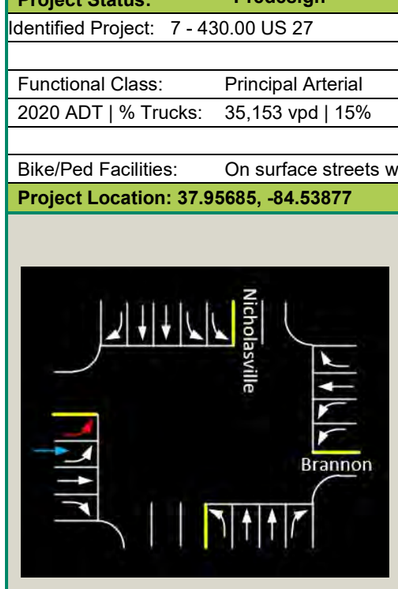
Project Description: **Work Type:** Major Widening

Access management project along US 27 in Jessamine County. Short-term signal timing and phasing improvements already designed, link to the project: https://lexareampo.org/wp-content/uploads/2020/10/US-27-Access-Management-Plan-Feb-2013.pdf

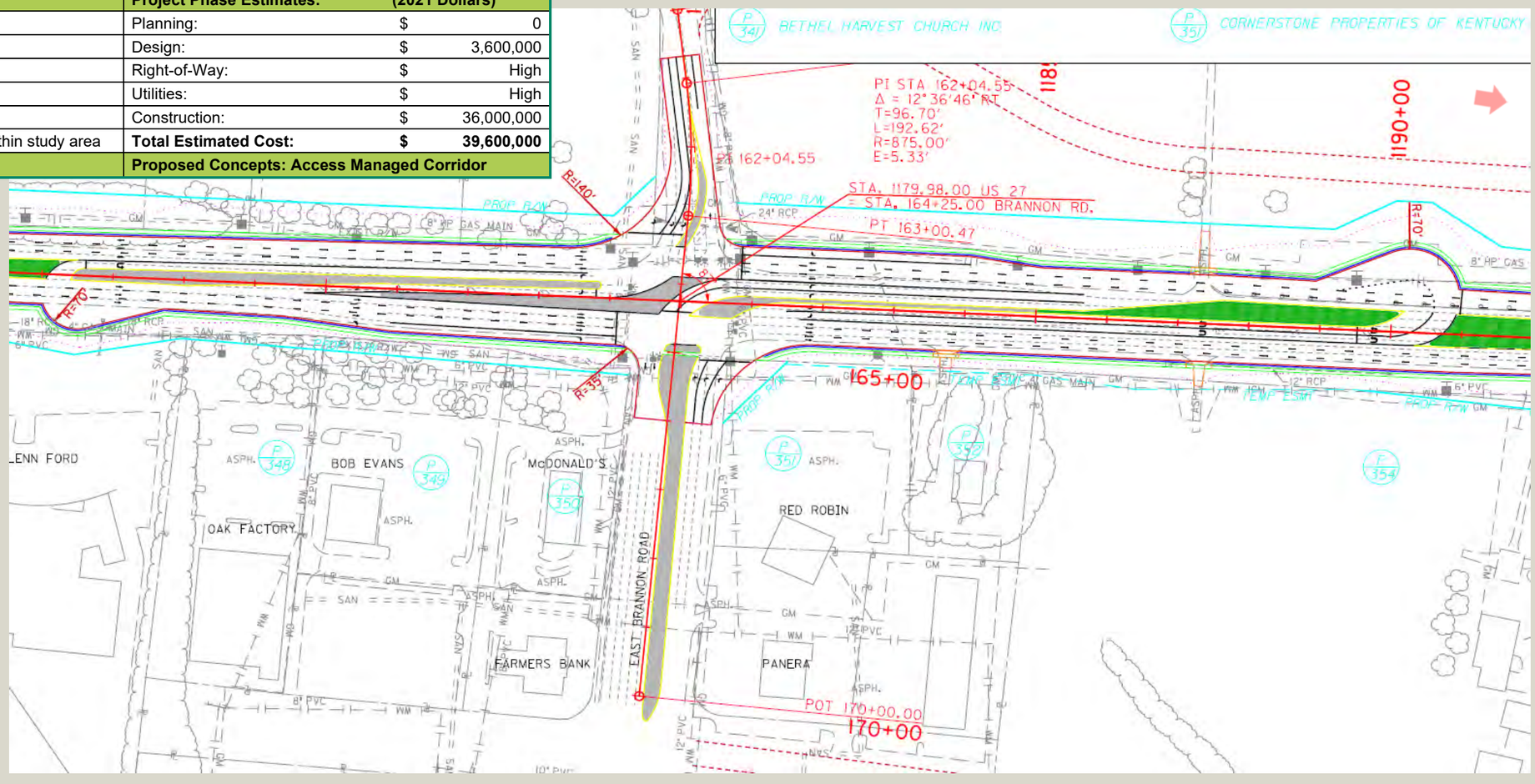
MP **0** to MP **1.10** Project Length: **1.10** MI

Identified Needs:	**Proposed Improvements:**
• Access management will be key as development increases in the project area • Reduce congestion • Increase safety and mobility	• (6 lanes at 55/45 MPH with 18 feet median with island curb and gutter in the median with curb and gutter • Superstreet concepts at Elizabeth St., Catnip Hill, Commerce Drive, Bethel Harvest, Ash Grove, Brannon Rd, and Southpoint Dr. • Short-term improvement removes minor street split phase at Brannon Rd

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:	7 - 430.00 US 27	Planning:	$	0
		Design:	$	3,600,000
Functional Class:	Principal Arterial	Right-of-Way:	$	High
2020 ADT | % Trucks:	35,153 vpd | 15%	Utilities:	$	High
		Construction:	$	36,000,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**39,600,000**
Project Location: 37.95685, -84.53877		**Proposed Concepts: Access Managed Corridor**		



Legend
- Add Lane
- Reassign Lane
- Remove Lane



LFUCG CM Bottleneck Study	Fayette County	Project ID:	H-1
		Name:	Harrodsburg Rd between Pasadena Dr and Burbank Dr

Project Description: **Work Type:** Intersection Improvement

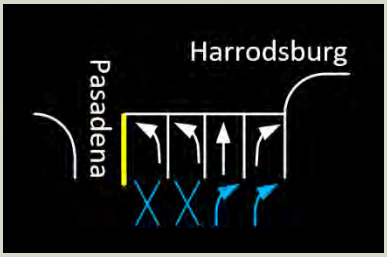
Convert the Pasadena approach at Harrodsburg to a right-only movement and provide a U-Turn at Burbank. In addition, update signal timings.
(New sidewalk shown with blue hatch)

MP **2.90** to MP **3.31** Project Length: **0.41** MI

Identified Needs:	**Proposed Improvements:**
• Reduce intersection delay at Pasadena and congestion along Harrodsburg • Improve safety by reducing congestion related crashes • Maintain or improve pedestrian facilities	• Remove the NW thru and left turn movements on Pasadena at Harrodsburg and replace with dual right-turn lanes • Lengthen turn lane and permit U-turns at Burbank • Construct loon at Burbank to allow U-Turns • Update signal timings at Harrodsburg/Pasadena and Harrodsburg/Burbank

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:				
		Design:	$	73,000
Functional Class:	Principal Arterial	Right-of-Way:	$	700,000
2020 ADT | % Trucks:	33,819 vpd | 8%	Utilities:	$	140,000
		Construction:	$	730,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**1,643,000**
Project Location: 38.01724, -84.54871		**Proposed Concepts: U-turn Intersection**		





Legend
Add Lane
Reassign Lane
Remove Lane

LFUCG CM Bottleneck Study	Fayette County	Project ID:	H-2
		Name:	Harrodsburg Rd at New Circle Rd

Project Description: **Work Type:** Minor Widening

Extend storage lanes on both exit ramps from New Circle to Harrodsburg and provide a merge lane on the SB (outer loop) on-ramp. Optimize signal timings.
(New sidewalk shown with blue hatch)

MP **2.90** to MP **3.31** Project Length: **0.41** MI

Identified Needs:	**Proposed Improvements:**
• Reduce congestion/intersection delay at the ramp terminals • Provide additional off-ramp storage • Address safety concerns associated with off-ramp traffic backing up to New Circle • Maintain or improve pedestrian facilities	• Extend turn lanes on both exit ramps from New Circle to Harrodsburg to provide additional storage • Provide a merge lane on the SB (outer loop) on-ramp • Optimize both interchange ramp signals

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:				
		Design:	$	96,000
Functional Class:	Principal Arterial	Right-of-Way:	$	0
2020 ADT | % Trucks:	33,819 vpd | 8%	Utilities:	$	175,000
		Construction:	$	960,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**1,231,000**
Project Location: 38.01512, -84.55222		**Proposed Concepts: Ramp widening**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	I
		Name:	Harrodsburg Rd between Man O' War Blvd to Beaumont Ctr

Project Description:	**Work Type:**	Major Widening

Construct additional through lane Harrodsburg in each direction from MOW to Beaumont Centre. Reassign the minor street lane use at Wellington Way and update the signal phasing.
(New sidewalk shown with blue hatch)

MP **1.66** to MP **2.87** Project Length: **1.21** MI

Identified Needs:	**Proposed Improvements:**
• Improve safety, traffic capacity, and access along the Harrodsburg corridor – MOW and Wellington are currently over capacity (v/c > 1.0) • Improve signal phasing efficiency at Wellington	• Widen Harrodsburg to a 6-lane roadway between MOW and Beaumont • Remove minor street split phase and provide permitted/protected left-turn phase at Wellington • Reassign lane use on the SE and NW approaches (1-left, 1-thru, 1-right) • Construct a raised median along Harrodsburg • Provide pedestrian facilities throughout the project area

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:				
		Design:	$	1,056,000
Functional Class:	Urban Interstate	Right-of-Way:	$	6,685,000
2020 ADT | % Trucks:	33,819 vpd | 8%	Utilities:	$	12,600,000
		Construction:	$	10,560,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**30,901,000**
Project Location: 38.01355, -84.55483		**Proposed Concepts: Roadway widening**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	J
		Name:	W Main St between Newtown Pk and S Broadway

Project Description:	Work Type:	Intersection Improvement

Extend the NW left-turn lane by removing a few parking spaces on the east side of Main Street between Newtown Pike/Oliver Lewis Way and Old Georgetown St. and shifting the NW through lanes. Update signal timings along Main.

MP **0.00** to MP **0.12** Project Length: **0.12** MI

Identified Needs:	Proposed Improvements:
• Additional storage for NW left-turn traffic • Reduce intersection delay at Main/Newtown (69.5 sec)	• Extend the NW left-turn lane at Main/Newtown, remove a few parking spaces, and shift the NW thru lanes • Optimize signal timing splits and offsets along Main from Newtown to Broadway

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project: Yes				
		Design:	$	21,000
Functional Class:	Principal Arterial	Right-of-Way:	$	0
2017 ADT | % Trucks:	24,372 vpd | 9%	Utilities:	$	0
		Construction:	$	210,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**231,000**
Project Location: 38.05418, -84.50577		**Proposed Concepts: Signal Timing & Turn Lane**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	K
		Name:	Man O' War Blvd at Sir Barton Way

Project Description:	Work Type:	Intersection Improvement

Update signal phasing/timing and reassign lane use at the MOW/Sir Barton Way intersection.

MP **1.916**

Identified Needs:	Proposed Improvements:
• Improve intersection operational efficiency – currently over capacity (v/c 1.60) • Additional turn lane storage	• Reassign lane use on the NW (1-left, 2-thru, 1-right) and SE (2-left, 1-thru, 1-right) approaches • Remove minor street split phase and provide protected only left-turn phase • Update signal timing • Upgrade left-turn signal heads

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:				
Functional Class: (Sir Barton Way)	Minor Arterial	Design:	$	31,000
Functional Class: (Man O War Blvd)	Principal Arterial	Right-of-Way:	$	0
2019 ADT | % Trucks: (Sir Barton Way)	21,009 vpd | Unavailable	Utilities:	$	0
2019 ADT | % Trucks: (Man O War Blvd)	40,461 vpd | Unavailable	Construction:	$	310,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**341,000**
Project Location: 38.01924, -84.41697		**Proposed Concepts: Signal Timing & Turn Lane**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	L
		Name:	New Circle Rd between Liberty Rd and Trade Center Dr

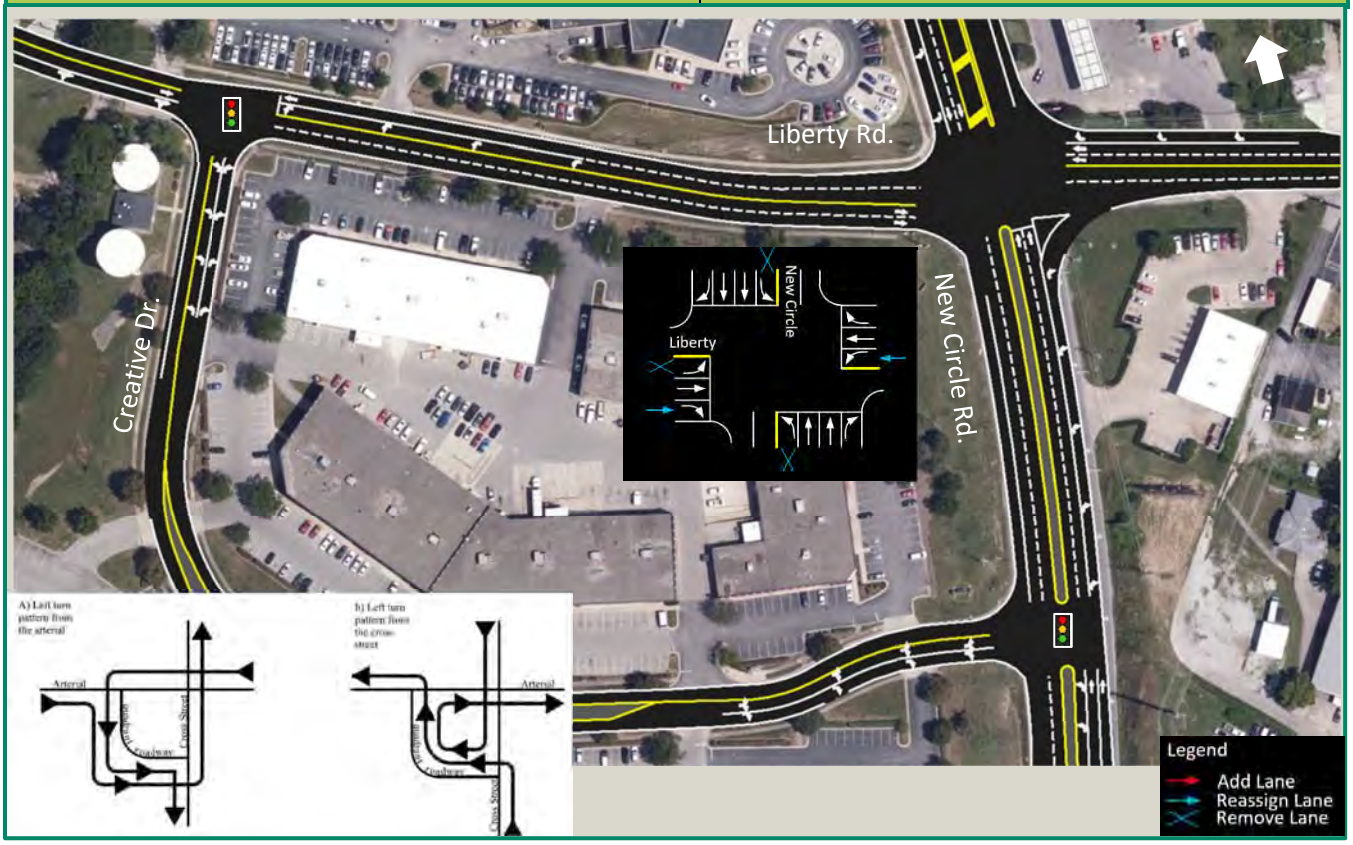
Project Description:	Work Type:	Intersection Improvement

Construct a SW Quadrant Roadway innovative intersection at New Circle/Liberty, using the existing pavement on Creative Dr. In addition, update signal timing at New Circle/Trade Center allocating more green time for the minor street.

MP **10.10**

Identified Needs:	Proposed Improvements:
• Add intersection capacity at New Circle/Liberty – currently over capacity (v/c 1.67) • Reduce left-turn and congestion related crashes – total of 292 crashes over the last 3 years combined at the two intersections • Improve overall intersection operation at New Circle/Trade Center	• Funded Project 7-438 will add turn lanes in interim • SW Quadrant Roadway intersection consists of two thru lanes on Liberty in each direction, adding turn lanes and traffic signal at the existing Creative intersections • Convert existing drives on Liberty to right-in, right-out • Update signal timing at New Circle/Trade Center

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:				
Functional Class: (New Circle Rd)	Principal Arterial	Design:	$	191,000
Functional Class: (Liberty Rd)	Minor Arterial	Right-of-Way:	$	560,000
2019 ADT | % Trucks: (New Circle Rd)	39,049 vpd | 6%	Utilities:	$	420,000
2020 ADT | % Trucks: (Liberty Rd)	14,463 vpd | 6%	Construction:	$	1,910,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**3,081,000**
Project Location: 38.04284, -84.45421		**Proposed Concepts: Quadrant Roadway Intersection**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	M
		Name:	New Circle Rd at Nicholasville Rd (US 27)

Project Description: **Work Type:** Interchange Improvement

Construct a N/S Displaced Left Turn interchange at New Circle/Nicholasville innovative interchange. Improvements include adding sidewalks and crosswalks, along with lengthening the bridge to accommodate 2 additional lanes on New Circle below. (New sidewalk shown with blue hatch)

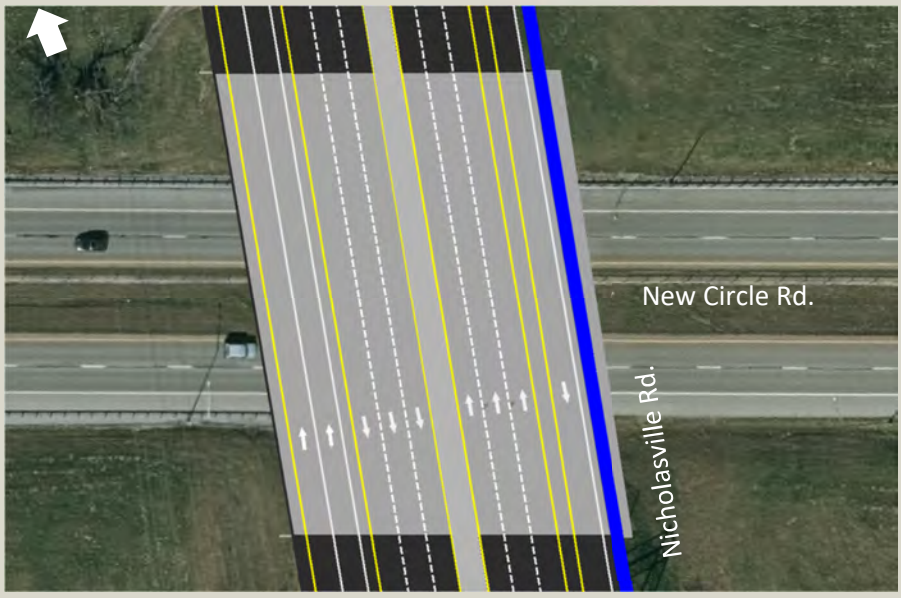
MP **2.42**

Identified Needs:	Proposed Improvements:
• Increase capacity - the interchange ramp terminals currently operate at levels-of-service E and F in the PM peak hour • Reduce congestion on the ramps and along Nicholasville • Improve safety - 199 observed crashes over the previous 3 years at the interchange • Pedestrian Access	• N/S Displaced Left Turn interchange consists of three thru lanes on Nicholasville in each direction • Bridge reconstruction over New Circle will accommodate the planned New Circle widening • Add pedestrian access across New Circle with sidewalks and crosswalks adjacent to Nicholasville Rd

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:		Planning:	$	0
Functional Class: (New Circle Rd)	Principal Arterial	Design:	$	1,948,000
Functional Class: (Nicholasville Rd)	Principal Arterial	Right-of-Way:	$	560,000
2018 ADT | % Trucks: (New Circle Rd)	65,926 vpd | Unavailable	Utilities:	$	420,000
2019 ADT | % Trucks: (Nicholasville Rd)	63,740 vpd | 7%	Construction:	$	19,480,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**22,408,000**

Project Location: 37.99639, -84.52176 **Proposed Concepts: Displaced Left Turn Interchange**





LFUCG CM Bottleneck Study	Fayette County	Project ID:	P
		Name:	New Circle Rd (KY 4) at Tates Creek Rd

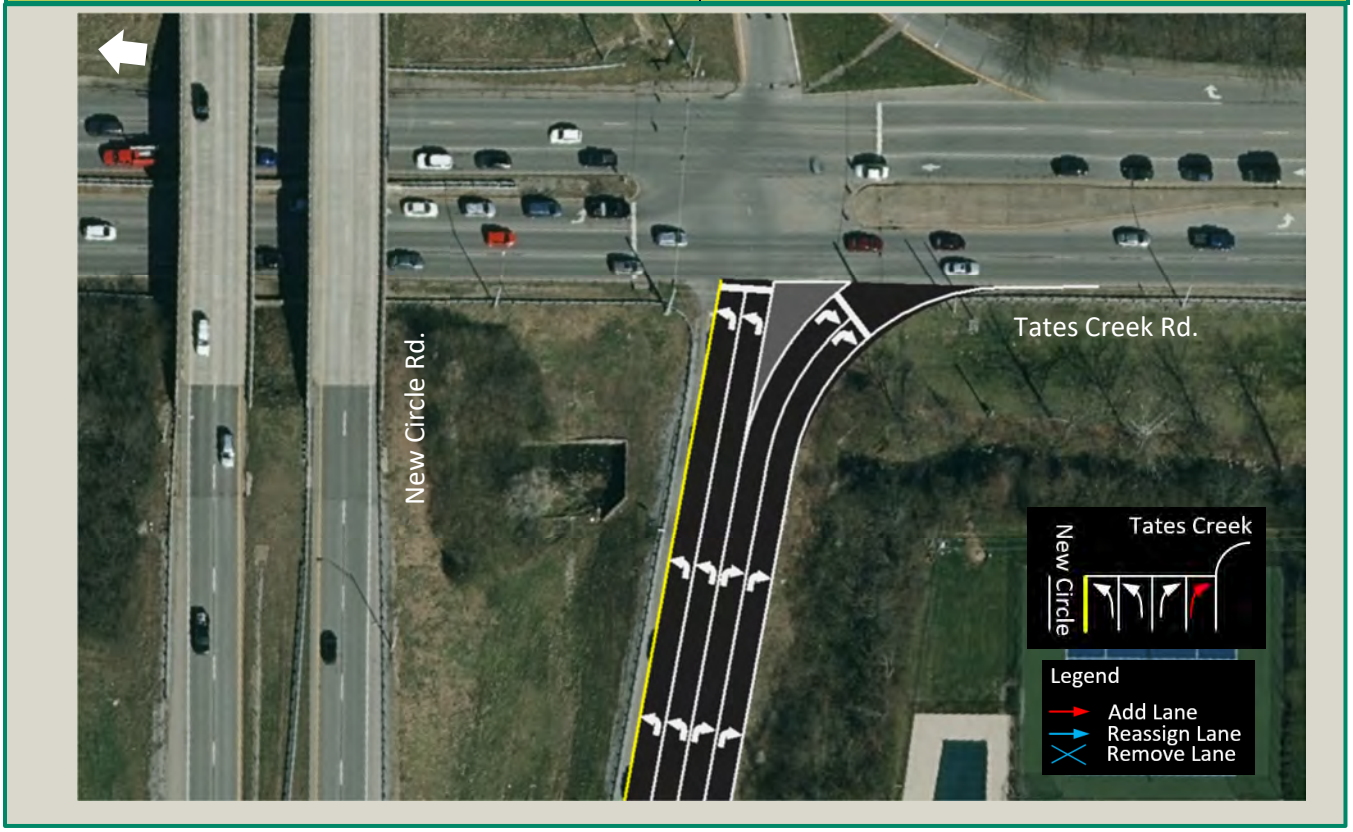
Project Description:	Work Type:	Minor Widening

Widen the EB (outer loop) off-ramp to at the New Circle/Tates Creek interchange. In addition, optimize signal timings at both interchange ramp terminals.

MP **9.20** to MP **9.60** Project Length **0.40** MI

Identified Needs:	Proposed Improvements:
• Reduce intersection delay and add capacity at the EB ramp intersection – currently over capacity (v/c 1.70) • Improve safety by reducing congestion related crashes – total of 152 crashes over the last 3 years at the two ramp terminals	• Additional turn lane on the EB off-ramp (lane use: 2-left, 2-right) • Optimize signal timing at both interchange ramp terminals

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:				
Functional Class: (New Circle Rd)	Freeways and Expressway	Design:	$	58,000
Functional Class: (Tates Creek Rd)	Principal Arterial	Right-of-Way:	$	350,000
2018 ADT | % Trucks: (New Circle Rd)	65,926 vpd | Unavailable	Utilities:	$	140,000
2019 ADT | % Trucks: (Tates Creek Rd)	32,921 vpd | 2%	Construction:	$	580,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**1,128,000**
Project Location: 37.99098, -84.49487		**Proposed Concepts: Add turn lane**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	Q
		Name:	S Broadway (US 68) at W Vine St

Project Description:	Work Type:	Signal Timing
Signal timing optimization at Broadway/Vine.		
MP **6.67**		

Identified Needs:	Proposed Improvements:
• Maintain safe pedestrian crossings • Improve intersection efficiency – currently over capacity (v/c 1.14)	• Optimize signal timing

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:		Planning:	$	0
Functional Class: (S Broadway)	Principal Arterial	Design:	$	10,000
Functional Class: (Vine St)	Principal Arterial	Right-of-Way:	$	0
2018 ADT | % Trucks: (S Broadway)	23,445 vpd | 7%	Utilities:	$	0
2019 ADT | % Trucks: (Vine St)	13,434 vpd | 11%	Construction:	$	0
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**10,000**
Project Location: 38.04833, -84.50073		**Proposed Concepts: Signal Timing**		

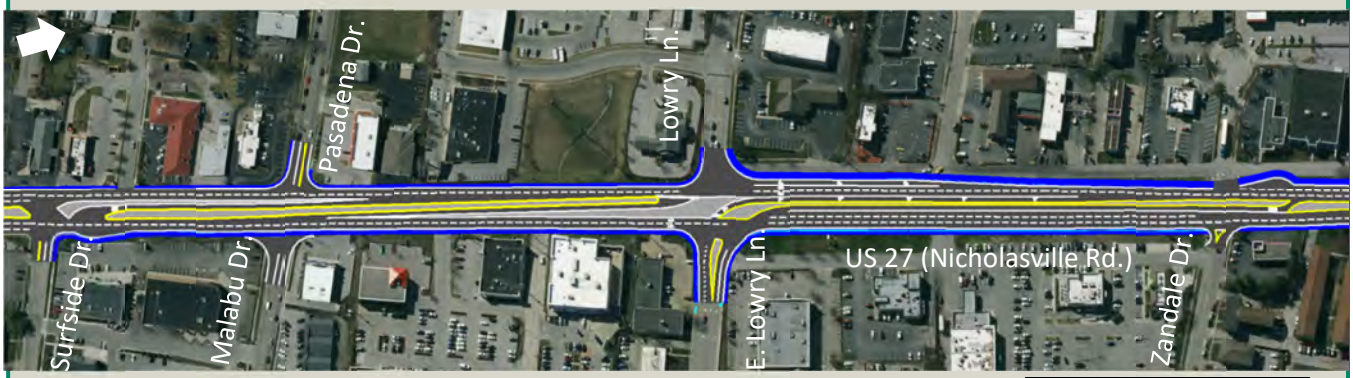


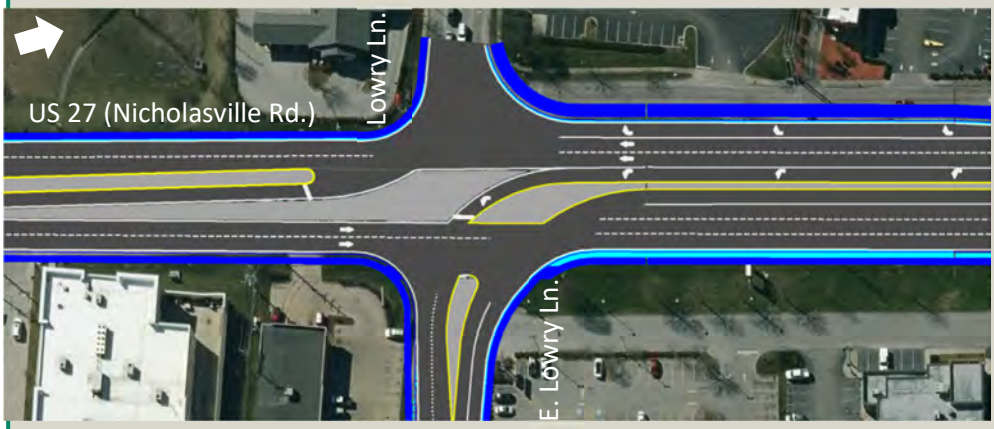
LFUCG CM Bottleneck Study	Fayette County	Project ID:	R
		Name:	Nicholasville Rd (US 27) at Lowry Ln

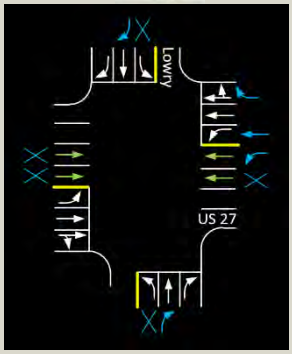
Project Description:	Work Type: Intersection Improvement
Construct a N/S Restricted Crossing U-Turn (R-CUT) innovative intersection at Nicholasville/Lowry. (New sidewalk shown with blue hatch)	
MP **3.11**	

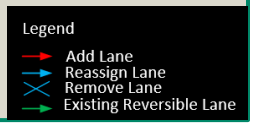
Identified Needs:	Proposed Improvements:
• Reduce intersection delay – 74.2 sec current intersection delay in the PM peak hour • Improve safety, operational efficiency, and access along the Nicholasville corridor	• R-CUT intersection at Lowry consists of 2 thru lanes on Nicholasville in each direction plus turn lanes • U-turns to replace left turn movements from Lowry between the two adjacent intersections • Convert the right-most lane in each direction on Nicholasville to a BRT/Right Turn Only • Construct mountable median along Nicholasville

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:	Reimagine Nicholasville			
Functional Class: (Lowry Ln)	Minor Collector	Design:	$	368,000
Functional Class: (Nicholasville Rd)	Principal Arterial	Right-of-Way:	$	5,250,000
2019 ADT | % Trucks: (Lowry Ln)	6,196 vpd | Unavailable	Utilities:	$	1,470,000
2020 ADT | % Trucks: (Nicholasville Rd)	32,638 vpd | 3%	Construction:	$	3,680,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**10,768,000**
Project Location: 38.00574, -84.51859		**Proposed Concepts: R-CUT Intersection**		









LFUCG CM Bottleneck Study	Fayette County	Project ID:	S
		Name:	S Broadway (US 68) at Red Mile Rd/Virginia Ave

Project Description:	Work Type:	Signal Timing
Signal timing optimization at Broadway/Red Mile/Virginia.		
MP **5.65**		

Identified Needs:	Proposed Improvements:
• Improve intersection efficiency – currently over capacity (v/c 1.22)	• Optimize signal timing • Extension of Scott Street Connector and bike path on Red Mile will provide alternate connectivity and may reduce vehicular traffic

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:	Scott Street Connector			
Functional Class: (S Broadway)	Principal Arterial	Design:	$	10,000
Functional Class: (Red Mile Rd)	Minor Arterial	Right-of-Way:	$	0
2020 ADT | % Trucks: (S Broadway)	31,889 vpd | 1%	Utilities:	$	0
2018 ADT | % Trucks: (Red Mile Rd)	17,097 vpd | Unavailable	Construction:	$	0
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**10,000**
Project Location: 38.03883, -84.51525		**Proposed Concepts: Signal Timing**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	T
		Name:	Man O' War Blvd at Richmond Rd (US 25)

Project Description:	Work Type:	Intersection Improvement

Construct a SE Quadrant Roadway innovative intersection at MOW/Richmond, using Prosperous. (New sidewalk shown with blue hatch)

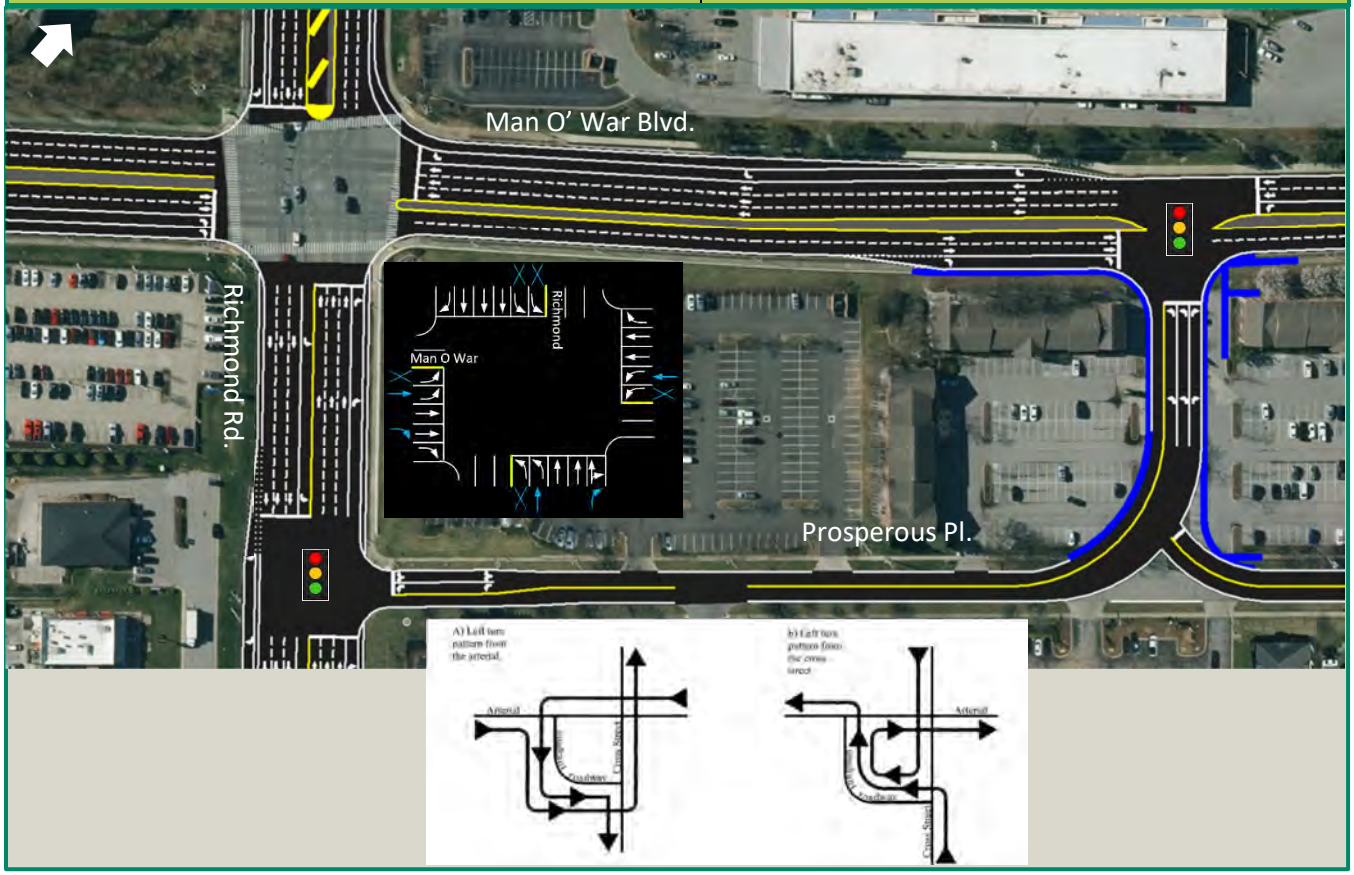
MP **12.79**

Identified Needs:	Proposed Improvements:
• Add intersection capacity at MOW/Richmond – currently over capacity (v/c 1.38) • Reduce left-turn and congestion related crashes – total of 178 crashes over the last 3 years • Pedestrian access	• SE Quadrant Roadway intersection includes an additional thru lane (3 total) in the SW direct which turns into a right turn only lane at Beaver Creek and 2 NE thru lanes • New pedestrian crosswalk

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:				
Functional Class: (Man O War)	Principal Arterial	Design:	$	343,000
Functional Class: (Richmond Rd)	Principal Arterial	Right-of-Way:	$	5,250,000
2019 ADT | % Trucks: (Man O War)	43,321 vpd | Unavailable	Utilities:	$	1,470,000
2020 ADT | % Trucks: (Richmond Rd)	31,279 vpd | 5%	Construction:	$	3,430,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**10,493,000**

Project Location: 38.00111, -84.44583

Proposed Concepts: Quadrant Roadway Intersection



LFUCG CM Bottleneck Study	Fayette County	Project ID:	V
		Name:	S Broadway/Harrodsburg Rd at Waller Ave/Mason Headley Rd

Project Description:	Work Type:	Signal Timing
Signal timing optimization at Broadway/Harrodsburg/Waller/Mason Headley.		

MP **4.31**

Identified Needs:	Proposed Improvements:
• Improve intersection efficiency – currently over capacity (v/c 1.24)	• Optimize signal timing

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:		Planning:	$	0
Functional Class: (S Broadway)	Principal Arterial	Design:	$	10,000
Functional Class: (Waller Ave)	Minor Arterial	Right-of-Way:	$	0
2020 ADT | % Trucks: (S Broadway)	31,889 vpd | 1%	Utilities:	$	0
2019 ADT | % Trucks: (Waller Ave)	15,296 vpd | Unavailable	Construction:	$	0
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**10,000**
Project Location: 38.03352, -84.52394		**Proposed Concepts: Signal Timing**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	Z
		Name:	E Vine St at Rose St
Project Description:		**Work Type:**	Signal Timing
Signal timing optimization at Vine/Rose.			
MP **13.25**			

Identified Needs:	**Proposed Improvements:**
• Improve intersection efficiency – currently over capacity (v/c 1.01)	• Optimize signal timing

Project Status:	**Predesign**	**Project Phase Estimates:**	**(2021 Dollars)**	
Identified Project:		Planning:	$	0
Functional Class: (Vine St)	Principal Arterial	Design:	$	10,000
Functional Class: (Rose St)	Minor Arterial	Right-of-Way:	$	0
2020 ADT | % Trucks: (Vine St)	11,751 vpd | 11%	Utilities:	$	0
2019 ADT | % Trucks: (Rose St)	5,998 vpd | Unavailable	Construction:	$	0
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**10,000**
Project Location: 38.04193, -84.49408		**Proposed Concepts: Signal Timing**		



LFUCG CM Bottleneck Study	Fayette County	Project ID:	BB
		Name:	Nicholasville Rd (US 27) at Southland Dr

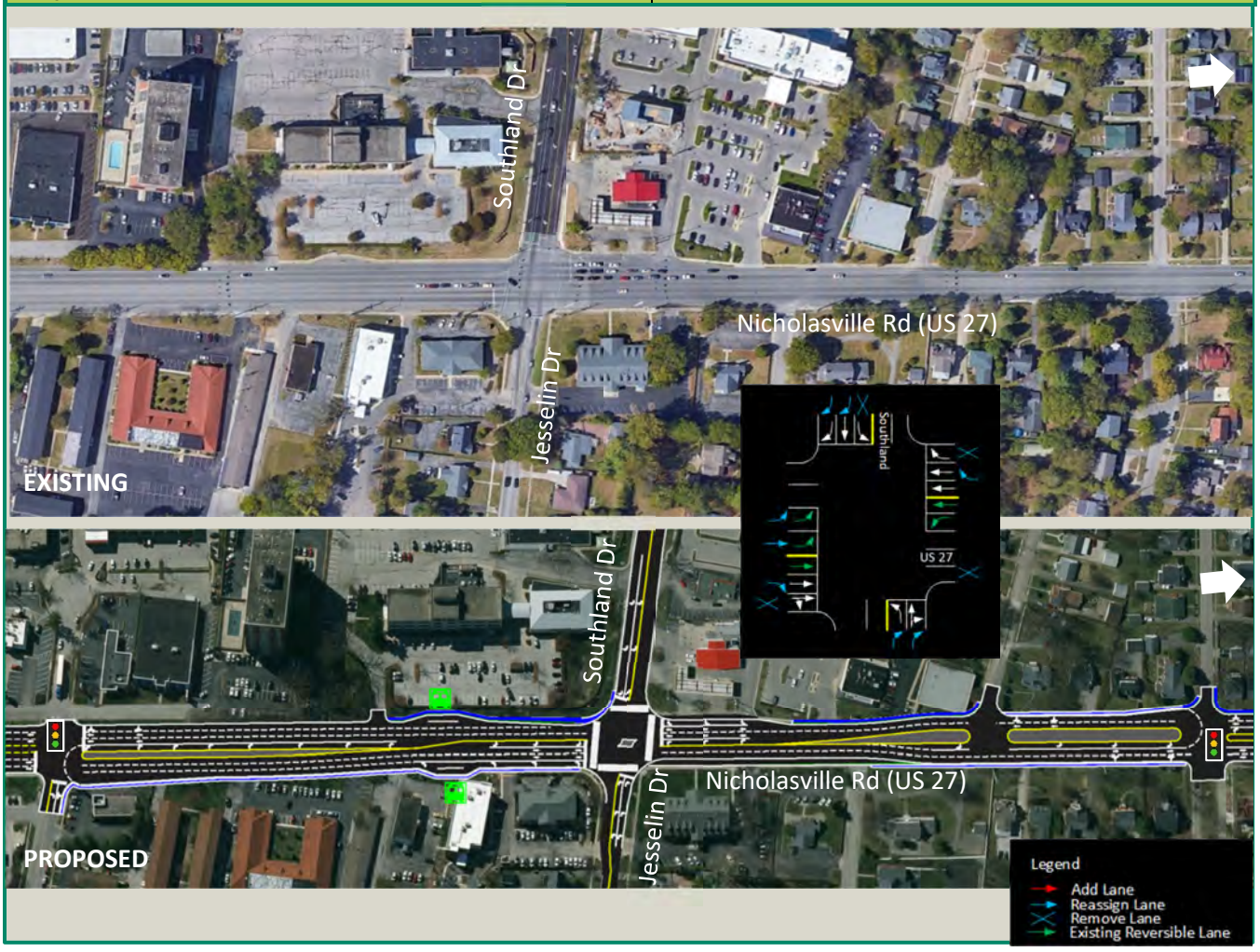
Project Description: **Work Type:** Intersection Improvement

Construct a N/S Restricted Crossing U-Turn (R-Cut) innovative intersection at Nicholasville/Southland.
(New sidewalk shown with blue hatch)

MP **3.39** to MP **3.73** Project Length **0.39** MI

Identified Needs:	Proposed Improvements:
• Significant traffic volumes on Southland contributes to a bottleneck at the Nicholasville/Southland intersection • Increase intersection capacity with limited ROW impacts	• R-Cut intersection consists of 2 lanes north of Southland, 3 lanes south of Southland plus turn lanes • Convert the right-most lane in each direction on Nicholasville to a Bus Rapid Transit (BRT) lane • Construct mountable median along Nicholasville • Construct two signalized loons

Project Status:	Predesign	Project Phase Estimates:	(2021 Dollars)	
Identified Project:		Planning:	$	0
Functional Class: (Nicholasville Rd)	Principal Arterial	Design:	$	241,000
Functional Class: (Southland Dr)	Minor Arterial	Right-of-Way:	$	3,010,000
2018 ADT | % Trucks: (Nicholasville Rd)	32,099 vpd | Unavailable	Utilities:	$	1,050,000
2018 ADT | % Trucks: (Southland Dr)	14,404 vpd | Unavailable	Construction:	$	2,410,000
Bike/Ped Facilities:	On surface streets within study area	**Total Estimated Cost:**	**$**	**6,711,000**
Project Location: 38.01127, -84.51666		**Proposed Concepts: R-CUT Intersection**		



LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - A - Alumni Dr from Man O' War to Yellowstone					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	1200	$ 100.00	$ 120,000.00
	MILL & OVERLAY	SQYD	10000	$ 15.00	$ 150,000.00
	GUARDRAIL	LF	900	$ 25.00	$ 22,500.00
	REMOVE PAVEMENT	SQYD	1250	$ 15.00	$ 18,750.00
	EARTHWORK	LS	1	$ 20,000.00	$ 20,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 75,000.00	$ 75,000.00
	STAKING	LS	1	$ 25,000.00	$ 25,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 50,000.00	$ 50,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	2	$ 25,000.00	$ 50,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 30,000.00	$ 30,000.00
	RAISED MEDIAN	SQYD	530	$ 80.00	$ 42,400.00
	SIDEWALK	SQYD	1900	$ 75.00	$ 142,500.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 781,150.00
Misc Environmental and Permitting (3%)					$ 30,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 320,000.00
Engineering during Construction /Inspection (10%) [2]					$ 80,000.00
CONSTRUCTION COST					**$ 1,220,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**122,000.00**
RIGHT OF WAY	**$**	**490,000.00**
UTILITIES	**$**	**280,000.00**
TOTAL ESTIMATED COST	**$**	**2,112,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT C - NEW CIRCLE @ WOODHILL AND PALUMBO					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	1500	$ 100.00	$ 150,000.00
	MILL & OVERLAY	SQYD	8000	$ 15.00	$ 120,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 75,000.00	$ 75,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 50,000.00	$ 50,000.00
	STAKING	LS	1	$ 10,000.00	$ 10,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	1	$ 50,000.00	$ 50,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	1	$ 50,000.00	$ 50,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 25,000.00	$ 25,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	1200	$ 75.00	$ 90,000.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 640,000.00
Misc Environmental and Permitting (3%)					$ 20,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 260,000.00
Engineering during Construction /Inspection (10%) [2]					$ 70,000.00
CONSTRUCTION COST					**$ 990,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**99,000.00**
RIGHT OF WAY	**$**	**350,000.00**
UTILITIES	**$**	**140,000.00**
TOTAL ESTIMATED COST	**$**	**1,579,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - E SHORT - WALLER AVE BETWEEN ELIZABETH AND NICHOLASVILLE					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	0	$ 100.00	$ -
	MILL & OVERLAY	SQYD	5400	$ 15.00	$ 81,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	0	$ 25,000.00	$ -
	CLEARING AND GRUBBING	LS	0	$ 10,000.00	$ -
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 15,000.00	$ 15,000.00
	STAKING	LS	0	$ 10,000.00	$ -
	EROSION CONTROL	LS	0	$ 25,000.00	$ -
	DRAINAGE	LS	0	$ 75,000.00	$ -
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	1	$ 50,000.00	$ 50,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 15,000.00	$ 15,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 161,000.00
Misc Environmental and Permitting (3%)					$ 10,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 70,000.00
Engineering during Construction /Inspection (10%) [2]					$ 20,000.00
CONSTRUCTION COST					**$ 270,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**27,000.00**
RIGHT OF WAY	**$**	**-**
UTILITIES	**$**	**-**
TOTAL ESTIMATED COST	**$**	**297,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT E-LONG - NICHOLASVILLE RD FROM ALUMNI TO STATE ST					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	2800	$ 100.00	$ 280,000.00
	MILL & OVERLAY	SQYD	27000	$ 15.00	$ 405,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	1100	$ 15.00	$ 16,500.00
	EARTHWORK	LS	1	$ 25,000.00	$ 25,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 50,000.00	$ 50,000.00
	STAKING	LS	1	$ 10,000.00	$ 10,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 75,000.00	$ 75,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	3	$ 50,000.00	$ 150,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 50,000.00	$ 50,000.00
	RAISED MEDIAN	SQYD	1100	$ 80.00	$ 88,000.00
	SIDEWALK	SQYD	1000	$ 75.00	$ 75,000.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 1,259,500.00
Misc Environmental and Permitting (3%)					$ 40,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 520,000.00
Engineering during Construction /Inspection (10%) [2]					$ 130,000.00
CONSTRUCTION COST					**$ 1,950,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**195,000.00**
RIGHT OF WAY	**$**	**420,000.00**
UTILITIES	**$**	**700,000.00**
TOTAL ESTIMATED COST	**$**	**3,265,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - F1 - US 27 AT MAN O WAR DISPLACED LEFTS					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	2800	$ 100.00	$ 280,000.00
	MILL & OVERLAY	SQYD	38000	$ 15.00	$ 570,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	2500	$ 15.00	$ 37,500.00
	EARTHWORK	LS	1	$ 50,000.00	$ 50,000.00
	CLEARING AND GRUBBING	LS	1	$ 25,000.00	$ 25,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 200,000.00	$ 200,000.00
	STAKING	LS	1	$ 75,000.00	$ 75,000.00
	EROSION CONTROL	LS	1	$ 75,000.00	$ 75,000.00
	DRAINAGE	LS	1	$ 500,000.00	$ 500,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	3	$ 50,000.00	$ 150,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 100,000.00	$ 100,000.00
	RAISED MEDIAN	SQYD	2500	$ 80.00	$ 200,000.00
	SIDEWALK	SQYD	200	$ 75.00	$ 15,000.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 2,277,500.00
Misc Environmental and Permitting (3%)					$ 70,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 940,000.00
Engineering during Construction /Inspection (10%) [2]					$ 230,000.00
CONSTRUCTION COST					**$ 3,520,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**352,000.00**
RIGHT OF WAY	**$**	**308,000.00**
UTILITIES	**$**	**980,000.00**
TOTAL ESTIMATED COST	**$**	**5,160,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - F2 - TIVERTON					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	0	$ 100.00	$ -
	MILL & OVERLAY	SQYD	1500	$ 15.00	$ 22,500.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	0	$ 10,000.00	$ -
	CLEARING AND GRUBBING	LS	1	$ 5,000.00	$ 5,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 10,000.00	$ 10,000.00
	STAKING	LS	1	$ 5,000.00	$ 5,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	0	$ 15,000.00	$ -
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0.5	$ 50,000.00	$ 25,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 5,000.00	$ 5,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT		$ 300.00	
Construction Items					$ 82,500.00
Misc Environmental and Permitting (3%)					$ 10,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 40,000.00
Engineering during Construction /Inspection (10%) [2]					$ 10,000.00
CONSTRUCTION COST					**$ 150,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**15,000.00**
RIGHT OF WAY	**$**	**-**
UTILITIES	**$**	**-**
TOTAL ESTIMATED COST	**$**	**165,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - F3 - WILSON DOWNING					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	900	$ 100.00	$ 90,000.00
	MILL & OVERLAY	SQYD	1700	$ 15.00	$ 25,500.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 10,000.00	$ 10,000.00
	CLEARING AND GRUBBING	LS	1	$ 5,000.00	$ 5,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 15,000.00	$ 15,000.00
	STAKING	LS	1	$ 10,000.00	$ 10,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	1	$ 15,000.00	$ 15,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0.5	$ 50,000.00	$ 25,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 10,000.00	$ 10,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 215,500.00
Misc Environmental and Permitting (3%)					$ 10,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 90,000.00
Engineering during Construction /Inspection (10%) [2]					$ 30,000.00
CONSTRUCTION COST					**$ 350,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**35,000.00**
RIGHT OF WAY	**$**	**42,000.00**
UTILITIES	**$**	**70,000.00**
TOTAL ESTIMATED COST	**$**	**497,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - F4 - REYNOLDS					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	400	$ 100.00	$ 40,000.00
	MILL & OVERLAY	SQYD	8000	$ 15.00	$ 120,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	60	$ 15.00	$ 900.00
	EARTHWORK	LS	1	$ 20,000.00	$ 20,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 40,000.00	$ 40,000.00
	STAKING	LS	1	$ 15,000.00	$ 15,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	1	$ 50,000.00	$ 50,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0.5	$ 50,000.00	$ 25,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 20,000.00	$ 20,000.00
	RAISED MEDIAN	SQYD	60	$ 80.00	$ 4,800.00
	SIDEWALK	SQYD	300	$ 75.00	$ 22,500.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 378,200.00
Misc Environmental and Permitting (3%)					$ 20,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 160,000.00
Engineering during Construction /Inspection (10%) [2]					$ 40,000.00
CONSTRUCTION COST					**$ 600,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**60,000.00**
RIGHT OF WAY	**$**	**280,000.00**
UTILITIES	**$**	**70,000.00**
TOTAL ESTIMATED COST	**$**	**1,010,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT H1 - HARRODSBURG RD					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	1200	$ 100.00	$ 120,000.00
	MILL & OVERLAY	SQYD	4400	$ 15.00	$ 66,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	400	$ 15.00	$ 6,000.00
	EARTHWORK	LS	1	$ 25,000.00	$ 25,000.00
	CLEARING AND GRUBBING	LS	1	$ 25,000.00	$ 25,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 50,000.00	$ 50,000.00
	STAKING	LS	1	$ 25,000.00	$ 25,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 50,000.00	$ 50,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0	$ 50,000.00	$ -
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 25,000.00	$ 25,000.00
	RAISED MEDIAN	SQYD	400	$ 80.00	$ 32,000.00
	SIDEWALK	SQYD	150	$ 75.00	$ 11,250.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 460,250.00
Misc Environmental and Permitting (3%)					$ 20,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 190,000.00
Engineering during Construction /Inspection (10%) [2]					$ 50,000.00
CONSTRUCTION COST					**$ 730,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**73,000.00**
RIGHT OF WAY	**$**	**700,000.00**
UTILITIES	**$**	**140,000.00**
TOTAL ESTIMATED COST	**$**	**1,643,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

Design Concept H-2 - HARRODSBURG RD					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	2700	$ 100.00	$ 270,000.00
	MILL & OVERLAY	SQYD	6900	$ 15.00	$ 103,500.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 25,000.00	$ 25,000.00
	CLEARING AND GRUBBING	LS	1	$ 25,000.00	$ 25,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 50,000.00	$ 50,000.00
	STAKING	LS	1	$ 25,000.00	$ 25,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 50,000.00	$ 50,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0	$ 50,000.00	$ -
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 25,000.00	$ 25,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	250	$ 75.00	$ 18,750.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 617,250.00
Misc Environmental and Permitting (3%)					$ 20,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 250,000.00
Engineering during Construction /Inspection (10%) [2]					$ 70,000.00
CONSTRUCTION COST					**$ 960,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**96,000.00**
RIGHT OF WAY	**$**	**-**
UTILITIES	**$**	**175,000.00**
TOTAL ESTIMATED COST	**$**	**1,231,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT - I - HARRODSBURG (MAN O WAR to BEAUMONT)					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	27000	$ 100.00	$ 2,700,000.00
	MILL & OVERLAY	SQYD	76000	$ 15.00	$ 1,140,000.00
	GUARDRAIL	LF	1000	$ 25.00	$ 25,000.00
	REMOVE PAVEMENT	SQYD	3000	$ 15.00	$ 45,000.00
	EARTHWORK	LS	1	$ 100,000.00	$ 100,000.00
	CLEARING AND GRUBBING	LS	1	$ 20,000.00	$ 20,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 100,000.00	$ 100,000.00
	STAKING	LS	1	$ 50,000.00	$ 50,000.00
	EROSION CONTROL	LS	1	$ 75,000.00	$ 75,000.00
	DRAINAGE	LS	1	$ 1,000,000.00	$ 1,000,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	4.5	$ 50,000.00	$ 225,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 175,000.00	$ 175,000.00
	RAISED MEDIAN	SQYD	2600	$ 80.00	$ 208,000.00
	SIDEWALK	SQYD	13000	$ 75.00	$ 975,000.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 6,838,000.00
Misc Environmental and Permitting (3%)					$ 210,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 2,820,000.00
Engineering during Construction /Inspection (10%) [2]					$ 690,000.00
CONSTRUCTION COST					**$ 10,560,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**1,056,000.00**
RIGHT OF WAY	**$**	**6,685,000.00**
UTILITIES	**$**	**12,600,000.00**
TOTAL ESTIMATED COST	**$**	**30,901,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT -J - W Main bet Newtown Pike and Broadway					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	0	$ 100.00	$ -
	MILL & OVERLAY	SQYD	3750	$ 15.00	$ 56,250.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 5,000.00	$ 5,000.00
	CLEARING AND GRUBBING	LS	1	$ 5,000.00	$ 5,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 15,000.00	$ 15,000.00
	STAKING	LS	1	$ 5,000.00	$ 5,000.00
	EROSION CONTROL	LS	1	$ 5,000.00	$ 5,000.00
	DRAINAGE	LS	1	$ 25,000.00	$ 25,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0	$ 50,000.00	$ -
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 10,000.00	$ 10,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 126,250.00
Misc Environmental and Permitting (3%)					$ 10,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 50,000.00
Engineering during Construction /Inspection (10%) [2]					$ 20,000.00
CONSTRUCTION COST					**$ 210,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**21,000.00**
RIGHT OF WAY	**$**	**-**
UTILITIES	**$**	**-**
TOTAL ESTIMATED COST	**$**	**231,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT K - SIR BARTON AT MAN O WAR					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD		$ 100.00	$ -
	MILL & OVERLAY	SQYD	4000	$ 15.00	$ 60,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 5,000.00	$ 5,000.00
	CLEARING AND GRUBBING	LS	1	$ 5,000.00	$ 5,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 50,000.00	$ 50,000.00
	STAKING	LS	1	$ 5,000.00	$ 5,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	1	$ 25,000.00	$ 25,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL (MODIFY EXISTING)	EACH	1	$ 25,000.00	$ 25,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 10,000.00	$ 10,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 195,000.00
Misc Environmental and Permitting (3%)					$ 10,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 80,000.00
Engineering during Construction /Inspection (10%) [2]					$ 20,000.00
CONSTRUCTION COST					**$ 310,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**31,000.00**
RIGHT OF WAY	**$**	**-**
UTILITIES	**$**	**-**
TOTAL ESTIMATED COST	**$**	**341,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT L - NEW CIRCLE RD. AT LIBERTY RD.					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	1200	$ 100.00	$ 120,000.00
	MILL & OVERLAY	SQYD	34000	$ 15.00	$ 510,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	1100	$ 15.00	$ 16,500.00
	EARTHWORK	LS	1	$ 75,000.00	$ 75,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 100,000.00	$ 100,000.00
	STAKING	LS	1	$ 10,000.00	$ 10,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 50,000.00	$ 50,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	2.5	$ 50,000.00	$ 125,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 100,000.00	$ 100,000.00
	RAISED MEDIAN	SQYD	1100	$ 80.00	$ 88,000.00
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 1,229,500.00
Misc Environmental and Permitting (3%)					$ 40,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 510,000.00
Engineering during Construction /Inspection (10%) [2]					$ 130,000.00
CONSTRUCTION COST					**$ 1,910,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**191,000.00**
RIGHT OF WAY	**$**	**560,000.00**
UTILITIES	**$**	**420,000.00**
TOTAL ESTIMATED COST	**$**	**3,081,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT M - NICHOLASVILLE ROAD AT NEW CIRCLE					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	13785	$ 100.00	$ 1,378,500.00
	MILL & OVERLAY	SQYD	46080	$ 15.00	$ 691,200.00
	GUARDRAIL	LF	1750	$ 25.00	$ 43,750.00
	REMOVE PAVEMENT	SQYD	1500	$ 15.00	$ 22,500.00
	EARTHWORK	LS	1	$ 125,000.00	$ 125,000.00
	CLEARING AND GRUBBING	LS	1	$ 25,000.00	$ 25,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 100,000.00	$ 100,000.00
	STAKING	LS	1	$ 50,000.00	$ 50,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 150,000.00	$ 150,000.00
	DEMOLITION	LS	1	$ 75,000.00	$ 75,000.00
	TRAFFIC SIGNAL	EACH	2.5	$ 50,000.00	$ 125,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 25,000.00	$ 25,000.00
	RAISED MEDIAN	SQYD	900	$ 80.00	$ 72,000.00
	SIDEWALK	SQYD	1500	$ 75.00	$ 112,500.00
	BRIDGE	SQFT	32000	$ 300.00	$ 9,600,000.00
Construction Items					$ 12,620,450.00
Misc Environmental and Permitting (3%)					$ 380,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 5,200,000.00
Engineering during Construction /Inspection (10%) [2]					$ 1,270,000.00
CONSTRUCTION COST					**$ 19,480,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**1,948,000.00**
RIGHT OF WAY	**$**	**560,000.00**
UTILITIES	**$**	**420,000.00**
TOTAL ESTIMATED COST	**$**	**22,408,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

Design Concept P - TATES CREEK @ NEW CIRCLE					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	1100	$ 100.00	$ 110,000.00
	MILL & OVERLAY	SQYD	2800	$ 15.00	$ 42,000.00
	GUARDRAIL	LF	800	$ 25.00	$ 20,000.00
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 50,000.00	$ 50,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 50,000.00	$ 50,000.00
	STAKING	LS	1	$ 10,000.00	$ 10,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	1	$ 25,000.00	$ 25,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0.5	$ 50,000.00	$ 25,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 10,000.00	$ 10,000.00
	RAISED MEDIAN	SQYD	0	$ 80.00	$ -
	SIDEWALK	SQYD	0	$ 75.00	$ -
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 362,000.00
Misc Environmental and Permitting (3%)					$ 20,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 150,000.00
Engineering during Construction /Inspection (10%) [2]					$ 40,000.00
CONSTRUCTION COST					**$ 580,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**58,000.00**
RIGHT OF WAY	**$**	**350,000.00**
UTILITIES	**$**	**140,000.00**
TOTAL ESTIMATED COST	**$**	**1,128,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT -R - Lowry at Nicholasville					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	6800	$ 100.00	$ 680,000.00
	MILL & OVERLAY	SQYD	25000	$ 15.00	$ 375,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	5300	$ 15.00	$ 79,500.00
	EARTHWORK	LS	1	$ 25,000.00	$ 25,000.00
	CLEARING AND GRUBBING	LS	1	$ 5,000.00	$ 5,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 75,000.00	$ 75,000.00
	STAKING	LS	1	$ 15,000.00	$ 15,000.00
	EROSION CONTROL	LS	1	$ 5,000.00	$ 5,000.00
	DRAINAGE	LS	1	$ 75,000.00	$ 75,000.00
	DEMOLITION	LS		$ 75,000.00	$ -
	TRAFFIC SIGNAL (MODIFY EXISTING X 2)	EACH	3	$ 75,000.00	$ 225,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 70,000.00	$ 70,000.00
	RAISED MEDIAN	SQYD	5300	$ 80.00	$ 424,000.00
	SIDEWALK	SQYD	4300	$ 75.00	$ 322,500.00
	BRIDGE	SQFT		$ 300.00	
Construction Items					$ 2,376,000.00
Misc Environmental and Permitting (3%)					$ 80,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 980,000.00
Engineering during Construction /Inspection (10%) [2]					$ 240,000.00
CONSTRUCTION COST					**$ 3,680,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**368,000.00**
RIGHT OF WAY	**$**	**5,250,000.00**
UTILITIES	**$**	**1,470,000.00**
TOTAL ESTIMATED COST	**$**	**10,768,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

Design Concept T - RICHMOND RD (US 25) @ MAN O WAR					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	5200	$ 100.00	$ 520,000.00
	MILL & OVERLAY	SQYD	20000	$ 15.00	$ 300,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 100,000.00	$ 100,000.00
	CLEARING AND GRUBBING	LS	1	$ 25,000.00	$ 25,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 100,000.00	$ 100,000.00
	STAKING	LS	1	$ 25,000.00	$ 25,000.00
	EROSION CONTROL	LS	1	$ 25,000.00	$ 25,000.00
	DRAINAGE	LS	1	$ 500,000.00	$ 500,000.00
	DEMOLITION	LS	0	$ 50,000.00	$ -
	TRAFFIC SIGNAL	EACH	2	$ 50,000.00	$ 100,000.00
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 100,000.00	$ 100,000.00
	RAISED MEDIAN	SQYD	4545	$ 80.00	$ 363,600.00
	SIDEWALK	SQYD	700	$ 75.00	$ 52,500.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 2,211,100.00
Misc Environmental and Permitting (3%)					$ 70,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 910,000.00
Engineering during Construction /Inspection (10%) [2]					$ 230,000.00
CONSTRUCTION COST					**$ 3,430,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**343,000.00**
RIGHT OF WAY	**$**	**5,250,000.00**
UTILITIES	**$**	**1,470,000.00**
TOTAL ESTIMATED COST	**$**	**10,493,000.00**

LEXINGTON BOTTLENECK STUDY CONCEPT COST ESTIMATE

DESIGN CONCEPT BB - NICHOLASVILLE @ SOUTHLAND					
Item No	Description	Unit	Quantity	Unit Price	Cost
	NEW PAVEMENT/WIDENING	SQYD	4000	$ 100.00	$ 400,000.00
	MILL & OVERLAY	SQYD	26000	$ 15.00	$ 390,000.00
	GUARDRAIL	LF	0	$ 25.00	$ -
	REMOVE PAVEMENT	SQYD	0	$ 15.00	$ -
	EARTHWORK	LS	1	$ 75,000.00	$ 75,000.00
	CLEARING AND GRUBBING	LS	1	$ 10,000.00	$ 10,000.00
	MAINTAIN AND CONTROL TRAFFIC	LS	1	$ 100,000.00	$ 100,000.00
	STAKING	LS	1	$ 10,000.00	$ 10,000.00
	EROSION CONTROL	LS	1	$ 10,000.00	$ 10,000.00
	DRAINAGE	LS	1	$ 25,000.00	$ 25,000.00
	DEMOLITION	LS	0	$ 75,000.00	$ -
	TRAFFIC SIGNAL	EACH	0	$ 50,000.00	$ -
	STRIPING AND PAVEMENT MARKINGS	LS	1	$ 100,000.00	$ 100,000.00
	RAISED MEDIAN	SQYD	3550	$ 80.00	$ 284,000.00
	SIDEWALK	SQYD	2000	$ 75.00	$ 150,000.00
	BRIDGE	SQFT	0	$ 300.00	$ -
Construction Items					$ 1,554,000.00
Misc Environmental and Permitting (3%)					$ 50,000.00
Miscellaneous Construction Items/Contingency (40%) [1]					$ 640,000.00
Engineering during Construction /Inspection (10%) [2]					$ 160,000.00
CONSTRUCTION COST					**$ 2,410,000.00**

(1) Encompasses items that were not quanitified at this stage, commmonly included in the final construction estimate including but not limited to: signing, subgrade, asphalt milling and texturing, demobilization and mobilization, fence, shoulder rumble strips, pavement markers, lighting, fuel adjustments, existing guardrail removal, existing pipe removal, safeloading, right of way monumentation, ditch lining, geotextile fabric, sawcut pavement, pavement edge key, temporary pavement striping, header curb, flume inlets, manholes, permanent signing between interchanges, noise walls, water quality BMP's, landscaping, variable message signs, type III barricades, flashing arrows, law enforcement officersfor maintenance of traffic, temporary crash cushions, temporary concrete barrier, waterblasting for striping removal, and grated drainage inlets.

(2) Includes items to cover additional costs to overcome unforeseen conditions or events for which the state will likely result in additional costs based on past project experiences. Those items include but are not limited to contractor requested change orders, construction inspection, additional design costs, and any unforeseen condition encountered during construction.

DESIGN FEE	**$**	**241,000.00**
RIGHT OF WAY	**$**	**3,010,000.00**
UTILITIES	**$**	**1,050,000.00**
TOTAL ESTIMATED COST	**$**	**6,711,000.00**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Alumni from MOW to Yellowstone

INTERSECTION INFORMATION	
ADT	30550
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$2,112,000

Delay Analysis

Intersection: Alumni from MOW to Yellowstone

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	150.5	92.1
MID		
PM		
Average Delay (sec/veh)	151	92
Difference (hours/veh)	0.016222	

INTERSECTION INFORMATION	
ADT	30550
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	360.54
Daily person hour delay reduction	540.81
Annual Delay Savings (hours)	140,611
Annual Delay Savings	$2,573,181

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	11.15
Daily person hour delay reduction	11.15
Annual Delay Savings (hours)	2,899
Annual Delay Savings	$152,672

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**143,510**
Annual Delay Savings	**$2,725,853**

Safety Analysis

Intersection: Alumni from MOW to Yellowstone

CRASH DATA	
Crashes over past 3 years	172
Injury	20
Fatal	0
Property Damage Only	152
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.1
Reduction Cost	$38,253

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.5
Reduction Cost	$32,952

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$71,205**
Potentially eliminated crashes	**5**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: New Circle Rd at Leestown Rd

INTERSECTION INFORMATION	
ADT	38543
Truck %	12.0%
Roadway Type	Urban Minor Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$20,000

Delay Analysis

Intersection: New Circle Rd at Leestown Rd

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	40.7	43.2
Average Delay (sec/veh)	41	43
Difference (hours/veh)	-0.000694	

INTERSECTION INFORMATION	
ADT	38543
Truck %	12.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	-17.67
Daily person hour delay reduction	-26.50
Annual Delay Savings (hours)	-6,890
Annual Delay Savings	-$126,079

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	-2.41
Daily person hour delay reduction	-2.41
Annual Delay Savings (hours)	-626
Annual Delay Savings	-$32,982

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**-7,516**
Annual Delay Savings	**-$159,061**

Safety Analysis

Intersection: New Circle Rd at Leestown Rd

CRASH DATA	
Crashes over past 3 years	78
Injury	16
Fatal	0
Property Damage Only	62
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.7
Reduction Cost	$15,603

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.4
Reduction Cost	$26,362

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$41,965**
Potentially eliminated crashes	**2**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: New Circle from Woodhill to Palumbo

INTERSECTION INFORMATION	
ADT	42767
Truck %	6.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$1,579,000

Delay Analysis

Intersection: New Circle from Woodhill to Palumbo

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	87.2	73.1
MID		
PM	77.6	73
Average Delay (sec/veh)	82	73
Difference (hours/veh)	0.002597	

INTERSECTION INFORMATION	
ADT	42767
Truck %	6.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	78.31
Daily person hour delay reduction	117.46
Annual Delay Savings (hours)	30,540
Annual Delay Savings	$558,885

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	5.00
Daily person hour delay reduction	5.00
Annual Delay Savings (hours)	1,300
Annual Delay Savings	$68,436

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**31,840**
Annual Delay Savings	**$627,321**

Safety Analysis

Intersection: New Circle from Woodhill to Palumbo

CRASH DATA	
Crashes over past 3 years	187
Injury	21
Fatal	1
Property Damage Only	165
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.4
Reduction Cost	$41,525

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.6
Reduction Cost	$34,600

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$48,980

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$125,105**
Potentially eliminated crashes	**5**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: MOW from Habersham to Nicholasville

INTERSECTION INFORMATION	
ADT	29798
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,000

Delay Analysis

Intersection: MOW from Habersham to Nicholasville

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	30	23.7
MID		
PM	16.5	21.2
Average Delay (sec/veh)	23	22
Difference (hours/veh)	0.000222	

INTERSECTION INFORMATION	
ADT	29798
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	4.82
Daily person hour delay reduction	7.23
Annual Delay Savings (hours)	1,879
Annual Delay Savings	$34,381

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	0.15
Daily person hour delay reduction	0.15
Annual Delay Savings (hours)	39
Annual Delay Savings	$2,040

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**1,918**
Annual Delay Savings	**$36,421**

Safety Analysis

Intersection: MOW from Habersham to Nicholasville

CRASH DATA	
Crashes over past 3 years	188
Injury	35
Fatal	0
Property Damage Only	153
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.1
Reduction Cost	$38,505

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.9
Reduction Cost	$57,667

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$96,172**
Potentially eliminated crashes	**5**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Waller bet Elizabeth and Nicholasville

INTERSECTION INFORMATION	
ADT	32099
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	3
Total Estimated Cost	$297,000

Delay Analysis

Intersection: Waller bet Elizabeth and Nicholasville

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	125.7	94.7
MID		
PM	320	278.7
Average Delay (sec/veh)	223	187
Difference (hours/veh)	0.010042	

INTERSECTION INFORMATION	
ADT	32099
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	234.49
Daily person hour delay reduction	351.74
Annual Delay Savings (hours)	91,452
Annual Delay Savings	$1,673,578

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	7.25
Daily person hour delay reduction	7.25
Annual Delay Savings (hours)	1,886
Annual Delay Savings	$99,297

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**93,338**
Annual Delay Savings	**$1,772,875**

Safety Analysis

Intersection: Waller bet Elizabeth and Nicholasville

CRASH DATA	
Crashes over past 3 years	221
Injury	37
Fatal	0
Property Damage Only	184
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.9
Reduction Cost	$46,306

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	1.0
Reduction Cost	$60,962

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$107,268**
Potentially eliminated crashes	**6**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville bet Alumni and State

INTERSECTION INFORMATION	
ADT	32099
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$3,265,000

Delay Analysis

Intersection: Nicholasville bet Alumni and State

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	102.7	116.5
MID		
PM	305	101.9
Average Delay (sec/veh)	204	109
Difference (hours/veh)	0.026292	

INTERSECTION INFORMATION	
ADT	32099
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	613.96
Daily person hour delay reduction	920.95
Annual Delay Savings (hours)	239,446
Annual Delay Savings	$4,381,858

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	18.99
Daily person hour delay reduction	18.99
Annual Delay Savings (hours)	4,937
Annual Delay Savings	$259,984

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**244,383**
Annual Delay Savings	**$4,641,842**

Safety Analysis

Intersection: Nicholasville bet Alumni and State

CRASH DATA	
Crashes over past 3 years	168
Injury	29
Fatal	0
Property Damage Only	139
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	3.7
Reduction Cost	$34,981

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.8
Reduction Cost	$47,781

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$82,762**
Potentially eliminated crashes	**4**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville at MOW

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$5,160,000

Delay Analysis

Intersection: Nicholasville at MOW

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	58.8	35.4
MID		
PM	57.6	50.5
Average Delay (sec/veh)	58	43
Difference (hours/veh)	0.004236	

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	121.85
Daily person hour delay reduction	182.78
Annual Delay Savings (hours)	47,522
Annual Delay Savings	$869,653

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	9.17
Daily person hour delay reduction	9.17
Annual Delay Savings (hours)	2,385
Annual Delay Savings	$125,574

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**49,907**
Annual Delay Savings	**$995,227**

Safety Analysis

Intersection: Nicholasville at MOW

CRASH DATA	
Crashes over past 3 years	144
Injury	21
Fatal	0
Property Damage Only	123
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	3.3
Reduction Cost	$30,955

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.6
Reduction Cost	$34,600

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$65,555**
Potentially eliminated crashes	**4**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville at Tiverton

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$165,000

Delay Analysis

Intersection: Nicholasville at Tiverton

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	23.4	24
MID		
PM	109.6	66.4
Average Delay (sec/veh)	67	45
Difference (hours/veh)	0.005917	

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	170.19
Daily person hour delay reduction	255.29
Annual Delay Savings (hours)	66,375
Annual Delay Savings	$1,214,663

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	12.81
Daily person hour delay reduction	12.81
Annual Delay Savings (hours)	3,331
Annual Delay Savings	$175,392

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**69,706**
Annual Delay Savings	**$1,390,055**

Safety Analysis

Intersection: Nicholasville at Tiverton

CRASH DATA	
Crashes over past 3 years	52
Injury	7
Fatal	0
Property Damage Only	45
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.2
Reduction Cost	$11,325

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.2
Reduction Cost	$11,533

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$22,858**
Potentially eliminated crashes	**1**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville at Wilson Downing

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$497,000

Delay Analysis

Intersection: Nicholasville at Wilson Downing

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	28.2	26.7
MID		
PM	44.9	48.5
Average Delay (sec/veh)	37	38
Difference (hours/veh)	-0.000292	

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	-8.39
Daily person hour delay reduction	-12.58
Annual Delay Savings (hours)	-3,272
Annual Delay Savings	-$59,878

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	-0.63
Daily person hour delay reduction	-0.63
Annual Delay Savings (hours)	-164
Annual Delay Savings	-$8,646

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**-3,436**
Annual Delay Savings	**-$68,524**

Safety Analysis

Intersection: Nicholasville at Wilson Downing

CRASH DATA	
Crashes over past 3 years	51
Injury	3
Fatal	0
Property Damage Only	48
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.3
Reduction Cost	$12,080

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.1
Reduction Cost	$4,943

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$17,023**
Potentially eliminated crashes	**1**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville at Reynolds

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$1,010,000

Delay Analysis

Intersection: Nicholasville at Reynolds

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	79	53.5
MID		
PM	65	61.8
Average Delay (sec/veh)	72	58
Difference (hours/veh)	0.003986	

INTERSECTION INFORMATION	
ADT	41240
Truck %	7.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	114.66
Daily person hour delay reduction	171.99
Annual Delay Savings (hours)	44,717
Annual Delay Savings	$818,329

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	8.63
Daily person hour delay reduction	8.63
Annual Delay Savings (hours)	2,244
Annual Delay Savings	$118,163

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**46,961**
Annual Delay Savings	**$936,492**

Safety Analysis

Intersection: Nicholasville at Reynolds

CRASH DATA	
Crashes over past 3 years	223
Injury	23
Fatal	0
Property Damage Only	200
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	5.3
Reduction Cost	$50,333

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.6
Reduction Cost	$37,895

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$88,228**
Potentially eliminated crashes	**6**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Harrodsburg from Pasadena to Burbank

INTERSECTION INFORMATION	
ADT	33819
Truck %	8.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$1,643,000

Delay Analysis

Intersection: Harrodsburg from Pasadena to Burbank

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	114.4	74.5
Average Delay (sec/veh)	114	75
Difference (hours/veh)	0.011083	

INTERSECTION INFORMATION	
ADT	33819
Truck %	8.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	258.63
Daily person hour delay reduction	387.95
Annual Delay Savings (hours)	100,866
Annual Delay Savings	$1,845,848

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	22.49
Daily person hour delay reduction	22.49
Annual Delay Savings (hours)	5,847
Annual Delay Savings	$307,919

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**106,713**
Annual Delay Savings	**$2,153,767**

Safety Analysis

Intersection: Harrodsburg from Pasadena to Burbank

CRASH DATA	
Crashes over past 3 years	142
Injury	25
Fatal	
Property Damage Only	117
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	3.1
Reduction Cost	$29,445

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.7
Reduction Cost	$41,190

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$70,635**
Potentially eliminated crashes	**4**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Harrodsburg at New Circle Interchange

INTERSECTION INFORMATION	
ADT	33819
Truck %	8.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$1,231,000

Delay Analysis

Intersection: Harrodsburg at New Circle Interchange

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	107.2	96
Average Delay (sec/veh)	107	96
Difference (hours/veh)	0.003111	

INTERSECTION INFORMATION	
ADT	33819
Truck %	8.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	72.60
Daily person hour delay reduction	108.90
Annual Delay Savings (hours)	28,313
Annual Delay Savings	$518,133

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	6.31
Daily person hour delay reduction	6.31
Annual Delay Savings (hours)	1,641
Annual Delay Savings	$86,433

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**29,954**
Annual Delay Savings	**$604,566**

Safety Analysis

Intersection: Harrodsburg at New Circle Interchange

CRASH DATA	
Crashes over past 3 years	187
Injury	21
Fatal	
Property Damage Only	166
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.4
Reduction Cost	$41,776

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.6
Reduction Cost	$34,600

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$76,376**
Potentially eliminated crashes	**5**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Harrodsburg from MOW to Beaumont Centre

INTERSECTION INFORMATION	
ADT	33819
Truck %	8.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	3
Total Estimated Cost	$30,901,000

Delay Analysis

Intersection: Harrodsburg from MOW to Beaumont Centre

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	161.3	93
Average Delay (sec/veh)	161	93
Difference (hours/veh)	0.018972	

INTERSECTION INFORMATION	
ADT	33819
Truck %	8.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	442.72
Daily person hour delay reduction	664.08
Annual Delay Savings (hours)	172,660
Annual Delay Savings	$3,159,685

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	38.50
Daily person hour delay reduction	38.50
Annual Delay Savings (hours)	10,009
Annual Delay Savings	$527,090

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**182,669**
Annual Delay Savings	**$3,686,775**

Safety Analysis

Intersection: Harrodsburg from MOW to Beaumont Centre

CRASH DATA	
Crashes over past 3 years	334
Injury	58
Fatal	1
Property Damage Only	275
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	7.3
Reduction Cost	$69,208

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	1.5
Reduction Cost	$95,562

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$48,980

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$213,750**
Potentially eliminated crashes	**9**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: W Main from Newtown Pike to Broadway

INTERSECTION INFORMATION	
ADT	24372
Truck %	9.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	3
Total Estimated Cost	$231,000

Delay Analysis

Intersection: W Main from Newtown Pike to Broadway

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	98.5	79.9
Average Delay (sec/veh)	99	80
Difference (hours/veh)	0.005167	

INTERSECTION INFORMATION	
ADT	24372
Truck %	9.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	85.94
Daily person hour delay reduction	128.91
Annual Delay Savings (hours)	33,517
Annual Delay Savings	$613,366

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	8.50
Daily person hour delay reduction	8.50
Annual Delay Savings (hours)	2,210
Annual Delay Savings	$116,375

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**35,727**
Annual Delay Savings	**$729,741**

Safety Analysis

Intersection: W Main from Newtown Pike to Broadway

CRASH DATA	
Crashes over past 3 years	64
Injury	10
Fatal	0
Property Damage Only	54
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.4
Reduction Cost	$13,590

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.3
Reduction Cost	$16,476

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$30,066**
Potentially eliminated crashes	**2**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: MOW @ Sir Barton Way

INTERSECTION INFORMATION	
ADT	40461
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$341,000

Delay Analysis

Intersection: MOW @ Sir Barton Way

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	92.5	53.9
Average Delay (sec/veh)	93	54
Difference (hours/veh)	0.010722	

INTERSECTION INFORMATION	
ADT	40461
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	315.61
Daily person hour delay reduction	473.42
Annual Delay Savings (hours)	123,089
Annual Delay Savings	$2,252,528

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	9.76
Daily person hour delay reduction	9.76
Annual Delay Savings (hours)	2,538
Annual Delay Savings	$133,647

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**125,627**
Annual Delay Savings	**$2,386,175**

Safety Analysis

Intersection: MOW @ Sir Barton Way

CRASH DATA	
Crashes over past 3 years	140
Injury	21
Fatal	0
Property Damage Only	119
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	3.2
Reduction Cost	$29,948

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.6
Reduction Cost	$34,600

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$64,548**
Potentially eliminated crashes	**4**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: New Circle from Liberty to Trade Center

INTERSECTION INFORMATION	
ADT	39049
Truck %	6.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$3,081,000

Delay Analysis

Intersection: New Circle from Liberty to Trade Center

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	167.8	69
Average Delay (sec/veh)	168	69
Difference (hours/veh)	0.027444	

INTERSECTION INFORMATION	
ADT	39049
Truck %	6.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	755.53
Daily person hour delay reduction	1133.30
Annual Delay Savings (hours)	294,658
Annual Delay Savings	$5,392,240

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	48.23
Daily person hour delay reduction	48.23
Annual Delay Savings (hours)	12,539
Annual Delay Savings	$660,284

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**307,197**
Annual Delay Savings	**$6,052,524**

Safety Analysis

Intersection: New Circle from Liberty to Trade Center

CRASH DATA	
Crashes over past 3 years	292
Injury	41
Fatal	0
Property Damage Only	251
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	6.7
Reduction Cost	$63,168

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	1.1
Reduction Cost	$67,552

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$130,720**
Potentially eliminated crashes	**8**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: New Circle Rd at Nicholasville Rd

INTERSECTION INFORMATION	
ADT	63740
Truck %	7.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$22,408,000

Delay Analysis

Intersection: New Circle Rd at Nicholasville Rd

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	94.1	54.7
MID		
PM	195.5	75.7
Average Delay (sec/veh)	145	65
Difference (hours/veh)	0.022111	

INTERSECTION INFORMATION	
ADT	63740
Truck %	7.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	983.03
Daily person hour delay reduction	1474.55
Annual Delay Savings (hours)	383,382
Annual Delay Savings	$7,015,886

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	73.99
Daily person hour delay reduction	73.99
Annual Delay Savings (hours)	19,238
Annual Delay Savings	$1,013,062

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**402,620**
Annual Delay Savings	**$8,028,948**

Safety Analysis

Intersection: New Circle Rd at Nicholasville Rd

CRASH DATA	
Crashes over past 3 years	199
Injury	25
Fatal	0
Property Damage Only	174
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.6
Reduction Cost	$43,790

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.7
Reduction Cost	$41,190

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$84,980**
Potentially eliminated crashes	**5**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: New Circle at Tates Creek

INTERSECTION INFORMATION	
ADT	32921
Truck %	2.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	2
Total Estimated Cost	$1,128,000

Delay Analysis

Intersection: New Circle at Tates Creek

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	116	43.7
MID		
PM	53.2	38.4
Average Delay (sec/veh)	85	41
Difference (hours/veh)	0.012097	

INTERSECTION INFORMATION	
ADT	32921
Truck %	2.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	292.72
Daily person hour delay reduction	439.07
Annual Delay Savings (hours)	114,159
Annual Delay Savings	$2,089,112

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	5.97
Daily person hour delay reduction	5.97
Annual Delay Savings (hours)	1,553
Annual Delay Savings	$81,791

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**115,712**
Annual Delay Savings	**$2,170,903**

Safety Analysis

Intersection: New Circle at Tates Creek

CRASH DATA	
Crashes over past 3 years	152
Injury	30
Fatal	0
Property Damage Only	122
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	3.3
Reduction Cost	$30,703

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.8
Reduction Cost	$49,429

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$80,132**
Potentially eliminated crashes	**4**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Broadway at Vine

INTERSECTION INFORMATION	
ADT	23445
Truck %	7.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,000

Delay Analysis

Intersection: Broadway at Vine

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	50	31.1
Average Delay (sec/veh)	50	31
Difference (hours/veh)	0.005250	

INTERSECTION INFORMATION	
ADT	23445
Truck %	7.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	85.85
Daily person hour delay reduction	128.78
Annual Delay Savings (hours)	33,483
Annual Delay Savings	$612,730

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	6.46
Daily person hour delay reduction	6.46
Annual Delay Savings (hours)	1,680
Annual Delay Savings	$88,476

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**35,163**
Annual Delay Savings	**$701,206**

Safety Analysis

Intersection: Broadway at Vine

CRASH DATA	
Crashes over past 3 years	55
Injury	8
Fatal	0
Property Damage Only	47
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.3
Reduction Cost	$11,828

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.2
Reduction Cost	$13,181

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$25,009**
Potentially eliminated crashes	**1**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville at Lowry

INTERSECTION INFORMATION	
ADT	32638
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,768,000

Delay Analysis

Intersection: Nicholasville at Lowry

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	21.4	18.7
MID		
PM	74.2	64.3
Average Delay (sec/veh)	48	42
Difference (hours/veh)	0.001750	

INTERSECTION INFORMATION	
ADT	32638
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	41.55
Daily person hour delay reduction	62.33
Annual Delay Savings (hours)	16,205
Annual Delay Savings	$296,558

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	1.29
Daily person hour delay reduction	1.29
Annual Delay Savings (hours)	334
Annual Delay Savings	$17,595

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**16,539**
Annual Delay Savings	**$314,153**

Safety Analysis

Intersection: Nicholasville at Lowry

CRASH DATA	
Crashes over past 3 years	47
Injury	11
Fatal	0
Property Damage Only	36
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.0
Reduction Cost	$9,060

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.3
Reduction Cost	$18,124

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$27,184**
Potentially eliminated crashes	**1**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Broadway at Red Mile/Virginia

INTERSECTION INFORMATION	
ADT	31889
Truck %	1.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,000

Delay Analysis

Intersection: Broadway at Red Mile/Virginia

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	60.9	54.3
Average Delay (sec/veh)	61	54
Difference (hours/veh)	0.001833	

INTERSECTION INFORMATION	
ADT	31889
Truck %	1.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	43.41
Daily person hour delay reduction	65.11
Annual Delay Savings (hours)	16,929
Annual Delay Savings	$309,809

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	0.44
Daily person hour delay reduction	0.44
Annual Delay Savings (hours)	114
Annual Delay Savings	$6,003

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**17,043**
Annual Delay Savings	**$315,812**

Safety Analysis

Intersection: Broadway at Red Mile/Virginia

CRASH DATA	
Crashes over past 3 years	109
Injury	15
Fatal	0
Property Damage Only	94
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	2.5
Reduction Cost	$23,657

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.4
Reduction Cost	$24,714

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$48,371**
Potentially eliminated crashes	**3**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: MOW at Richmond

INTERSECTION INFORMATION	
ADT	43321
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,493,000

Delay Analysis

Intersection: MOW at Richmond

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	52	22.7
MID		
PM	109.3	32
Average Delay (sec/veh)	81	27
Difference (hours/veh)	0.014806	

INTERSECTION INFORMATION	
ADT	43321
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	466.61
Daily person hour delay reduction	699.92
Annual Delay Savings (hours)	181,979
Annual Delay Savings	$3,330,212

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	14.43
Daily person hour delay reduction	14.43
Annual Delay Savings (hours)	3,752
Annual Delay Savings	$197,588

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**185,731**
Annual Delay Savings	**$3,527,800**

Safety Analysis

Intersection: MOW at Richmond

CRASH DATA	
Crashes over past 3 years	178
Injury	17
Fatal	0
Property Damage Only	161
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	4.3
Reduction Cost	$40,518

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.5
Reduction Cost	$28,010

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$68,528**
Potentially eliminated crashes	**5**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Broadway/Harrodsburg at Waller

INTERSECTION INFORMATION	
ADT	31889
Truck %	1.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,000

Delay Analysis

Intersection: Broadway/Harrodsburg at Waller

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	52	45
Average Delay (sec/veh)	52	45
Difference (hours/veh)	0.001944	

INTERSECTION INFORMATION	
ADT	31889
Truck %	1.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	46.04
Daily person hour delay reduction	69.06
Annual Delay Savings (hours)	17,956
Annual Delay Savings	$328,586

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	0.47
Daily person hour delay reduction	0.47
Annual Delay Savings (hours)	121
Annual Delay Savings	$6,367

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**18,077**
Annual Delay Savings	**$334,953**

Safety Analysis

Intersection: Broadway/Harrodsburg at Waller

CRASH DATA	
Crashes over past 3 years	69
Injury	13
Fatal	0
Property Damage Only	56
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	1.5
Reduction Cost	$14,093

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.3
Reduction Cost	$21,419

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$35,512**
Potentially eliminated crashes	**2**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Vine at Rose

INTERSECTION INFORMATION	
ADT	11751
Truck %	11.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$10,000

Delay Analysis

Intersection: Vine at Rose

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM		
MID		
PM	33.9	30.5
Average Delay (sec/veh)	34	31
Difference (hours/veh)	0.000944	

INTERSECTION INFORMATION	
ADT	11751
Truck %	11.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	7.41
Daily person hour delay reduction	11.11
Annual Delay Savings (hours)	2,889
Annual Delay Savings	$52,871

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	0.92
Daily person hour delay reduction	0.92
Annual Delay Savings (hours)	238
Annual Delay Savings	$12,536

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**3,127**
Annual Delay Savings	**$65,407**

Safety Analysis

Intersection: Vine at Rose

CRASH DATA	
Crashes over past 3 years	42
Injury	7
Fatal	0
Property Damage Only	35
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	0.9
Reduction Cost	$8,808

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.2
Reduction Cost	$11,533

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$20,341**
Potentially eliminated crashes	**1**

Evaluation of Proposed Improvements

General Intersection Information

Intersection: Nicholasville at Southland

INTERSECTION INFORMATION	
ADT	32099
Truck %	3.0%
Roadway Type	Urban Principal Arterial
% of daily traffic during peak hours	75%
No. of Intersections	1
Total Estimated Cost	$6,711,000

Delay Analysis

Intersection: Nicholasville at Southland

DELAY INFORMATION		
Peak Hour	**Existing Delay (sec/veh)**	**Proposed Delay (sec/veh)**
AM	40.7	27.1
MID		
INTERSECTION INFORMATION	71.1	52.9
Average Delay (sec/veh)	56	40
Difference (hours/veh)	0.004417	

INTERSECTION INFORMATION	
ADT	32099
Truck %	3.0%
% of daily traffic during peak hours	75%

CALCULATIONS (Passenger Vehicle)	
Vehicle Occupancy	1.50
Delay cost per person hour	$18.30
Work Days per year	260
Delay reduction per day	103.14
Daily person hour delay reduction	154.71
Annual Delay Savings (hours)	40,224
Annual Delay Savings	$736,097

CALCULATIONS (Trucks)	
Vehicle Occupancy	1.00
Delay cost per person hour	$52.66
Work Days per year	260
Delay reduction per day	3.19
Daily person hour delay reduction	3.19
Annual Delay Savings (hours)	829
Annual Delay Savings	$43,674

ESTIMATED ANNUAL SAVINGS	
Annual Delay Savings (hours)	**41,053**
Annual Delay Savings	**$779,771**

Safety Analysis

Intersection: Nicholasville at Southland

CRASH DATA	
Crashes over past 3 years	41
Injury	12
Fatal	0
INTERSECTION INFORMATION	29
Crash Reduction Factor	0.08

POTENTIAL ANNUAL CRASH REDUCTIONS Property Damage Only	
Human capital per crash	$9,437
Potentially eliminated crashes	0.8
Reduction Cost	$7,298

POTENTIAL ANNUAL CRASH REDUCTIONS Injury	
Human capital per crash	$61,786
Potentially eliminated crashes	0.3
Reduction Cost	$19,771

POTENTIAL ANNUAL CRASH REDUCTIONS Fatal	
Human capital per crash	$1,836,762
Potentially eliminated crashes	0.0
Reduction Cost	$0

POTENTIAL ANNUAL CRASH REDUCTIONS Totals	
Cost savings	**$27,069**
Potentially eliminated crashes	**1**

ID	Project Location	Project Description	Total Estimated Cost: Low = Less Than $500,000 High = More Than $2,000,000	Pedestrian Safety Impact	Potentially Eliminated Crashes	Relative Benefits: Annual Delay Savings (hours) Low = Less Than 50,000 High = More than 100,000	Relative Cost-to-Benefit
A	Alumni Drive from MOW to Yellowstone	Alumni @ MOW: Add a second SW right-turn lane on MOW (1-left, 2-thru, 2-right) and channelize the right-turns to add a pedestrian island. Add a second NE left-turn lane on MOW (2-left, 2-thru, 1-right). Alumni @ Yellowstone: Add a second NE left-turn lane on Yellowstone (2-left, 1-thru/right).	$2,112,000	Negative (dual lefts/rights and longer crosswalks)	5	143,510	High to High
B	Leestown Road at New Circle	Short-term safety improvement project, trade-off for vehicle delay. Add backplates to the existing signal heads at both ramp terminals, change NW left-turn phasing at the Outer ramp terminal from a permitted/protected left-turn to protected only left-turn phase.	$20,000	No Impact	2	-7776 (protected phase adds delay but improves safety)	Low to Low*
C	New Circle Rd bet Woodhill and Palumbo Dr ***(NNCR)***	Remove split phase and add an additional left-turn lane and reassign lane use on the EB approach (1-left, 1-thru, 1-thru/right) and WB (2-left, 1-thru, 1-right) lane use at Woodhill Dr. Optimize signal timing and reassign WB (1-left, 1-thru/right) lane use at Palumbo Dr.	$1,579,000	Positive (extension of sidewalk)	5	31,840	Med to Low
D	Man O War Blvd at Habersham Dr	Change left-turn phasing at the MOW/Habersham intersection to permitted/protected in the NB and SB directions and protected only in the EB and WB directions. Replace the existing left-turn signal heads.	$10,000	No Impact	5	1,918	Low to Low
E - Short	Waller Ave bet Elizabeth St and Nicholasville Rd (US 27) ***(INR)***	Remove minor street split phasing, reassign lane use on the EB (1-left, 1-thru, 1-right) and WB (1-left, 1-thru, 1-right) approaches, and optimize signal timing at the Nicholasville Road/Waller Avenue intersection. Also, restripe Waller Ave at Elizabeth St to provide EB and WB left-turn lanes.	$297,000	No Impact	6	93,338	Low to Med
E - Long	Nicholasville Rd (US 27) bet Alumni Dr and State St ***(INR)***	Construct a N/S Restricted Crossing U-Turn innovative intersection at Waller Ave and eliminate reversable lanes on Nicholasville. In addition, remove traffic signal at Dantzler Dr and convert to right-in, right-out.	$3,265,000	Negative (free flow right-turn lane)	4	244,383	High to High
F-1	Nicholasville Rd (US 27) at MOW ***(INR)***	E/W Displaced Left Turn innovative intersection.	$5,160,000	Negative (unusual direction of vehicular traffic)	4	49,907	High to Low
F-2	Nicholasville Rd (US 27) at W Tiverton Way ***(INR)***	Unsplit phasing on the minor street approaches and reassign EB lane use (2-left, 1-thru/right).	$165,000	No Impact	1	69,706	Low to Med
F-3	Nicholasville Rd (US 27) at Wilson Downing Rd ***(INR)***	Add a second WB left-turn lane (2-left, 1-thru/right).	$497,000	No Impact	1	-3436 (traffic unmetered by adjacent improvements)	Low to Low
F-4	Nicholasville Rd (US 27) at Reynolds Rd ***(INR)***	Add a WB right-turn lane (1-left, 2-thru, 1-right) on Reynolds Rd. Also, convert the Brigadoon Pkwy intersection to a right-in, right-out and lengthen the NB left-turn lane at Nicholasville Rd/Reynolds Rd.	$1,010,000	No Impact	6	46,961	Med to Low
G	US 27 (Lexington Rd) bet N. Main and Brannon ***(INR)***	Nicholasville Rd Access Management existing project.	$39,600,000	No Impact	Previously Studied	Previously Studied	High to High
H-1	Harrodsburg bet Pasadena and Burbank	Remove the through and left movements on Pasadena Dr at Harrodsburg Rd and replace with duel right-turn lanes. Add NB U-turn movement on Harrodsburg at the Burbank intersection. Optimize signal timings.	$1,643,000	No Impact	4	106,713	Med to High
H-2	Harrodsburg at New Circle Interchange	Extend both exit ramps from New Circle to Harrodsburg and provide a merge lane on the SB (outer loop) on-ramp. Optimize signal timings.	$1,231,000	No Impact	5	29,954	Med to Low
I	Harrodsburg bet MOW and Beaumont Centre	Widen Harrodsburg Road to 6 lanes from Beaumont Centre Parkway/Corporate Center Drive to MOW. Also, unsplit minor street signal phasing at Wellington Way and reassign SEB & NWB lane uses (1-left, 1-thru, 1-right).	$30,901,000	Positive (New Sidewalks)	9	182,669	High to High

Projects have been noted which are included within the Imagine Nicholasville Road Corridor (INR) and Northeast New Circle Road (NNCR) Study area

Immediate Priority
Short - Medium Term Priority
Long Term Priority
Partial Project

ID	Project Location	Project Description	Total Estimated Cost: Low = Less Than $500,000 High = More Than $2,000,000	Pedestrian Safety Impact	Potentially Eliminated Crashes	Relative Benefits: Annual Delay Savings (hours) Low = Less Than 50,000 High = More than 100,000	Relative Cost-to-Benefit
J	W Main bet Newtown Pike and Broadway	Remove 7on-street parking on the east side of Main Street between Newtown Pike/Oliver Lewis Way & Old George St. and shift the NW through lanes, allowing for extension of the NW left-turn lane (planned project). Optimize signal timing along Main Street from Newtown Pike/Oliver Lewis Way to Broadway - 3 signals.	$231,000	No Impact	2	35,727	Low to Low
K	MOW at Sir Barton Way	Remove minor street split phasing and provide protected only left-turn phase, reassign lane use on the NWB (1-left, 2-thru, 1-right) and SEB (2-left, 1-thru, 1-right) approaches, and optimize signal timing at the MOW/Sir Barton Way intersection. Also, replace signal heads on the minor street approaches to accommodate the phasing changes.	$341,000	No Impact	3	125,627	Low to High
L	New Circle bet Liberty and Trade Center ***(NNCR)***	New Circle at Liberty: Construct a SW Quadrant innovative intersection at New Circle/Liberty, using the existing pavement on Creative Drive. The Quadrant intersection includes roadway widening on Liberty, consisting of two through lanes in each direction between Creative and Fortune. In addition, convert the existing drives on Liberty between New Circle and Creative to right-in, right-out. New Circle at Trade Center: Signal timing updates to allocate more green time to the minor street approaches.	$3,081,000	No Impact	8	307,197	High to High
M	New Circle at Nicholasville ***(INR)***	Construct a N/S Displaced Left Turn innovative interchange. Improvements include adding sidewalks and crosswalks, along with lengthening the bridge to accommodate two (2) additional lanes for New Circle below.	$22,408,000	Positive (New Sidewalks)	5	408,116	High to High
P	New Circle at Tates Creek	Add turn lane on the EB (outer loop) off-ramp to create two left-turn lanes and two right-turn lanes. Also, optimize signal timings at both ramp terminals.	$1,128,000	No Impact	4	115,712	Med to High
Q	Broadway at Vine	Optimize signal timing at the Broadway/Vine intersection.	$10,000	No Impact	1	35,163	Low to Low
R	Lowry at Nicholasville (US27) ***(INR)***	Construct a N/S Restricted Crossing U-Turn innovative intersection, consistent with Imagine Nicholasville plan.	$10,768,000	No Impact	1	16,539	High to Low
S	Broadway at Red Mile/Virginia	Optimize signal timing at the Broadway/Red Mile/Virginia intersection. The planned Scott Street Connector project will also reduce congestion at this intersection.	$10,000	No Impact	3	17,043	Low to Low
T	MOW at Richmond	Construct a SE Quadrant intersection at MOW/Richmond and add a 3rd SWB through lane which will turn into a right-turn only lane at the MOW/Beaver Creek intersection.	$10,493,000	No Impact	5	185,731	High to High
V	Broadway/Harrodsburg at Waller	Optimize signal timing	$10,000	No Impact	2	18,077	Low to Low
Z	Vine at Rose	Optimize signal timing	$10,000	No Impact	1	3,127	Low to Low
BB	Nicholasville at Southland ***(INR)***	Construct a N/S Restricted Crossing U-Turn innovative intersection with three through lanes south of Southland and two through lanes north of Southland. Convert the right-most lane in each direction on Nicholasville to a BRT lane. This section of Nicholasville will include a mountable median consistent with Imagine Nicholasville.	$6,711,000	No Impact	1	41,192	High to Low

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