

Scope of Services

Lexington Area Congestion Management Bottleneck Study

This scope of services was developed from AECOM (the Consultant Team) response to RFP #23-2020 submitted on August 10, 2020 and subsequent Kick-Off Meeting on September 30th, 2020 with the Lexington MPO's Congestion Management Committee's (LexCMC's) Steering Committee . The primary purpose of the 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 the proposed improvements. The Study will be guided by the LexCMC's Steering Committee and be conducted in close coordination with the Kentucky Transportation Cabinet (KYTC) Planning / District 7 and the LFUCG Traffic Engineering / Engineering Divisions.

Task 1. Project Management

This task includes the Project Management activities consisting of project oversight, schedule and budget tracking, invoicing and project meetings.

❖ Monthly Meetings

The Consultant Team will support and facilitate monthly meetings or teleconferences with LexCMC Steering Committee throughout the duration of the project. The Consultant Team will also meet and interact with other key LFUCG/LAMPO personnel and project stakeholders as directed by LFUCG/LAMPO and will be responsible for all meeting documentation.

❖ Project Administration

This project will require coordination between the client, steering committee and consultant team resources. Additionally, this task will include administrative functions related to project accounting project documentation, i.e. meeting minutes, monthly invoicing and progress reports, and general oversight monitoring the schedule and expenditures over the course of the project.

Additional meetings identified at project milestones are detailed under Task 7.

Task 2. Data Collection

The Consultant Team will collect information necessary to identify the top ten current bottleneck locations, up to top ten bottleneck locations on the five-year horizon, and up to top ten bottleneck locations on the ten-year horizon. ***It is anticipated some locations may repeat from the current, five- and ten-year horizons.*** Data collection will also include information necessary to develop preliminary engineering cost estimates of alternatives. The following data sets will be collected or provided to the Consultant Team as noted:

- INRIX Data -LFUCG will grant the Consultant Team access to INRIX data for the past three years in order to identify the top ten current bottlenecks.

- Crash Data - <http://crashinformationky.org/> will be used for summary results related to locations identified via INRIX. Once locations are narrowed, crash information (crash reports) will be extracted by AECOM and compared to data from Lexington Police.
- HEPGIS - review of areas identified by INRIX
- NPMRDS - review of areas identified by INRIX
- MPO Transportation Planning Model – MPO will provide model for 2025 and 2030 to predict future congestion locations.
- Site visits – The Consultant Team will perform site visits to identified locations
- Ongoing Studies and Projects – The Consultant Team will work with the MPO and Steering Committee to collect relative studies, such as Imagine Nicholasville Road. Studies and plans that may include identified locations will be reviewed and incorporated.
- Existing Models - The LFUCG Division of Traffic Engineering possesses Synchro/SimTraffic models for most of the Fayette County study routes. To expedite the analysis, we will request to use these models.
- GIS Information – The Consultant Team will request GIS data with utility, R/W and geometric information for use in cost estimating for alternative development. GIS data will be made available by LFUCG. KYTC HIS will also be queried for this information.

Task 3. Bottleneck Identification

Once data is collected, calibration and analysis of existing and future data will be performed in order to identify the current and future bottleneck locations. The Steering Committee will be consulted during monthly meetings to determine acceptable performance measures to use as filters for bottleneck identification.

- Data Calibration - To effectively move forward with this project and complete by the September 2021 deadline, historical data will be necessary. Depending up the age of the data, adjustment factors may be employed to develop a consistent 2020 baseline condition for all study routes. Streetlight and INRIX data can be used to compare historic traffic patterns and volumes to post-COVID-19 volumes. This same type of comparison could be applied for future estimates.
- Analysis Models - The Consultant Team will update the geometric characteristics, traffic data, and signal timing of provided Synchro/SimTraffic models as necessary. As an added value, the Division of Traffic engineering will benefit from receiving updated models for their future use. We will create new models to include any bottleneck studies outside of Fayette County. Future Data. We will request future traffic data from the MPO via the regional travel demand model. We will translate the data into the future scenario models for evaluating proposed solutions.
- Future Analysis - Future analysis results will be delay based. The delay calculated by SimTraffic will be used to compare the effectiveness of solutions as well as feed the benefit/cost (B/C) analysis. The future delay output will be used to estimate future travel time and reliability indices. Consistent analytical metrics will be used throughout the project. Projecting estimated INRIX metrics into the future will enable the Lexington Area MPO and stakeholders to monitor the 5- and 10-year future conditions in INRIX and directly compare them to our results.

Once a preliminary list is established, it will be presented to the Steering Committee for vetting and

corroboration. This meeting is noted in Task 6. In reviewing the list, we will also discuss future projects and areas that are currently or have recently been studied in order to incorporate solutions already identified.

Task 4. Alternative Development

Once the list of locations is finalized, the Consultant Team will leverage a comprehensive list of tools to address congestion. Solutions will range from lower cost, easily implementable solutions to larger construction heavy projects.

Tier 1 Solutions – Streamline Existing Facilities

- Examine Signal Timing Strategies & Traffic Signal Technology
- Time of day operational strategies
- Differing phase rotation by time of day
- Omitting phase(s) by time of day
- Flush timing plans for recurring congestion
- Traffic responsive operation to address frequent non-recurring congestion
- Enhanced Signage and Electronic Warning Systems (Open Road or Interstate Safety Solutions)
- Warnings for curves
- Warnings for commercial vehicles
- Examine Pavement Usage
- Evaluate current cross section for most efficient usage of pavement area
- Evaluate restriping options
- Evaluate minimal pavement work (e.g. remove/fill in median) to expand intersection capacity
- Evaluate traffic signal operations in conjunction with restriping; possible reduction in phases/more efficient operations

Tier 2 Solutions – Longer Term Projects Involving Construction

- Phased Improvements Such as Turn Lane Additions
- Innovative Intersection Solutions
- Multimodal Enhancements
- Opportunities for bike/pedestrian connectivity
- Transit options such as Bus Rapid Transit
- Added capacity
- Alternative connections

Route Reliability - We will develop a strategy to address route reliability challenges, knowing this is an increasingly important metric.

Solution Comparison - Interchange and intersections alternatives will be evaluated through the SPICE and/or CAP-X tools available from FHWA to quickly assess the potential performance of each solution. These tools can compare various intersection or interchange layouts while only having to enter in the existing condition data (traffic volumes) once.

Task 5. Alternative Prioritization

Benefit Cost Analysis -The Consultant Team will compare current and future indices and use Benefit/Cost Analysis as a starting point. Delay will be monetized and used as the primary factor in demonstrating project benefits relative to estimated construction cost. The B/C analysis will also play a significant role in project prioritization.

Development of Decision Matrix – The Consultant Team, with input from the Steering Committee, will create a decision matrix ranking factors in order to select appropriate alternatives meeting the needs of the region.

Prioritization Plan - There may be overriding engineering and planning reasons to deviate from a strictly data-based prioritization. These may include the need to better align project timing with anticipated funding levels and sources, accelerating a higher volume of low-cost projects sooner in lieu of larger, more costly projects that may be challenging to fund in the near term, and geographically diversifying projects. All factors will be considered in the development of a plan for implementation.

Task 6. Key Presentations

Meeting 1 – Project Launch (September 30)

The Consultant Team will hold a project kickoff meeting with LexCMC Steering Committee to discuss the following agenda:

- Project goals, objectives and expectations
- Project schedule of activities
- Schedule of recurring project meetings/teleconferences
- Identification of the participating agencies and stakeholders

Meeting 2 – Project Analysis

- Present filtered list of Top 20-30 congested sites analysis of current year, 5-year & 10-year analyses
- Discuss and adopt reliability goals

Meeting 3 – Draft Report 1

- Presentation(s) to CMC and Transportation Technical Coordination Committee
- Identified alternative(s)
- Top 10 lists for current, 5-year and 10-year
- High Level Cost and B-C Analysis

Meeting 4 – Draft Report 2

- Presentation to LFUCG and Transportation Policy Committee
- Recommended project prioritization
- Final report presentation

Task 7. Report Preparation

Deliverable Products

The project document will be comprehensive. It is intended as a living document through the 10-year project list. This report will guide project development as well as contain the necessary detail that if priorities should change in the future (as they often do) informed decisions will be made. The proposed outline of the project report is as follows:

- Executive Summary
- Introduction and Background
- Purpose and Objectives
- Existing and Future Bottlenecks
- Stakeholder Engagement
- Short-term and Long-term Solutions
- Improvement Priorities
- Implementation Strategies
- Appendices
- Listing and description of congestion toolbox strategies and tools
- Project description and schematic layout
- Cost estimates and benefit/cost analysis

We anticipate delivering a first and second draft of the report prior to a final report. All project deliverables will be delivered electronically.

Additionally, CONSULTANT will provide a project description that can be used to announce the project to the general public via the MPO website. At the end of the project, the Executive Summary will be provided and formatted for use on the MPO website.

Schedule

The 12-month project schedule has been developed assuming a notice to proceed being received by November 1, 2020 or earlier.

See attached

Staffing Hours

Labor hours by task and labor category are presented below. **Based on kick-off meeting discussion, the numbers in red were revised from what was presented in the proposal.**

Task	Description	Staff Hours								
		Project Manager	Project Principal / Senior Advisor	QA/QC	Senior Engineer/ Planner	Mid-Level Staff	General Support	IE Principal	IE Mid Level	Total
1	Project Management	100					20	20		140
2	Data Collection	30	15	10	20	20	40			135
3	Bottleneck Identification	34	34	10	24	24	80			206
4	Alternative Development	20	20	10	60	110	100	40	40	400
5	Alternative Prioritization	30	40	10	40	80	80	20	20	320
6	Key Stakeholder Presentations	24	10	5	24	24	0	20	10	117
7	Report Preparation	50	30	20	20	40	40			200
	TOTAL PERSON HOURS	288	149	65	188	298	360	100	70	1518

Fee

The fee for the services shall be for the lump sum/fixed fee amount of \$224,000.00. Invoices will be prepared monthly on a percentage completion basis and sent to the LAMPO/LFUCG project manager.