Appendices

Appendix 1

U.S. 69 Expansion Project Alternatives Screening with Screening Matrix Appendix

69 EXPRESS

DRAFT

US 69 EXPANSION PROJECT

Alternatives Screening

June 2021

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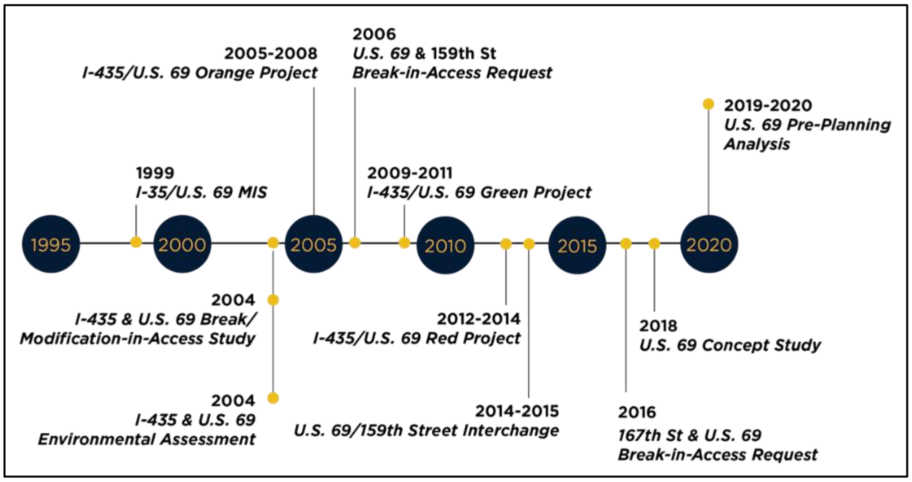
1.0 INTRODUCTION AND BACKGROUND HISTORY

The purpose of this technical report is to describe the alternatives for screening, proposed screening criteria and to document the results of the Initial (Tier 1) and Reasonable (Tier 2) screening process for the U.S. 69 Express Environmental Assessment (EA).

1.1 Project Background

The U.S. 69 Corridor has been evaluated for improvement within a range of previous studies and projects, initiated with the I-35/U.S. 69 Major Investment Study (MIS) prepared in 1999. The MIS developed a long-term vision for improving the corridor, which has led to a series of improvement projects over the past 10-15 years, as shown on **Figure 1-1**.

Figure 1-1: U.S. 69 Corridor Previous Studies and Projects



Of direct relevance to the U.S. 69 study area, a previous I-435 & U.S. 69 Environmental Assessment with a Finding of No Significant Impact (FONSI) was prepared in 2004 for the northern portion of the U.S. 69 Corridor study area from just north of 95th Street to the south to just east of Antioch Road. The proposed action included adding additional lane capacity, reconfiguring interchanges and constructing a new interchange at I-435 and Antioch Road. The purpose and need as it pertains to U.S. 69 was to relieve congestion and traffic levels of service, improve roadway deficiencies, improve safety and provide enhanced access to major employment centers. As an outcome of the approved 2004 EA/FONSI, U.S. 69 was widened and reconstructed north of 103rd St; the U.S. 69 interchanges with 95th Street, 103rd Street, College Boulevard, 119th Street and I-435 were modified and reconfigured; and a collector-distributor road network was constructed along southbound U.S. 69 between I-435 and 119th Street.

The 2018 U.S. 69 Corridor Concept Study, prepared by the City of Overland Park, investigated the current and future safety and operational needs in the U.S. 69 Corridor from 179th Street to 103rd Street. This study considered alternatives for the future widening and upgrade of the corridor and its interchange connections.

In 2020, a U.S. 69 Pre-Planning Study was conducted by the Kansas Department of Transportation (KDOT), the City of Overland Park and the Kansas Turnpike Authority (KTA) to evaluate the potential for tolling in the corridor using an express toll lanes concept. This sketch-level planning study concluded that an express toll lane concept is technically feasible, and that toll revenue collected could be used to offset a portion of the cost to design, construct and operate the new lanes on U.S. 69. However, the study does not authorize toll lanes or their construction and more extensive analysis on the feasibility of the proposed express toll lanes and their environmental clearance is required prior to moving forward into design and construction. Preparation of this U.S. 69 Express EA will build upon the previous work performed for the I-435 & U.S. 69 EA/FONSI, the U.S. 69 Concept Study and the U.S. 69 Pre-Planning Study, as applicable.

2.0 OVERVIEW OF U.S. 69 EA ALTERNATIVES DEVELOPMENT PROCESS

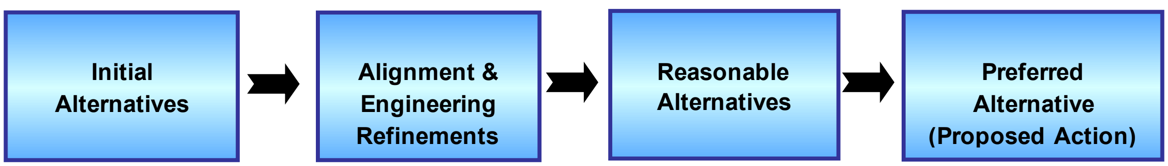
Initial Alternatives developed within the U.S. 69 Concept Study and Pre-Planning Study were carried forward for evaluation within this EA. Other Initial Alternatives for consideration were developed through collaboration with local, regional, and State stakeholders. A No-Build alternative was also considered to serve as a baseline for comparison.

The alternatives development process entails screening of the alternatives to determine which warrant further consideration for the project. The Initial Alternatives Screening, or Tier 1, is conducted utilizing Screening Criteria established for the project, encompassing elements of the Purpose and Need, the Natural and Human Environment, Engineering and Costs and Public and Stakeholder Input. The initial screening is qualitative in nature as described later in this document. Under the Tier 1 screening all Initial Alternatives were evaluated first against the Purpose and Need criteria established for the project. In addition to the No-Build Alternative, only those alternatives that satisfied the Purpose and Need criteria as standalone alternatives were carried through for additional Tier 1 screening against Natural and Human Environment criteria, Engineering and Cost criteria, and Public Stakeholder criteria.

Based on the screening of the Initial Alternatives, the alternatives development process transitions into a second round of Reasonable Alternative(s), or Tier 2 screening, should more than one alternative prove feasible and prudent to consider as the Proposed Action for the project. These Reasonable Alternatives will be further evaluated quantitively to determine their potential impacts in comparison to the No Build Alternative and each other.

Through the screening of the Reasonable Alternatives a Preferred Alternative, or Proposed Action, will be selected. This Preferred Alternative will be the alternative that meets the purpose and need for the project while avoiding, minimizing or mitigating impacts to both the natural and human environment, and considers engineering and costs, and public and stakeholder input. Figure 2-1 illustrates the alternatives development process for the project.

Figure 2-1: Alternatives Development Process



The Preferred Alternative will be carried forward and evaluated alongside the No-Build alternative as part of the EA. The process of screening alternatives with an ascending level of detail assures decision-makers of the fulfillment of the improvement's goals, while fostering informed consent with reviewing agencies, stakeholders, and the public.

3.0 DESCRIPTIONS OF INITIAL ALTERNATIVES

The Initial Alternatives identified for this project include:

- No-Build
- Improvement to Alternative Routes
- Existing Capacity Management
- Multimodal
- Add Capacity - Traditional Widening
- Add Capacity - Express Toll Lanes

The details of these Initial Alternatives, at this stage developed as standalone alternatives, are discussed below.

3.1 No-Build

As part of the environmental clearance process, a No-Build Alternative is used as a benchmark for comparison against the other alternatives being evaluated to improve a project. The No-Build Alternative means that no roadway and bridge reconstruction or capacity improvements would be constructed on the U.S. 69 Corridor. This alternative focuses on minor pavement and bridge rehabilitation and ongoing maintenance such as mowing and snow removal. It also includes future projects that are currently planned or committed in state, regional and local transportation improvement plans through the 2050 design year of this project.

For U.S. 69, the following improvements are committed for the corridor:

- U.S. 69 northbound bridge at 179th
- U.S. 69 guardrail end terminal updates

3.2 Improvement to Alternative Routes

This alternative includes improvements to parallel and supporting arterial roadways on the local city or county roadway network such as Metcalf Avenue, Antioch Road, Switzer Road and Quivira Road rather than directly improving U.S. 69 as shown in Figure 3-1

Figure 3-1: Improvement of Alternative Routes

Strategies for improving alternative routes could include:

- Intersection improvements;
- Upgrading and coordinating traffic signals;
- Building additional travel lanes;
- Transit improvements such as new bus routes, more frequent routes or bus rapid transit;
- Enhanced traveler information and other technology improvements to better manage traffic flow and safety.

In order to make these types of improvements to alternative routes, local (city or county) or area transit agency funding and programming commitments would be required.

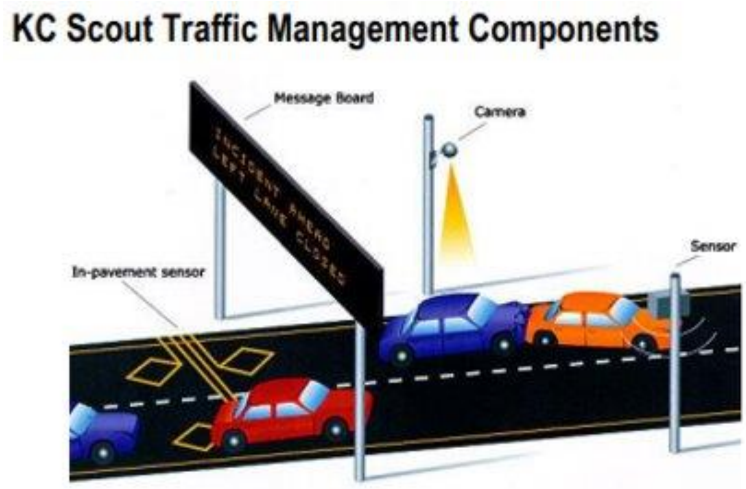
3.3 Existing Capacity Management

This alternative evaluates strategies to better manage the capacity of the existing lanes and access points on the U.S. 69 corridor. These strategies include low-cost ways to improve traffic operations and safety of the existing roadway to increase traveler mobility, improve safety and reduce traffic bottlenecks.

These types of strategies fall into two key categories:

- Travel Demand Strategies (TDM) - Strategies that manage the travel demand along the corridor such as carpooling, staggering work shifts and telecommuting by working from home.

- Transportation Systems Management Strategies (TSM) – strategies that manage traffic operations and safety through the use of technology or enhanced traveler information. This includes:
    - KC Scout type traveler information on travel times, incidents, or delays;
    - Ramp metering through traffic signals on ramps that help regulate the flow of vehicles entering the corridor from local interchanges; and
    - Queue warning systems that alert motorists of approach slowdowns or traffic backups ahead on the roadway.



The existing U.S. 69 corridor has some of these TSM strategies in operation today such as the ramp meters in operation at the northbound entrance ramps from 135th St.

3.4 Multimodal

This alternative considers strategies to improve travel for all modes of transportation, rather than just passenger vehicles. This includes improvements to bicycle and pedestrian facilities and trails parallel to or crossing U.S. 69, as well as transit service enhancements to improve corridor throughput.

Bicycle and Pedestrian improvements could include:

- Improving trails located parallel to or crossing the corridor;
- Adding sidewalks or designated bicycle and pedestrian areas to corridor bridge crossings; and
- Other bicycle and pedestrian improvement strategies identified in state, regional and local plans.

Transit improvements could include:

- Increased frequency and number of bus routes on U.S. 69;
- Express Bus or bus-on-shoulder use during peak periods of the day;
- Transit on-demand strategies;
- Improved/increased number of park-and-ride lots; and
- Other transit improvement strategies identified in state, regional or area transit agency plans.

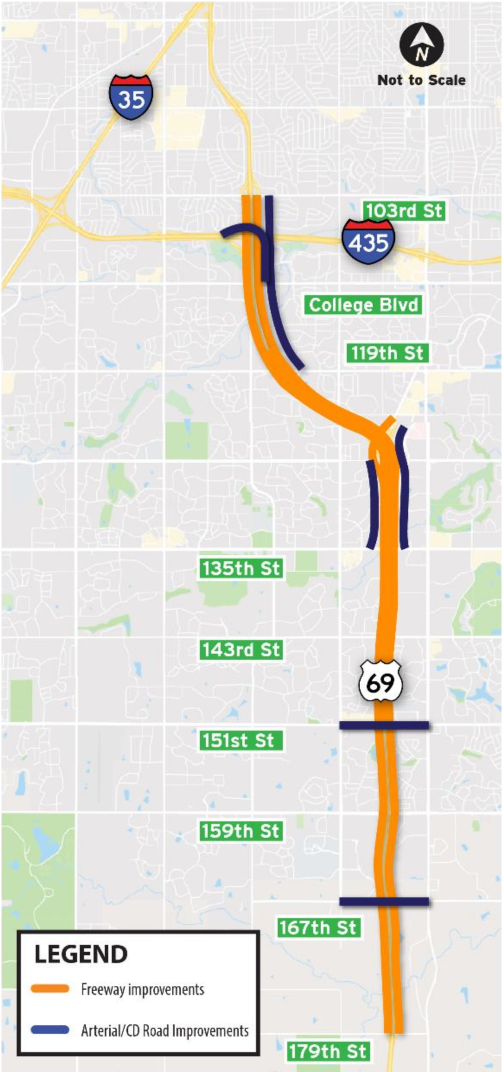
Other transit strategies, such as light rail, commuter rail and streetcar were not recommended for evaluation for the project due to their higher construction costs and lower ridership forecasts to address U.S. 69 traffic congestion needs.

In order to make these types of multimodal improvements, local (city and county), regional and area transit agency funding and programming commitments would be required.

3.5 Add Capacity - Traditional Widening

This alternative was initially developed within the U.S. 69 Concept Study and carried forward for evaluation in this EA, it is shown in **Figure 3-2**. The alternative considers the reconstruction of pavement and bridges along the corridor and constructing an additional lane in each direction of travel. The alternative also incorporates additional capacity to improve connections to and from interchange ramps along the corridor, such as collector/distributor roads (like the ramps used to access Roe and Nall on I-435) and auxiliary lanes, which provide a continuous lane of travel between closely spaced interchange entrance ramps and exit ramps.

Figure 3-2: Add Capacity - Traditional Widening



Geometric and condition improvements include:

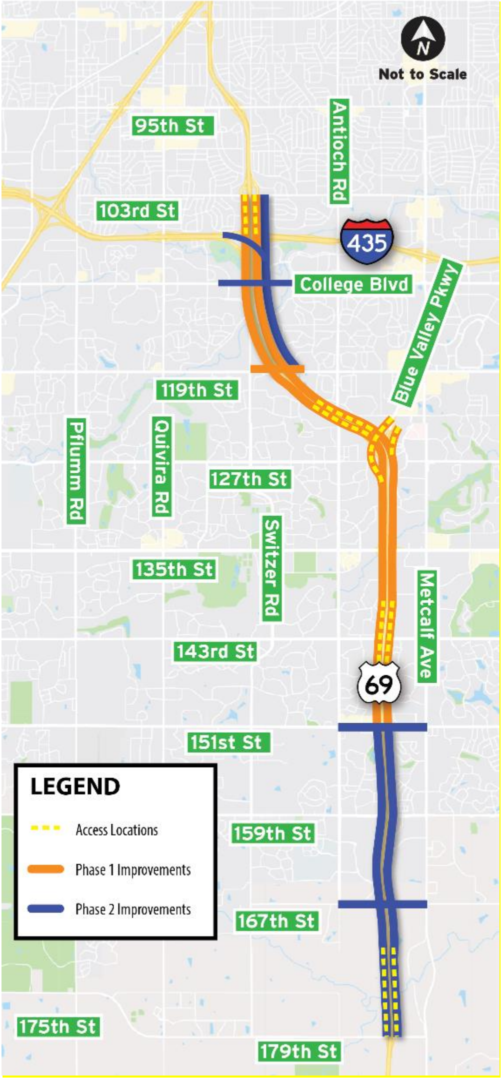
- Add an additional travel lane in each direction;
- Reconfigure interchange at I-435;
- Reconfigure interchange at Blue Valley Parkway;
- Improvements to local interchanges and supporting cross streets; and
- Reconstruction of existing pavement and bridges.

If this alternative is selected, improvements likely would be constructed in phases. Decisions on phasing would be based on funding availability and when traffic congestion and safety needs warrant the improvements along the corridor. For this analysis the full buildout of the alternative prior to the project design year is considered when rating against the screening criteria.

3.6 Add Capacity - Express Toll Lanes

This alternative was initially developed within the U.S. 69 Pre-Planning Study and carried forward for evaluation in this EA, is shown in **Figure 3-3**. This alternative includes adding an additional lane in each direction that would provide express toll service along the corridor by managing congestion in the lanes through pricing, vehicle eligibility and access strategies. This alternative also includes reconstruction of bridges and pavement in the corridor.

Figure 3-3: Add Capacity - Express Toll Lanes



Geometric and condition improvements include:

- Add an additional travel lane in each direction for express toll lane service;
- Reconfigure interchange at I-435;
- Reconfigure interchange at Blue Valley Parkway;

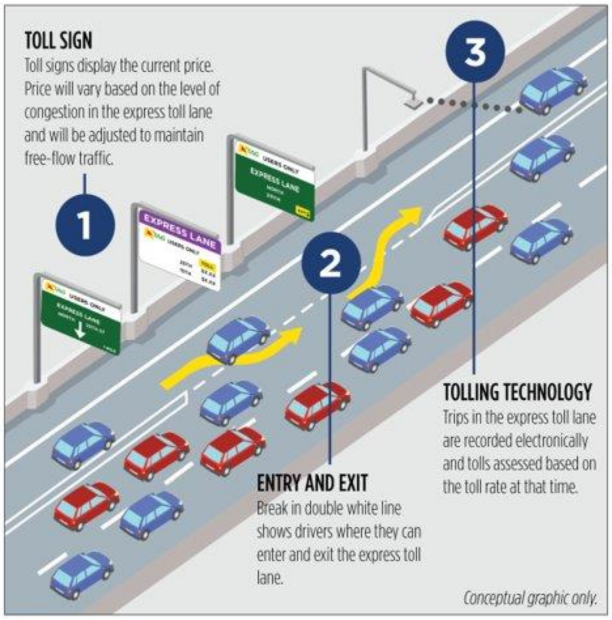
- Improvements to local interchanges and supporting cross streets;
- Reconstruction of existing pavement and bridges.

With the Express Toll Lanes Alternative the two lanes in each direction that exist today would remain free of any tolls as required by law. An additional express toll lane would then be added in each direction and constructed to the inside, in the current median of the corridor. Locations where travelers can enter or exit the express toll lanes would be indicated with a break in the double stripe lines and on overhead messaging signs.

A toll would be charged only to motorists who choose to enter and use the express toll lane. The toll price charged would vary depending on the time of day, length of the trip and the amount of traffic congestion on the corridor. The more traffic congestion there is along the corridor, the higher the toll to help manage the reliability of the trip in the express toll lanes. Typically, that would mean that the highest tolls would be charged during morning and evening rush hours; lower tolls during less busy times of day.

The express toll lanes would operate at typical highway speeds and be all electronic with no stopping to pay cash at toll plazas along the corridor, shown in Figure 3-4. Tolls would be assessed electronically either by reading a toll tag – such as K-TAG – or by reading the vehicle's license plate and charging through video tolling.

Figure 3-4: Express Toll Configuration



4.0 SCREENING CRITERIA

Screening Criteria were developed across four broad categories covering various aspects of the project and community input.

<u>Screening Criteria Categories:</u>

- Project Purpose and Need
- Natural and Human Environment
- Engineering and Cost
- Public and Stakeholder Input

Each broad category contains several criteria, discussed below. Ratings for each alternative are summarized in a Screening Matrix.

4.1 Purpose and Need Screening Criteria

The Purpose and Need for the project is defined as follows.

The proposed project is needed to modernize and expand U.S. 69 between 103rd Street and 179th Street in Overland Park, Kansas. The corridor has become insufficient to meet current and future mobility needs, resulting in worsening safety, reliability and congestion. There is also a need to address the corridor's issues with transportation improvements that offer long-term sustainability and flexibility for all users.

The proposed project is needed to:

- *Improve safety* to address crash frequency and congestion related-crashes within the corridor;
- *Reduce congestion* and improve traffic operations to meet existing and future travel demands;
- *Promote sustainability* by addressing infrastructure condition and ongoing operations and maintenance needs, supporting environmental stewardship, as well as improving long-term traveler reliability;
- *Provide flexible choices* by promoting a transportation system that accommodates the needs for all users and modes; and
- *Accommodate local and regional growth* through coordinated transportation improvements consistent with planned and proposed community land use.

The screening criteria to evaluate meeting the purpose and need are defined as:

- *Improve Safety* – This group of screening criteria evaluates the extent to which each alternative addresses crash frequency and congestion-related crashes.
    - Change in Congestion-Related Crashes - This screening criteria evaluates the extent to which an alternative reduces the number and severity of congestion-related crashes, such as rear-end, sideswipe and sudden changes in speed.
    - Improve Bicycle and Pedestrian Safety Along Crossroads – This screening criteria evaluates the extent to which an alternative improves safety for bicycles and pedestrians along crossings over or under U.S. 69.

- *Reduce Congestion* – This group of screening criteria evaluates the extent to which each alternative improves traffic operations to meet existing and future travel demands.

- Change in Travel Level of Service on U.S. 69 – This screening measure is rated using LOS reporting, with a scale encompassing LOS A (best) through LOS F (worst). This measure evaluates the change in LOS along the corridor over existing and future No-Build conditions.
- Change in Travel Speed - This measure evaluates the change in travel speed along the corridor over existing and future No-Build conditions.
- Change in Corridor Throughput - This measure evaluates the change in person throughput along the corridor over existing and future No-Build conditions.

- *Promote Sustainability* - This group of screening criteria evaluates the extent to which each alternative addresses infrastructure condition and ongoing operations and maintenance needs, supporting environmental stewardship, as well as improving long-term traveler reliability.
  - Change in Roadway and Bridge Condition - This measure is a high-level indicator of an alternative's ability to address existing roadway and bridge infrastructure condition deficiencies.
  - Change in Travel Time Reliability – This measure evaluates the change in travel times and travel reliability over existing and future No-Build conditions.
  - Support Environmental Sustainability –This measure evaluates the alternative's ability to support green infrastructure and environmental stewardship best management practices and decrease the project's energy and greenhouse gas emissions.

- *Provide Flexible Choices* – This group of screening criteria evaluates the extent to which the alternative provides flexible choices for all users and modes.
  - Long-term Corridor Operation Flexibility and Adaptability - This measure is a high-level indicator of an alternative's ability to provide flexible and adaptable operations and management of the corridor over the long-term as condition and performance changes.
  - Access and Connectivity to Bicycle and Pedestrian Facilities – This measure evaluates each alternative's ability to maintain or improve access and connectivity of bicycle and pedestrian facilities along and across the corridor. This factor is not evaluating a bicycle and pedestrian facility on the U.S. 69 travel lanes or shoulder.
  - Reliability for Transit Riders - This measure evaluates each alternative's ability to provide a reliable transit experience for riders through the corridor.

- *Accommodate Local and Regional Growth* – This group of screening criteria evaluates the extent to which an alternative accommodates planned population, land use and other growth and development in the local study area and the Kansas City region.
    - Compatibility with Local Planning –The measure evaluates an alternative's compatibility and consistency with city and county planning and land use goals for future growth and development.
    - Compatibility with Regional Planning –The measure evaluates an alternative's compatibility and consistency with regional Metropolitan Planning Organization (MPO) (MARC) planning and land use goals for future growth and development.
    - Employment Equity – This measure evaluates an alternative's ability to provide equitable access to jobs and opportunities for all users of the corridor.

4.2 Natural and Human Environment Screening Criteria

All Initial Alternatives are evaluated against the Purpose and Need criteria for the project. Only those alternatives that satisfy the Purpose and Need criteria are then carried through for qualitative analysis against Natural and Human Environment criteria, Engineering and Cost criteria, and Public Stakeholder Input criteria.

The natural environmental impacts are related to physical features of the landscape. The human environmental impacts include any community, neighborhood, environmental justice and business resources that may be affected by the proposed project alternatives.

- Park and Recreational Area Impacts – This measure includes the number and extent of parks or designated recreational areas impacted by each alternative.
- Community Facility Impacts – This measure includes the number of community facilities impacted by each alternative.
- Environmental Justice Impacts - This measure considers direct and indirect impacts to identified environmental justice (EJ) populations, including low-income and minority populations. Direct impacts include factors such as relocations as related to needed right-of-way or potential funding mechanisms. Indirect impacts are any indirect or cumulative impacts to EJ populations.
- Noise Impacts - Noise impacts are typically related to needed right-of-way and proximity to sensitive noise receptors. This measure considers the potential for noise impacts from each alternative compared to existing and future No-Build conditions.

- Natural Resource Impacts – This measure assesses impacts to natural resources including wetlands, floodplains (100-year floodplain and floodway), critical habitat, and threatened and endangered (T&E) species.
- Hazardous Material Impacts - This screening measure includes a relative rating based on the number of hazardous materials and contaminated sites potentially impacted by each alternative.
- Cultural and Historical Site Impacts - This screening measure indicates impacts to archeological, cultural and historic sites including those listed or eligible for listing as state or national register of historic places.
- Air Quality, Emissions and Energy Impacts – This screening measure indicates an alternative's potential impact on local and regional air quality, greenhouse gas emissions and energy resources.
- Indirect and Cumulative Impacts - This screening measure indicates positive, neutral, or negative indirect and combined impacts from any environmental criteria.

4.3 Engineering and Cost Screening Criteria

The study team is evaluating each alternative for potential engineering and cost considerations including roadway and interchange geometrics, right-or-way and displacement impacts, project construction timeline, phasing, maintenance of traffic and constructability, as well as the ability to address project costs and funding needs. Like the Natural and Human Environment criteria, only Initial Alternatives that satisfy the Purpose and Need criteria are evaluated qualitatively against the Engineering and Cost criteria.

- Roadway and Interchange Geometrics – This is a high-level assessment of the alternative's ability to improve roadway and interchange geometric deficiencies, such as horizontal and vertical curves, weaving and merging distances, and turning radii.
- Right-of-Way Impacts- This is a high-level assessment of right-of-way needs from private property for each alternative. A more comprehensive, quantifiable assessment will be made as the study progresses.
- Residential or Business Displacements - This is a high-level assessment of potential displacements to residences and/or businesses for each alternative. A more comprehensive, quantifiable assessment will be made as the study progresses.
- Timing of Construction – This criterion is a high-level assessment to determine which alternative(s) can be advanced through the project development pipeline and constructed under the fastest timeline.

- Ease of Project Phasing, Maintenance of Traffic and Constructability – This high-level measure is intended to determine the ease or complexity of project phasing, staging and anticipated road closures during construction.
- Estimated Construction Costs – This screening measure evaluates the relative level of anticipated construction costs for implementing each alternative.
- Estimated Life-Cycle Costs – This screening measure evaluates the anticipated costs of operating and maintaining each alternative over its expected life cycle.

4.4 Public and Stakeholder Input Screening Criteria

The project team is evaluating each alternative based on public and stakeholder input received on the alternatives. This input is being provided through numerous sources and includes a broad cross section of interested stakeholders and the general public. Input received from public and stakeholder activities, such as stakeholder interviews and presentations, Advisory Group meetings, public information meetings, statistically valid community surveys, community focus group sessions, and social media outreach is incorporated into the screening process for the alternatives using public comment tools on the website, at meetings and through social media channels to document public and stakeholder feedback on the project.

- Public and Stakeholder Input - This screening measure indicates positive, neutral, or negative reactions from stakeholders and the public on each alternative and is captured via the project team's public and stakeholder outreach activities.

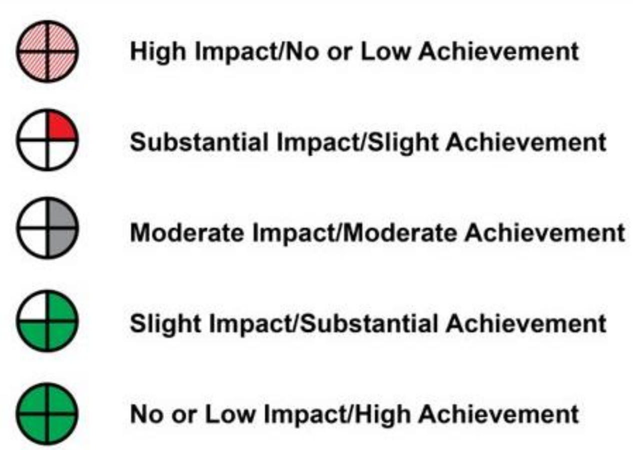
4.5 Screening Rating System

The initial range of alternatives are rated qualitatively using a Harvey balls/ideograms rating system (Figure 4-1). Where applicable, quantifiable data on the criteria is included in the environmental consequences and impact analysis for the EA for the No-Build and any proposed actions being carried forward from the initial screening of alternatives as Reasonable Alternatives (Tier 2 screening).

Each symbol relates to the extent of achieving a purpose and need goal or the level of potential impacts. Criteria for Tier 1 screening are classified as impact related or achievement related. Achievement related criteria evaluate items related to project purpose and need goals and impact related criteria evaluate items related to environmental or cost impacts of an alternative.

Alternatives have been compared against the No-Build Alternative and each other for each criterion. Differences or similarities in ratings indicate differences or similarities between the alternatives at achieving the criteria.

Figure 4-1: Harvey Balls/Ideograms Rating System



High Impact/No or Low Achievement – This rating denotes that achievement-based criteria and goals are not met (or very negligible), or there are high environmental or engineering/cost impacts.

Substantial Impact/Slight Achievement - This rating indicates some success at addressing achievement-based criteria and goals, or there are substantial environmental and engineering/cost criteria related impacts.

Moderate Impact/Moderate Achievement - This rating indicates a mid-level of success at addressing achievement-based criteria and goals, or there are some environmental and engineering/cost criteria related impacts.

Slight Impact/Substantial Achievement - This rating indicates increasing success at addressing achievement-based criteria and goals, or lower levels of environmental or engineering/cost related impacts. Achievement based criteria might be met under this rating, however an alternative could be rated as substantial achievement if another alternative exceeds it at addressing the criteria.

No or Low Impact/High Achievement - This rating indicates the highest level of success at meeting achievement-based criteria and goals. Achievement-based criteria are fully met under this rating. This rating can also indicate that there are approximately zero or very low impacts for environmental and engineering/cost criteria.

5.0 SCREENING OF INITIAL ALTERNATIVES

In January 2021 the Purpose and Need Statement for the project was reviewed, commented upon and concurrence was provided by Participating agencies, including:

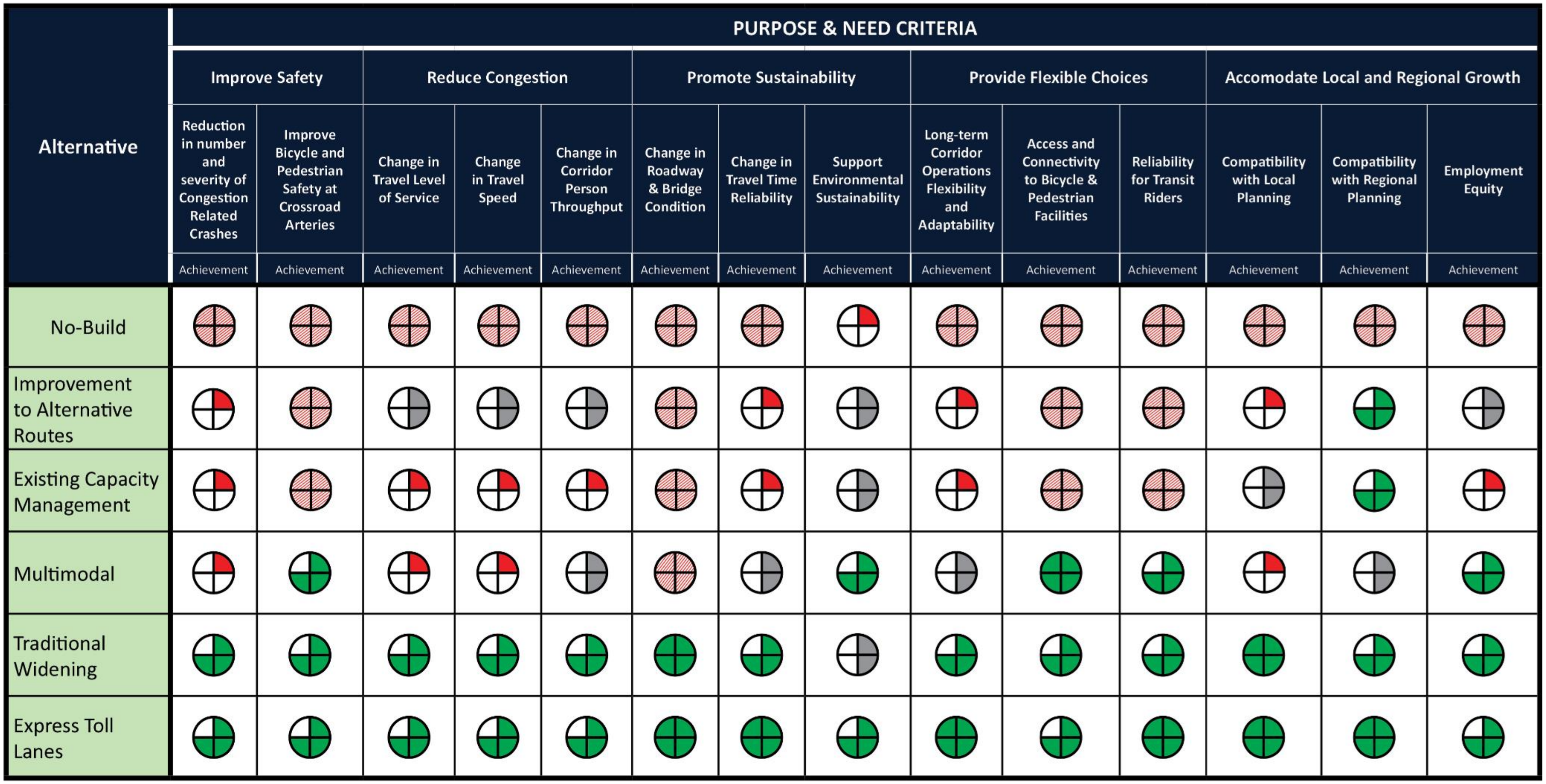
- U.S. Army Corp of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA)
- Kansas Department of Health and Environment
- Kansas Department of Wildlife, Parks and Tourism
- Kansas State Historical Society
- Kansas Department of Agriculture
- Federal Aviation Administration (FAA)

The Initial Alternatives (Tier 1) Screening of all alternatives is based upon the Purpose and Need and the screening criteria established as a result. Please see **Appendix A.1** for the full Initial Alternatives Screening Matrix.

5.1 Purpose and Need Screening

The Purpose and Need Screening considered all Initial Alternatives for the project. Each alternative was evaluated across several criteria under each component of the Purpose and Need. **Figure 5-1** shows the screening matrix of all Initial Alternatives against the Purpose and Need for the project.

Figure 5-1: Purpose and Need Screening



Improve Safety – Adding new lanes of travel capacity does the most to improve the safety of the corridor as it will address crashes caused by stop and go traffic and includes improvements to roadway, ramp and interchange geometrics along the corridor.

Reduce Congestion – The non-capacity alternatives are shown to offer minor benefits for reducing congestion on U.S. 69 over a No-Build condition. The Multimodal Alternative offers benefits such as improving corridor throughput via transit and other ridesharing strategies. The Existing Capacity Management Alternative reduces congestion by providing increased traveler information on route decision-making through KC Scout technologies and other demand management strategies such as staggered work shifts or telecommuting. The Improvement to Alternative Routes Alternative is forecast to shift some localized traffic to parallel arterial routes. However, additional travel lanes are needed to address the current and projected traffic volumes on U.S. 69 so the Add Capacity - Traditional Widening and Add Capacity – Express Toll Lanes alternatives have the highest ratings for reducing congestion.

Promote Sustainability - The add capacity alternatives best address the needs to improve roadway and bridge condition and lifecycle costs as they include a complete reconstruction of existing corridor pavement and bridges. The Add Capacity – Express Toll Lanes Alternative rates better overall as it offers the greatest corridor trip reliability, resiliency and environmental stewardship benefits. The Multimodal Alternative was also evaluated to have moderate benefits for promoting sustainability due to its ability to provide higher corridor person throughput, increased trip reliability for transit users and better environmental stewardship by reducing the corridor's right-of-way footprint.

Provide Flexible Choices – The Multimodal Alternative offers improved transit, bicycle and pedestrian connections in the study area, which provides additional traveler flexibility and mode choice. However, the Add Capacity – Express Toll Lanes Alternative offers lane management strategies that are flexible and adaptable to changing corridor conditions and has the ability to accommodate transit in the express toll lanes, so it offers the greatest long-term flexibility in traveler choice.

Accommodate Local/Regional Growth – The alternatives that add new lanes of capacity to U.S. 69 were evaluated to best align with the city and region's anticipated growth strategies. These alternatives are incorporated into the planned and committed transportation improvements within state, regional and local planning documents to help accommodate future growth plans. The other alternatives were evaluated to moderately align with future growth strategies as they provide improved multimodal connections and enhanced traveler information technologies and demand management strategies that are included in local and regional goals and area plans.

5.2 Initial Alternatives Dismissed from Further Consideration

Through the Purpose and Need Screening it became apparent that several alternatives did not meet the Purpose and Need of the project. The Improvement of Alternative Routes, Existing Capacity Management and Multimodal alternatives as stand-alone alternatives do not satisfy the Purpose and Need for the project. Components of those alternatives may ultimately be incorporated as part of the Preferred Alternative (Proposed Action), if appropriate and coordinated with city, county, region and transit agency plans and commitments.

Improvement of Alternative Routes – This Initial Alternative was eliminated from consideration as a stand-alone alternative due to its low achievement at improving safety, providing flexible choices, and promoting sustainability along U.S. 69 in comparison to other Initial Alternatives.

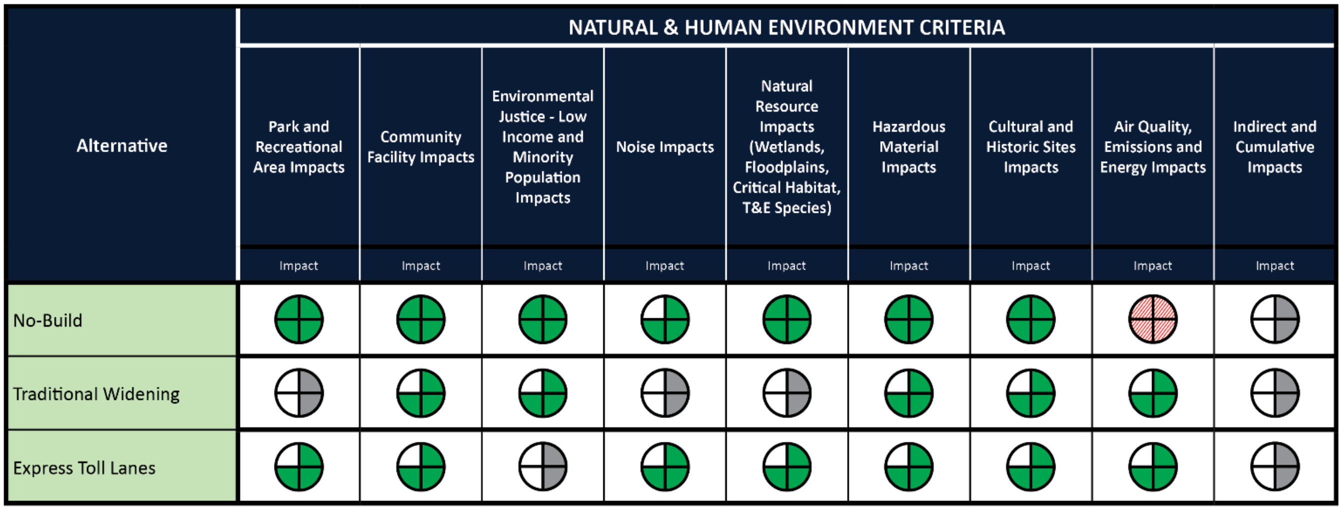
Existing Capacity Management – This Initial Alternative was eliminated from consideration as a stand-alone alternative due to its low achievement at reducing congestion and addressing safety issues along the along the U.S. 69 corridor. This alternative also preforms poorly when compared to other Initial Alternatives at providing flexible choices and promoting sustainability. TSM/TDM components of this alternative may be incorporated into the Preferred Alternative as appropriate.

Multimodal – This Initial Alternative was eliminated from consideration as a stand-alone alternative due to its low achievement at reducing congestion along the U.S. 69 corridor. The alternative has moderate, even substantial achievement at reaching the projects goals of providing flexible choices and supporting local and regional growth. Although this alternative is eliminated from consideration as a stand-alone solution due its poor performance at reducing congestion, individual elements may be incorporated into the Preferred Alternative.

5.3 Natural and Human Environment Screening

The two “Add Capacity” alternatives were carried forward from the Purpose and Need screening to evaluate their impacts to the natural and human environment at a qualitative level for Tier 1 screening. These alternatives include the Traditional Widening and Express Toll Lane alternatives. The No-Build Alternative was also carried forward as a benchmark for comparison. **Figure 5-2** shows the screening matrix for the Natural and Human Environment Criteria.

Figure 5-2: Natural and Human Environment Screening



Generally, the Express Toll Lane Alternative has a smaller right-of-way and impact footprint than the Traditional Widening, therefore fewer impacts are expected to environmental features or community facilities and resources. The No Build Alternative generally has more favorable ratings since it is a "no action" strategy and does not cause physical impacts to the natural and manmade environment.

Park and Recreational Areas and Community Facilities – There are anticipated to be minor impacts from each alternative to adjacent recreational trail connections; however, the magnitude from the Express Toll Lane Alternative is expected to be less than the Traditional Widening Alternative. The Traditional Widening Alternative also has potential property impacts to parks located in close proximity to the corridor; however, these impacts would be minor in nature and would not include impacts to the recreational facilities within the parks. It is anticipated that all impacts to parks and recreational trails would be able to be mitigated and replaced in-kind to restore access. However, the Tier 2 screening process will evaluate if Section 4(f) and/or 6(f) impacts will occur that would need to be avoided, minimized or mitigated as part of the environmental clearance process.

Environmental Justice (EJ) –EJ areas include areas along the corridor at the Block Group level that meet State, Regional, County and City level thresholds for designated low-income or minority populations. The EJ analysis also includes low-income and minority populations that use U.S. 69 to access jobs and other major activity centers from throughout the Kansas City region. For both alternatives, direct property impacts are anticipated to be minor and there are no residential or business displacements of EJ populations as a result of the alternatives. The Express Toll Lane Alternative rates slightly lower than the Traditional Widening Alternative due to the tolling component of the managed travel lane. Communications and outreach will be performed with stakeholders located in these areas of the corridor to provide the opportunity for input and feedback on project improvements and impacts to understand their needs and values for the project. KDOT is committed to working with EJ populations to develop strategies for mitigating the financial impact of tolling should the ETL alternative move forward.

Noise - The Traditional Widening Alternative has a wider right-of-way footprint than the Express Toll Lanes Alternative, shifting traffic closer to sensitive noise receptors such as residences, schools, churches and other community facilities. KDOT is currently working on a noise study to evaluate if any areas of the corridor qualify for noise abatement measures based on being reasonable and feasible. However, based on this qualitative analysis, the Express Toll Lanes Alternative rates slightly better for noise impacts than the Traditional Widening.

Natural Environment – This category evaluates potential impacts to water resources such as wetlands, streams and floodplains, as well as critical plant and animal habitat and designated Threatened and Endangered Species. There will be areas of impact under both alternatives to streams, wetlands and floodplains crossing or adjacent to the corridor; however, these impacts are not expected to be substantial and will be mitigated. The project team will obtain all necessary permits and use best management practices for construction and ongoing maintenance to provide for long-term corridor resiliency and environmental stewardship. Overall, the Express Toll Lane Alternative has a smaller right-of-way footprint and is expected to have fewer impacts to the natural environment.

Hazardous Materials – Both the Traditional Widening Alternative and Express Toll Lane Alternative are anticipated to have similar impacts to locations with identified hazardous materials. These impacts are expected to be minor in nature and remediation will be completed as necessary.

Cultural and Historic Sites – Impacts to known cultural or historical sites are not anticipated under either the Traditional Widening or Express Toll Lane alternatives. KDOT is currently working with the State Historic Preservation Office to determine if there are any potentially eligible sites that have not previously been identified, and if any sites are determined they will be evaluated further within the Tier 2 screening.

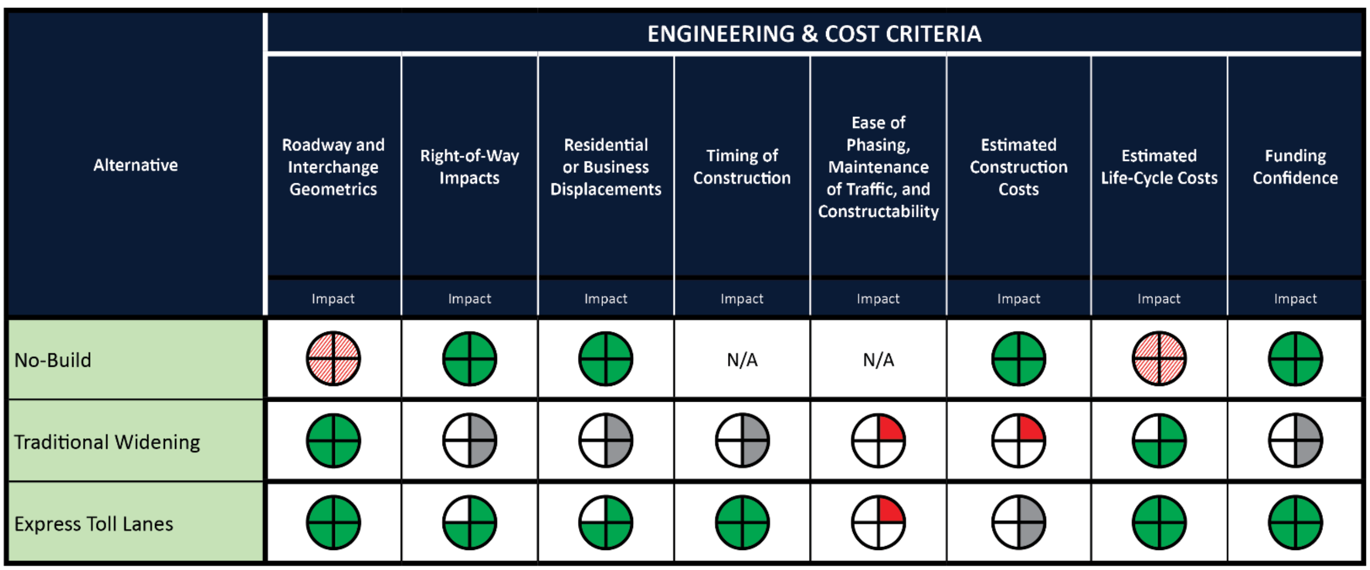
Air Quality, Emissions and Energy Impacts - Both alternatives alleviate stop and go traffic congestion along the corridor, and therefore have positive impacts on the region's air quality, as well as on the reduction of greenhouse gas emissions. Since the Express Toll Lane Alternative allows for flexibility and adaptability in the way its new travel capacity is managed and does not attract as much induced traffic from other routes as the Traditional Widening Alternative, it rates slightly better under this criteria.

Indirect and Cumulative Impacts - Both alternatives are expected to have indirect and cumulative impacts from their construction and operation. The Traditional Widening Alternative having a larger footprint is expected to have slightly greater indirect and cumulative impacts than the Express Toll Lane Alternative. However, there are impacts from the tolling component of the managed travel lane and its influences on Kansas City regional travelers accessing U.S. 69 that ultimately makes both alternatives rate the same overall.

5.4 Engineering and Cost Screening

The Traditional Widening and Express Toll Lane alternatives were evaluated against the Engineering and Cost Criteria at a qualitative level. The No-Build Alternative was also carried forward as a benchmark for comparison. **Figure 5-3** shows the screening matrix for the Engineering and Cost Criteria.

Figure 5-3: Engineering and Cost Criteria



Alternative	ENGINEERING & COST CRITERIA							
	Roadway and Interchange Geometrics	Right-of-Way Impacts	Residential or Business Displacements	Timing of Construction	Ease of Phasing, Maintenance of Traffic, and Constructability	Estimated Construction Costs	Estimated Life-Cycle Costs	Funding Confidence
	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact
No-Build				N/A	N/A			
Traditional Widening								
Express Toll Lanes								

Generally, the Express Toll Lane Alternative has a smaller right-of-way footprint than the Traditional Widening Alternative, therefore fewer impacts are expected to engineering and cost factors such as right-of-way and property displacements for the project. Additionally, the Traditional Widening Alternative is anticipated to have additional roadway and bridge infrastructure and take more construction phases to build, resulting in higher construction impacts and costs for the project.

Roadway and Interchange Geometrics - Both alternatives would address current roadway, ramp and interchange deficiencies;

Right-of-Way Impacts and Residential or Business Displacements - The smaller footprint of the Express Toll Lane Alternative is expected to require less right-of-way and displace no residences and businesses located along the corridor. The Traditional Widening Alternative is anticipated to have greater right-of-way required due to the construction of improvements such as collector-distributor roadways and auxiliary lanes and displace at least one business property located along the corridor.

Ease of Phasing, Maintenance of Traffic and Constructability – The Express Toll Lane Alternative requires fewer phases to be constructed than the Traditional Widening Alternative, this has a positive impact on the traveling public. Fewer phases are required to complete the Express Toll Lane alternative with fewer interim phases required during construction. The Express Toll Lane Alternative has a smaller overall footprint, requiring fewer retaining walls and less enclosed drainage.

Construction Cost - The Express Toll Lane Alternative is estimated to cost less to build than the Traditional Widening Alternative because it requires a smaller footprint with less roadway and bridge infrastructure and les right-of-way. It would also be constructed in fewer phases which helps better manage increases in construction costs due to rising costs of materials and inflation.

Life-Cycle Costs - Overall the Express Toll Lane Alternative requires less roadway and bridge infrastructure and therefore there is less to maintain over the life-cycle of the corridor improvements. Additionally, due to the flexibility with lane management methods, there is less likelihood that additional lanes will be needed in the future to address congestion beyond the design year. The Express Toll Lane Alternative would require additional life-cycle costs for toll-related infrastructure over a Traditional Widening Alternative.

5.5 Public and Stakeholder Screening

Input received from public and stakeholder activities, such as stakeholder interviews and presentations, Advisory Group meetings, public information meetings, community surveys, community focus groups, and social media outreach is incorporated into the screening process for the alternatives using public comment tools on the website, at meetings and through social media channels to document public and stakeholder feedback on the project. Unlike the other rating categories, there is not a specific rating assigned to the public and stakeholder input; rather, the project team is using stakeholder outreach activities held throughout the alternatives development and screening process to help screen and refine alternatives down to a

Preferred Alternative that best meets the goals of the project and has community support.

5.6 Initial Alternatives Retained for Further Development

Two alternatives in addition to the No-Build Alternative were retained from the Initial Alternatives Screening for further development and screening as Reasonable Alternatives. These alternatives have been shown to satisfy the Purpose and Need of the project and rate favorably against most other screening criteria when compared to other alternatives. No alternative was shown to score well across all screening criteria.

No Build Alternative – As previously described, the No Build Alternative makes no capacity improvements to the U.S. 69 corridor except those directly related to ongoing rehabilitation and maintenance of the facility or those already committed or programmed by local, regional, or State funding programs. This alternative fails to meet several components of the Purpose and Need for the project. This alternative however is retained throughout the NEPA evaluation process and its potential impacts are utilized as a basis of comparison for the Build alternatives.

Traditional Widening Alternative – This alternative was carried forward for analysis as a Reasonable Alternative due to its ability to meet most of the Purpose and Need criteria at a high level. This alternative is anticipated to enhance safety and reduce congestion along the U.S. 69 corridor while promoting sustainability, , and accommodating local and regional growth. The Traditional Widening Alternative includes collector/distributor roads and auxiliary lanes to accommodate future congestion to meet purpose and need goals. This wider footprint has the potential for greater Natural and Human Environment impacts as well as greater Engineering and Cost related requirements. It also may require additional capacity and right-of-way at a future time since the general purpose capacity would not include lane management strategies to manage congestion and reliability for the long-term. These elements will be explored further and quantified during the Reasonable Alternatives Screening.

Express Toll Lane Alternative – The Express Toll Lane Alternative was carried forward for analysis as a Reasonable Alternative due to its substantial ability to meet the Purpose and Need criteria established for the project. This alternative is anticipated to enhance safety and reduce congestion along the U.S. 69 corridor while promoting sustainability, providing flexible choices, and supporting local and regional growth. The Express Toll Lane Alternative is expected to manage congestion and offer long-term corridor travel reliability while maintaining a smaller overall footprint, less project phasing and lower construction costs than the Traditional Widening Alternative. Impacts to the Natural and Human Environment as well as Engineering and Cost related criteria will be quantified for this alternative as part of the Reasonable Alternatives Analysis.

Based on the Tier 1 screening, both the Traditional Widening and Express Toll Lanes Alternatives merit additional analysis. However, the Express Toll Lanes alternative cannot advance as a viable alternative without the consent of the community, and approvals by the KTA Board, and State Finance Council as required by Kansas Statute KSA 68,20-120. If the necessary consent and approvals are not secured, the Express Toll Lanes alternative will be dismissed and more detailed, quantitative analysis will only be performed on the Traditional Widening alternative.

Appendices

Appendix A
Screening Matrices

Appendix A

Alternative	PURPOSE & NEED CRITERIA													
	Improve Safety		Reduce Congestion			Promote Sustainability			Provide Flexible Choices			Accomodate Local and Regional Growth		
	Reduction in number and severity of Congestion Related Crashes	Improve Bicycle and Pedestrian Safety at Crossroad Arteries	Change in Travel Level of Service	Change in Travel Speed	Change in Corridor Person Throughput	Change in Roadway & Bridge Condition	Change in Travel Time Reliability	Support Environmental Sustainability	Long-term Corridor Operations Flexibility and Adaptability	Access and Connectivity to Bicycle & Pedestrian Facilities	Reliability for Transit Riders	Compatibility with Local Planning	Compatibility with Regional Planning	Employment Equity
	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement	Achievement
No-Build														
Improvement to Alternative Routes														
Existing Capacity Management														
Multimodal														
Traditional Widening														
Express Toll Lanes														

Alternative	NATURAL & HUMAN ENVIRONMENT CRITERIA									ENGINEERING & COST CRITERIA							
	Park and Recreational Area Impacts	Community Facility Impacts	Environmental Justice - Low Income and Minority Population Impacts	Noise Impacts	Natural Resource Impacts (Wetlands, Floodplains, Critical Habitat, T&E Species)	Hazardous Material Impacts	Cultural and Historic Sites Impacts	Air Quality, Emissions and Energy Impacts	Indirect and Cumulative Impacts	Roadway and Interchange Geometrics	Right-of-Way Impacts	Residential or Business Displacements	Timing of Construction	Ease of Phasing, Maintenance of Traffic, and Constructability	Estimated Construction Costs	Estimated Life-Cycle Costs	Funding Confidence
	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact	Impact
No-Build													N/A	N/A			
Improvement to Alternative Routes																	
Existing Capacity Management																	
Multimodal																	
Traditional Widening																	
Express Toll Lanes																	

Appendix 2

U.S. 69 Expansion Project Highway Capacity Software Analysis Technical Memorandum

69 EXPRESS

DRAFT

US 69 EXPANSION PROJECT

Technical Memorandum

Highway Capacity Software Analysis

June 4, 2021

Table of Contents

EXECUTIVE SUMMARY

As part of the conceptual analysis completed for the U.S. 69 Modernization and Expansion project, traffic analyses were completed for the AM and PM peak hours using the Freeway Facilities module within Highway Capacity Software (HCS) Version 7.9. Traffic capacity analysis results generated in the HCS Freeway Facilities analysis software application for the U.S. 69 study area corridor are summarized for the Existing and two proposed Build alternatives. The executive summary focuses on the future build results.

Two future build alternatives were analyzed and compared to each other.

- **General Purpose Lane (GP) plus Auxiliary Lane Widening Alternative (GP+aux.)** – This alternative would add one additional general-purpose lane in each direction for a total of 3 GP lanes in each direction on U.S. 69 plus an auxiliary lane between interchanges at high congestion locations.

- **Express Toll Lane (ETL) plus Auxiliary Lane Widening Alternative (ETL+aux.)** - This alternative would add one additional ETL in each direction and maintain the two existing general purpose (GP) lanes on U.S. 69 plus an auxiliary lane between interchanges at high congestion locations.

AM and PM peak hour results of 2050 Build conditions are presented in Tables ES-1 and ES-2. The results demonstrate that during the peak 15 minute periods of the AM peak hour the GP+aux. alternative shows minor to moderate congestion in all lanes of the northbound direction from 151st to Blue Valley Pkwy and College to 119th, while the ETL+aux. shows similar congestion in the general-purpose lanes, but provides the option to use the ETL for a more reliable, higher speed trip. Similarly, during the PM peak hour, the GP+aux. alternative has minor to moderate congestion between 119th St and 151st St for all motorists, whereas the ETL+aux. alternative provides motorists a congestion free, higher speed travel lane option through that part of the corridor.

In conclusion, the results illustrate that

- the ETL+aux lanes alternative provides sufficient future traffic operations and travel reliability; and
- the GP+aux lanes alternative does not provide sufficient future operations and travel reliability and therefore needs additional improvements such as additional lanes, collector distributor roads or other improvements to address traffic congestion.

Level of Congestion	
No Congestion	
Minor Congestion	
Moderate Congestion	
Severe Congestion	

Table ES-1: 2050 Build, AM Peak Congestion

ROADWAY SEGMENT	Express Lanes						Traditional Widening					
	Southbound			Northbound			Southbound			Northbound		
	GP ↓	GP ↓	ETL ↓	ETL ↑	GP ↑	GP ↑	GP ↓	GP ↓	GP ↓	GP ↑	GP ↑	GP ↑
103rd St to I-435	No	No	No	No	No	No	No	No	No	No	No	No
I-435 to College Blvd	No	No	No	No	No	No	No	No	No	No	No	No
College Blvd to 119th St	No	No	No	No	Moderate	Moderate	No	No	No	Moderate	Moderate	Moderate
119th St to Blue Valley Pkwy	No	No	No	No	No	No	No	No	No	No	No	No
Blue Valley Pkwy to 135th St	No	No	No	No	Moderate	Moderate	No	No	No	Moderate	Moderate	Moderate
135th St to 151st St	No	No	No	No	Minor	Minor	No	No	No	Minor	Minor	Minor
151st St to 159th St	No	No	No	No	Minor	Minor	No	No	No	No	No	No
159th St to 167th St	No	No	No	No	No	No	No	No	No	No	No	No
167th St to 179th St	No	No	No	No	No	No	No	No	No	No	No	No

Source: Highway Capacity Software

Level of Congestion	
No Congestion	
Minor Congestion	
Moderate Congestion	
Severe Congestion	

Table ES-2: 2050 Build, PM Peak Congestion

ROADWAY SEGMENT	Express Lanes						Traditional Widening					
	Southbound			Northbound			Southbound			Northbound		
	GP ↓	GP ↓	ETL ↓	ETL ↑	GP ↑	GP ↑	GP ↓	GP ↓	GP ↓	GP ↑	GP ↑	GP ↑
103rd St to I-435	Minor	Minor	No	No	No	No	No	No	No	No	No	No
I-435 to College Blvd	Minor	Minor	No	No	No	No	No	No	No	No	No	No
College Blvd to 119th St	Minor	Minor	No	No	Moderate	Moderate	No	No	No	Minor	Minor	Minor
119th St to Blue Valley Pkwy	Moderate	Moderate	No	No	No	No	Moderate	Moderate	Moderate	No	No	No
Blue Valley Pkwy to 135th St	Moderate	Moderate	No	No	Minor	Minor	Moderate	Moderate	Moderate	Minor	Minor	Minor
135th St to 151st St	Moderate	Moderate	No	No	No	No	Moderate	Moderate	Moderate	No	No	No
151st St to 159th St	No	No	No	No	No	No	No	No	No	No	No	No
159th St to 167th St	No	No	No	No	No	No	No	No	No	No	No	No
167th St to 179th St	No	No	No	No	No	No	No	No	No	No	No	No

Source: Highway Capacity Software

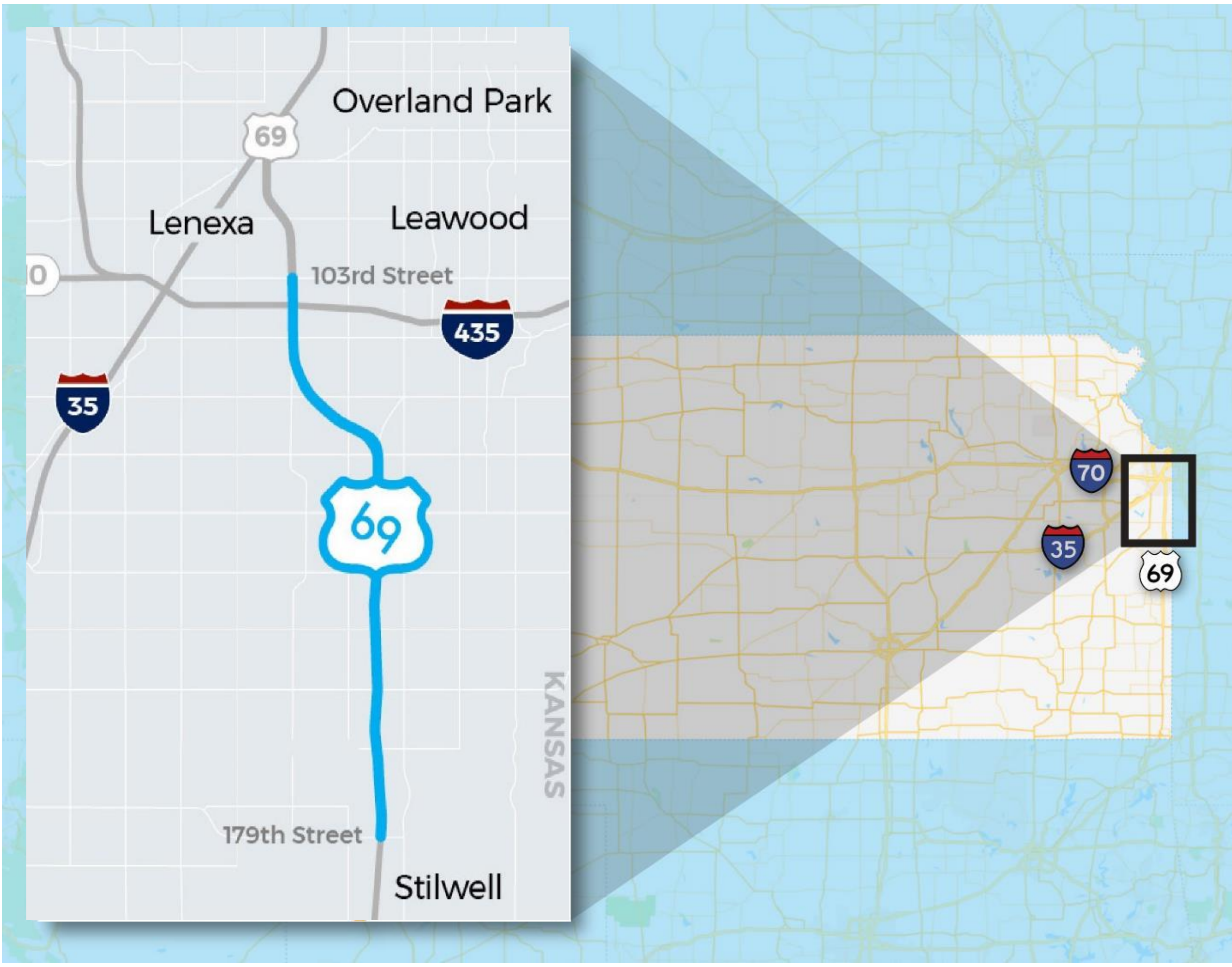
1. INTRODUCTION

United States Highway 69 (U.S. 69) is a vital corridor to the transportation network in the State of Kansas, the Kansas City metropolitan area and the City of Overland Park, Kansas. Often referred to as the backbone of Overland Park, U.S. 69 runs north-south through the city with the northern limit merging with Interstate 35 (I-35) and the southern limit extending to the Overland Park city boundary and south through the State of Kansas. U.S. 69 links many of the primary east-west arterial corridors in the City providing connectivity to major employment centers and residential developments.

The project limits of the U.S. 69 Modernization and Expansion project extend along U.S. 69 between the 179th Street Interchange and the 103rd Street Interchange, approximately 12 miles. The Project evaluates two alternatives for adding capacity to U.S. 69. One alternative evaluates the feasibility of expanding U.S. 69 to include one express toll lane in both the northbound and southbound directions plus an auxiliary lane where congestion occurs, along with interchange improvements and arterial turn-lane and ramp improvements throughout the study corridor. A toll-free alternative is also evaluated which includes an additional general purpose through lane in each direction with auxiliary lane where congestion occurs, along with interchange improvements and arterial turn-lane and ramp improvements throughout the corridor.

Figure 1 shows the location of the U.S. 69 study area within the State of Kansas.

Figure 1: U.S. 69 Project Location



Note: The U.S. 69 Modernization and Expansion project limits are 103rd Street on the north and 179th Street on the south.

To provide a comparative analysis of the Express Toll Lane (ETL) and General-Purpose (GP) Lane alternatives, the Highway Capacity Software Version 7.9 (HCS7) was used as the analysis software. HCS7 is a deterministic software that provides a high-level comparison of levels of congestion. As part of the BIA Study, a more complex VISSIM model, which uses microsimulation, will be developed for a more detailed analysis. Although VISSIM will provide a more detailed analysis of the corridor, HCS provides a general comparison between the two build alternatives.

2. HCS FREEWAY FACILITIES ANALYSIS

Alternatives

As part of the conceptual analysis, traffic analyses were completed for the project study area for the AM and PM peak hours using the Freeway Facilities module within Highway Capacity Software Version 7.9 (HCS7) for the following alternatives:

Table 1: Alternatives Evaluated

Existing 2019	**2019 Existing No-Build** – Existing network with 2019 traffic volumes.
Design Year 2050 (Projects 1 & 2)	**2050 Design Year Build – General Purpose Lane Widening plus Auxiliary Lanes where warranted (GP+aux.)** – One additional general-purpose lane in each direction to the existing network with 2050 traffic volumes.
	2050 Design Year Build – Express Toll Lane Widening plus Auxiliary Lanes where warranted (ETL+aux.) – One additional express toll lane in each direction to the existing network with 2050 traffic volumes.

The U.S. 69 Modernization and Expansion Project is anticipated to be constructed in two major phases.

- **Project 1** could be completed as early as 2026 and includes general purpose lane or express toll lane widening on U.S. 69 from 103rd Street to 151st Street plus auxiliary lanes where warranted and interchange improvements within these limits. Project 1 does not include any improvements south of 151st Street or the modification of the U.S. 69 and I-435 interchange.

- **Project 2**, expected to be needed by 2040, will extend the U.S. 69 general purpose lane or express toll lane widening south from 151st Street to 179th Street plus auxiliary lanes where warranted and interchange improvements within these limits. Project 2 will also provide updates to the College Boulevard interchange and U.S. 69 and I-435 interchange, including a collector-distributor (CD) system from College Boulevard to I-435 and 103rd Street, as well as removing the northbound loop ramp to I-435 westbound and replacing it with a direct flyover.

Methodology

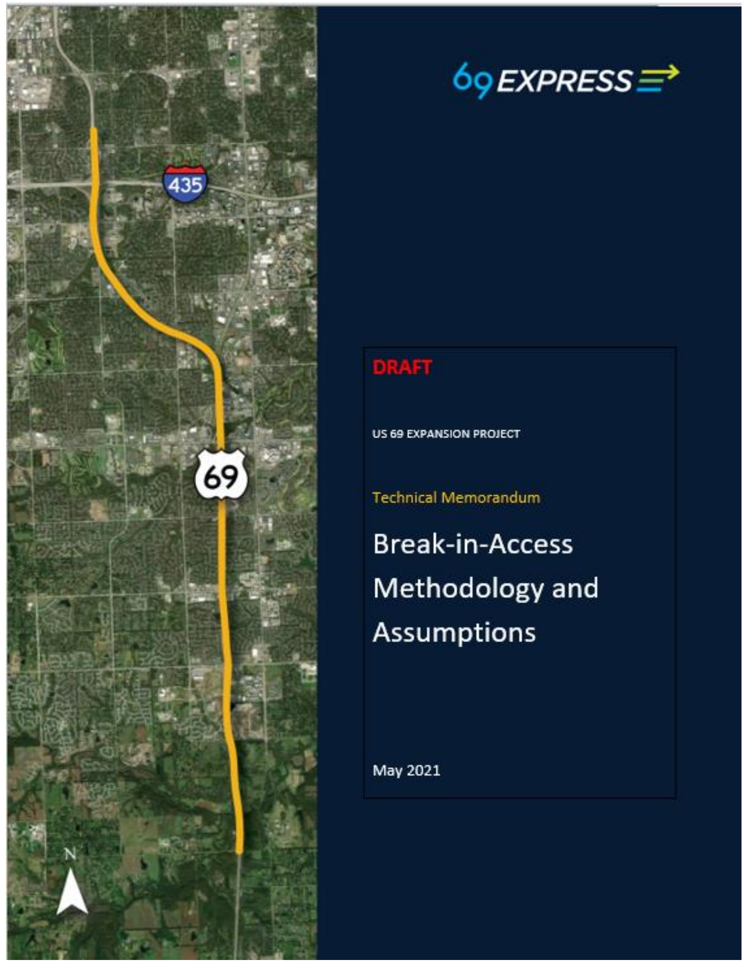
Basic freeway segments and ramp merges, diverges, and weaves were analyzed on U.S. 69 using the HCS Freeway Facilities system module. HCS Freeway Facilities allows the integration of individual segment analyses into a singular corridor analysis to study potential multi-segment operational issues.

The first step in the freeway analysis involved the segmentation of U.S. 69 in each travel direction. The segments fall into the following categories: basic freeway, merge areas, diverge areas, and weave areas. After categorizing the segments, geometric and traffic volume inputs were entered into HCS Freeway Facilities for each segment. These inputs include:

- Peak Hour Traffic Volumes – see Section 3.0
- Number of Lanes – assumed mainline through lanes plus auxiliary lanes in congested areas
- Terrain Type – Grades were coded in where As-Built information was available and is assumed to be "Level" for all other locations.
- Base Free Flow Speed – 75 mph for US 69 south of 167th Street and 70 mph north of 167th Street
- Free Flow Speeds on Ramps – assumed 30 mph for build alternative loop ramps and 35 mph for all other build alternative ramps
- Truck Percentage (range 1% to 14%)
- Lane Width – 12 feet
- Right Shoulder Lateral Clearance – 10 feet
- Segment and Acceleration/Deceleration Lane Lengths – Based on measured field or design information, measured from the beginning of taper to gore point

After inputs were entered into HCS Freeway Facilities software, output data for each segment was collected for the segment density and corresponding LOS, traffic volume, and average speed. Level of service and congestion results represent the worst 15-minute period of the peak hour.

3. TRAFFIC DEMAND



Traffic volumes were developed along the US 69 mainline, ramps, and cross streets in the AM and PM peak hours for both northbound and southbound directions. Volumes for the Existing year 2019 and Future No-Build year 2050 were developed. The methodology and assumptions details of the traffic volume development can be found in the *Break-in-Access Methodology and Assumptions, May 2021* report as well as the *U.S. 69 Existing and Future No-Build Balanced Traffic*, April 2021.

Initial preliminary future build year volumes were developed for both Express Toll Lane and General-Purpose alternatives. For the Express Toll Lane alternative, volumes were initially estimated for the express toll lane by shifting volume from the general-purpose lane based on an initial capacity analysis when the two general purpose lanes were expected to operate at LOS E or worse. Once volumes were input into HCS, volumes were further adjusted to maintain maximum LOS C in the express toll lane.

4. HCS CAPACITY ANALYSIS RESULTS

Existing Conditions

Existing 2019 traffic capacity analysis results generated in the HCS Freeway Facilities analysis software application for the U.S. 69 study area corridor are summarized in Tables 2 and 3 below for the Existing AM and PM peak hours. Future No-Build traffic levels of congestion get considerably worse with no improvements.

Table 2: 2019 Existing, AM Peak Congestion

ROADWAY SEGMENT	Existing			
	Southbound		Northbound	
	GP ↓	GP ↓	GP ↑	GP ↑
103rd St to I-435	No Congestion	No Congestion	No Congestion	No Congestion
I-435 to College Blvd	No Congestion	No Congestion	No Congestion	No Congestion
College Blvd to 119th St	No Congestion	No Congestion	No Congestion	No Congestion
119th St to Blue Valley Pkwy	No Congestion	No Congestion	No Congestion	No Congestion
Blue Valley Pkwy to 135th St	No Congestion	No Congestion	Moderate Congestion	Moderate Congestion
135th St to 151st St	No Congestion	No Congestion	Severe Congestion	Severe Congestion
151st St to 159th St	No Congestion	No Congestion	No Congestion	No Congestion
159th St to 167th St	No Congestion	No Congestion	No Congestion	No Congestion
167th St to 179th St	No Congestion	No Congestion	No Congestion	No Congestion

Level of Congestion	
No Congestion	
Minor Congestion	
Moderate Congestion	
Severe Congestion	

Source: Highway Capacity Software

Table 3: 2019 Existing, PM Peak Congestion

ROADWAY SEGMENT	Existing			
	Southbound		Northbound	
	GP ↓	GP ↓	GP ↑	GP ↑
103rd St to I-435	No Congestion	No Congestion	No Congestion	No Congestion
I-435 to College Blvd	No Congestion	No Congestion	Moderate Congestion	Moderate Congestion
College Blvd to 119th St	Moderate Congestion	Moderate Congestion	Moderate Congestion	Moderate Congestion
119th St to Blue Valley Pkwy	Moderate Congestion	Moderate Congestion	Moderate Congestion	Moderate Congestion
Blue Valley Pkwy to 135th St	Moderate Congestion	Moderate Congestion	Minor Congestion	Minor Congestion
135th St to 151st St	Moderate Congestion	Moderate Congestion	No Congestion	No Congestion
151st St to 159th St	No Congestion	No Congestion	No Congestion	No Congestion
159th St to 167th St	No Congestion	No Congestion	No Congestion	No Congestion
167th St to 179th St	No Congestion	No Congestion	No Congestion	No Congestion

Level of Congestion	
No Congestion	
Minor Congestion	
Moderate Congestion	
Severe Congestion	

Source: Highway Capacity Software

Build Alternatives

Two future build alternatives were analyzed and compared to each other.

- **General Purpose (GP) Lane Widening Alternative Plus Auxiliary Lanes (GP+aux.)** – This alternative would add one additional general-purpose lane in each direction for a total of 3 GP lanes in each direction on U.S. 69.

- **Express Toll Lane (ETL) Widening Alternative Plus Auxiliary Lanes (ETL+aux.)** – This alternative would add one additional ETL in each direction and maintain the two existing general-purpose lanes on U.S. 69.

The HCS Freeway Facilities analysis results for the 2050 Design Year Build alternatives are shown in **Tables 4 and 5**. This alternative modeled each Build alternatives using 2050 peak hour traffic volumes.

Level of Congestion	
No Congestion	Green
Minor Congestion	Yellow
Moderate Congestion	Orange
Severe Congestion	Red

Table 4: 2050 Build, AM Peak Congestion

ROADWAY SEGMENT	Express Lanes						Traditional Widening					
	Southbound			Northbound			Southbound			Northbound		
	GP ↓	GP ↓	ETL ↓	ETL ↑	GP ↑	GP ↑	GP ↓	GP ↓	GP ↓	GP ↑	GP ↑	GP ↑
103rd St to I-435	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
I-435 to College Blvd	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
College Blvd to 119th St	No Congestion	No Congestion	No Congestion	No Congestion	Moderate Congestion	Moderate Congestion	No Congestion	No Congestion	No Congestion	Moderate Congestion	Moderate Congestion	Moderate Congestion
119th St to Blue Valley Pkwy	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
Blue Valley Pkwy to 135th St	No Congestion	No Congestion	No Congestion	No Congestion	Moderate Congestion	Moderate Congestion	No Congestion	No Congestion	No Congestion	Moderate Congestion	Moderate Congestion	Moderate Congestion
135th St to 151st St	No Congestion	No Congestion	No Congestion	No Congestion	Minor Congestion	Minor Congestion	No Congestion	No Congestion	No Congestion	Minor Congestion	Minor Congestion	Minor Congestion
151st St to 159th St	No Congestion	No Congestion	No Congestion	No Congestion	Minor Congestion	Minor Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
159th St to 167th St	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
167th St to 179th St	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion

Source: Highway Capacity Software

Level of Congestion	
No Congestion	Green
Minor Congestion	Yellow
Moderate Congestion	Orange
Severe Congestion	Red

Table 5: 2050 Build, PM Peak Congestion

ROADWAY SEGMENT	Express Lanes						Traditional Widening					
	Southbound			Northbound			Southbound			Northbound		
	GP ↓	GP ↓	ETL ↓	ETL ↑	GP ↑	GP ↑	GP ↓	GP ↓	GP ↓	GP ↑	GP ↑	GP ↑
103rd St to I-435	Minor	Minor	No	No	No	No	No	No	No	No	No	No
I-435 to College Blvd	Minor	Minor	No	No	No	No	No	No	No	No	No	No
College Blvd to 119th St	Minor	Minor	No	No	Moderate	Moderate	No	No	No	Minor	Minor	Minor
119th St to Blue Valley Pkwy	Moderate	Moderate	No	No	No	No	Moderate	Moderate	Moderate	No	No	No
Blue Valley Pkwy to 135th St	Moderate	Moderate	No	No	Minor	Minor	Moderate	Moderate	Moderate	Minor	Minor	Minor
135th St to 151st St	Moderate	Moderate	No	No	No	No	Moderate	Moderate	Moderate	No	No	No
151st St to 159th St	No	No	No	No	No	No	No	No	No	No	No	No
159th St to 167th St	No	No	No	No	No	No	No	No	No	No	No	No
167th St to 179th St	No	No	No	No	No	No	No	No	No	No	No	No

Source: Highway Capacity Software

2050 AM peak operational results indicate that the ETL+aux. alternative provides an option to use a congestion free travel lane for the entire corridor, while the GP+aux. alternative in the northbound direction has locations where all lanes have minor to moderate congestion. Similarly, in the PM peak hour, the GP+aux. and ETL+aux. both show segments slow down with minor to moderate congestion in the southbound and northbound direction. However, the ETL+aux. alternative provides motorists a high-speed, no congestion option to use the express lane that the GP+aux. does not.

5. CONCLUSION

As part of the planning process to determine a future build preferred alternative for the design year 2050, a comparative analysis between a tolled and toll-free alternative was completed for the US 69 Express Project using HCS version 7.9. HCS was used to provide a high-level comparison between the two alternatives. Once a U.S. 69 Build alternative is selected, a more detailed VISSIM microsimulation model will be developed for the FHWA required Break-in-Access.

The HCS analysis shows that by the year 2050 both the ETL+aux. and GP+aux. alternative will have segments that operate with minor to moderate congestion in the peak direction during the worst 15 minutes of both AM and PM peaks. The difference is, in these congested areas, the GP+aux. alternative has this congestion in all three travel lanes thus providing a slower and less reliable trip through the corridor. While these areas of congestion are still present in the general-purpose lanes of the ETL+aux. alternative, there is an option for travelers to use the express lane which will provide a faster and more reliable trip through the corridor.

Appendix 3

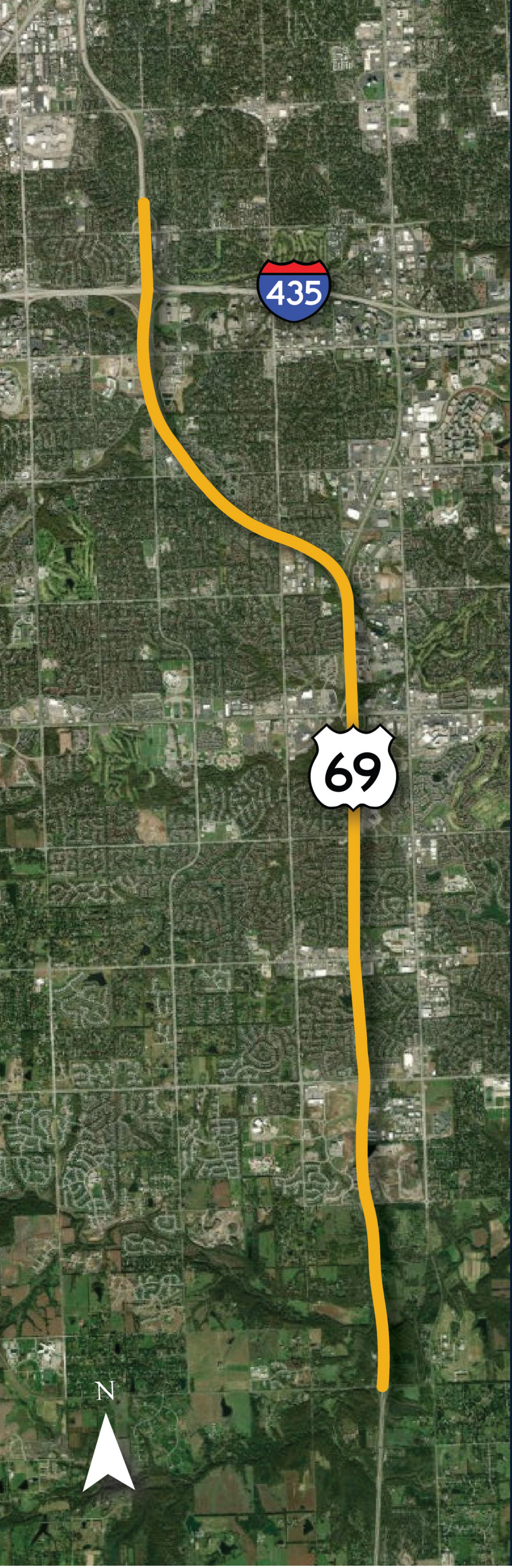
U.S. 69 Concept Exhibits: Express Toll Lane and Traditional Widening Alternatives

U.S. 69 EXPANSION PROJECT
ANTICIPATED IMPROVEMENT CONCEPT
(EXPRESS TOLL LANES OPTION)
DATE: JUNE 2021

Project Legend
Phase 1,2,&3
Phase 4,5,6,7,8,&9
179th Street
167th Street
159th Street
151st Street
143rd Street
135th Street
Antioch Road
Switzer Road
119th Street
College Boulevard
103rd Street
Blue Valley Parkway
Metcalf Avenue
127th Street
123rd Street
69
435
INTERSTATE
69 EXPRESS
Scale: 1"=500'
U.S. 69 EXPANSION PROJECT
ANTICIPATED IMPROVEMENT CONCEPT
(TRADITIONAL WIDENING OPTION)
DATE: JUNE 2021

Appendix 4

U.S. 69 Express Toll Lanes Concept of Operations



69 EXPRESS

U.S. 69 Modernization & Expansion Project

U.S. 69 Express Toll Lanes Concept of Operations

DRAFT

May 2021

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TERMS, ABBREVIATIONS AND DEFINITIONS

The tables below are a comprehensive listing of terms, abbreviations, and definitions applicable to this document.

Table 0-1: Abbreviations

Abbreviation	Term
ALPR	Automatic License Plate Recognition
AET	All-Electronic Tolling (see below for definition)
AVDC	Automatic Vehicle Detection and Classification
AVI	Automatic Vehicle Identification (see below for definition)
BOS	Back Office System (see below for definition)
BVP	Blue Valley Parkway
CCTV	Closed-Circuit Television (camera)
Con-Ops	Concept of Operations (document)
CSC	Customer Service Center (see below for definition)
DMS	Dynamic Message Sign
DVAS	Digital Video Audit System
ETL	Express Toll Lane(s)
GP	General Purpose
GUI	Graphical User Interface
HCTRA	Harris County Toll Road Authority
IBT	Image-Based Transaction (see below for definition)
ITS	Intelligent Transportation System
KDOT	Kansas Department of Transportation
KPI	Key Performance Indicator (see below for definition)
KTA	Kansas Turnpike Authority
LED	Light Emitting Diode
LOS	Level of Service
MPH	Miles per Hour
NB	Northbound
NTTA	North Texas Tollway Authority
NVR	Network Video Recorder
OCR	Optical Character Recognition (see below for definition)
OOS	Out-of-State (license plates)
OTA	Oklahoma Turnpike Authority
PbP	Pay-by-Plate (see below for definition)

Abbreviation	Term
RF	Radio Frequency
RFID	Radio Frequency Identification
ROW	Right-of-Way
RTCS	Roadside Toll Collection System (see below for definition)
SB	Southbound
SOV	Single Occupancy Vehicle
SALPR	Supplemental Automatic License Plate Recognition
TBT	Transponder-Based Transaction (see below for definition)
TMC	Traffic Management Center
TOC	Toll Operations Center
TSA	Toll Services Agreement
TxDOT	Texas Department of Transportation
VPBR	Variable Priced Base Rate (see definition below)
VTMS	Variable Toll Message Sign

Table 0-2: Definitions

Term (Abbreviation)	Definition
All-Electronic Tolling (AET)	A modern tolling method using state-of-the-art technology and automation that allows for tolls to be collected without vehicles having to stop at a toll booth. The method typically uses AVI and/or image capture/review technologies and processes to identify the person responsible for the toll.
Authorized User	An individual authorized to access and utilize a system. The user's access and utilization are determined by proper login credentials and assigned role(s).
Automatic Vehicle Identification (AVI)	A specific AET method that uses radio frequency (RF) identification technology that identifies customers in vehicles using Transponders as they pass fixed antennas and readers for the purpose of toll collection.
Back Office System (BOS)	The suite of hardware and software used to manage customer accounts and perform other toll related operations for the purposes of servicing customers and toll collection.
Business Rules	The set of rules that govern how systems and personnel function and operate, especially in response to the various operating situations that occur during the toll collection process based on business cases and policy decisions.
Customer Service Center (CSC)	The central operations facility that houses and/or utilizes equipment, software, systems and personnel required to establish and manage customer accounts, provide customer service; and manage information and data, including transaction data, for the purposes of servicing customers and toll collection.
Dashboard	A type of GUI-based reporting tool which typically provides real-time, at-a-glance views of KPIs relevant to particular objective(s) or business process(es).
Exempt Vehicle	A vehicle that is eligible to use a toll facility without being charged the toll.
Expected Revenue	The forecasted amount of revenue to be collected from toll transactions assuming 100% will be paid.
General Purpose Lane(s) (GP Lane(s))	The non-tolled lane(s) of travel adjacent to the Express Toll Lane.
Image Review	The system(s) and/or process(es) related to reviewing captured images of license plates, using OCR and/or manually, associated with vehicles that used a toll facility in order to determine License Plate Data for the purpose of toll collection.
Image-Based Transaction (IBT)	A toll transaction for which the toll collection is ultimately based on an associated image, or set of images, of a vehicle's license plate (as opposed to a Transponder-Based Transaction).
Interoperable or Interoperability	Relationship established between two or more tolling agencies or entities based on their systems being capable of capturing, transmitting, receiving, processing and paying for toll transactions resulting when a customer with an account at one agency/entity uses the toll facility of another agency/entity.
Key Performance Indicator (KPI)	Measure or metric used to define and evaluate how successful one or more elements of the System and/or operational areas of the project are performing.
Level of Service (LOS)	A standardized indication of roadway congestion reflecting the relative ease of traffic flow developed by FHWA. LOS A, for example, means free flowing traffic with low volumes and high speeds where traffic density is 0 -11 vehicles/lane/mile. LOS C, for example, means stable traffic flow but with drivers restricted in the freedom to select their own speed where traffic density is 11-18 vehicles/lane/mile.
License Plate Data	Information related to a specific license plate which can be derived from a legible image of the license plate, including the license plate's issuing jurisdiction (e.g., state), alphanumeric characters, and plate type used for the purpose of vehicle owner identification and/or toll collection.
Optical Character Recognition (OCR)	Software that attempts to automatically determine License Plate Data without human review using a captured image or set of images of a license plate.
Pay-by-Plate (PbP)	A service that will be offered by KTA that will allow a customer to pay an owed toll amount based on a license plate image and KTA's invoicing Business Rules.

Term (Abbreviation)	Definition
Reconciliation	The process of comparing two or more sets of data records, typically from different systems, to check that that the individual data sets are complete and in agreement.
Roadside Toll Collection System (RTCS)	The system, including hardware and software, that detects, classifies, and creates toll transactions for vehicles traveling on a toll facility. The RTCS interfaces with and sends to the BOS the toll transactions for processing for the purpose of toll collection.
Toll Rate Schedule	The toll amounts applied to toll transactions.
Toll Zone	The location on a toll facility where AET equipment is installed, including on one or more overhead gantry structures, in order to detect, identify and classify vehicles using the toll facility for the purpose of toll collection.
Transponder	A radio RF device mounted in or on a vehicle that provides a unique identifier for the purpose of toll collection.
Transponder-Based Transaction (TBT)	A toll transaction for which the toll collection is ultimately based on an associated Transponder (as opposed to an Image-Based Transaction).
Variable Priced Base Rate (VPBR)	The toll rate for each segment associated with a 2-axle vehicle using a valid Transponder method of toll collection/payment. This based toll rate for each segment varies based on segment's traffic congestion per the project's variable pricing concepts and is used to calculate the toll rates associated with other Vehicle Classes and vehicles not using a valid Transponder method of toll collection/payment.
Vehicle Class	The approved scheme used to categorize each vehicle (based on, for this project, the vehicle's number of axles) which is used in the framework for the Toll Rate Schedule.
VToll	An industry term referring to an Image-Based Transaction that the BOS determines is actually associated with a valid Transponder and processes accordingly based on the Business Rules.

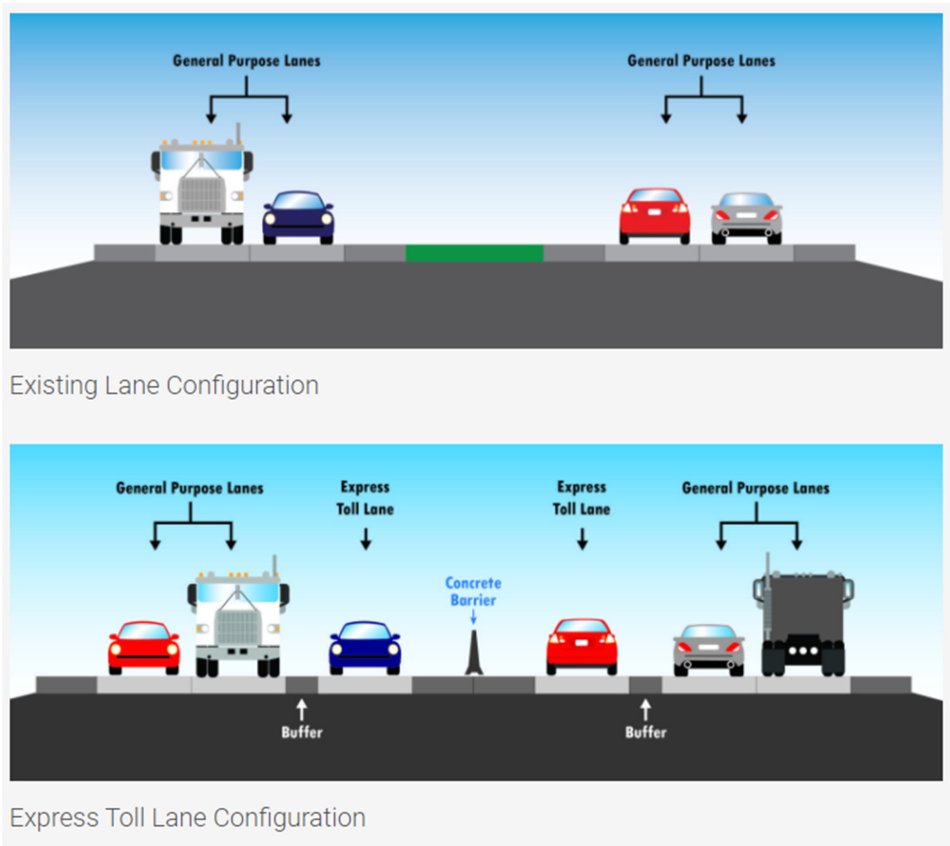
EXECUTIVE SUMMARY

The U.S. 69 Corridor Modernization and Expansion Project is determining how best to address growing safety and congestion issues along the US-69 Corridor. Multiple solutions are being considered to expand US-69 and modify interchanges along the corridor to address these issues. One option being considered would widen US-69 to six lanes from near 103rd Street to 179th Street with the third lane in each direction added as an Express Toll Lane (ETL), as this option could provide additional long-term safety, traffic flow and trip time reliability benefits. The existing lanes, also commonly called general purpose lanes (GP Lanes), would remain toll-free under this option. The portion of U.S. 69 under study runs from just south of 179th Street to just north of 103rd Street in Overland Park, Kansas for a length of just over ten miles.

Express toll lanes (ETLs) have proven to be effective at reducing congestion and improving travel time reliability. ETLs enable drivers to choose if they want to pay a toll to drive in the express lanes in order to achieve more reliable travel time. This has the added benefit of also reducing congestion in the toll-free GP Lanes. To accomplish this, a variable toll rate system will be used where the toll rate changes with traffic volumes to keep the toll lanes flowing smoothly while also improving traffic flow in the toll-free, GP Lanes. The current toll rate is communicated to drivers via signs so drivers can choose for themselves whether they want to pay that price to drive in the ETL.

For the 69 Express Lanes, the third lane in each direction, the ETLs, will be constructed on the inside of existing lanes, where the median and green space currently exists today (see Figure 0-1). The Express Lanes will be constructed at this location to take advantage of right-of-way (ROW) that is already owned by the Kansas Department of Transportation (KDOT). The Express Lanes will be separated from the existing lanes using a buffer and marked with a wide double stripe which is illegal to cross under normal traffic conditions. Northbound (NB) and southbound (SB) traffic will be separated by a concrete barrier.

Figure 0-1: Proposed Express Lanes



Existing Lane Configuration

Express Toll Lane Configuration

In addition to entry and exit locations at the ends of the ETLs, dedicated entry and exit areas will be provided throughout the corridor at strategic locations to maximize use but spaced far enough apart to discourage short trips within the corridor that contribute to increased congestion.

Current Kansas legislation requires tolls to be charged on all users of the ETLs regardless of class, size, or kind of traffic. Therefore, it is anticipated the ETLs will be available 24 hours a day, 7 days a week without restrictions placed on the type or size of vehicles allowed. Tolls will be collected using high-speed All-Electronic Tolling (AET) technology without requiring vehicles to stop to pay. Drivers will be able to use the ETLs and pay the toll using their K-TAG, other approved Transponders, or receive an invoice based on their license plate.

The ETLs' pricing will be set based on traffic conditions, increasing and decreasing as traffic volumes fluctuate throughout the day. The toll price will be calculated to encourage the maximum number of drivers to choose the ETL while still maintaining a reliable trip-time. Toll pricing will be based on a per-trip price, and the trip toll amounts will be displayed to the driver on overhead roadway signs in advance of entering the ETL.

As drivers choose to utilize the Express Lane the number of vehicles in the GP Lanes is reduced thereby easing congestion in the GP Lanes. With nearly 60 express lanes operating throughout the U.S. today, ETL implementations have demonstrated a variety of benefits to users. Some of these benefits include the following:

- Trip-time reliability
- Travel-time savings
- Reduced vehicle hours traveled
- Revenue generation
- Transit improvements – provide faster trips for transit vehicles
- Enhanced overall corridor mobility
- Reduced emissions
- Provide travel options
- Efficient use of capacity

This Concept of Operations document (Con-Ops) was developed in collaboration with the various stakeholders and is intended to be used to communicate how the ETLs would be implemented from a user perspective. The document establishes the framework for design and operations of the Express Lanes. Additionally, the document describes the corridor characteristics; identifies what the Express Lane system will look like and how it will be operated; and suggest the roles of each stakeholder. While the document maintains flexibility for further policy and design decisions that have not been fully defined, it establishes the framework for toll systems specifications and procurement documents, identifies civil elements necessary for the Express Lanes, and provides technical background for stakeholders and community communications.

It is important to recognize a few of the key guidelines established for the development of this project since they influenced many decisions and directions included in the Con-Ops.

- This project is fundamentally a KDOT project. As owner of the facility and lead agency, U.S. 69 will remain a KDOT-owned facility and it will not become part of the Kansas Turnpike Authority (KTA) system.
- KDOT will partner in some manner with KTA to deliver this project in order to leverage partnership efficiencies. The partnership structure will consider the risks to both KDOT and KTA.
- Overall efficiency is best achieved by leveraging the strengths of KDOT, KTA, the City of Overland Park and private industry partners. Operational efficiency leads to decreased costs and increased revenues that can be considered as a local contribution for near-term and long-term improvements to the corridor.

1.0 INTRODUCTION

1.1 Purpose

The Kansas Department of Transportation (KDOT), in partnership with the Kansas Turnpike Authority (KTA) and the City of Overland Park, is evaluating alternatives to improve safety, reduce congestion and improve travel time reliability along U.S. 69. The U.S. 69 Corridor Modernization and Expansion Project - also known as U.S. 69 Express – will widen U.S. 69 to six lanes (three lanes in each direction) and modify interchanges that connect U.S. 69 to the local street network. One option being examined is whether tolling the new lane (also called an ETL) would provide additional long-term safety, traffic flow and trip-time reliability benefits. The existing "free lanes" will remain free. The project also includes an Environmental Assessment (EA) and preliminary engineering necessary to move improvements closer to construction. This document has been prepared to assist in the development of the Express Lanes should KDOT elect to construct them.

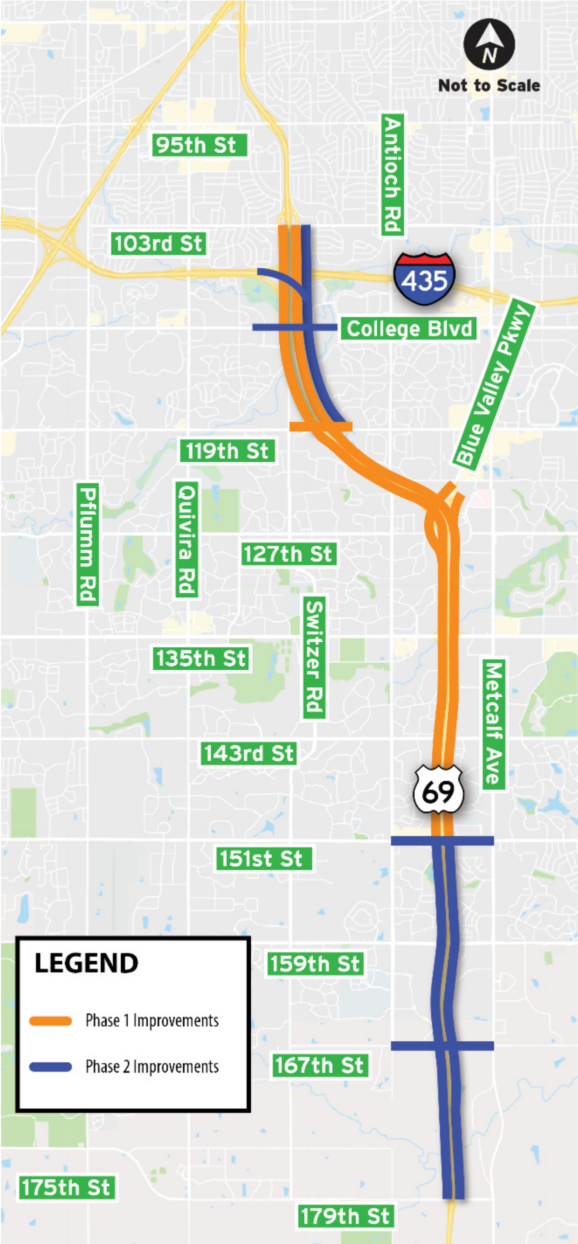
This Con-Ops is intended to describe how the ETLs considered by KDOT operate from a user perspective and set the framework for the design and operational parameters of the Express Lanes. This document serves as transition from policy and project studies to the expectations of the Express Lane user and the technical specifications to be developed for the toll system by describing the operational characteristics. The Con-Ops will be used in the development of the ETL system procurement along with assisting the agencies during operations. Since project policy, agency agreements and technical specifications have not been finalized this document allows for future flexibility to accommodate further refinements.

Figure 1-1: U.S. 69 Express

1.2 Project History

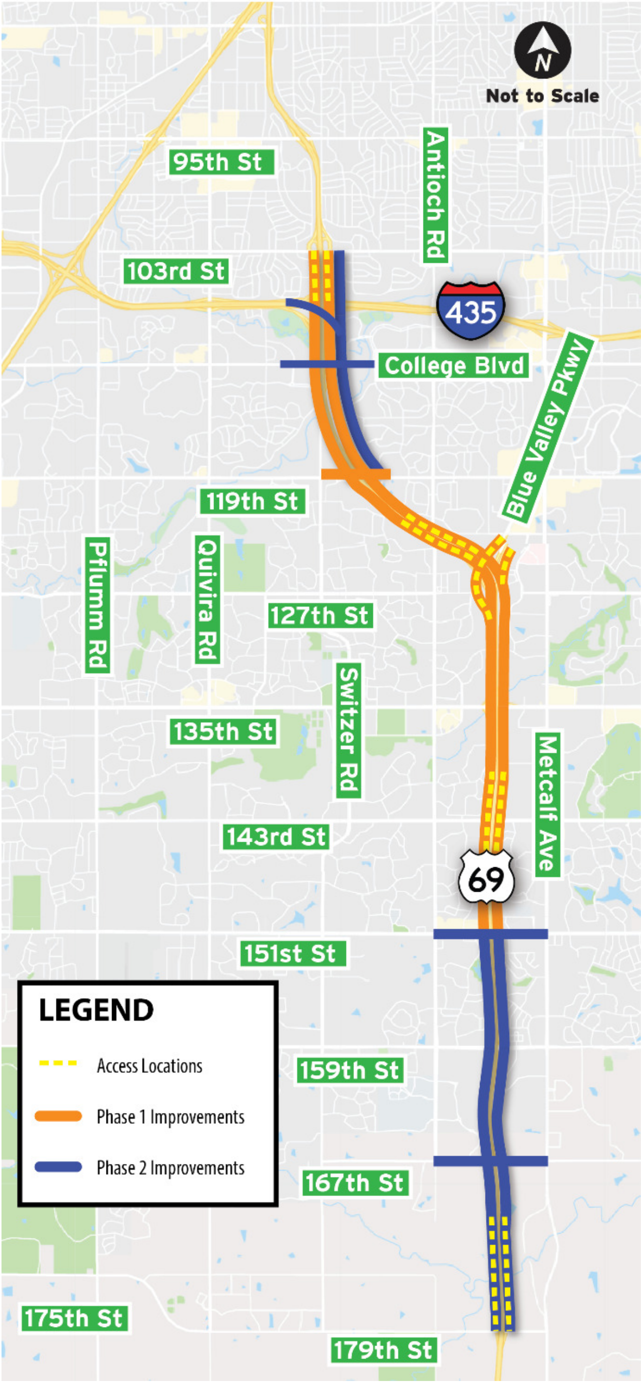
U.S. 69 Express will extend for approximately 10 miles along existing U.S. 69 from north of 103rd Street to south of 179th Street in Overland Park, Kansas as depicted in Figure 1-1. A third lane in each direction, the ETLs, will be constructed on the inside of existing lanes with defined entrance and exit locations, where the median and green space currently exists taking advantage of ROW that is already owned by KDOT. The project is likely to be developed in phases as funding becomes available and traffic demand warrants additional capacity. This document contemplates two phases of development for the entire project. The first phase (Phase 1) will be from north of 103rd Street to north of 151st Street. This segment is approximately 6 miles in length. The remaining 4 miles from north of 151st Street to south of 179th Street are assumed to be developed in a future phase (Phase 2). These phases are shown in Figure 1-2.

Figure 1-2: U.S. 69 Express Project Phases



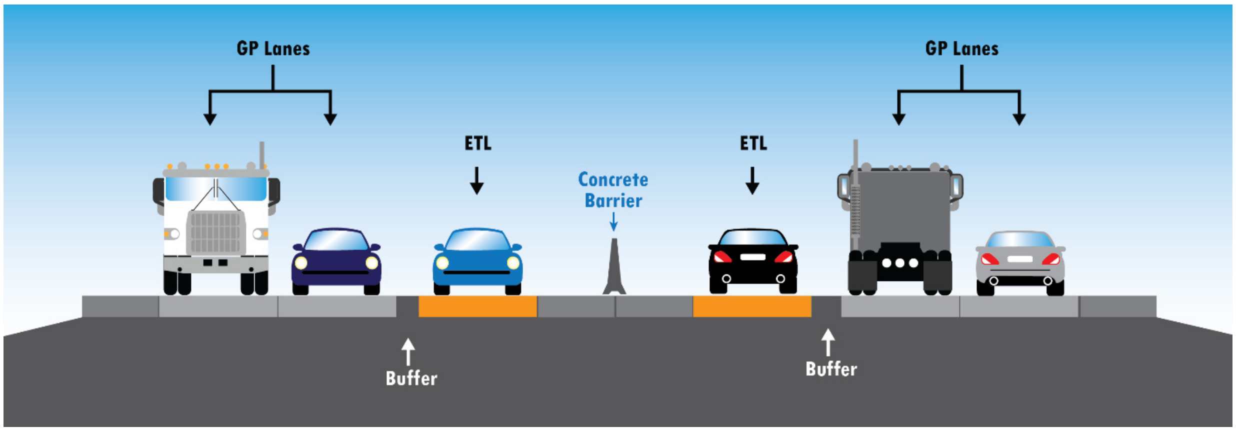
The Express Lane in each direction will be separated from the existing lanes using buffer separation. This buffer separation will be approximately four-foot in width and will have its boundaries marked with a double white stripe. (see Figure 4-2). There will eventually be three entry and three exit locations in each direction as shown in Figure 1-3.

Figure 1-3: Express Lanes Access Locations



NB and SB traffic, as depicted in Figure 1-4 below, will be separated by a concrete median barrier. In addition to adding the third lane in each direction, the U.S. 69 interchanges at Blue Valley Parkway (BVP) and at I-435 will be reconfigured. Improvements to local interchanges and supporting cross streets will be made and existing pavement and bridges will be reconstructed.

Figure 1-4: Typical Section



ETLs reduce congestion and improve travel time reliability by allowing drivers to choose if they want to pay a toll to drive in the free-flowing Express Lanes. This has the added benefit of also reducing congestion in the toll-free GP Lanes. To accomplish this, the toll rate will change with traffic volumes to keep the toll lanes flowing smoothly while also improving traffic flow in the toll-free, GP Lanes. The current toll rate will be communicated to drivers via overhead signs so drivers can choose for themselves whether they want to pay that price to drive in the free-flowing toll lane.

As traffic in the Express Lane increases, the toll rate will also increase to limit the number of people entering the lane. Toll rates will decrease when traffic in the Express Lane decreases to incentivize more vehicles to use the existing capacity in the lane. Shifting vehicles from congested GP Lanes to utilize excess capacity in the Express Lane benefits GP Lanes flow without sacrificing free-flow operations in the Express Lane. Tolls will be collected electronically using K-TAGs and other interoperable Transponders along with license plate images while vehicles travel at highway speeds.

1.3 Goals and Objectives

This Con-Ops document is intended to be flexible and serve as a basis for continuing discussions and interagency coordination throughout the development of U.S. 69 Express. The document includes an overview of the operational requirements; the systems for toll collection and toll pricing; Intelligent Transportation Systems (ITS); monitoring and incident management; maintenance; and public information and outreach. The concepts described in this document are being updated and refined by KDOT, the lead agency for U.S. 69 Express Lanes project, cooperatively with KTA and the City of Overland Park.

This document is divided into sections presenting various features related to how the Express Lanes are anticipated to be developed, operated, and maintained. The following describes what is presented in each of the subsequent sections:

- Section 2 – Existing Conditions: provides a description and overview of the existing corridor.
- Section 3 – Project Needs and Requirements: describes the technology necessary for pricing and toll collection along with Express Lane system operations and maintenance needs.
- Section 4 – Facility Design: identifies the various design standards and requirements for the GP Lanes and Express Lanes, separation and access details, and roadway signing.
- Section 5 – Toll Strategies: presents the general policy for using and operating the Express Lanes including vehicle eligibility, modes of operation and toll rates.
- Section 6 – Roadside Toll Collection System (RTCS): defines the system and subsystem components needed to identify vehicles using the Express Lanes.
- Section 7 – Toll Infrastructure: describes the elements in the Express Lanes and along the corridor that are necessary to support the pricing and toll collection systems such as gantries and toll rate signs.
- Section 8 – ITS: describes the traffic sensors, cameras and message signs in the corridor and the Traffic Management Center.
- Section 9 – Enforcement: provides a general overview of the roles and responsibilities for enforcing Express Lanes operations.
- Section 10 – Roadway Operations and Maintenance: describes how the major components will be operated and who is responsible for providing maintenance.
- Section 11 – Systems Operations and Maintenance: describes how user trips are identified, how toll transactions are processed, how toll rates are established and an overview of general tolling operations.
- Section 12 – Measuring System Effectiveness: provides descriptions of system performance goals.
- Section 13 – Roles and Responsibilities: documents the various parties and their overall responsibilities for delivering, operating and maintaining the project.

1.4 Future Document Revisions

It is anticipated that the U.S. 69 Express Lanes will be developed in phases by KDOT. Therefore, it is anticipated this Con-Ops will be revised as needed to incorporate future construction. It is also recommended to update this document prior to opening the first phase of the project to reflect changes made during design and implementation. As subsequent documents are developed for the project such as the Incident Management Plan, Communications Plan, Toll Policy, and Toll Services Agreement (TSA) they should be appended to this Con-Ops.

2.0 EXISTING CONDITIONS

This section describes present-day U.S. 69 within the U.S. 69 Express project limits, primarily regarding current infrastructure components, traffic characteristics, and operations and maintenance activities.

2.1 Roadway Infrastructure

U.S. 69 is a vital component of the transportation network in the City of Overland Park, the Kansas City metropolitan area and eastern Kansas. Often referred to as the backbone of the City of Overland Park, U.S. 69 extends through the City between the junction with Interstate 35 (I-35) to the southern city limit. It connects many of the primary east-west arterial streets in the City providing connectivity to major employment centers and residential areas. More than 225,000 people and 10,000 businesses are located within five miles of U.S. 69.

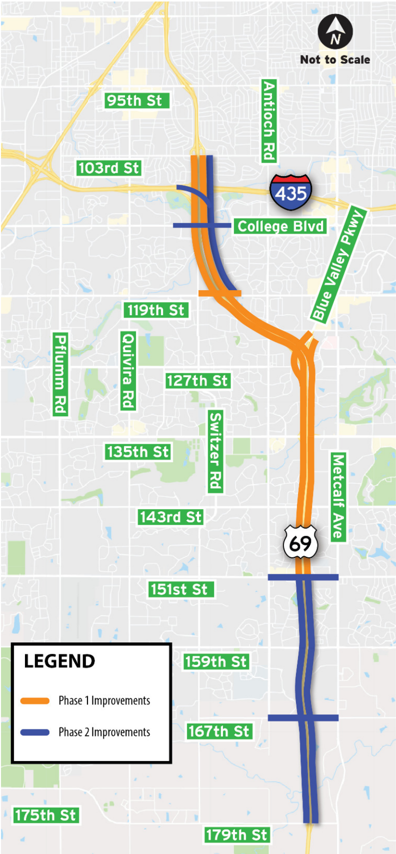
Through the project corridor, U.S. 69 is a fully access-controlled freeway with a posted speed limit of 65 and 70 (south of 167th Street) miles per hour (MPH) with two through lanes in each direction, separated by a grass median. The underlying concrete pavement within the project corridor dates back to the early 1960s and has been maintained and rehabilitated over the past several years with multiple overlay treatments. A photo of existing U.S. 69 within the limits of U.S. 69 Express is presented in Figure 2-1.

Figure 2-1: Existing U.S. 69 (2021)

U.S. 69 stretches approximately 10 miles within the project limits, from 103rd Street south to 179th, with interchanges at I-435, College Boulevard, 119th Street, BVP (partial), 135th Street, 151st Street, 159th Street and 167th Street (partial) and 179th Street. Continuous acceleration/deceleration (auxiliary) lanes are provided between some interchanges for motorists entering and exiting U.S. 69. Additional cross streets (non-interchange) include Antioch Road (overpass), 132nd Street (overpass), 139th Street (underpass) and 143rd Street (underpass). In addition, U.S. 69 bridges over Indian Creek in two locations (north and south of College Boulevard): Tomahawk Creek, just north of 135th Street, and the Blue River north of 179th Street.

It is currently anticipated that U.S. 69 Express will be completed in two phases, identified as the near-term/interim phase ("Phase 1") and the long-term/secondary phase ("Phase 2"). Phase 1 includes six miles from north of 103rd Street to north of 151st Street. Phase 2 will extend U.S. 69 Express an additional four miles from north of 151st Street to south of 179th Street. It should be noted that the phasing limits are still subject to change dependent on additional funding and/or scope changes offered by the design-build team. Figure 2-2 presents a depiction of the U.S. 69 Express Corridor with Phase 1 shown in orange and Phase 2 shown in blue.

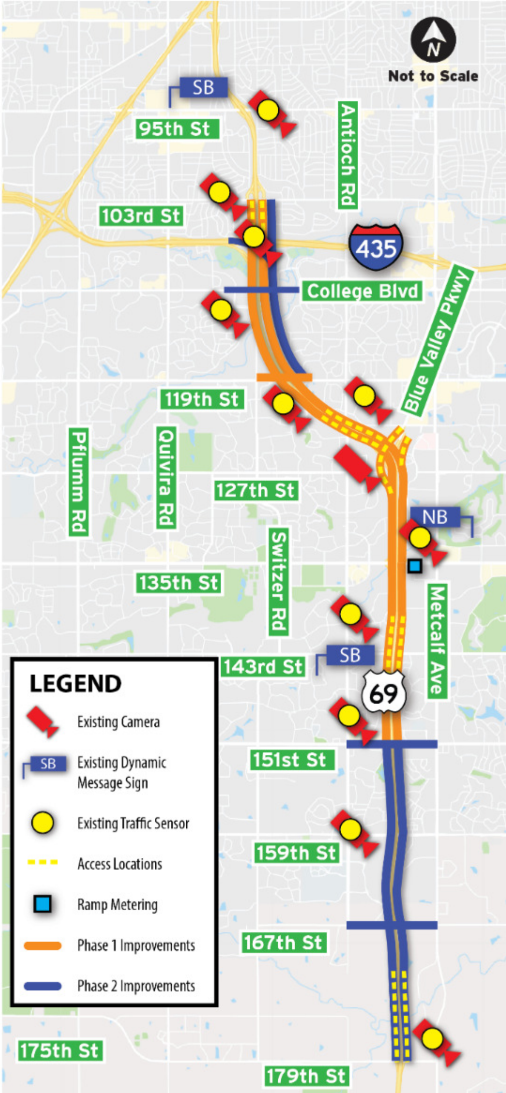
Figure 2-2: U.S. 69 Express Project Limits



2.2 Intelligent Transportation System (ITS) Infrastructure

There are various ITS components currently utilized along the U.S. 69 corridor in the vicinity of the proposed ETLs, including Closed-Circuit Television (CCTV) cameras, Dynamic Message Signs (DMSs), traffic sensors and ramp meters connected via fiber optic backbone. See Figure 2-3 for approximate locations of all ITS devices and connections.

Figure 2-3: Existing ITS Infrastructure



Closed-Circuit Television (CCTV) Cameras

CCTV cameras are used for monitoring the roadway in support of incident detection and clearance verification, and monitoring weather conditions. There are twelve existing CCTV cameras located within the U.S. 69 project corridor, nine within the Project limits of Phase I and three additional within the limits of Phase 2. From north to south, existing CCTV cameras are located at 103rd Street, I-435 (two CCTVs), south of College Boulevard, south of 119th Street, north of BVP, BVP, north of 135th Street, 143rd Street, 151st Street, 159th Street, and 179th Street.

Dynamic Message Signs (DMSs)

DMSs are used to disseminate event information (incidents, lane closures, weather, etc.), safety messages, travel time messages and special alerts to motorists along the U.S. 69 corridor. There are three DMSs located in the vicinity of the project corridor, one in the NB direction and two in the SB direction. The two DMSs in the SB direction are located approximately one mile north of the northern ETL terminus and just south of 143rd Street. The NB DMS is located just north of 135th Street.

Traffic Sensors

Radar-based traffic sensors are used to measure traffic volume and speeds at points along the U.S. 69 corridor. There are currently eleven traffic sensors located within the U.S. 69 ETL corridor, generally in the vicinity of the existing CCTV units.

Ramp Meters

Ramp meters are devices utilized to regulate the flow of traffic entering roadways according to current traffic conditions. There are currently two ramp meters located on the entrance ramps from 135th Street to NB U.S. 69.

Fiber Optic Backbone

All existing ITS devices along the U.S. 69 corridor utilize a fiber optic backbone, generally running north-to-south within the western ROW limits. ITS communications north of 135th Street make use of a KDOT-owned 48-count fiber within a duct bank owned by Lumen (Century Link) and communications south of 135th Street utilize fibers within a Lumen-owned cable. KDOT maintains an agreement with Lumen regarding how and when access to the duct bank may be granted.

Operations and Maintenance

All existing ITS devices were installed by KDOT for the KC Scout system. KC Scout operates these devices while KDOT contractors provide maintenance.

Software

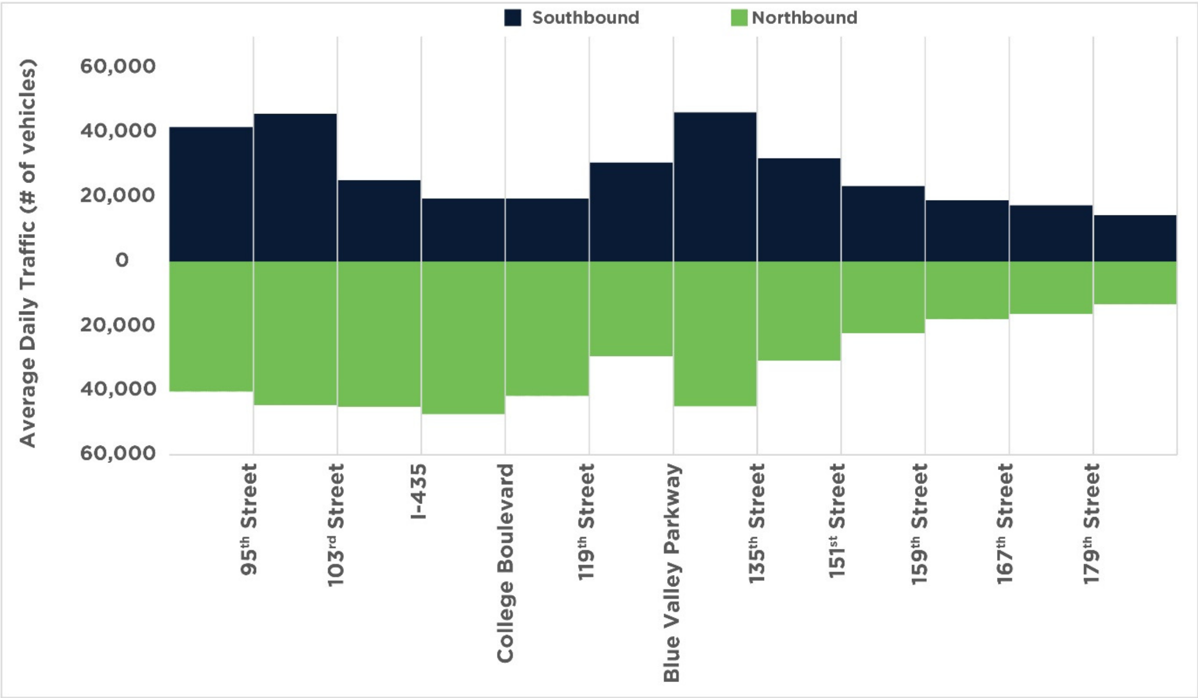
There are several existing software programs used to assist ITS infrastructure operations and maintenance. TransSuite™ Advanced Traffic Management System (ATMS) software is used to operate the ITS infrastructure and monitor system operations. OPS Insights software is used for asset management for the system.

2.3 Traffic Characteristics

Existing Traffic Volumes

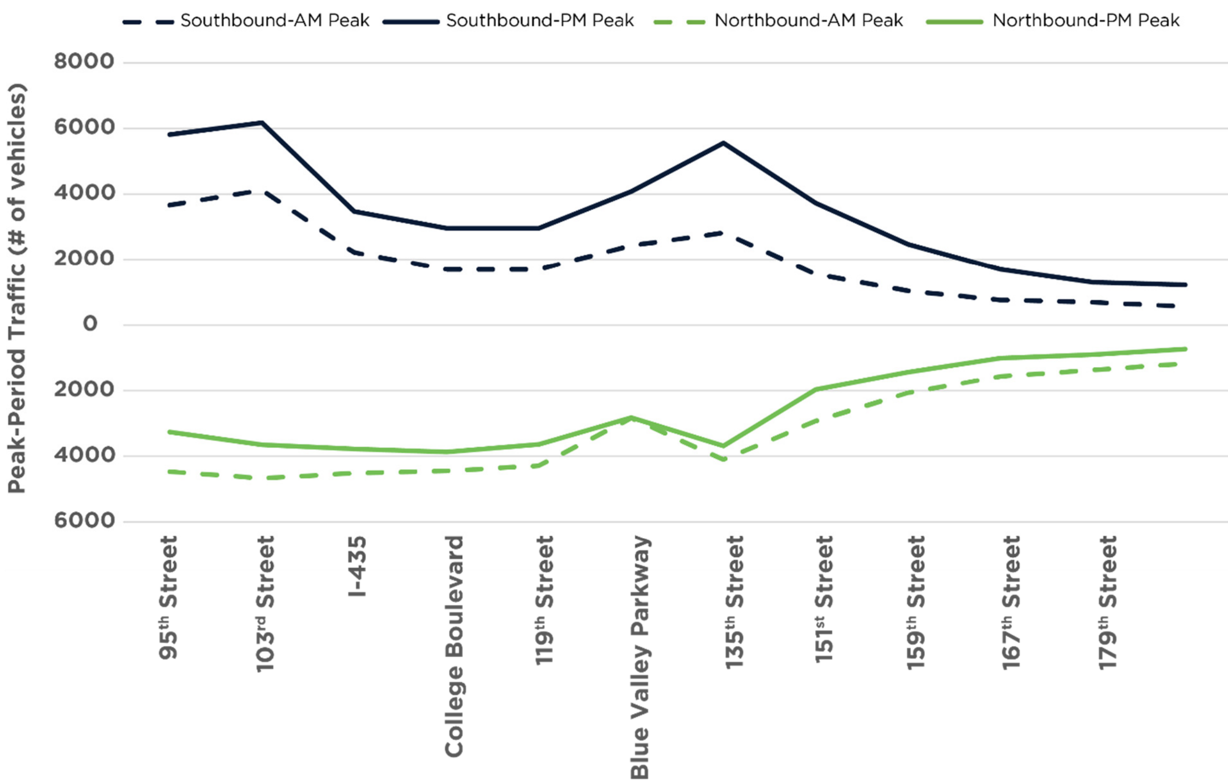
Existing (2019) average daily traffic volumes (U.S. 69 mainline only) can be seen below in Figure 2-4. Generally, cumulative NB U.S. 69 volumes are higher than SB volumes through the corridor, but it should be noted that the SB collector-distributor roadway volumes between 103rd Street and 119th Street are not included. SB volumes entering the study area north of 103rd Street are just under 46,000 vehicles per day (VPD) and drop to just over 17,000 VPD north of 179th Street. NB U.S 69 volumes north of 179th Street are approximately 16,000 VPD, increasing to as much as 47,000 VPD north of College Boulevard.

Figure 2-4: Average Daily Traffic Volumes



Peak-hour traffic volumes follow a similar pattern to the average daily traffic volumes. The peak hour is defined as weekdays from 7:30 AM to 8:30 AM and 4:45 PM to 5:45 PM. In general, PM peak-hour traffic levels are higher than the AM levels, and the highest volume is SB traffic between 95th Street and 103rd Street at the northern end of the project. The peak-period traffic volumes can be seen below in Figure 2-5.

Figure 2-5: Peak-Hour Traffic Volumes



2.4 Roadway Maintenance

The existing U.S. 69 corridor's roadway infrastructure components, including pavement, signing and pavement markings are maintained by KDOT.

2.5 Traffic Operations

KC Scout is a traffic management system partnership between KDOT and MoDOT. U.S. 69 through the project corridor is monitored by KC Scout staff from the Traffic Management Center (TMC) located in Lee's Summit, Missouri. KC Scout staff utilize devices located along the facility to manage the corridor and provide motorists with safer, more reliable roadways. KC Scout is responsible for traffic incident management, including detecting, notifying the public and first responders, and coordinating the response to, and clearance of traffic incidents. On-site incident management is provided by the Kansas Highway Patrol and the City of Overland Park Fire and Police Departments.

2.6 Stakeholders

There are many stakeholder groups that will have a role in the design, construction, financing, operations, and maintenance of the proposed U.S. 69 ETL, including:

- KDOT: KDOT will be the project owner and lead agency.

- KTA: KTA will partner with KDOT to leverage toll facility efficiencies, including provisions for the tolling back office and customer service.
- City of Overland Park: U.S. 69 Express falls entirely within the City of Overland Park.
- KC Scout: KC Scout provides traffic and incident management services along U.S. 69 through the project corridor.
- Federal Highway Administration (FHWA): U.S. 69 is part of FHWA's National Highway System and federal dollars are expected to fund a portion of the project costs.
- First Responders: The City of Overland Park Police and Fire Departments have jurisdiction as first responders within the U.S. 69 Express project limits.
- Mid-America Regional Council (MARC): As the regional Metropolitan Planning Organization (MPO), MARC oversees regional transportation planning and funding.

Additional details regarding the roles and responsibilities of stakeholders are provided in Section 13.

3.0 PROJECT NEEDS AND REQUIREMENTS

This section describes what is needed to meet project goals and elicit appropriate implementation and performance requirements for the toll system components. Most project needs and requirements can be divided into two key areas: technology and operations. In addition, considerations should be made for stakeholder coordination and outreach along with identification of new and/or updated Business Rules and operating policies.

KTA will serve KDOT as a vital partner regarding the planning and implementation of this potential project. KTA has a long-standing history maintaining the 236-mile Kansas Turnpike and has been collecting tolls since 1956. The KTA began implementing electronic toll collection in 1995 in the form of the K-TAG Transponder, KTA is currently in the process of converting their entire system to All-Electronic Tolling (AET) and removing manual (cash) toll collection from the roadside. Through this conversion, KTA is modifying their Back Office System (BOS) and developing/revising Business Rules accordingly. To capitalize on the important work being completed by KTA, the partners are currently advancing plans for KTA to process all toll transactions for U.S. 69 Express.

3.1 Technology

Technology needs for a successful toll project include a RTCS and a BOS. The RTCS identifies the customer (by Transponder or license plate), identifies what they're driving (e.g. number of axles) via in-pavement and/or overhead devices, and enforces the proper toll rate accordingly. Data collected from the RTCS is transmitted to the BOS, which functions as a financial system designed to collect toll revenue, and includes all components necessary for transaction processing, account management and billing (among many other capabilities). The BOS also provides the interface necessary for customer interactions regarding disputes, self-service, and point-of-sale needs.

Roadside Toll Collection System

An RTCS will be procured and implemented to provide a complete, functioning, state-of-the-art AET system using Automatic Vehicle Identification (AVI) and video processing for identifying vehicles at all Toll Zones located along the U.S. 69 Express Corridor. The RTCS will need to provide, at a minimum: Automatic License Plate Recognition (ALPR), Optical Character Recognition (OCR), Digital Video Audit System (DVAS), and trip building capabilities. The RTCS will also need to include a dynamic toll pricing software system capable of computing variable toll rates dependent upon traffic volumes in the ETL to maximize ETL utilization and improve overall corridor mobility. It is expected that the RTCS will create complete fully-formed motorist trip transactions and send these transactions to KTA for further processing (i.e., all transactions with correct pricing and associated with the correct vehicle).

In addition to designing and implementing the RTCS described herein, the RTCS vendor contract will include provisions for operations and maintenance of the system for a yet-to-be-determined number of years, as well as specific standards of performance via Key Performance Indicators (KPIs).

Back Office System and Operations

KTA's existing BOS will need to be modified to accommodate trip-built transaction data sent by the U.S. 69 Express RTCS vendor. Additional modifications may be required regarding existing interfaces, billing standards and connectivity accordingly. Regarding BOS operations and customer service, U.S. 69 Express will be a new toll facility in this region of Kansas creating a need for additional training for Customer Service Center (CSC) staff.

ETL Traffic Management and ITS

The RTCS vendor will need to procure and install various ITS devices, including vehicle detection devices to closely monitor traffic conditions along the ETLs and GP Lanes to properly influence efficient ETL mobility. Additional CCTV cameras will also need to be procured and installed to capture images of the Variable Toll Message Signs (VTMSs) and verify toll rates during operations.

Communications Network

Communications network fiber optic cable and duct bank will need to be provided for the entire length of the corridor to support the toll and ITS system components installed for ETL tolling operations. Planning and execution for center-to-center communications links and various network links should comply with KDOT and KTA Information Technology (IT) guidelines. All new fiber optic cables and duct bank will be installed and utilized independently of all existing infrastructure (to remain), including the duct bank owned by Lumen. Leased lines and connections will need to be considered for communications transmissions between the U.S. 69 Express location and KTA's offices and/or the RTCS vendor's operations center.

Signing

Signing for U.S. 69 Express will be important to maintain safe and efficient traffic operations and to communicate toll rates. Clear and concise signage is needed in advance of all ingress and egress (i.e. entry and exit) points, while blending seamlessly with other GP Lane signing along U.S. 69. Ingress signage will include information regarding toll rates, payment methods, and destinations, at a minimum. Once in the ETL, motorists must be informed about egress points in a clear, effective way. Additional details regarding signing along U.S. 69 Express are provided in Section 4.5.

3.2 Operations

Toll System Operations

The RTCS must be able to effectively influence and regulate traffic demand and volumes in the U.S. 69 ETLs via variable toll rates. In addition, the RTCS will need to process transactions by applying the appropriate toll rates and combining all transactions into a single trip for transmission to the BOS. RTCS vendor staff will need to monitor VTMSs (especially during peak travel periods) and provide manual Image

Review and transaction trip building services. The BOS will need to receive trip-based transactions from the RTCS, post to proper accounts and send invoices to customers. The toll systems must also communicate with all parties responsible for activities related to toll rate verifications and/or overrides and toll collection. Additional details regarding toll system operations is provided in Section 11.

Traffic Management Operations

The U.S. 69 Express Corridor will need to be monitored by staff at a TMC and appropriate workstations and video wall space should be dedicated to monitoring the ETL accordingly. When staff is not dedicated to monitoring U.S. 69 Express, KC Scout's ATMS will continuously monitor device functionality and traffic flow and will identify incidents. KDOT and KC Scout will need to revise incident management plans regarding ETLs and document proper coordination with KTA, the RTCS vendor and the City of Overland Park forces, as necessary. Additional details regarding traffic management operations are discussed in Section 10.

Maintenance

It is essential that the infrastructure and devices supporting the ETLs (roadway, ITS, tolling, etc.) be maintained at the appropriate levels to meet all applicable performance requirements. A maintenance plan will be developed to include scheduled and preventative maintenance, as well as considerations for immediate emergency repairs. The communications network should support management software to help detect failed or defective devices. Specifics regarding maintenance for the roadway and toll systems are provided in Sections 10 and 11, respectively.

Enforcement

Effective enforcement is critical to the success of U.S. 69 Express, and more importantly the safety of all motorists. Law enforcement personnel need to make considerations, and define operational responsibilities, for properly identifying violators and issuing citations. Specifics regarding enforcement are discussed further in Section 9.

3.3 Stakeholder Coordination

Stakeholder coordination throughout the development and implementation of U.S. 69 Express is crucial as KDOT seeks to open their first price-managed Express Lanes project. KDOT, KTA, the City of Overland Park, KC Scout, the design-build contractor and RTCS vendor should maintain constant and consistent lines of communication, as applicable.

During planning, design, and construction, KDOT will need support from KTA and the City of Overland Park in obtaining permits, procuring a design-build contractor for the roadway infrastructure improvements, and establishing operating policies. In addition, KTA will need KDOT's support in developing technical specifications for the toll system and procuring the RTCS vendor.

During operations and maintenance, KDOT, KC Scout, KTA and the City of Overland Park (as applicable) will need to coordinate routine roadway maintenance efforts, monitor traffic conditions, manage incidents and associated lane closures.

Additional details regarding roles and responsibilities are provided in Section 13.

3.4 Business Rules and Standard Operating Procedures (SOPs)

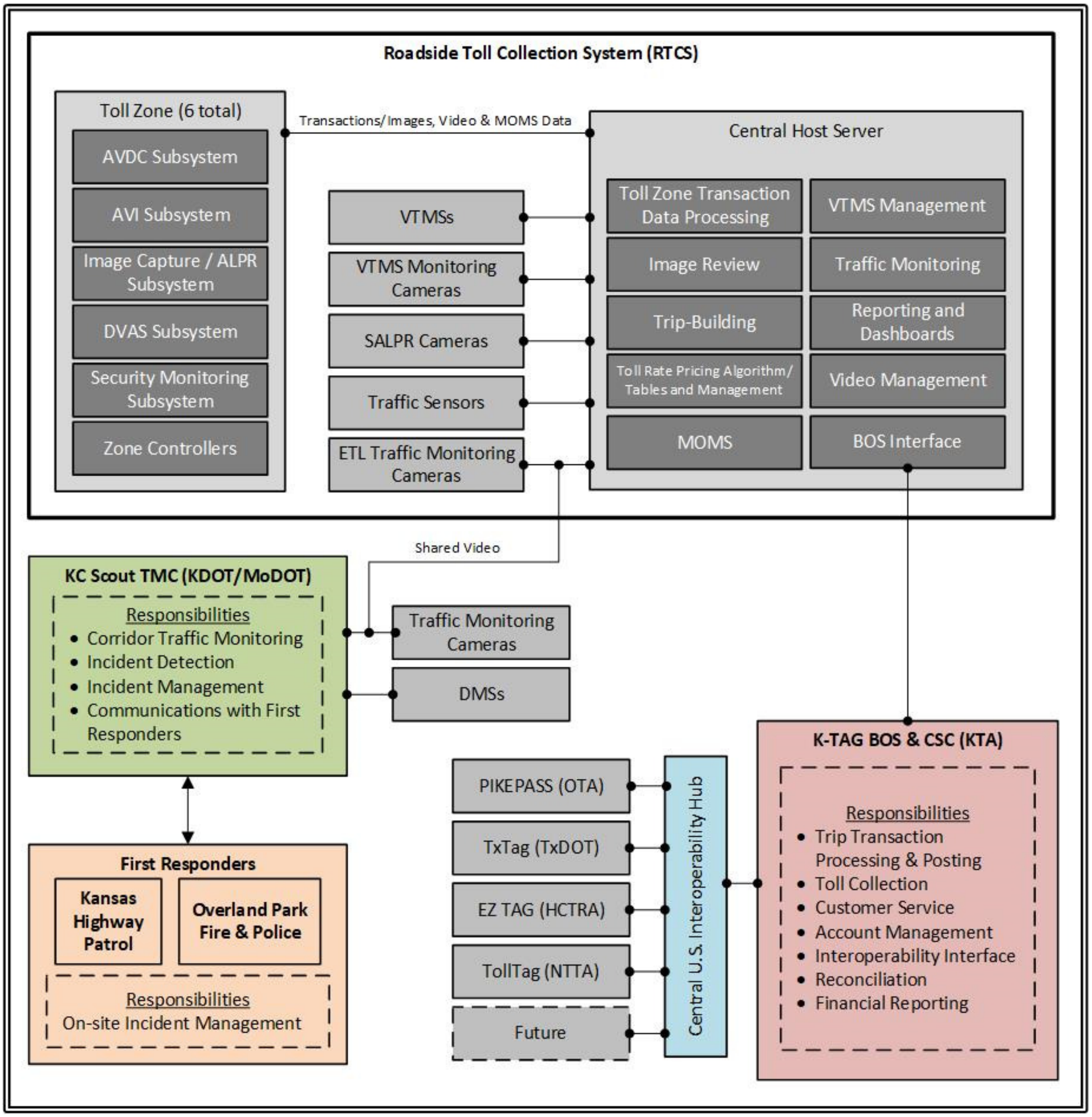
The Business Rules for U.S. 69 Express will need to consider variable pricing, peak-hour traffic demands, hours of operations, and more. Specific to toll rates, Business Rules need to be established regarding base rates, multipliers for different classifications, minimum and maximum rates and rate increases, discounts for Transponder-Based Transactions (TBTs) and/or premiums for Image-Based Transactions (IBTs) and VToll recurrences. Regarding toll collection, Business Rules should consider invoicing practices, fee assessments, collections, acceptable payment methods and the dispute process, among others.

Standard operating procedures (SOPs) related to U.S. 69 Express should be coordinated with KTA and be compatible and consistent with operating procedures of other tolled facilities in Kansas, when possible. SOPs to be developed include, but are not limited to, active incident management impacting the ETLs and GP Lanes, proactive monitoring of variable pricing (including override procedures), use of communication and emergency notification systems, TMC operations (staffing, response, reporting), use of technology systems, and utilization of routing maintenance contractors and local law enforcement. KDOT will ensure that SOPs are reviewed and updated as needed to ensure operations are current and reflect current statutes, Business Rules and/or system improvements.

3.5 Operations Overview

A diagrammatic overview of the 69 ETL operations is depicted in the following figure (Figure 3-1).

Figure 3-1: Diagrammatic Overview of 69 ETL Operations



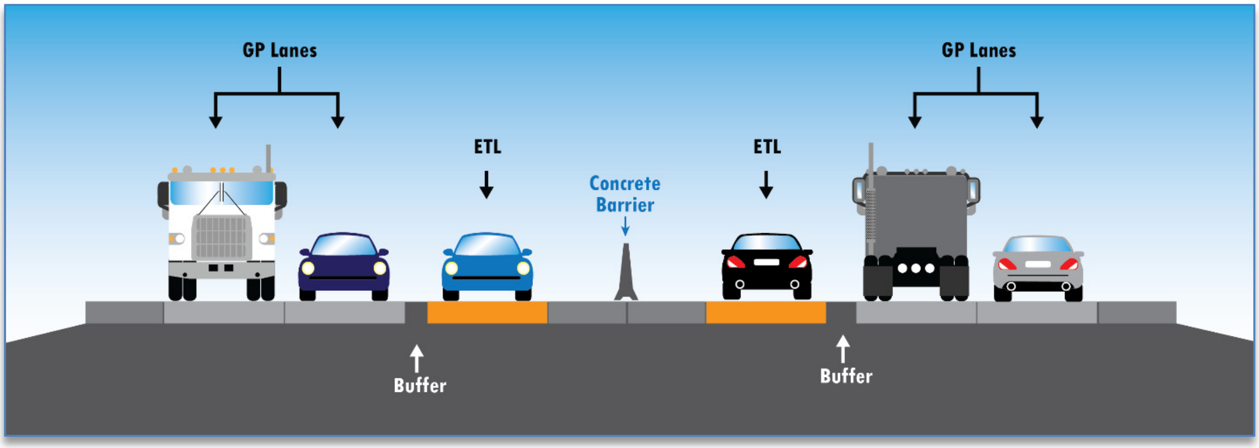
4.0 FACILITY DESIGN

This section describes the various design considerations for U.S. 69 Express, including the typical cross section characteristics, separation treatment, access location details, an overview of the toll segments, signage requirements, and lighting. The U.S. 69 civil infrastructure improvements will be completed by a design-build contractor, procured via a competitive bid process. A two-stage design-build procurement will be utilized to shortlist interested teams based on qualifications (stage 1) followed by a best value evaluation process for shortlisted teams (stage 2).

4.1 Typical Section

All design efforts regarding U.S. 69 Express will be in accordance with KDOT's design manual and standard drawings. The design speed of the U.S. 69 GP Lanes and ETLs will be 70 MPH and the typical section includes 10-foot outside shoulders, two 12-foot lanes, buffer separation (varying width), one 12-foot Express Lane and 10-foot inside shoulders. The proposed typical section of the facility is depicted in Figure 4-1.

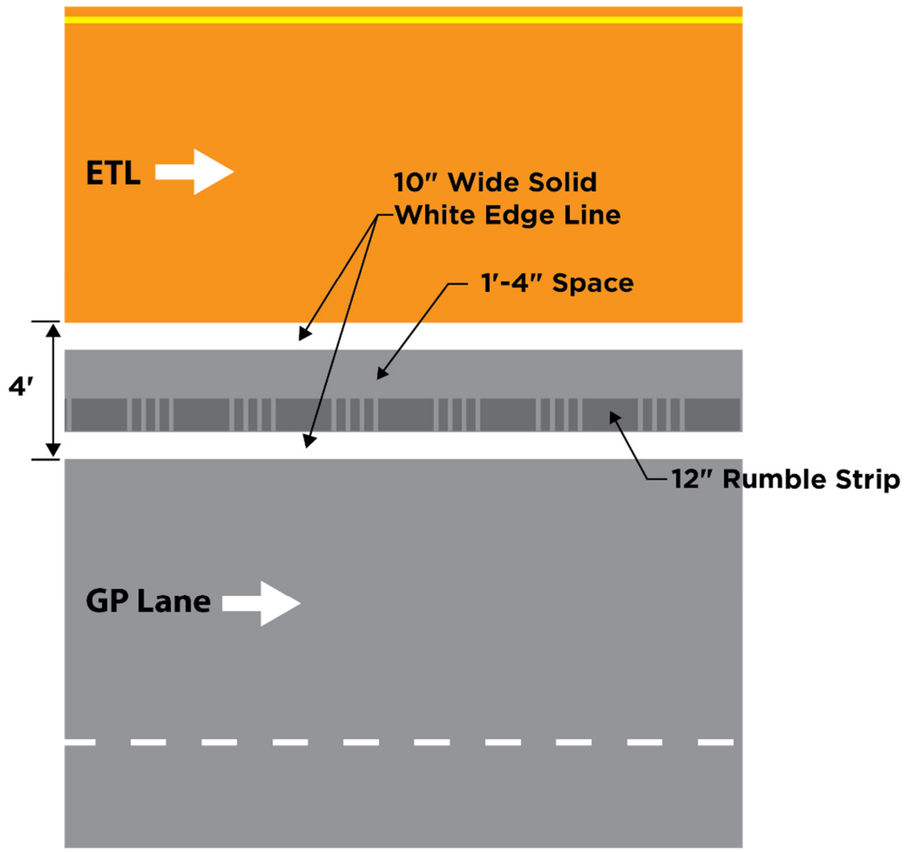
Figure 4-1: Typical Section



4.2 Buffer Separation

The U.S. 69 ETL will be separated from the GP Lanes through buffer striping, which uses pavement markings and a buffer space, as opposed to a physical barrier, to delineate between the ETL and GP Lanes. The width of buffer space will vary between two-feet and four-feet in width, with a four-foot width being utilized where possible. The four-foot buffer marking configuration is shown in Figure 4-2.

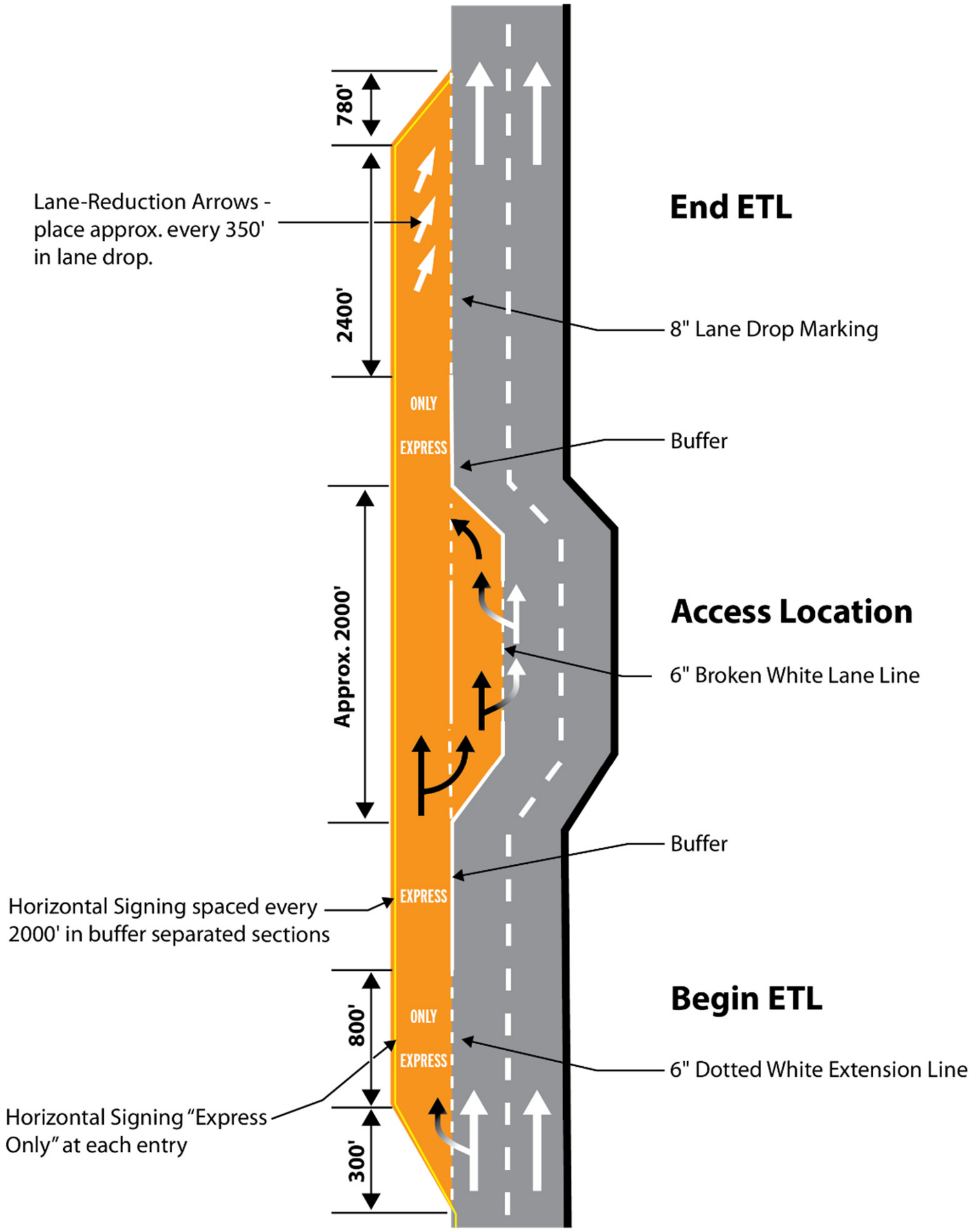
Figure 4-2: Buffer Details



At ingress and egress locations, the buffer pavement markings will consist of single white skip lines to indicate potential weaving. In addition, the U.S. 69 ETLs will include “EXPRESS ONLY” in the form of horizontal signing at each entry and “EXPRESS” every 2,000 feet along buffer-separated sections. ETL marking details are depicted in Figure 4-3.

Other separation techniques such as barrier and continued access were considered but ultimately not recommended for this corridor. Barrier separation using concrete traffic barrier is costly, requires more pavement, results in a larger footprint and will complicate ETLs operations and maintenance over the lifecycle of the project. Separation using raised, flexible delineators was not recommended due to the buffer zone width being reduced to two feet in some locations, along with the difficulties of providing efficient snow removal operations during winter months. Also, flexible delineators will significantly increase routine maintenance cost. Continuous access where there are no restrictions on entry or exit is too porous, difficult to enforce and leads to higher levels of toll evasion.

Figure 4-3: ETL Marking Details

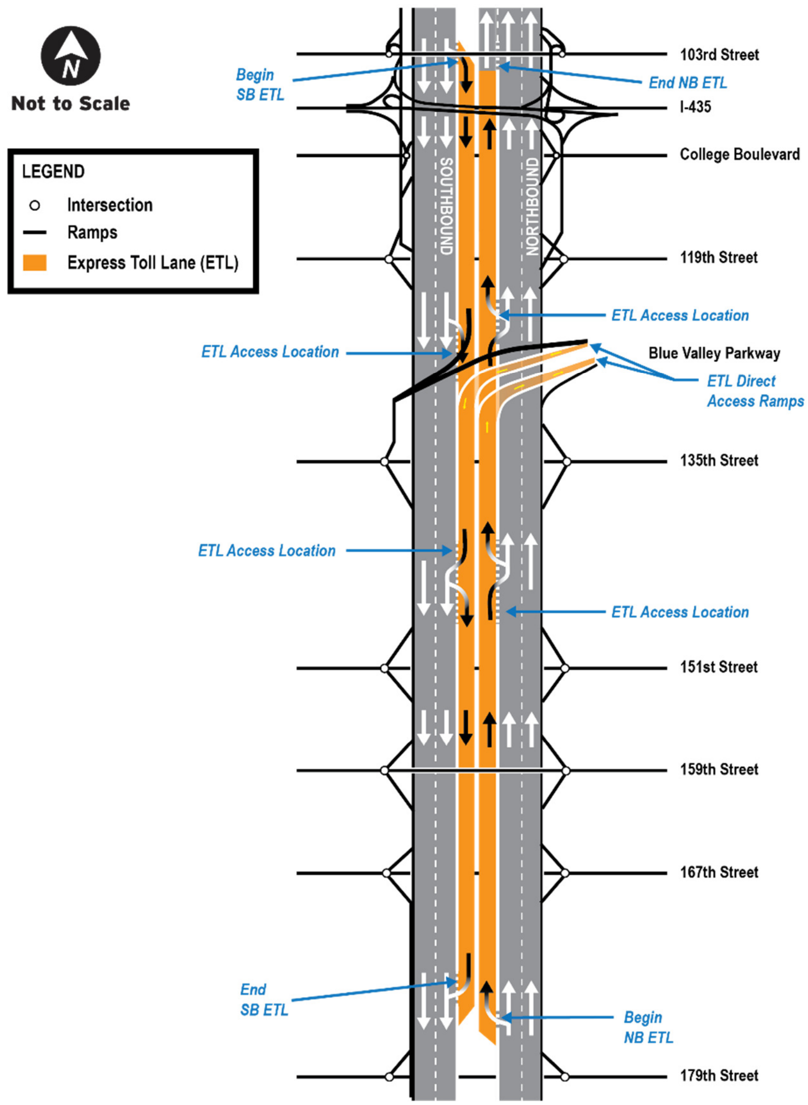


4.3 Access

Access refers to the ability to enter (ingress) and exit (egress) the 69 Express Lanes. Because safety is a primary consideration and U.S. 69 Express will operate using variable pricing, access to the ETLs will be strictly limited through designated access points only. Considerations have been given to driver safety, traffic statistics, and geometric constraints to determine access locations and types. Types of access locations include ingress only (entries), egress only (exit points) or a combination thereof via dedicated weave lanes or direct connector ramps.

The ETLs will have has a total of five access locations in both the SB and NB directions. The approximate locations of all access points are depicted in Figure 4-4.

Figure 4-4: U.S. 69 Express Access Locations



Southbound (SB)

There will be a total of five ETL access locations for SB traffic, three locations for Phase 1, with two additional locations for the Phase 2.

1. The northernmost entrance/ingress into the ETL will be located near 103rd Street.

2. A dedicated ingress point will be located between 119th Street and BVP, allowing ingress for traffic from I-435, College Boulevard and 119th Street and a direct access ramp will offer egress for traffic to move from the ETL to the auxiliary lane connecting the 135th Street exit from SB U.S. 69.

3. A direct access ramp will provide ingress to the ETL for SB traffic on BVP.

4. Phase 2 only: a weave lane is located between 135th Street and 151st Street, allowing ingress for traffic from 135th Street and egress for traffic to 151st, 159th and 167th Streets; prior to the Phase 2 being completed, this access location will serve as the southern terminus to the ETLs in Phase 1.

5. Phase 2 only: the southernmost exit/egress from the ETLs into the GP Lanes will be located just north of 179th Street.

Northbound (NB)

There will be a total of five ETL access locations for NB traffic, four locations for Phase 1, with one additional location for Phase 2.

1. Phase 2 only: the southernmost entrance/ingress into the ETL will be located just north of 179th Street.

2. A weave lane will be located between 135th Street and 151st Street, allowing ingress for traffic from 151st, 159th and 167th Streets and egress for traffic to 135th Street; prior to the Phase 2 being completed, this access location will serve as the southernmost entrance/ingress into the ETL.

3. A direct access ramp will provide egress from the ETL for NB traffic onto BVP.

4. A weave lane will be located between 119th Street and BVP, allowing ingress for traffic from 135th Street and egress for traffic to 119th Street, College Boulevard, I-435 and 103rd Street.

5. The northernmost exit/egress from the ETLs into the GP Lanes will be located near 103rd Street.

4.4 Toll Segments

U.S. 69 Express will be divided into toll segments and separate toll rates will be applied for each segment. For the purposes of pricing and signing, toll segments for the corridor are generally defined as segments between NB and SB access locations. The ETL will have three toll segments – two for the Phase 1 and one additional for the Phase 2, as shown in Table 4-1. Dividing the corridor into toll segments provides greater flexibility to manage demand and gives users more flexibility in utilizing the ETLs.

Table 4-1: Toll Segments - Overview

Toll Segment	Northern Terminus	Southern Terminus
1	103rd Street	119th Street / BVP
2	119th Street / BVP	151st Street
3 (Phase 2 only)	151st Street	179th Street

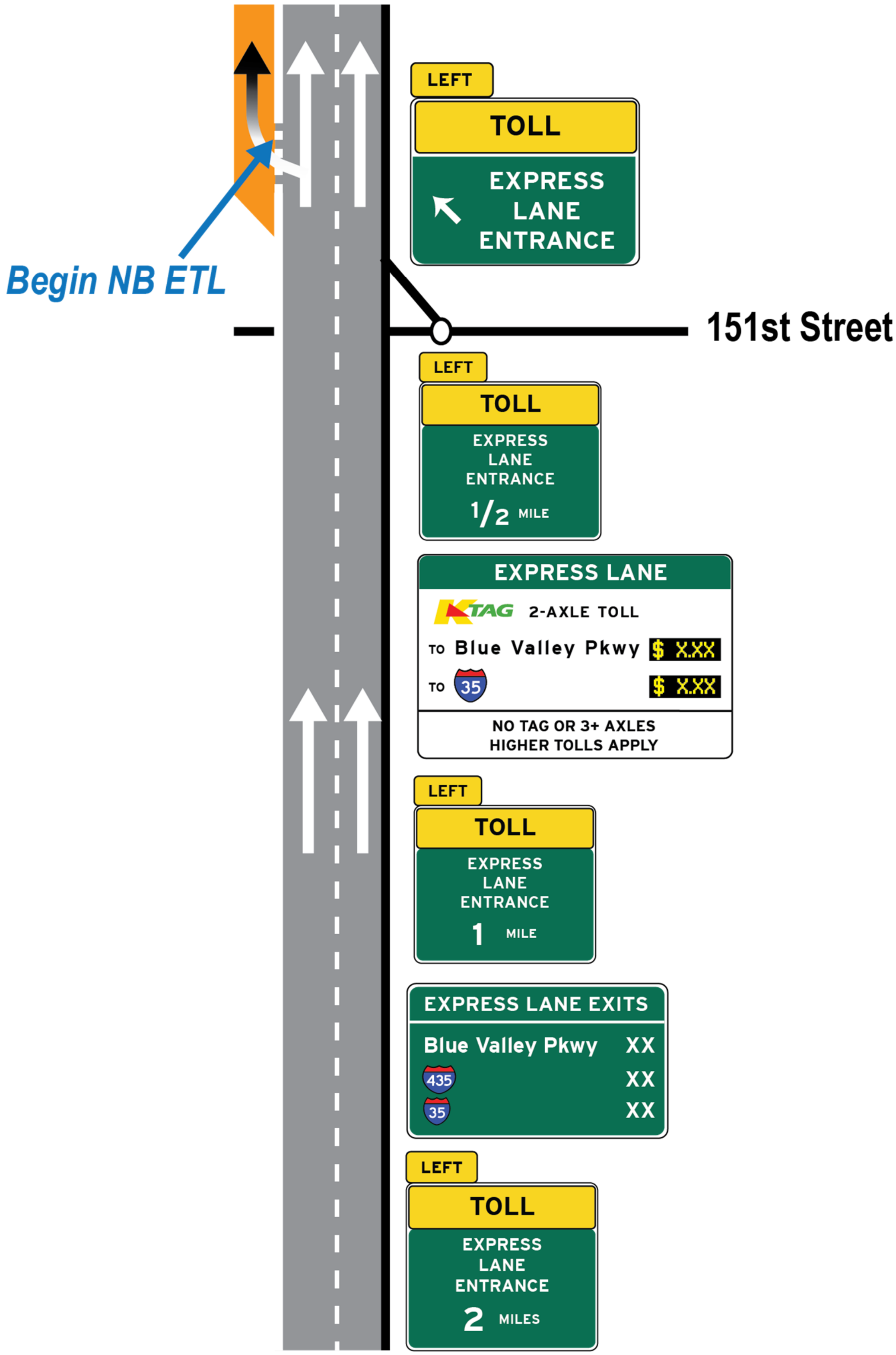
4.5 ETL Signage

Overhead and ground-mounted/roadside signs will be used along the U.S. 69 Express to guide motorists, display toll information, and indicate regulatory information. A combination of static and VTMSs will be provided at the entrance points, all points of ingress/egress and end points. All signage locations will be compliant with the Manual on Uniform Traffic Control Devices (MUTCD). Each VTMS will be a combination of a static sign with one or two electronic Variable Message Sign inserts, utilized to display specific toll rates for ETL segments.

Signage at Entry Points

A sequence of advance overhead signs will be installed in advance of U.S. 69 Express entry points to advise motorists of the approaching ETL entrance, potential exits, toll rate information and toll collection options. The advanced signage will be erected over the left GP Lanes. Figure 4-5 presents example signage to be located at the NB ETL entrance during Phase 1 (just north of 151st Street).

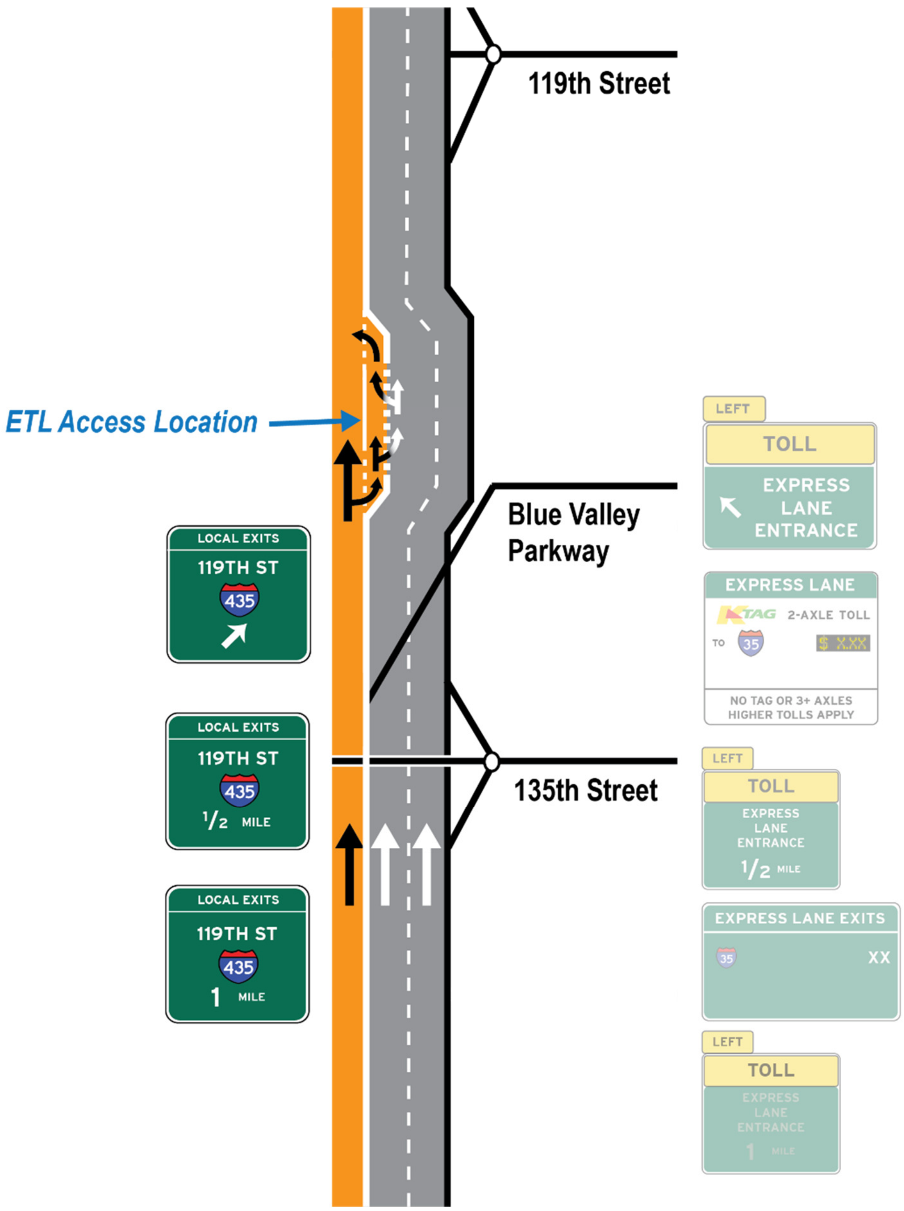
Figure 4-5: ETL Entrance Signage



Signage at Intermediate Ingress/Egress

At locations of intermediate access to and from (ingress/egress) the ETLs, signs will be installed in advance of the access locations to advise motorists of the approaching opportunity to enter or exit the ETL. For motorists in the GP Lanes, overhead static signs and VTMSs will be erected to indicate the entrance, potential exits and toll rate information. For motorists in the ETL, signs will be erected in the median to advise of exit locations and potential downstream destinations. Signage for the NB intermediate ingress/egress lane just north of BVP are depicted in Figure 4-6.

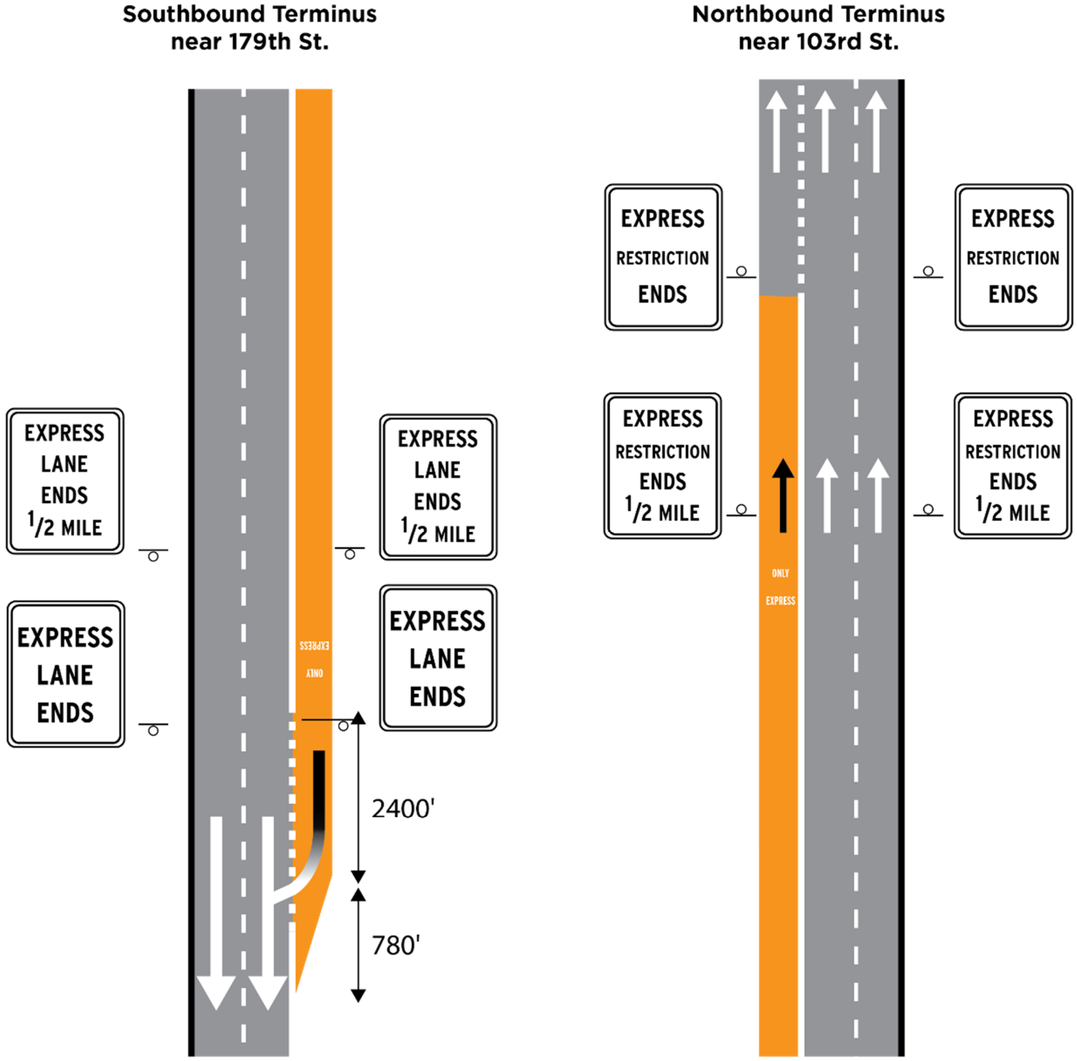
Figure 4-6: ETL Intermediate Ingress/Egress Signage



Signage at End Points

A sequence of ground-mounted or overhead signs will be installed in advance of U.S. 69 Express end points to advise motorists of the approaching ETL terminus. The signs will be located both in the median and to the right of the outside shoulder for the understanding of all motorists. For SB motorists (for both Phase 1 and Phase 2) end-point signage will indicate that the lane is ending, and a merge is required. For NB motorists, corresponding signage will indicate that the ETL restriction will be ending, but the lane will continue north as a GP Lane. Both situations are, as depicted in Figure 4-7.

Figure 4-7: Express Lane Exit Signage



Ancillary Signage

Additional corridor signage will be required to communicate specific requirements or restrictions associated with the ETLs. These ancillary, ground-mounted signs will be erected at regular intervals along the U.S. 69 Express Corridor. Figure 4-8 presents representative ancillary signage regarding buffer restrictions.

Figure 4-8: Ancillary Signage

4.6 Lighting

Overhead highway lighting (in accordance with ANSI/IES standards) will be provided on the ETLs in select locations to improve safety and minimize motorist confusion. Although lighting considerations have not been finalized, it is expected that a mix of conventional and high-mast lighting will be provided continuously from the northern end of U.S. 69 Express to 135th Street. Between 135th Street and 179th Street, lighting should be provided at all access locations and interchanges. Lighting provided at interchanges will adhere to KDOT’s standard specifications.

5.0 TOLL STRATEGIES

This section describes various fundamental strategies that will be used to support the operations of the ETLs. These operational strategies are intended to ensure that users of the project corridor are provided with a reliable travel option, especially during typical hours of congestion.

5.1 Eligible Vehicles

The 69 ETLs will not have any Vehicle Class restrictions on vehicles eligible to use the Express Lanes. All classes of motorized vehicles, including passenger cars, motorcycles, box trucks, tractor-trailer trucks, and vehicles with an item in-tow (e.g., boat, trailer, recreation vehicle, etc.) will be eligible to use the 69 ETLs when the lanes are not closed. As a result, the following concepts will apply:

- The structure of the toll rate scheme will be based, in part, on Vehicle Classes and the scheme will clearly be messaged to the public (e.g., roadway signage, website, etc.)
- The RTCS will not only detect vehicles but also classify vehicles and apply the proper toll rate based, in part, on Vehicle Class
- In an effort to identify vehicles and vehicle owners by license plates:
    - The RTCS will capture and process both rear and front images of vehicles
    - The RTCS and BOS will identify and process license plate characters, jurisdiction and plate-type (for jurisdictions were plate type is necessary)
- Vehicle Class restriction enforcement will not be required

Note that pedestrians and non-motorized vehicles (e.g., bicycles) will not be allowed on the ETLs.

Kansas statute 68-20,120 (h) states that “tolls shall be charged on all users of the toll project or turnpike project regardless of class, size or kind of traffic.” As a result of this, the ETLs also will not have any vehicle occupancy requirements and vehicles with multiple occupants will be charged the same toll rate as Single Occupancy Vehicles (SOVs). As a result, the following concepts apply:

- The structure of the toll rate scheme will not be based in any part on vehicle occupancy
- Drivers will not be required to declare vehicle occupancy
- The RTCS will not be required to detect vehicle occupancy
- Vehicle occupancy enforcement will not be required

In addition, no toll rate discount will be given for electric vehicles (EVs) or low emission vehicles (LEVs).

The ETLs will not be a “Transponder only” facility and will not require users to be pre-registered before they use the ETLs. The toll for a vehicle using the ETL will be able to be paid either by 1) the use of a valid and accepted Transponder associated with a valid pre-registered toll account or by 2) the use of a captured legible image of the vehicle’s license plate.

The Transponders that will be accepted for use on the ETLs will be the same as the Transponders currently accepted for use on KTA's toll facilities as follows:

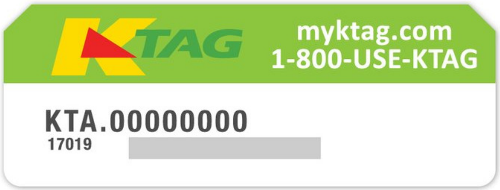
- K-TAG (KTA)
- BancPass (authorized by KTA; issued through local retailers)
- PIKEPASS (Interoperable via Oklahoma Turnpike Authority (OTA))
- TxTag (Interoperable via Texas Department of Transportation (TxDOT))
- EZ TAG (Interoperable via Harris County Toll Road Authority (HCTRA))
- TollTag (Interoperable via North Texas Tollway Authority (NTTA))
- BancPass (authorized by and Interoperable via TxDOT; issued through Texas retailers)
- NATIONALPASS
- Bestpass
- PrePass

It is anticipated that as national toll interoperability continues to increase more Transponders will be accepted on the ETLs as KTA adopts these interoperability changes.

The use of license plates for toll collection will be based on KTA's Business Rules, including Business Rules related to VTolls billing/invoicing and pursuing out-of-state plates.

The following figure (Figure 5-1) shows the sticker version of KTA's K-TAG that customers will mount on the inside surface of the windshield of their vehicle.

Figure 5-1: KTA's Sticker K-TAG



5.2 Modes and Hours of Operations

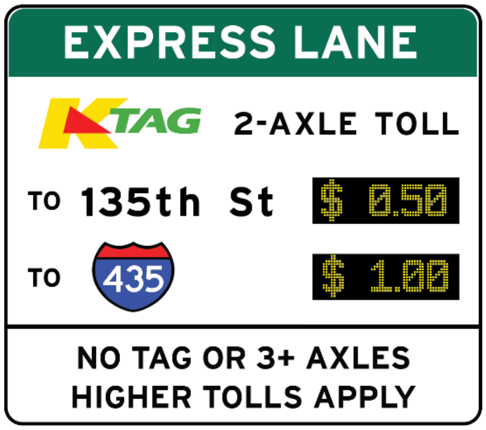
The ETLs will, independently by direction and by segment, be operated in one of the following modes:

- Normal Operations
- Tolls Waived
- Express Lane Closed

The ETLs will typically be open to traffic and operating in normal operations mode 24 hours a day, 7 days a week. In normal operations mode, the toll rates displayed on the VTMSs and charged to users will be variable essentially resulting in a range of toll rates with the highest toll rates being charged during highest traffic congestion periods and the lowest toll rates being charged during lowest traffic congestion periods in order to manage traffic and maintain the desired Level of Service (LOS) in the ETL.

The following figure (Figure 5-2) is an example VTMS that indicates the toll rate related to various destinations for users of the ETL.

Figure 5-2: Example VTMS Indicating ETL Normal Operations



There can be times when one or more ETL segments are operated in a “tolls waived” mode. During a “tolls waived” mode, the respective toll rates will be set to $0.00, the respective VTMSs will be set to display “FREE”, and vehicles will be able to use the ETLs free of charge (regardless of traffic conditions). This mode will commonly be used when a major traffic incident has occurred in the GP Lanes and traffic is being diverted into the ETL for incident traffic management. It is anticipated the normal operations mode would apply during all minor traffic incidents.

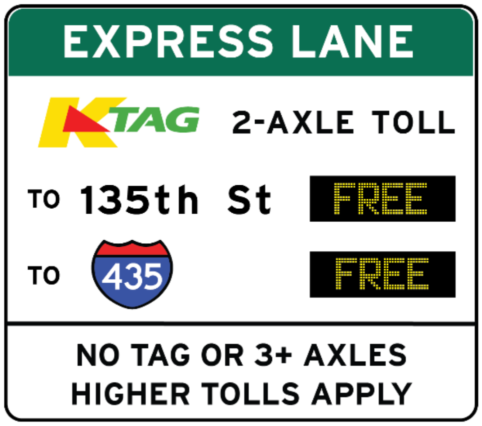
The following figure (Figure 5-3) shows a condition where vehicles were forced to use the Express Lane in order to circumvent an incident that occurred in the GP Lanes.

Figure 5-3: Example of GP Lanes Incident

Source: Central Texas Regional Mobility Authority

The following figure (Figure 5-4) is an example VTMS that indicates “FREE” during a condition of no toll being charged for ETL usage.

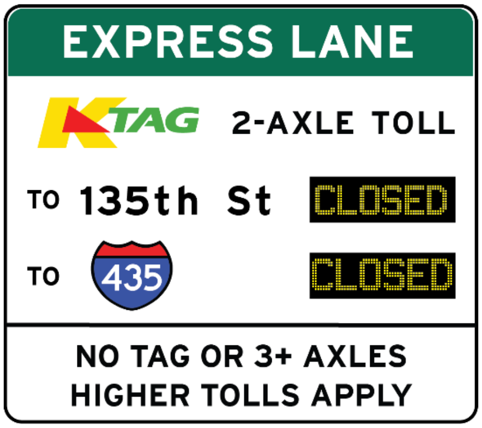
Figure 5-4: Example VTMS Indicating ETL Tolls Being Waived



There can also be times when one or more ETL segments are operated in a "closed" mode. This mode will commonly be used when maintenance is required to be performed on the RTCS and it is required that vehicles not use the respective ETL segment(s). It is expected that the periods of planned routine maintenance of RTCS equipment located in or around the ETLs will be limited in frequency and duration and would typically occur during off-peak hours.

The following figure (Figure 5-5) is an example VTMS indicating that one of the upcoming segments is closed to traffic making the respective destination inaccessible via the ETL.

Figure 5-5: Example VTMS Indicating a Closed ETL Segment



If and when one or more ETL segments are in the Express Lane Closed mode of operations, the RTCS will still be used to detect, record and capture images of a vehicle that enters and violates the closed ETL condition. Based on relevant statutes, Business Rules, and coordination with KTA and law enforcement, the data and images can result in closed lane violation notices being issued.

5.3 Toll Rate Fundamentals and Exempt Vehicles

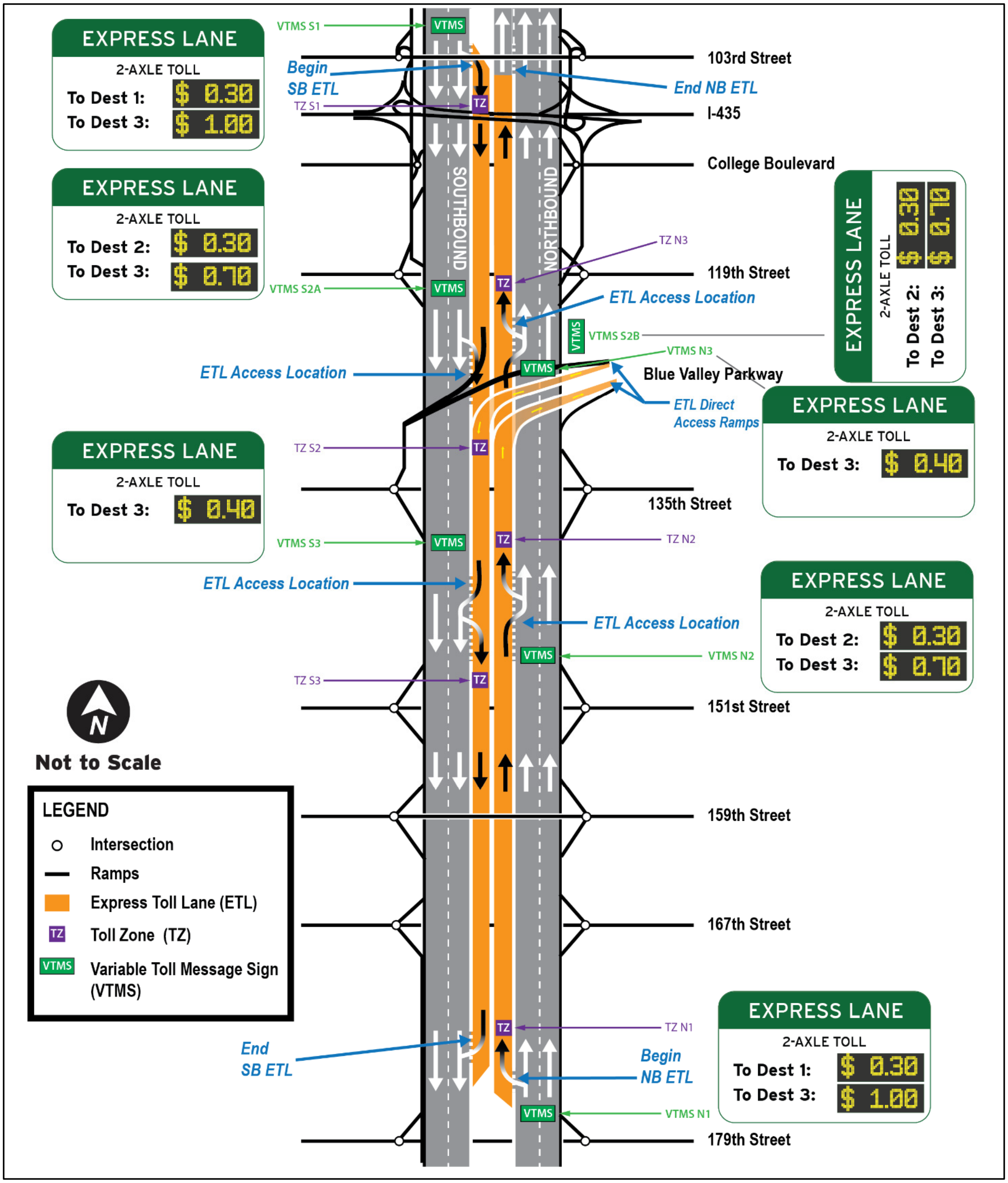
The RTCS will use a variable pricing toll rate structure to manage the operations of the ETLs in an effort to maintain a minimum desired LOS in the ETLs, especially during the corridor's peak hours of travel. The system will include traffic sensors typically located every half mile throughout the corridor which will detect and record traffic conditions (in both the ETLs and GP Lanes). It is anticipated that the toll rates will vary based on the dynamic traffic data and an algorithm using pre-configured parameters. A future toll rate policy will be developed that details the process for monitoring traffic and changing toll rates.

In addition to being based on the concept of variable pricing, the complete toll rate structure (commonly referred to as the Toll Rate Schedule) for the ETLs will also be based on:

- Trips (origin/ingress and destination/egress locations and segments traveled)
- Vehicle Class (based on the vehicle's number of axles)
- Method of toll collection (Transponder or license plate)

The following figure (Figure 5-6) depicts the U.S. 69 corridor, including the U.S. 69 Express Lanes. The depiction is not to scale and includes functional locations of ingresses and/or egresses, Toll Zones and VTMSs (conceptually generalized).

Figure 5-6: U.S. 69 Corridor Diagram (with U.S. 69 Express Lanes)



For the purposes of the Toll Rate Schedule, each ETL direction is divided into segments based on the ingress and egress locations. The Toll Rate Schedule will include toll rates for each segment and the toll amount charged to a vehicle will be determined by the segments traveled on during the vehicle's one-way trip which will start at an ingress (entrance) location and ends at an egress (exit) location.

The following table (Table 5-1) lists the ETL segments, by construction phase and direction of travel. Note that the segment designation code below for each segment matches the designation of the segment's Toll Zone (see figure above, Figure 5-6).

Table 5-1: ETL Segments - Details

Construction Phase	Travel Direction	Segment Designation Code	Abbreviated Segment Designation	Northern Terminus	Southern Terminus	Length (approx.)	Ingress
Phase 1	NB	N2	151st to BVP	119th St./BVP	151st St.	2.25m	between 151st St. & 135th St.
		N3	135th to 103rd	103rd St.	119th St./BVP	3.72m	between 135th St. & 119th St.
	SB	S1	103rd to 135th	103rd St.	119th St./BVP	3.72m	near 103rd St.
		S2	BVP to 151st	119th St./BVP	151st St.	2.25m	between 119th St. & 135th St.
							via BVP DC
added in Phase 2	NB	N1	179th to 151st	151st St.	179th St.	4.52m	near 179th St.
	SB	S3	151st to 179th	151st St.	179th St.	4.52m	between 151st St. & 135th St.

The following table (Table 5-2) lists all of the possible ETL trips, by construction phase and direction of travel. Note that the segments identified in the trip descriptions below help show how the trips map to segments (and Toll Zones).

Table 5-2: ETL Trips

Construction Phase	Travel Direction	Trip Designation Code	Trip Designation (abbreviated	Trip Description [associated Segment(s)]
Phase 1	Northbound (NB)	NB2A	151st to BVP	151st to BVP/119th/I-435 [N2]
		NB2B	151st to 103rd	151st to End ETL (north of 103rd) [N2+N3]
		NB3	135th to 103rd	135th to End ETL (north of 103rd) [N3]
	Southbound (SB)	SB1A	103rd to 135th	Begin ETL (north of 103rd) to 135th [S1]
		SB1B	103rd to 151st	Begin ETL (north of 103rd) to 151st [S1+S2]
		SB2A	BVP to 151st	119th/BVP to 151st [S2]
added in Phase 2	Northbound (NB)	NB1A	179th to 151st	179th to 135th [N1]
		NB1B	179th to BVP	179th to BVP/119th/I-435 [N1+N2]
		NB1C	179th to 103rd	179th to End (north of 103rd) [N1+N2+N3]
	Southbound (SB)	SB1C	103rd to 179th	Begin ETL (north of 103rd) to End ETL (179th) [S1+S2+S3]
		SB2B	BVP to 179th	119th/BVP to End ETL (179th) [S2+S3]
		SB3	151st to 179th	135th to End ETL (179th) [S3]

In summary, the framework for the Toll Rate Structure is represented by the table below (Table 5-3). Note again that toll rates for trips (see Table 5-2) are determined by aggregating the toll rates of the related segments.

Table 5-3: Toll Rate Structure Framework

			Transponder		Pay-by-Plate (PbP)	
Travel Direction	Segment Designation Code	Abbreviated Segment Designation	2 Axles (Variable Priced Base Rate (VPBR))	3+ Axles (n = number of axles)	2 Axles	3+ Axles
NB	N2	151st to BVP	$VPBR_{N2}$	$(VPBR_{N2})$ X (n-1)	$VPBR_{N2}$ + PbP adder	[$(VPBR_{N2})$ X (n-1)] + PbP adder
	N3	135th to 103rd	$VPBR_{N3}$	$(VPBR_{N3})$ X (n-1)	$VPBR_{N3}$ + PbP adder	[$(VPBR_{N3})$ X (n-1)] + PbP adder
SB	S1	103rd to 135th	$VPBR_{S1}$	$(VPBR_{S1})$ X (n-1)	$VPBR_{S1}$ + PbP adder	[$(VPBR_{S1})$ X (n-1)] + PbP adder
	S2	BVP to 151st	$VPBR_{S2}$	$(VPBR_{S2})$ X (n-1)	$VPBR_{S2}$ + PbP adder	[$(VPBR_{S2})$ X (n-1)] + PbP adder
NB	N1	179th to 151st	$VPBR_{N1}$	$(VPBR_{N1})$ X (n-1)	$VPBR_{N1}$ + PbP adder	[$(VPBR_{N1})$ X (n-1)] + PbP adder
SB	S3	151st to 179th	$VPBR_{S3}$	$(VPBR_{S3})$ X (n-1)	$VPBR_{S3}$ + PbP adder	[$(VPBR_{S3})$ X (n-1)] + PbP adder

The framework above is based on the following concepts:

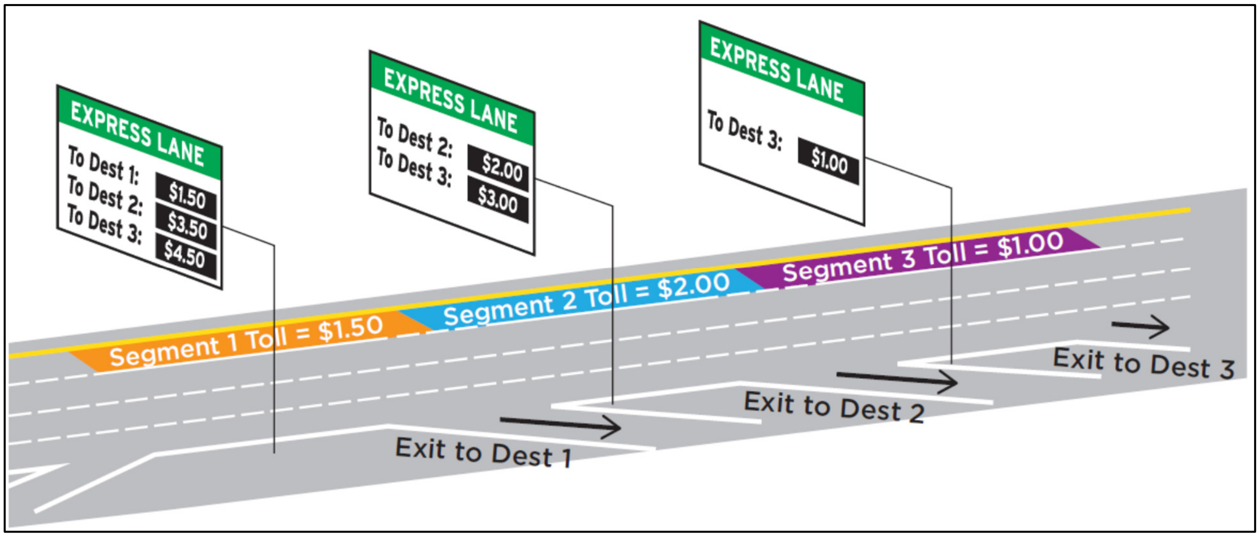
- VPBR for each segment is the toll rate a 2-axle vehicle is charged to use the segment (as displayed on the VTMS; dependent on traffic/time-of-use).
- A vehicle with more than 2 axles is charged the respective VPBR multiplied by (n-1), where "n" is the vehicle's number of axles (a vehicle with 3 axles, for example, pays twice the respective VPBR since (n-1) = 2).
- An additional surcharge (which can be a fixed amount or a percentage-based amount, depending on the adopted toll policy) is added to the toll ("PbP adder") for a vehicle that does not have a valid Transponder and is billed by KTA's PbP process. Note that the most recent commissioned

traffic and revenue study assumes a 50% surcharge for PbP vehicles (to cover the additional cost of processing transactions and collecting tolls through mailed invoices).

It is anticipated that the future adopted toll policy will determine how the actual VPBRs and surcharge are initially established and periodically adjusted.

The following figure (Figure 5-7) depicts the trip-based toll pricing concept. For example, a vehicle that enters the ETL at the beginning (i.e., start of Segment 1), travels only on Segment 1 and exits to Destination 1 will pay the toll only for Segment 1 ($1.50 in this example); while a vehicle that enters the ETL at the beginning (i.e., start of Segment 1), travels all three segments and exits to Destination 3 will pay the sum of all three segments ($4.50 in this example). In summary, a vehicle is only charged a toll for the actual segment(s) they use during their trip on the ETL.

Figure 5-7: Trip-Based Toll Pricing



The trip-based toll pricing also includes the following concepts:

- The toll amount charged for a vehicle that uses the ETL is based on the toll amount(s) displayed on the VTMS where it entered the ETL. If a vehicle passes a subsequent VTMS during its trip in the ETL, the information displayed on that other VTMS does not impact the toll amount charged.
- Since the toll rate is variable, (i.e., the rate varies based on traffic congestion and/or time-of-day), if the system changes the toll rate after a vehicle passes the VTMS but prior to passing the initial Toll Zone, the toll rate charged will be the lesser of the two rates.

It is anticipated that the adopted toll policy will allow the following vehicles to be exempt from tolls and use the ETL for free (commonly referred to as Exempt Vehicles):

- Registered transit vehicles: based on the adopted toll policy and Business Rules, these vehicles will require to pre-register prior to using the ETLs (and must use the ETLs with a provided Transponder or the license plate on file)

- Emergency/First-Responder vehicles: based on the adopted toll policy and Business Rules, these vehicles will either be required to pre-register prior to using the ETLs or will be visually identified and processed as an Exempt Vehicle during the Image Review process.

Any legitimate Exempt Vehicle that is inadvertently charged a toll can have the toll waived if the customer follows KTA's toll dispute process and related Business Rules.

6.0 ROADSIDE TOLL COLLECTION SYSTEM

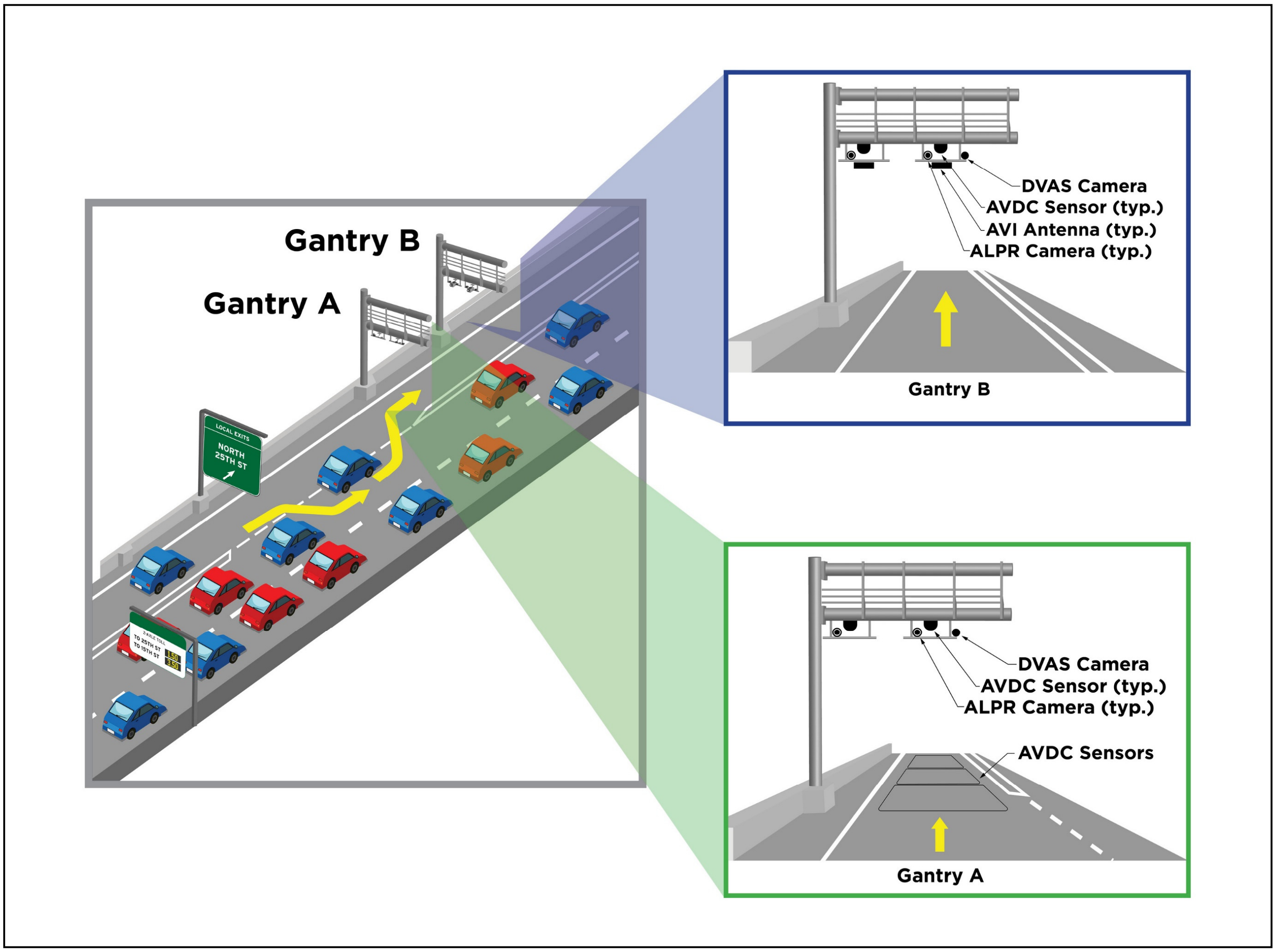
The RTCS will be based on proven technology commonly used on tolling and managed lanes projects and will includes various subsystems that are designed, installed and integrated together in a manner that supports determining and displaying variable toll rates, toll collection and traffic management. The subsystems associated with each Toll Zone will be integrated with a set of redundant high-availability computers located near each Toll Zone, commonly referred to as the Zone Controllers. The Zone Controllers at each Toll Zone throughout the corridors will be networked together and communicate with a set of central RTCS host computer servers (commonly referred to as the central host server) that collect, process and manage all of the transactional data and images from the Toll Zones and eventually forward the information to the BOS for the purpose of toll collection. The RTCS's major subsystems located in and on the corridor will be as follows and are described in further details below:

- Automatic Vehicle Detection and Classification (AVDC)
- AVI
- Image Capture and ALPR Cameras
- DVAS
- Toll Zone Security Monitoring Cameras
- Traffic Sensors
- VTMSs
- VTMS Monitoring Cameras
- Traffic Monitoring Cameras
- Supplemental Automatic License Plate Recognition (SALPR) Cameras

Various equipment related to the AVDC, AVI, image capture and DVAS subsystems will be installed on the Toll Zones gantries. See Figure 6.2 for a photo of a KTA ramp Toll Zone on which the ETL Toll Zone design will be based.

The following figure (Figure 6-1) depicts the major RTCS subsystem equipment that will be installed on the toll gantries at a typical ETL Toll Zone.

Figure 6-1: RTCS Equipment on Toll Gantries at a Typical Toll Zone



See Section 7.2 for additional infrastructure details regarding the Toll Zone gantries.

6.1 Automatic Vehicle Detection and Classification (AVDC)

The AVDC subsystem at each Toll Zone will consist of in-pavement loops and overhead scanners that will detect the presence of and determine the classification of each vehicle that passes through the Toll Zone. By detecting the presence of vehicles, the AVDC subsystem will assist in the proper creation of toll transaction records by accurately framing transactions, triggering image capture cameras, and correctly associating the captured transactional data and images to vehicles. The AVDC subsystem will also identify the number of axles each vehicle has and will classify the vehicle accordingly (i.e., 2-axle vehicle, 3-axle vehicle, etc.). Vehicle classification is needed to charge each vehicle the proper toll rate. The incorporation of multiple loops and scanners in each Toll Zone will provide redundancy which will help to minimize single points of failure and maximize system performance.

See Section 7.2 for additional infrastructure details regarding the Toll Zone gantries.

6.2 Automatic Vehicle Identification

The AVI subsystem at each Toll Zone will consist of Radio Frequency Identification (RFID) readers and overhead antennae that will detect and read Transponders in vehicles which pass through the Toll Zone. As a vehicle equipped with an acceptable Transponder (see Section 7.1) passes, the AVI subsystem will read the Transponder's unique identification number and communicate the Transponder's unique identification number to the Zone Controllers. In order to read the various acceptable Transponders, and also support the nation's advancement towards national toll interoperability, the AVI subsystem will includes tri-protocol readers and will be designed and configured to read SeGo (6B), 6C and IAG (TDM) protocol Transponders commonly used throughout the tolling industry.

See Section 7.2 for additional infrastructure details regarding the Toll Zone gantries.

6.3 Image Capture and ALPR Cameras

Each Toll Zone will also contain an image capture subsystem designed to capture and store front and rear images of each vehicle that passes through the Toll Zone. This subsystem will include:

- Front and rear high-resolution color ALPR cameras (and non-distracting illumination) that capture digital images of a vehicle's license plate(s)
- Computers (commonly referred to as image servers) that store and forward the captured images for further processing to identify license plate information (i.e., issuing jurisdiction (e.g., state), characters, and plate type)

As part of the image processing and information determination processes, ALPR software (using OCR) and vehicle identification and matching algorithms) will help to identify the needed information for each transaction. If, during this automated process, the system's confidence level regarding the accuracy of the identified information for any transaction falls below a configurable threshold, manual Image Review will be used to further to process the transaction's images.

See Section 7.2 for additional infrastructure details regarding the Toll Zone gantries.

6.4 Digital Video Audit System (DVAS)

Each Toll Zone will also contain a DVAS subsystem designed to capture and store continuous video of vehicles passing through the Toll Zone. This subsystem will include:

- Upstream and downstream facing cameras that capture continuous digital video of vehicles entering and exiting the Toll Zone
- Network Video Recorders (NVRs) that efficiently store (for no less than 90 days) the captured video (along with overlayed synchronized transactional data from the Zone Controllers) and allow remote Authorized Users to view both live and recorded streaming video.

The DVAS will be used primarily for system performance auditing but also can also be a tool to help research and resolve a variety of issues, including issues regarding Toll Zone equipment.

See Section 7.2 for additional infrastructure details regarding the Toll Zone gantries.

6.5 Toll Zone Security Monitoring Cameras

Each Toll Zone will also contain a security monitoring subsystem designed to capture and store video of potential security threats in and around the Toll Zone. This subsystem will include:

- Cameras facing critical Toll Zone areas that capture digital video triggered by security sensors
- Digital Video Recorders (DVRs) that efficiently store (for no less than 90 days) the captured video and allow remote Authorized Users to view both live and recorded video

The subsystem will be used to mitigate security threats and investigate security related events in and around the Toll Zones.

6.6 Traffic Sensors

The RTCS will include a traffic sensing and measuring subsystem consisting of traffic sensors installed along the U.S. 69 corridor essentially between the northern and southern limits of the ETLs. Traffic sensors will be located approximately every half mile and provide traffic sensing and measurement of not only the ETLs but also the GP Lanes at these locations. This subsystem will primarily be used to support traffic and incident management functionality and operations by measuring, recording and reporting lane occupancy, vehicle density and vehicle speeds for each individual lane to assist in determining the proper variable toll rate based on real-time traffic conditions. Secondarily, the subsystem will support traffic and incident management.

See Section 7.4 for additional infrastructure details regarding the poles on which the traffic sensors are installed.

6.7 Variable Toll Message Signs (VTMSs)

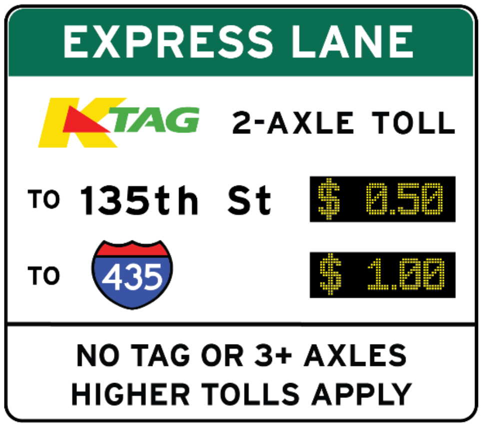
The RTCS will includes a subsystem consisting of VTMSs (often also referred to as toll rate signs) installed over the GP Lanes prior to each ETL ingress that will display toll rates (for 2-axle vehicles using valid Transponders) and short operational messages (i.e., “FREE” or “CLOSED”) to drivers. See Section 6.2 for more information regarding the various modes of operations and related VTMS messages.

Each VTMS will essentially be a hybrid sign comprised of a static sign panel with one or more full-matrix Light Emitting Diode (LED) display insets. One VTMS will be located prior to each ETL ingress location and will inform drivers in the GP Lanes of the prevailing toll rate for one or more possible destinations via the upcoming ETL. Since the amount of information that can be displayed on a single sign is limited, a VTMS will only accommodate up to two destinations. As such, if more than two destinations are possible for a given ingress location, the respective VTMS will includes information only for the nearest (also least expensive) destination and the furthest (also most expensive) destination.

In general, the toll rate information displayed on a VTMS will help a driver decide whether they want to enter and use the ETL or stay in the GP Lanes (non-tolled) to travel to their destination.

The following figure (Figure 6-2) depicts a typical VTMS.

Figure 6-2: Typical VTMS



See Figure 5-6 for a map that depicts the functional location of each VTMS in the corridor and the concept of signed trips.

The following table (Table 6-1) lists the VTMSs, by construction phase, direction of travel and associated segment.

Table 6-1: VTMSs

Construction Phase	Travel Direction	Segment Designation Code	Ingress	VTMS
Phase 1	Northbound (NB)	N2	between 151st St & 135th St	N2
		N3	between 135th St & 119th St	N3
	Southbound (SB)	S1	near 103rd St	S1
		S2	between 119th St & 135th St	S2A
			via BVP direct connector	S2B
Added in Phase 2	Northbound (NB)	N1	near 179th St	N1
	Southbound (SB)	S3	between 135th St & 151st St	S3

Note that due to the fact that SB segment S2 will have two different ingresses (one from the GP Lanes and one from BVP (via a direct connector)), VTMS S2A and VTMS S2B will be identical in both form and function and will display the same toll rates.

Also, see Figure 4-6 for a depiction of the typical ETL access signing concept which includes VTMSs.

The design and operation of the VTMS subsystem will also include the following concepts:

- Each VTMS will display new pricing/messages immediately upon receipt
- Authorized Users will have the ability to manually override automated pricing/messages (used, for example, during conditions involving incident management)
- Each VTMS will acknowledge the receipt and posting of new pricing/messages
- Each VTMS will have self-diagnostic capabilities and will detect and report malfunctions
- Each VTMS will be able to use historical toll rate information to generate a locally-stored default time-of-day toll rate table which will become effective in the event of loss of communications to the VTMS

6.8 VTMS Monitoring Cameras

The RTCS will also include a VTMS monitoring subsystem which will consist of a camera installed at each VTMS location designed to provide a real-time view of the VTMS and to capture and store images of toll rate and operational mode changes displayed on the VTMS. This subsystem will include:

- Cameras that provide real-time digital video of each VTMS
- NVRs that efficiently store (for no less than 180 days) the captured video-based images (along with overlayed time and location information) and allow remote Authorized Users to view both live streaming video and recorded images.

These cameras will be time-synchronized to the RTCS and will provide the means for Toll Operations Center (TOC) operators to visually confirm that the VTMS displays are correct. This subsystem will also serve as a tool that can potentially help research and resolve customer disputes related to toll rates.

6.9 Traffic Monitoring Cameras

The RTCS will also include a traffic monitoring subsystem consisting of pan/tilt/zoom (PTZ) CCTV cameras installed along the U.S. 69 corridor essentially between the northern and southern limits of the ETLs. Although KDOT has similar traffic monitoring cameras in the corridor (operated by KC Scout), these additional RTCS-specific traffic monitoring cameras will be designed and located as follows:

- One camera with an unobstructed and appropriate view of each ingress location to help monitor the traffic entering the ETLs
- Additional cameras to ensure full camera-view coverage of the ETLs to help with incident detection and management

The design and operation of this traffic monitoring subsystem will also incorporate the following concepts:

- TOC operators will have primary PTZ control of each camera
- Camera views will be shared with KC Scout
- Video from these cameras will not be recorded

See Section 6.3 for additional infrastructure details regarding the traffic camera poles.

6.10 Supplemental ALPR (SALPR) Cameras

The RTCS will also include a supplemental ALPR (SALPR) subsystem consisting of some additional ALPR cameras installed along the ETLs at various traffic sensor stations (these stations will provide the SALPR cameras with access to power and network communications).

This subsystem will be designed to capture and store rear images of each vehicle that passes by the SALPR camera in order to determine if the vehicle has possibly entered the ETL at a location other than an appropriate ingress location (commonly referred to as a toll avoidance violator). This subsystem will include:

- High-resolution color ALPR cameras (and non-distracting illumination) that capture digital images of a vehicle's rear license plate
- Computers (commonly referred to as image servers) that store and forward the captured images for further processing to determine identifying license plate information (i.e., issuing jurisdiction (e.g., state), characters, and plate-type)

Similar to the Toll Zones' image capture and ALPR cameras subsystem, ALPR software (using OCR) and vehicle identification and matching algorithms) will help to identify the needed information for each image captured by the SALPR cameras. If, during this automated process, the system's confidence level regarding the accuracy of the identified information for any image falls below a configurable threshold, manual Image Review will be used to further to process the image.

See Section 6.4 for additional infrastructure details regarding the poles on which SALPR cameras will be installed.

In addition to the RTCS elements described above, including the various major subsystems, Zone Controllers, and central host server, the RTCS will also include components that support the following TOC functionality:

- Transaction processing, including Image Review, trip-building and pricing
- BOS interfacing and Reconciliation
- Monitoring and auditing
- System maintenance management
- Toll rate and traffic management
- Reporting and dashboards

See Section 11 for additional details regarding these operational functionalities.

7.0 TOLL INFRASTRUCTURE

The design and construction of the infrastructure that supports the installation and operations of the ETLs RTCS will be based on proven concepts commonly used on tolling and managed lanes projects.

7.1 Toll Zones

A Toll Zone is the physical location on a tolled facility where AET equipment is installed, including on one or more overhead gantry structures, in order to detect, identify and classify vehicles using the toll facility for the purpose of toll collection. For the 69 Express facility, a Toll Zone will typically be located immediately after each ETL ingress location. See Figure 5-6 for the functional location of each ETL Toll Zone.

The U.S. 69 Express facility will contain six Toll Zones (one associated with each segment). The following table (Table 7-1) lists each Toll Zone (and associated segment), by construction phase and direction of travel.

Table 7-1: ETL Toll Zones

Construction Phase	Travel Direction	Toll Zone	Toll Segment	Segment Designation (abbreviated)
Phase 1	Northbound (NB)	N2	N2	151st to BVP
		N3	N3	135th to 103rd
	Southbound (SB)	S1	S1	103rd to 135th
		S2	S2	BVP to 151st
added in Phase 2	Northbound (NB)	N1	N1	179th to 151st
	Southbound (SB)	S3	S3	151st to 179th

Note that the pavement in the Toll Zone area will be concrete, be at least 75-feet in length, contain minimal steel (to minimized interference with the RTCS's in-pavement AVDC sensors), and comply with KTA's Toll Zone pavement design standards.

Figure 7-1 below is a photo of a KTA ramp Toll Zone on which the U.S. 69 Express Toll Zone design is based.

7.2 Toll Gantries

Each Toll Zone will include a pair of overhead cantilevered twin-arm style gantry structures (commonly referred to as toll gantries) on which various RTCS equipment will be installed. As vehicles traveling in the ETL pass under the toll gantries, the RTCS will detect, identify, and classify each vehicle to a high degree of accuracy. The design of the ETL's toll gantries will be based on a KTA ramp Toll Zone (see Figure 7-1) and will comply with KTA's toll gantry design standards.

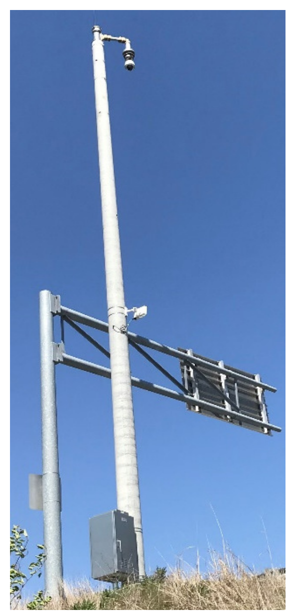
Figure 7-1: Photo of a KTA Ramp Toll Zone

7.3 Traffic Camera Poles

Where RTCS traffic cameras will not be installed on sign structures, toll gantry structures or other similar structures, the RTCS traffic cameras will be installed on dedicated spun-concrete poles. These poles will be of sufficient height to provide adequate views of the corridor for the purpose of incident detection and traffic management. These poles will also include internal wireways, camera mounting provisions, pole mounted cabinets, lightning protection, and integrated camera lowering devices. In addition, these traffic camera poles will comply with KDOT's ITS standard design details and specifications.

Figure 7-2 is a photo of a typical KDOT spun-concrete pole with ITS traffic monitoring camera.

Figure 7-2: Photo of a KDOT ITS Traffic Monitoring Camera



7.4 Poles for Traffic Sensors and SALPR Cameras

The RTCS infrastructure will include poles on which RTCS traffic sensors and SALPR cameras will be installed. These traditional ITS-style galvanized steel poles will typically be located in the corridor's median (either base mounted or barrier mounted) and will be of sufficient height to allow each installed sensor (typically two per pole, one per travel direction) to perform properly (i.e. by detecting traffic in all directional travel lanes (i.e., ETL and GP Lanes serving the same direction)). Any SALPR camera will be typically mounted lower than any of the traffic sensors in a manner that allows the camera to capture "side-fire" rear-view images of passing vehicles. These poles will also include internal wireways, sensor mounting provisions (up to two sensors per pole), camera mounting provisions (up to two cameras per pole), and pole-mounted cabinets. In addition, these poles will comply with KDOT's ITS standard design details and specifications.

Figure 7-3 is a photo of an example traffic sensor pole with dual sensors and a pole mounted cabinet.

Figure 7-3: Photo of a KDOT ITS Traffic Sensor Station

7.5 Roadside Equipment Huts

The RTCS infrastructure will include a toll equipment hut located at each Toll Zone installed on a concrete foundation with barrier protection and provisions for the safe parking of a maintenance vehicle. These traditional ITS-style huts will typically be located off of the GP Lanes' right shoulder within the corridor's ROW no further than 125-feet from the Toll Zone gantries (distance limitation is due primarily to AVI reader-to-antenna cable length restrictions). These huts will provide a secure and environmentally controlled location to house various RTCS Toll Zone equipment, including Zone Controllers, AVI readers, DVAS services, ALPR servers, DVRs, NVRs, network communications devices, and Uninterruptible Power Supplies (UPSs). The huts will also include electrical power panels, HVAC equipment, and security provisions. In addition, these huts will comply with KTA's design standards.

Figure 7-4 is a photo of roadside toll equipment hut at a KTA ramp Toll Zone on which the 69 ETL Toll Zone design is based.

Figure 7-4: Photo of a KTA Roadside Toll Equipment Hut

7.6 Communications Network

The RTCS's supporting infrastructure will include robust, reliable, and secure data communications networks. The architecture and design will include supporting the following communication needs:

- Roadway Network (fiber-based)
- RTCS to TOC
- RTCS to TMC
- RTCS to BOS (KTA's BOS)

7.7 Electrical Power

The RTCS's supporting infrastructure will include typical electric utility power provisions that provide required electrical power to the RTCS equipment. The planning, design, and installation of these provisions will be coordinated with KDOT and the local electric utility provider and will comply with applicable standards and codes. Where practical, multiple equipment locations (e.g., Toll Zone and nearby traffic monitoring camera) can be served by the same electric utility power drop/meter if distances allow.

The electric power provisions will not include any permanent generators. Instead, the design, installation, and operations of the Toll Zones and VTMSs will include provisions for connecting portable generators to provide backup electrical power to essential equipment. The RTCS provider's scope of work will include providing, operating, and maintaining portable generators. In addition, the Toll Zones will also include provisions for uninterruptible power supplies (UPSs) that will provide electric power conditioning along with some limited backup electric power.

7.8 Maintenance Vehicle Parking Areas

The design and installation of each Toll Zone will include provisions for a maintenance vehicle parking area adjacent to the roadside equipment hut. The design of the parking areas will consider safety for both maintenance personnel and roadway traffic.

8.0 INTELLIGENT TRANSPORTATION SYSTEM

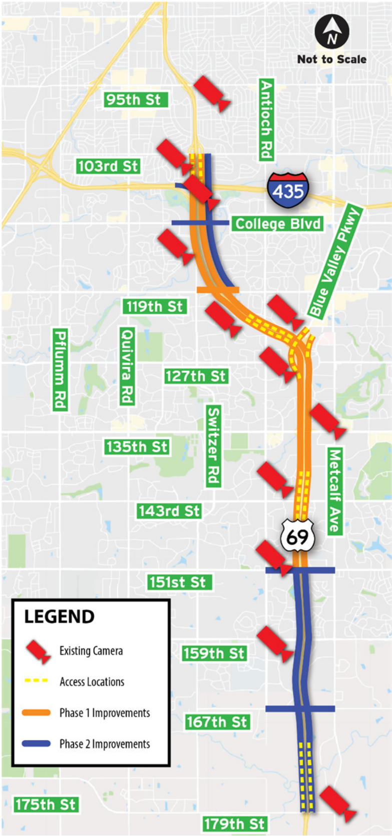
ITS technologies are used to enhance transportation safety and mobility. While there are many different ITS technologies, the existing and planned technologies focus on reducing the impact of traffic incidents and providing drivers information to help them make good, well informed, travel decisions. Traffic flow sensors are used to identify anomalies in normal traffic flow that may indicate a traffic incident. When traffic incidents are identified, traffic monitoring cameras along the roadway allow operators at the TMC to manage the incident in coordination with the first responders. The TMC operators also share the incident warning information with drivers through DMSs along the roadway and web-based applications. The overall objectives are to reduce the impact of traffic incidents by reducing their duration and reducing secondary crashes resulting from incident related congestion.

8.1 Traffic Monitoring Cameras

Traffic monitoring cameras are deployed along a roadway corridor to provide video of traffic operations. Typically, video from these cameras is primarily viewed by operators at the TMC, but it can also be shared with other traffic operations agencies, first responders and the public. The monitoring cameras have pan, tilt, and zoom capabilities to allow the full roadway to be viewed and to zoom in on traffic incidents when needed.

Along the U.S 69 corridor there are existing traffic monitoring cameras deployed that provide nearly a complete view of the corridor as far south as 199th Street. The cameras are controlled by the KC Scout TMC operators and the video from the cameras is shared with the City of Overland Park. The video can also be viewed on the KC Scout website. The existing cameras are mounted on a mixture of steel and spun concrete poles. Figure 8-1 shows the general camera locations.

Figure 8-1: Existing Camera Locations



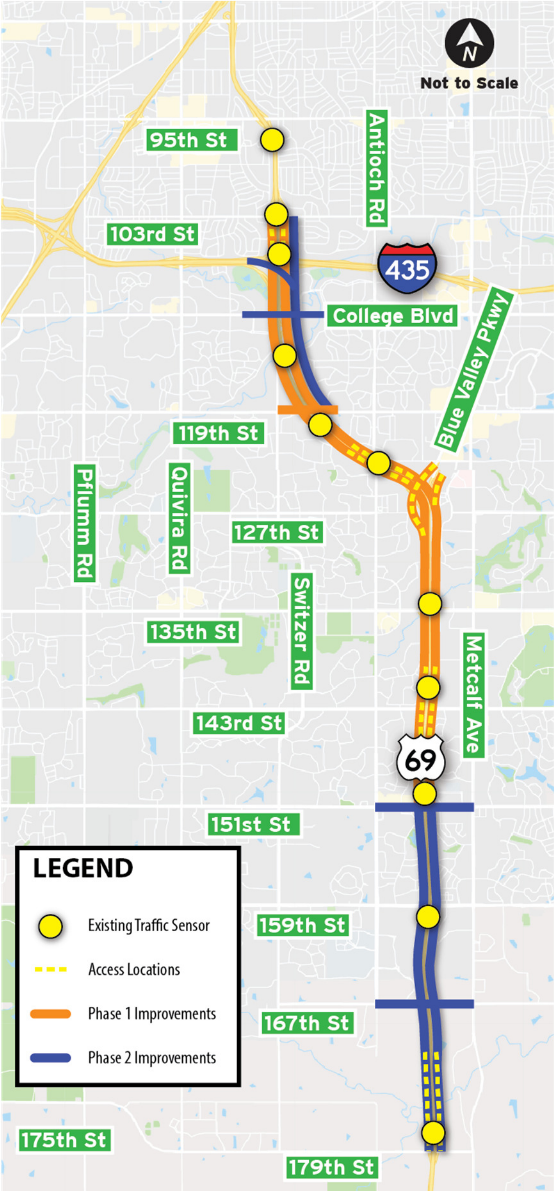
To facilitate the operations of the Express Lanes, supplemental traffic monitoring cameras will be deployed and operated by the RTCS vendor to provide video surveillance of the Express Lanes ingress and egress points and Toll Zones. The RTCS vendor will also deploy additional traffic monitoring cameras along the corridor to allow them to better monitor the corridor and manage the ETL operations. Video from the supplemental traffic monitoring cameras will be shared with KC Scout and the City of Overland Park. The RTCS vendor will retain primary control of these cameras to ensure they can use them as they need to manage the Express Lanes operations.

8.2 Traffic Flow Monitoring

While there are various technologies that can be used for traffic flow monitoring the currently preferred technology are radar-based units that measure speeds, volume, and lane occupancy at points along the roadway. This data is used to identify congestion based on speeds dropping below free flow speeds and the density of vehicles per lane increasing. Congestion development can occur at bottlenecks where traffic volume nears and exceeds the roadway capacity. This is considered recurring congestion because the congestion develops generally in the same locations and at the same time each weekday. The other type of congestion is non-recurring, which results when the roadway capacity is reduced by a traffic incident.

In conjunction with most of the cameras along the U.S. 69 corridor, the KC Scout system has radar detection units. The yellow dots on Figure 8-2 are the locations where there is a radar detector. KC Scout uses these detectors to monitor traffic flow to identify congestion. The speed data collected is also used to develop estimated travel times along the corridor that are posted on DMSs.

Figure 8-2: Existing Traffic Sensors



Traffic flow monitoring is critical for the Express Lanes. Traffic flow must be monitored to ensure that free flow conditions can be maintained through dynamic pricing. If a real-time dynamic pricing scheme is implemented the toll rates will be set based on traffic flow data collected by the sensors. Even if a fixed variable rate toll scheme is used, the traffic flow data is needed to make periodic adjustments to the toll rate based on recent traffic flow conditions. Because the traffic flow data is critical to the Express Lanes operation, the toll system operator will deploy and maintain traffic flow sensors primarily for the setting toll rates. These traffic sensors will collect both Express Lane and GP Lane traffic flow data. The traffic flow data from the sensors will be shared with KC Scout.

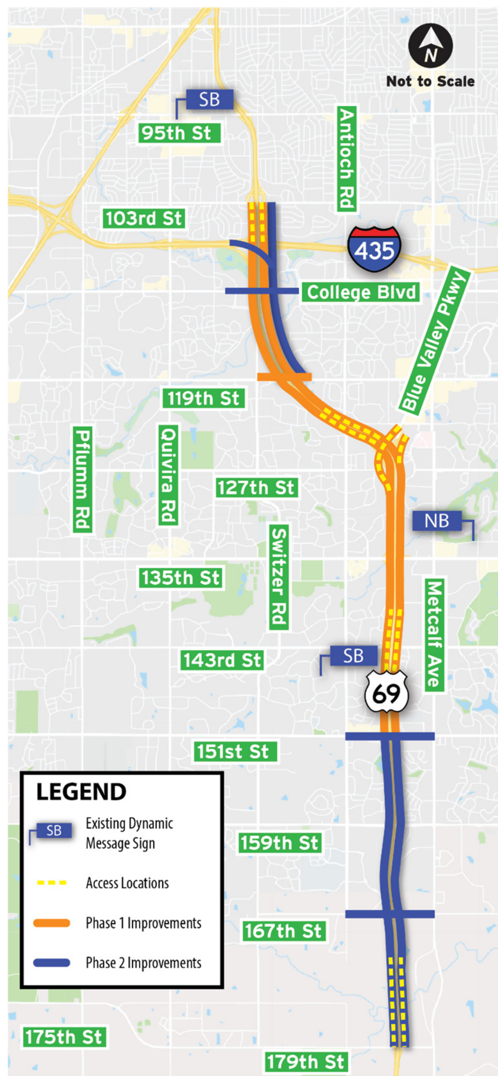
8.3 Dynamic Message Signs

DMSs are used to provide motorists traffic related messages as they drive down the road. The messages can be used to make drivers aware of traffic incidents or provide other information on traffic flow. The KC Scout system provides estimate travel times to downstream destinations on DMSs. The Express Lanes will use hybrid static/DMSs to provide current toll rates. These signs are discussed in Section 6.7. These signs use LED matrix displays to provide the variable messages.

The KC Scout system has three DMSs serving the project corridor. As shown in Figure 8-3, two are in the SB direction. One SB sign is just north of 95th Street and the other is just south of 143rd Street. The NB sign is located north of 135th Street. These signs provide travel time messages and safety messages during normal traffic operations. When traffic incidents occur, the signs will display messages providing information on the incident.

The Express Lanes will have VTMSs providing toll rate information, which are discussed in more detail in Section 7.7. There will not be any additional general purpose DMS deployed with the Express Lanes project.

Figure 8-3: Existing Dynamic Message Signs



8.4 Communications Network

To allow ITS technologies to function and provide their benefits a communications network is required. The communications network transmits data and video between ITS devices in the field and the TMC. The communications network can also transmit data and video between TMCs. Communications networks are primarily fiber-optic based networks with some supplemental wireless communications. A fiber-optic based network provides the bandwidth required to communicate data and video from many ITS devices and is more reliable than a wireless network.

The existing KC Scout communications network is a fiber-optic based metro area network that generally has a star topology. Along the section of the U.S. 69 corridor south of 135th Street a daisy chained ring topology is used. In this area, fibers in a private telecom company's (Lumen) cables are used to make the network connections. KDOT has access to these fibers in exchange for letting Lumen locate their fiber infrastructure in KDOT limited-access ROW. The agreement with Lumen also provides KDOT access to empty conduits in the Lumen installed duct bank. North of 135th Street a KDOT-owned 48-strand fiber optic cable is installed in one of the KDOT conduits in the Lumen duct bank.

A fiber-optic based communications network for U.S. 69 Express is needed to support ITS devices and the toll system. This network will provide network connections to cameras, VTMSs and traffic flow sensors. The same network will support the toll system operations. The ability of the Express Lanes to collect the Expected Revenue through tolls is critical, so this network must be robust to limit communications downtime. Given this critical nature a separate communications network for the Express Lanes will be implemented.

Using conduit from the Lumen duct bank, to which KDOT has access, was considered to carry the Express Lanes communications network fiber optic backbone, but it was decided that a new conduit duct bank would be installed. Use of the KDOT conduits in the Lumen duct bank would present challenges. To access the KDOT conduit in the Lumen duct bank, new splice vaults would need to be installed along the duct bank. Installing the new splice vaults would require on-site coordination by Lumen, which can be a scheduling challenge. The continuity of the KDOT conduits is also a consideration. Some conduit repairs would likely be needed. Experience using these conduits at other locations has found the need for some conduit repairs to have a continuous conduit run along a corridor.

8.5 Traffic Management Center

With the ETLs being constructed adjacent to the GP Lanes only separated by a striped buffer, traffic operations are directly linked. Traffic incidents in the Express Lanes will impact traffic operations in the GP Lanes and traffic incidents in the GP Lanes will likely impact the Express Lanes operations. Given this direct link, traffic operations management and incident management in the Express Lanes corridor will remain the responsibly of the KC Scout TMC. The KC Scout TMC will not be responsible for operation of the RTCS. The RTCS vendor will be responsible for managing the RTCS. The RTCS vendor will have a TOC. The TOC could be an existing facility the vendor operates, or it could possibly be co-located with KTA. This location and functionality will be determined during development of the RTCS technical requirements.

Coordination/Communications with Express Lanes Operations Center

When there are incidents that impact traffic operations in the Express Lanes corridor, the KC Scout TMC will need to coordinate with the Express Lanes operations center. Operators at the KC Scout TMC will need to notify the Express Lanes operations center when there is an incident. The incidents can be planned or unplanned. Planned incidents would include roadway construction or maintenance in the corridor or major events that will impact traffic demand. For these planned incidents coordination will occur prior to the incident. Unplanned incidents are primarily traffic crashes. They can impact the GP Lanes, the ETLs or both. Given the unplanned nature of these incidents the coordination required will be real-time once the incident is identified and continue as the incident is managed and cleared.

Some incidents impacting the Express Lanes corridor may warrant closure of the Express Lane or operating the lane toll free. Definitive protocols will be needed to be developed for when these scenarios are implemented. Developing these protocols will involve policy decisions balancing safety concerns against revenue loss concerns. These protocols must be developed before the Express Lanes are opened.

Coordination/Communications with Law Enforcement

Coordination and communications with law enforcement for the Express Lanes corridor will not change from the current process. Currently the KC Scout TMC, Overland Park Police and the Kansas Highway Patrol have well established coordination and communications protocols for dealing with traffic incidents. The addition of the Express Lanes will not impact the coordination and communications.

9.0 ENFORCEMENT

Traffic law enforcement helps to reduce automobile crashes and thereby the resulting injuries, fatalities, and damage to property. The City of Overland Park Police Traffic Safety Unit and the Kansas Highway Patrol are responsible for enforcing traffic laws in the U.S. 69 corridor. The addition of the Express Lanes will not change these responsibilities.

The Express Lanes will be separated from the GP Lanes by solid double white lines that are only broken at ingress/egress locations. State statues and Overland Park ordinances need to be reviewed and revised if needed to make crossing a double white line a traffic offense. The penalty for the offense of crossing the double white line must be made significant enough to deter drivers from accessing the express lane by crossing the double white line.

Access to the ETLs will not be limited to certain types of vehicles, so enforcement of vehicle type limitations will not be required. With video tolling there also is not a need for enforcement concerning users of the ETLs that do not have a compatible toll tag Transponder since the video tolling system will capture images of license plates of vehicles to allow collection of revenue from users without a toll Transponder.

A final potential area of enforcement is habitual express lane users that do not pay the tolls that they owe. On roadway enforcement will not initially be used to deal with unpaid tolls. Administrative processes will be used to collect the unpaid tolls. It is not anticipated at this time that law enforcement will be required to do this type of enforcement. Depending on the success of the administrative process after opening the ETL, this decision may need to be revisited to address habitual users that fail to pay.

9.1 Roles and Responsibilities

The Overland Park Police Department and the Kansas Highway Patrol are responsible for enforcing the local ordinance and state statute limiting access to the Express Lanes at designated ingress and egress locations. The local ordinance and state statute will not allow drivers to cross the double white line. Within the Overland Park Police Department, the Traffic Safety Unit is primarily responsible for enforcement of traffic ordinance violations. The Overland Park Police Department Traffic Safety Unit will have the primary responsibility of enforcement of the prohibition on crossing the double white line to ensure safe ETL operations and payment of tolls are not evaded.

9.2 Roadway Accommodations for Enforcement

As discussed above, ETLs focused enforcement is limited to ticketing drivers that cross the double white lines to access the toll lanes along sections not defined and delineated as ingress and egress locations. This enforcement can be done by officers driving in traffic or parked on either the outside or inside shoulders. The proposed roadway cross section has a twelve-foot wide shoulder on the outside and a ten-foot wide shoulder on the inside of the travel way, so there is sufficient room for parking when needed. Wider enforcement parking areas were discussed but were determined to not be needed.

9.3 Enforcement Technologies

Enforcement technologies that have been used for toll lanes include no toll tag alert beacons at Toll Zones, in-vehicle no-toll-tag alerts and habitual unpaid toll system user alerts. The two no-toll-tag alert system options are triggered when a vehicle without a toll tag passes through a Toll Zone. This type of enforcement is not needed with video tolling, so the technology is not needed. The unpaid toll system alerts would notify enforcement officers when a user with a significant number of unpaid tolls passes through a Toll Zone. As discussed above, on-roadway enforcement action to address unpaid tolls will not be done at this time, so notification of users that habitually do not pay their tolls will not be needed. This real-time notification technology can be added in the future if roadway enforcement actions are needed.

9.4 Traffic Codes

Currently, State of Kansas statues and City of Overland Park ordinances do not prohibit crossing of a double white line, so the state traffic statues must be revised to make crossing a double white line a traffic violation with a significant penalty for the offence. KDOT will need to work with the Kansas Legislature to modify the state statues. Similarly, the Overland Park Public Works Department and the Police Departments will need to work with the city council to pass a new ordinance.

10.0 ROADWAY OPERATIONS AND MAINTENANCE

Safe and effective roadway operations and maintenance considers the overall process of managing and overseeing the wide range of functions, duties, responsibilities, and activities necessary for tolled facilities such as U.S. 69 Express.

10.1 ETL Hours of Operations

The ETLs will operate 24 hours a day, 7 days a week for both directions of travel. Being fully open to toll traffic will help maximize the efficiency of traffic operations and the overall performance of both the Express Lanes and the GP Lanes, as well as minimize driver confusion regarding the ETLs.

10.2 Roadway Maintenance

Roadway maintenance includes removing debris from the roadway, snow plowing, roadway repair, signing repairs, pavement markings and other activities and is essential for the successful operations of the facility. KDOT will provide for all roadway infrastructure maintenance on U.S. 69 Express and considerations should be made to establish standards for roadway maintenance, including clear goals that can be used to guide and monitor the maintenance processes and procedures. Special attention should be paid to routine debris removal from the ETL, shoulder and buffer zone. This will likely require frequent (e.g. monthly) sweeping cycles for these areas.

10.3 Facility Monitoring

KC Scout operations personnel at the TMC will be assigned to monitor U.S. 69 Express and will be responsible for checking the lanes for disabled vehicles, coordinating the removal of disabled vehicles (or other debris) from the lanes, and completing incident reports as required. KC Scout personnel may also be responsible for (as impacting U.S. 69 Express functionality) coordinating work with KDOT forces and coordinating construction and/or maintenance activities. A project-specific communications plan will be developed to identify necessary agency contacts and defining the proper protocol for notifying the various entities.

10.4 Incident Management

Incident management will play a critical role in ensuring that the U.S. 69 ETL provide a reliable trip option to customers. Incidents in the ETL and GP Lanes can result in long delays as well as safety concerns regarding debris and secondary incidents. A comprehensive incident management plan will be developed prior to the opening of the ETL and should describe the process of coordinating the resources of KDOT, KC Scout, KTA, City of Overland Park, Kansas Highway Patrol and all contractors involved to detect, respond to, and clear traffic incidents as quickly as possible to reduce the impacts of incidents on safety and congestion, while protecting the safety of on-scene responders and the traveling public.

10.5 Special Events and Emergency Management

Toll-paying customers expect an enhanced travel experience at all times, but especially during recurring congestion (i.e. peak hours) and non-recurring congestion (e.g. incidents or special events). The incident management plan should address travel time reliability, toll charges during special events and the process for notifications and authorization to adjust or waive toll charges. In the case of a catastrophic event (natural or man-made), U.S. 69 Express should be opened to all motorists (toll-free use). It is expected that law enforcement would be available during such events to provide guidance to the travelling public accordingly.

11.0 SYSTEMS OPERATIONS AND MAINTENANCE

The overarching goal regarding the operations and maintenance of the various 69 ETL systems will be to ensure safe and predictable travel on the U.S. 69 corridor (within the project limits). Although many elements of the RTCS operations and maintenance will be highly automated, operators and maintenance staff will be provided with system functionality that will allow them to monitor the system and manage traffic real-time in an effort to achieve this goal. Efficient and effective system functionality along with proper system maintenance will help ensure that system performance is as expected and that the operations can be performed as needed.

The RTCS will include functionality that supports the following operations and maintenance efforts:

- Toll transaction processing, including Image Review, trip-building and pricing
- BOS interfacing and reconciliation
- Monitoring and auditing
- System maintenance management
- Toll rate and traffic management
- Reporting and dashboards

11.1 Toll Transaction Processing

From the RTCS perspective, toll transaction processing begins with the generation and collection of data and images at the Toll Zones. It ultimately results in a complete data record (commonly referred to as a fully formed transaction) and image set for the trip of each vehicle that uses the ETLs being transmitted to KTA's BOS for further processing and toll payment collection.

The RTCS operations will include the following elements regarding toll transaction processing:

- Image Review: refers to the system functionality and operational processes related to reviewing (using automation (e.g., OCR) and, when necessary, manual review) captured images of license plates associated with vehicles that used the ETL in order to determine License Plate Data (i.e., the license plate's issuing jurisdiction/state, characters, and plate type)
- Trip-building: refers to the system functionality and operational processes related to combining (using automation and, when necessary, manual review) transaction information from individual Toll Zones associated with a vehicle's trip on the ETL into a single transaction record representative of the trip
- Pricing: refers to the system functionality and operational processes related to assigning the correct toll rate information (using automation and, when necessary, manual review) to trip transactions based on the date, time, trip origin/destination, and Vehicle Class

Some of the key data elements included in a fully formed transaction are as follows:

- Trip details (i.e., from a system perspective, indication of which Toll Zones the vehicle passed through during its trip; from a customer's perspective, description of the vehicle's origin and destination)
- Date and timestamp
- Vehicle Class
- Transponder number (if a Transponder was read)
- License Plate Data (if a license plate was used to build the trip)
- Toll rate information
- Data that correlates all the images associated with the trip

The complete listing of data elements included in a fully formed transaction, and the format of those data elements, will be specified in an agreed-upon RTCS-to-BOS Interface Control Document (ICD) (see below).

11.2 BOS Interfacing and Reconciliation

The RTCS operations will include system functionality and processes that support the system-to-system interfacing between the RTCS and BOS. The design and operations of this interface will be based on and comply with requirements that will be developed for the project and specified in documents such as the Business Rules, ICD, and TSA. The interface will support the transmission of data and images between the RTCS and BOS and the operations will reconcile the information to ensure the transmissions are complete and accurate.

11.3 Monitoring and Auditing

The RTCS operations will include system functionality and processes that support RTCS monitoring and auditing. The system will be monitored by both automation (e.g., traffic incident alerts, MOMS alarms and alerts (see below), etc.) and operations personnel to ensure the system is performing as expected, including meeting the required KPIs. The RTCS will also be audited routinely to ensure the system is performing as expected and verify that the system performance is not degrading over time.

11.4 System Maintenance Management

The RTCS operations will include system functionality and processes that support and manage system maintenance. Proper system maintenance will help ensure that system performance is as expected and that the operations can be performed as needed. The RTCS will include an integrated Maintenance On-line Management System (MOMS) that will monitor the status of various equipment and system processes and send an alert and/or generate an alarm when issues are detected. Also, the MOMS will include:

- Maintenance ticket creation (automatically and manually) and management
- Response time and repair time recording and reporting
- Spare parts inventory management

- Remote diagnostics capability

11.5 Toll Rate and Traffic Management

The RTCS operations will also include system functionality and processes that support toll rate and traffic management. Fundamentally, the traffic will be managed through toll rates and although the adjusting of the variable toll rates (which will be displayed on the VTMSs and charged to users) will usually be highly automated, operators will be provided with system functionality that will allow them override the system determined toll rates as necessary according to an approved toll rate policy. The operators will be able to view and monitor each VTMS using the dedicated VTMS monitoring cameras and the system will record all toll rate changes. It will be important for the operators to closely monitor the toll rates and traffic during peak-hours.

11.6 Reporting and Dashboards

The RTCS will also include system functionality that supports the generation of operational reports and dashboards. Dashboards will allow authorized users and operators to quickly view various KPIs and easily ascertain if any issues are occurring. Reporting functionality will allow authorized users and operators to generate pre-determined reports and ad-hoc reports needed to support the operations. The suite of reports will include system and operational performance reports, financial reports, and traffic reports.

12.0 MEASURING SYSTEM EFFECTIVENESS

12.1 Key Performance Indicators and Goals

The performance of the 69 Express Lanes system and operations will be measured against the following KPIs and goals:

Table 12-1: KPIs and Goals

KPI	Goal
Travel-time Reliability	45 MPH for 90% of the time over a 180-day monitoring period during morning and evening weekday peak hours
Customer Issues	The quantity of daily customer contacts received by the CSC indicating an issue with the ETLs diminishes over time
Image Review Backlog	The Image Review queue does not contain any transaction older than 2 business days
Trip-building Backlog	The trip-building queue does not contain any transaction older than 4 business days
Transaction Transfer and Reconciliation	All transactions older than 5 business days have been transferred to the BOS, acknowledged, and reconciled
RTCS Availability	Each month, the RTCS is available 99.99% of the time, excluding scheduled maintenance outages
AVI Accuracy	The RTCS accurately reads and assigns Transponders for at least 99.90% of all vehicles that pass through any ETL Toll Zone
AVDC Accuracy	The RTCS accurately detects and classifies at least 99.80% of all vehicles that pass through any ETL Toll Zone
Image Capture Accuracy	The RTCS accurately captures and correlates legible license plate images (at least 1 front-view image of the vehicle and 1 rear-view) for at least 99.90% of all vehicles that pass through any ETL Toll Zone
Image Review Accuracy	99.80% of all transactions that are Image Reviewed are Image Reviewed accurately

While this table provides an initial list of KPIs, it should be noted that additional KPIs will be added as the project advances and policies, agreements and technical specifications are finalized.

12.2 Performance Assessment

The system and operational performance against the KPIs will continually be measured, monitored, and reported. KPIs will also be routinely assessed, and modified as needed, to ensure efficient operations and employment of best practices. The project will also include continued assessment of and, if necessary, improvements to the system and operations to ensure successful performance.

13.0 ROLES AND RESPONSIBILITIES

Critical to the long-term success of any toll project is the establishment and documentation of the governance, policies, operations and maintenance and communication guidelines and corresponding responsibilities. The following guidelines are based on KDOT's objectives for this project, and the perspectives of the City of Overland Park and the KTA.

- U.S. 69 Express is fundamentally a KDOT project and will remain a KDOT roadway.
- KDOT is funding the project.
- U.S. 69 Express will not become part of the KTA system.
- KDOT will partner in some manner with KTA to deliver this project that will consider the risks to both KDOT and KTA.

U.S. 69 ETLs introduce additional requirements which require KDOT and its partners to work collaboratively together to refine and implement. Therefore, it is important to clearly define roles and responsibilities for each agency. The Roles and Responsibilities table below (Table 13-1identifies the major roles anticipated for each party and whether they are in a lead or supporting role.

While this section does not provide an exhaustive list of all roles and responsibilities required for the project it does present many of the key activities necessary to establish early project direction and provides guidance for subsequent project needs, technical documents, and agency agreements.

An agreement between KTA and KDOT should establish the terms and conditions for toll system procurement, operating performance, customer services, transaction processing, and revenue management. The agreement should address covering all of KTA's necessary costs to perform the contracted activities.

The following table identifies the "lead" and, if needed, a "support" role for each responsibility. The lead is intended to be the entity principally in charge of the activity and ultimately responsible for either performing the task or ensuring its completion. The lead will be the contracting entity should an ensuing contract with a third party be necessary to complete the activity. The entity identified in a support role will assist the lead entity in completing the activities but will not have overall responsibility or contracting obligations.

Table 13-1: Roles and Responsibilities

Roles and Responsibilities	KDOT	KTA	Overland Park
Project Development and Delivery			
Project Planning and Environmental – coordinate with all stakeholders and secure necessary approvals and project permits	Lead		
Project Procurement – develop legal and technical contract documents and procure a design-builder for the roadway infrastructure improvements	Lead		
Contract Administration and Construction Oversight – manage and provide oversight of all design-builder activities	Lead		
Project Funding – provide necessary funds for construction, operations, and maintenance	Lead		Support
Project Policy – establish operating policy consistent with legal authority and department goals and objectives	Lead	Support	Support
Toll Policy and Toll Rates – determine operating parameters and toll policy that establishes toll rates	Lead		
Express Lane Toll Civil and ITS Requirements – develop technical specifications and contract requirements for the RTCS.	Support	Lead	
Roadside Toll System Procurement and Oversight – lead the procurement of the RTCS and provide oversight and contract administration during installation.	Support	Lead	
Operations and Maintenance			
Roadway Operations and Maintenance – provide routine roadway O&M for the entire corridor to include the GP Lanes and Express Lanes.	Lead		
Express Lanes Roadside Toll System O&M – provide oversight of the vendor operating and maintaining the RTCS to include equipment maintenance, Image Review, creating trip-based transactions, and dynamic pricing system operations.	Support	Lead	
Express Lanes Operations – monitor traffic and adjust the toll policy as needed to achieve department goals and objectives.	Lead	Support	
Back Office System (BOS) Development – provide necessary enhancements to the existing back office toll system to accommodate the express lane transactions.	Support	Lead	
Distribute Transponders and provide account management services – procure and distribute K-Tags and establish and maintain associated customer accounts.		Lead	

Roles and Responsibilities	*KDOT*	*KTA*	*Overland Park*
Back Office Transaction Processing and Invoicing – receive trip-based transactions from the Express Lanes and post to customer's accounts, process to/through Interoperable systems, and invoice customers including registered owner lookups.		Lead	
Customer Service – provide complete account management services including website and call center options for Express Lane users to receive payments, manage accounts and answer customer questions and disputes.	Support	Lead	
Violation Collections – provide collection services for unpaid invoices to include placing registration holds in accordance with established policy and procedures.	Support	Lead	
Roadway TMC Operations - continue to utilize KC SCOUT to monitor and communicate with emergency response operators.	Lead	Support	Support
Incident Management – respond to all roadway incidents to safely restore traffic flow.	Lead	Support	Support
Express Lane Violation Enforcement – provide law enforcement to monitor illegal movements in/out of the Express Lanes in addition to general traffic law enforcement.	Support		Lead
Performance Monitoring and Reporting – collect data and compile the information, analyze results, and produce reports detailing traffic, operations, and revenues.	Lead	Support	Support
Communications and Marketing			
Project Spokesperson – provide a spokesperson authorized to communicate on behalf of KDOT.	Lead		
Community Outreach – meet with the community and provide information on impacts during project development and construction along with educational materials for Express Lanes operations.	Lead	Support	Support
Marketing and Branding – develop project branding and execute a marketing plan in advance of the Express Lanes opening.	Lead	Support	Support
Customer Communications: Policy and Roadway – provide updated information on toll rate changes, Express Lane modifications, and general roadway information such as closures and construction updates.	Lead		
Customer Communications: Toll Payments – provides information related to customer accounts, toll charges, and invoices.		Lead	

Appendix 5

U.S. 69 Express Lanes Level 2 Traffic and Toll Revenue Study

US 69 Express Lanes

Level-2 Traffic and Toll Revenue Study

DRAFT | JUNE 2021

Prepared for

Kansas Department of Transportation

HNTB

Prepared by

CDM Smith

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Disclaimer

CDM Smith used currently-accepted professional practices and procedures in the development of these traffic and revenue estimates. However, as with any forecast, differences between forecasted and actual results may occur, as caused by events and circumstances beyond the control of the forecasters. In formulating the estimates, CDM Smith reasonably relied upon the accuracy and completeness of information provided (both written and oral) by the Kansas Department of Transportation (KDOT) and HNTB. CDM Smith also relied upon the reasonable assurances of other independent parties and is not aware of any material facts that would make such information misleading.

CDM Smith made qualitative judgments related to several key variables in the development and analysis of the traffic and revenue estimates that must be considered; therefore, selecting portions of any individual result without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underlying methodologies used to obtain the results. CDM Smith gives no opinion as to the value or merit of partial information extracted from this report.

All estimates and projections reported herein are based on CDM Smith's experience and judgment and on a review of information obtained from multiple agencies, including the KDOT. These estimates and projections may not be indicative of actual or future values and are therefore subject to substantial uncertainty. Certain variables such as future developments, economic cycles, global pandemics and impacts related to advances in automotive technology etc. cannot be predicted with certainty and may affect the estimates or projections expressed in this report, such that CDM Smith does not specifically guarantee or warrant any estimate or projection contained within this report.

While CDM Smith believes that the projections and other forward-looking statements contained within the report are based on reasonable assumptions as of the date of the report, such forward-looking statements involve risks and uncertainties that may cause actual results to differ materially from the results predicted. Therefore, following the date of this report, CDM Smith will take no responsibility or assume any obligation to advise of changes that may affect its assumptions contained within the report, as they pertain to socioeconomic and demographic forecasts, proposed residential or commercial land use development projects and/or potential improvements to the regional transportation network.

CDM Smith is not, and has not been, a municipal advisor as defined in Federal law (the Dodd Frank Bill) to the KDOT and does not owe a fiduciary duty pursuant to Section 15B of the Exchange Act to the KDOT with respect to the information and material contained in this report. CDM Smith is not recommending and has not recommended any action to KDOT. KDOT should discuss the information and material contained in this report with any and all internal and external advisors that it deems appropriate before acting on this information.

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Chapter 1

Introduction

CDM Smith was contracted by HNTB on behalf of the Kansas Department of Transportation (KDOT) to conduct a Level-2 Traffic and Toll Revenue Study for the proposed tolled express lanes along the US 69 corridor between 179th Street and 103rd Street located in the City of Overland Park in Johnson County, Kansas. The purpose of this study is to develop traffic and toll revenue forecasts for the proposed US 69 express lanes that will be used to analyze the financial feasibility of the project.

1.1 Objective and Scope of Study

The following report details the data, methodology, and results of the Level-2 Traffic and Toll Revenue Study for the proposed US 69 express lanes. The study included the consideration of multiple express lanes configurations, updated demographic data provided by independent demographer EBP, and an enhanced toll diversion/market share model based on the latest 2050 travel demand model developed by Mid-America Regional Council (MARC), the Metropolitan Planning Organization (MPO) for the greater Kansas City region.

As part of the study, traffic data was collected along the US 69 corridor and within the project study area to understand the historical and current traffic profiles and travel demand patterns. The data was used to calibrate a 2019 base year model and establish key parameters that will drive the future demand for the proposed tolled express lanes. The key tasks undertaken as part of the various comprehensive data collection efforts included:

- Traffic counts collected along US 69 and several screen lines in 2016 (as a part of the 2018 US 69 Study, conducted by HNTB) and in 2020 (by GH Associates), and speed and delay data obtained from INRIX for 2019. These data, along with counts from other data sources (KDOT, MoDOT, Replica, StreetLight Data) were used to establish 2019 baseline traffic patterns in the study area for the purpose of calibrating the base year travel demand model to the conditions that existed before the onset of the COVID-19 pandemic in March 2020.

- Origin-Destination (O-D) data obtained from StreetLight Data for the entire year of 2019 to capture the trip characteristics along the US 69 corridor for use in evaluating and enhancing the trip tables obtained from the MARC travel demand models.

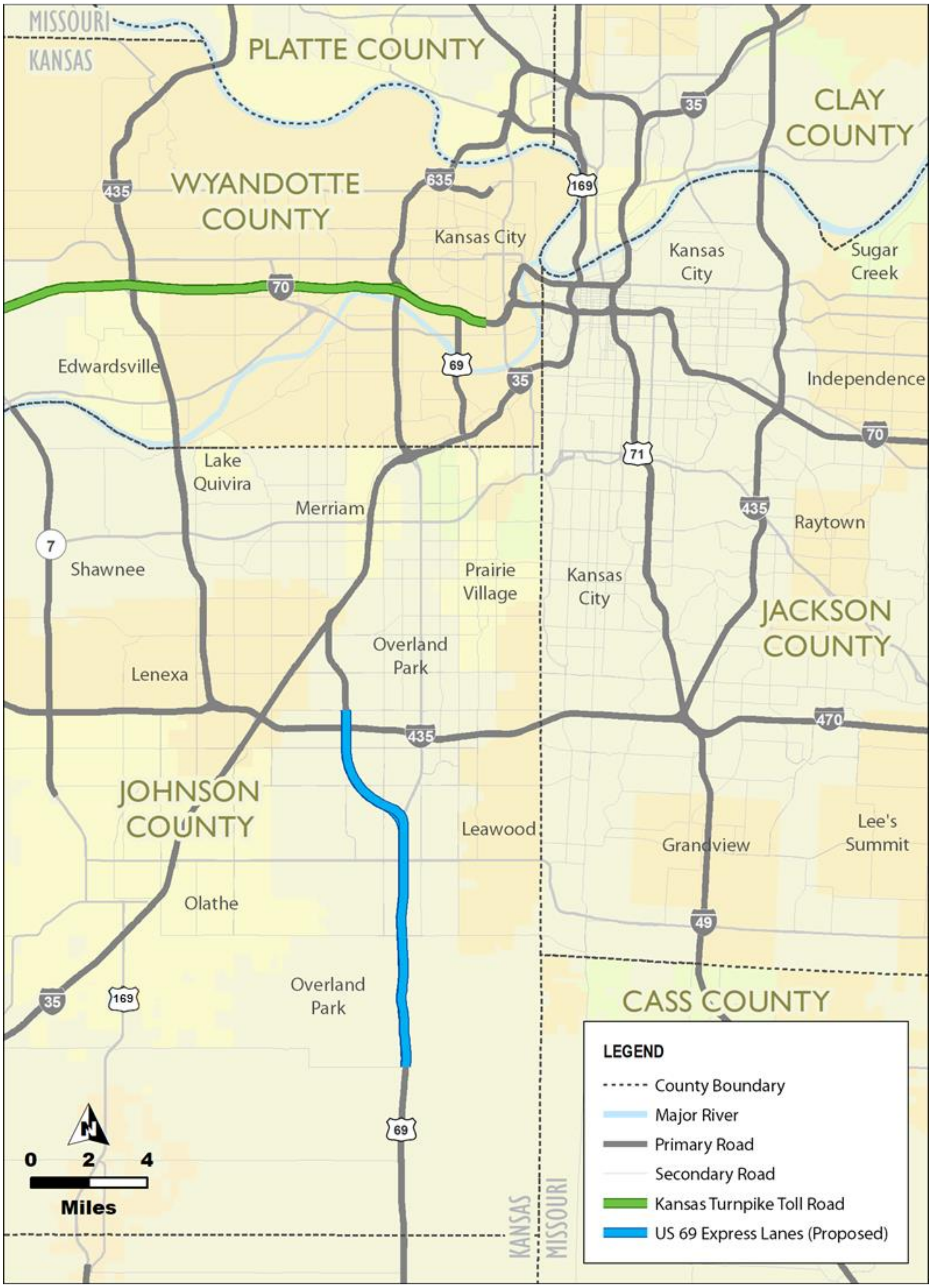
- Stated-preference (SP) surveys conducted in 2021 as a part of the study to investigate the willingness-to-pay characteristics of travelers in the study area and to capture other preferences affecting the use of the proposed express lanes. The survey asked travelers about information related to frequency of use of the US 69 corridor, demographic information, and stated preference tradeoff scenarios. This information was critical in developing and enhancing the toll diversion characteristics in the corridor. The resulting values-of-time (VOTs) and diversionary characteristics were reviewed and incorporated into the study.

The key tasks undertaken for the US 69 Level-2 Traffic and Toll Revenue Study also included a review of background material, an independent demographic analysis of regional growth, model development and calibration, and forecasting of the traffic and toll revenue for the proposed US 69 express lanes. In addition, a traffic and toll revenue sensitivity assessment was performed to evaluate the key parameters that may affect the future toll revenue potential of the proposed express lanes.

1.1.1 Existing Corridor Description

The US 69 study corridor shown in **Figure 1-1** is approximately 10.5 miles long and includes two general-purpose (GP) lanes in each direction. This section of US 69 falls entirely within Johnson County and runs parallel to US 169. It also tracks somewhat parallel to I-35, which runs diagonally across Johnson County from southwest to northeast, until they merge a few miles north of the US 69/I-435 interchange. No other interstate intersects the US 69 study corridor; however, the corridor is transected by several major arterials including 103rd Street, College Boulevard, 119th Street, Blue Valley Parkway, 135th Street, 151st Street, 159th Street, 167th Street and 179th Street, all of which have interchanges along US 69. Metcalf Avenue and Antioch Avenue are other major arterials running parallel to US 69 within a half-mile on either side of the corridor. Apart from residential development, the northern half of the corridor is also surrounded by corporate office parks, national chain restaurants, and businesses, making it one of the strongest employment centers in the Kansas City (KC) metro area. The entire corridor is surrounded by several residential neighborhoods primarily made up of subdivisions. The highest traffic volumes in the corridor are typically experienced during the peak AM and PM hours due to the thousands of individuals who live along the corridor and whose work destinations are scattered throughout the KC metro area.

Figure 1-1 US 69 Corridor Location



1.1.2 Proposed Express Lanes Configuration

The US 69 corridor proposed express lanes will include a single inside lane in both the northbound and the southbound direction. Under the Phase 1 Base Case, assumed to open in 2026, the express lanes will extend from north of 151st Street to just north of 103rd Street with an ingress/egress location just north of Blue Valley Parkway and a direct connection between the express lanes and

Blue Valley Parkway. There is also additional general-purpose lanes between 151st and Blue Valley Parkway as well as changes to the ramp configuration at 135th Street, including reconstruction to a diverging-diamond interchange. The configuration under Phase 2, set to open in 2040, will include the addition of an express lane extension at the southern end of the corridor from 151st Street to 179th Street. **Figure 1-2** through **1-5** show the proposed configuration of the US 69 express lanes for the Phase 1 Base Case and Phase 2, respectively.

Figure 1-2 US 69 Study Corridor – Express Lanes Phase 1 Base Case Configuration (103rd Street to Blue Valley Parkway)

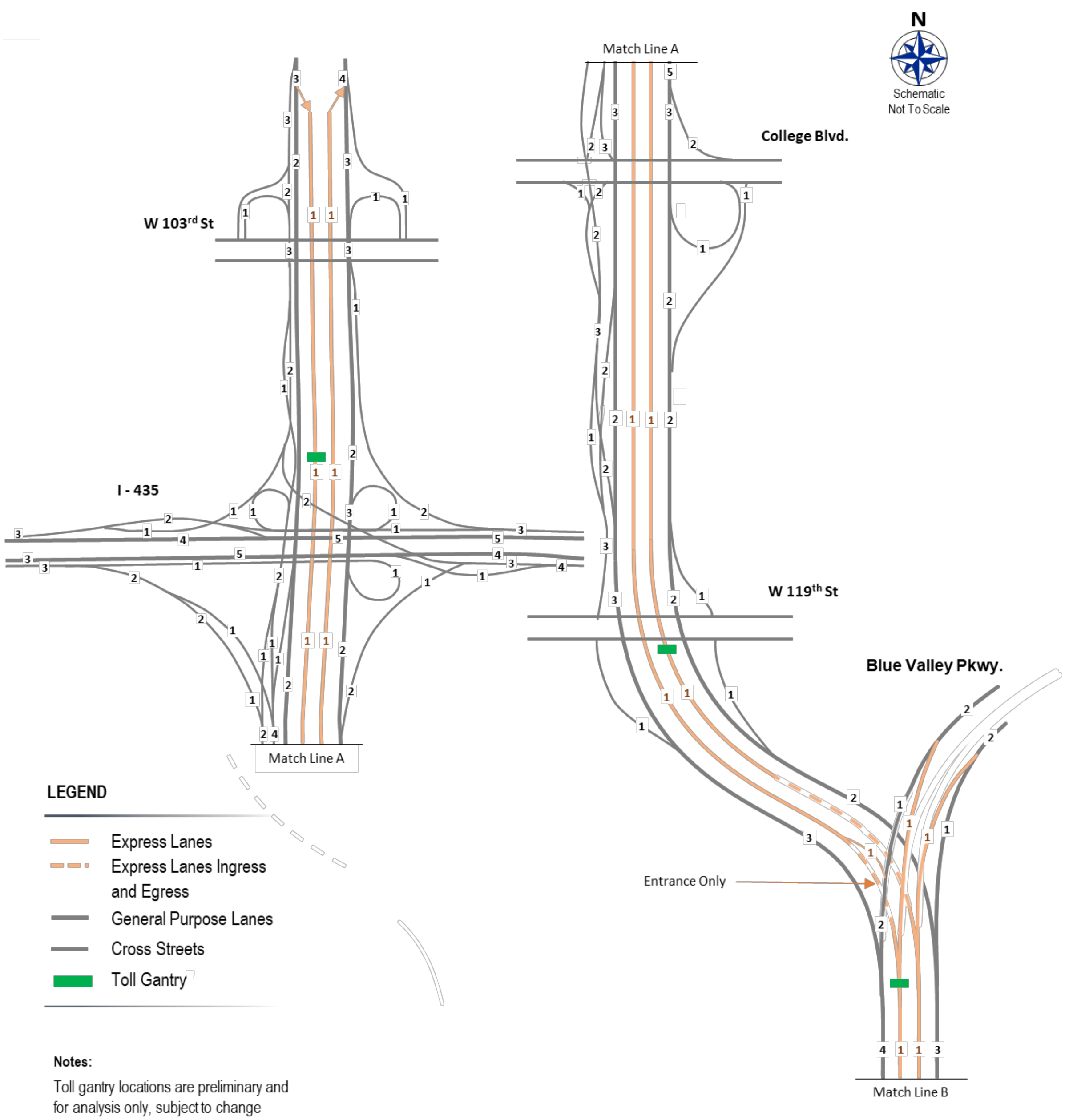


Figure 1-3 US 69 Study Corridor – Express Lanes Phase 1 Base Case Configuration (135th Street to 151st Street)

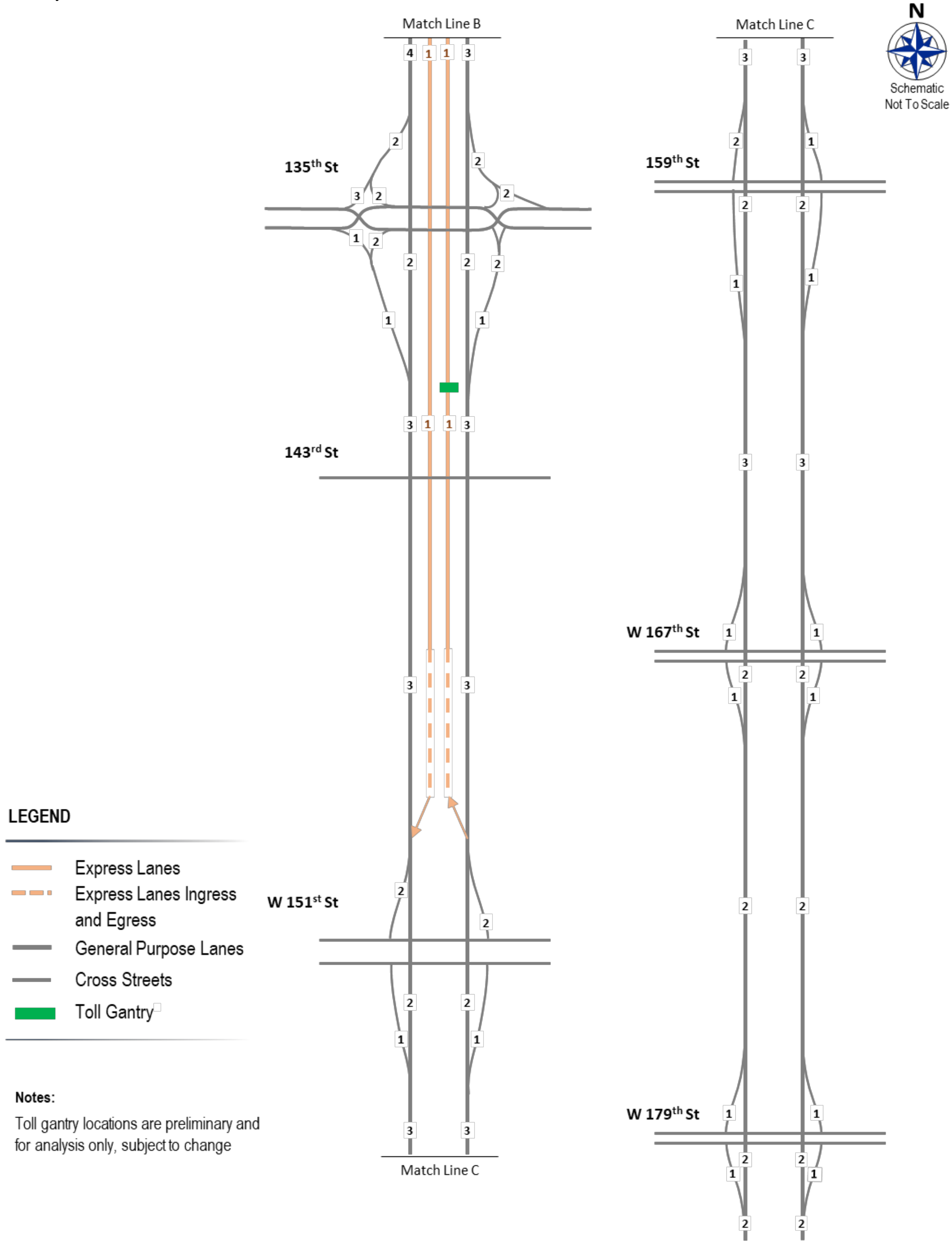


Figure 1-4 US 69 Study Corridor – Express Lanes Phase 2 Configuration (103rd Street to Blue Valley Parkway)

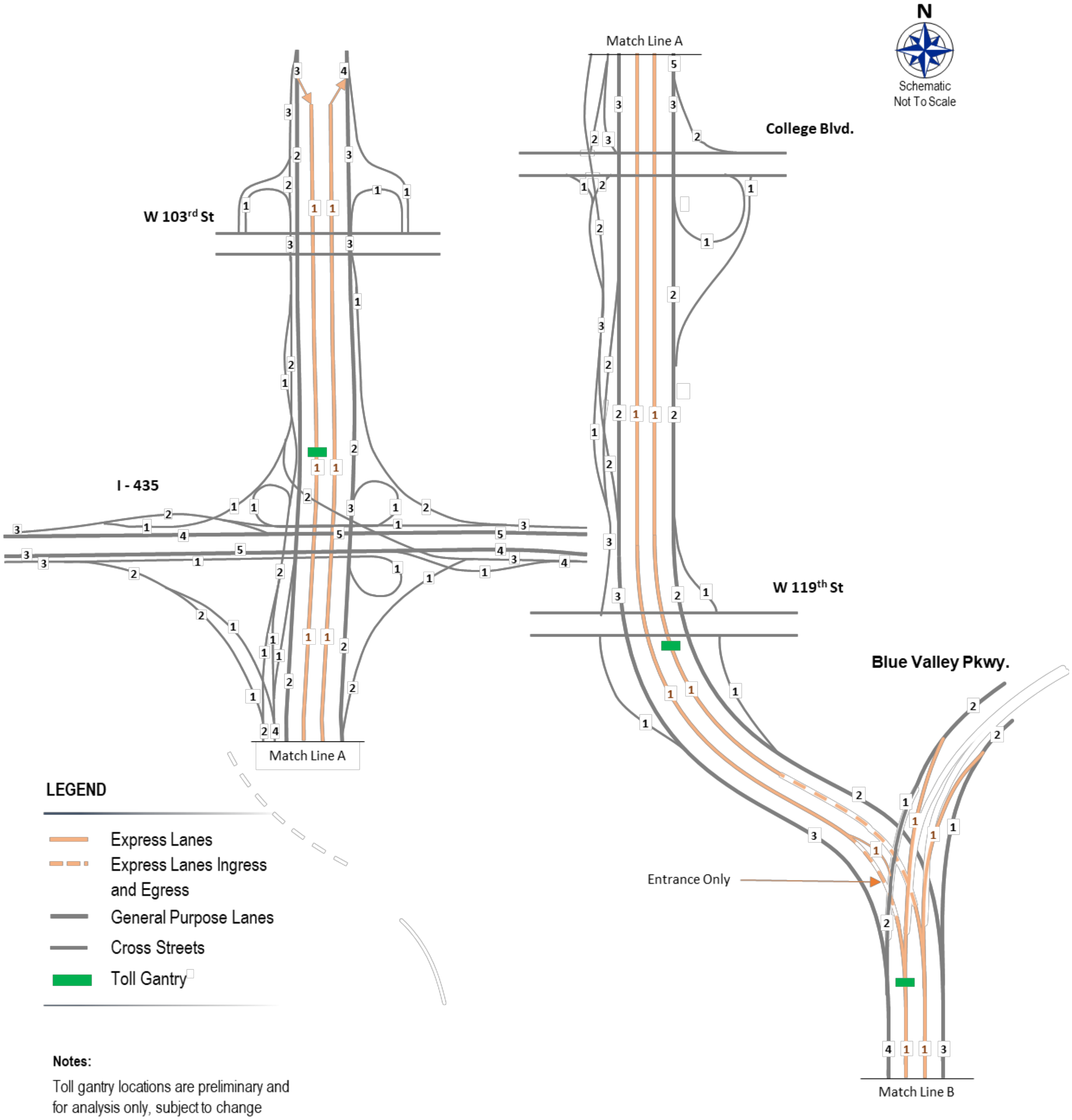


Figure 1-5 US 69 Study Corridor – Express Lanes Phase 2 Configuration (135th Street to 179th Street)

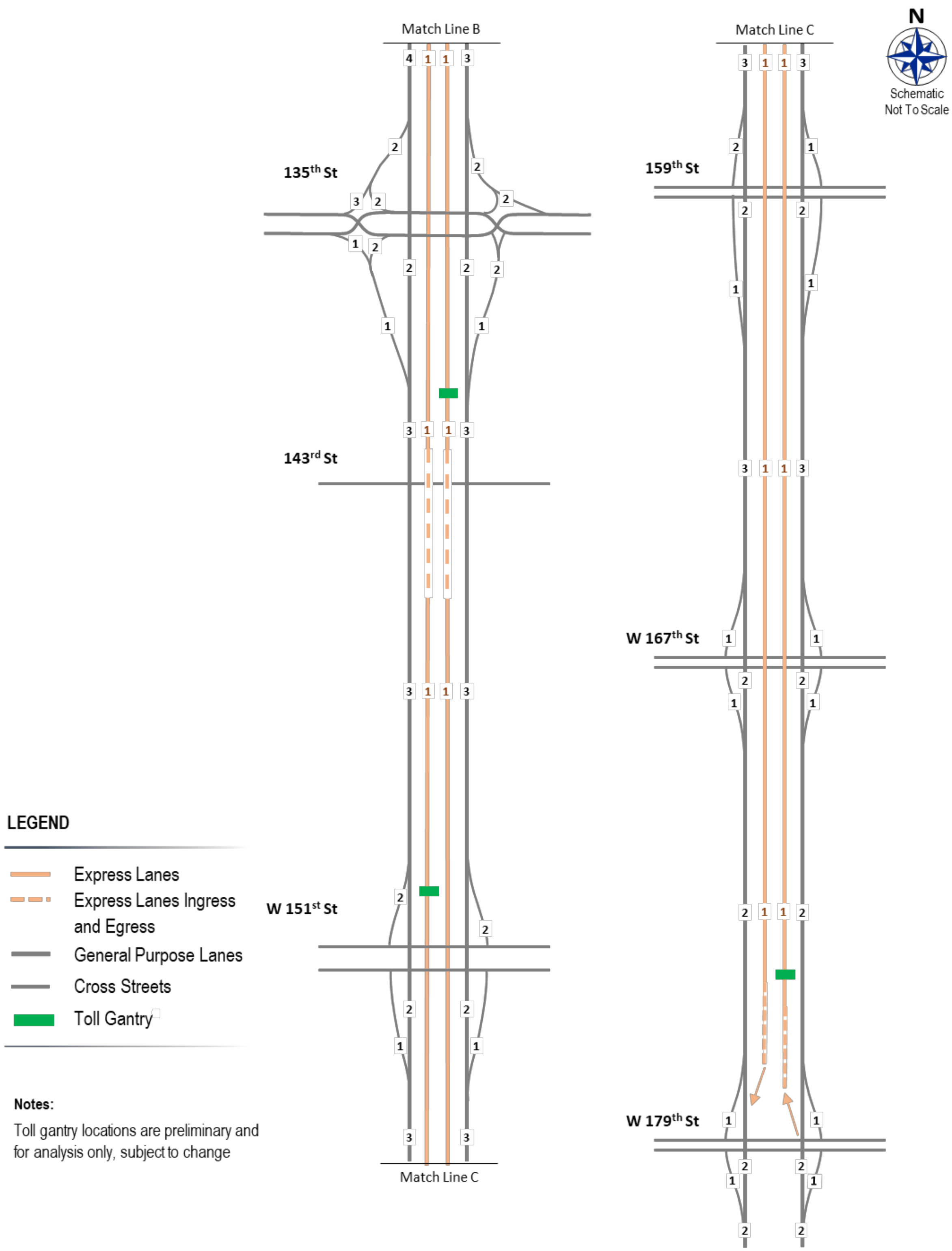
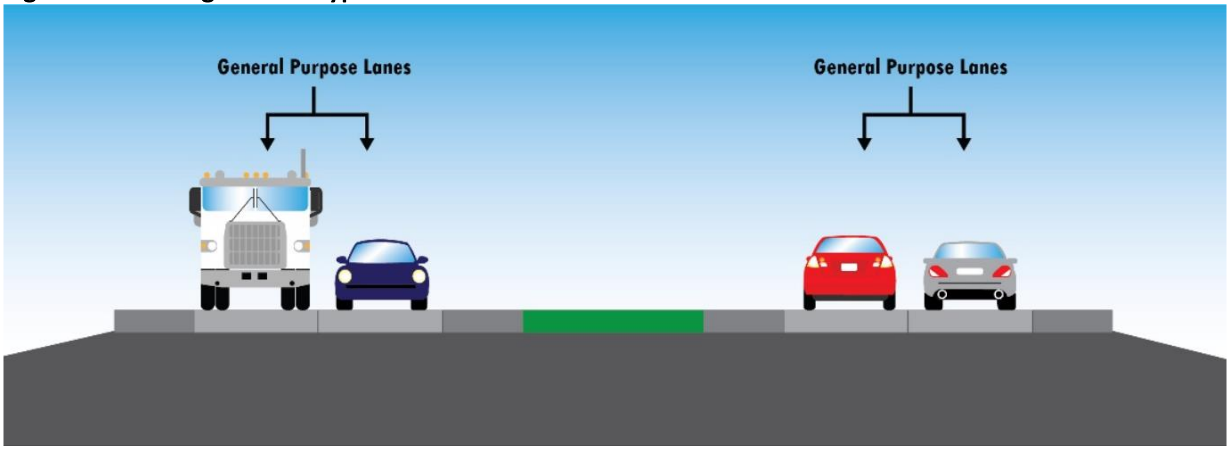


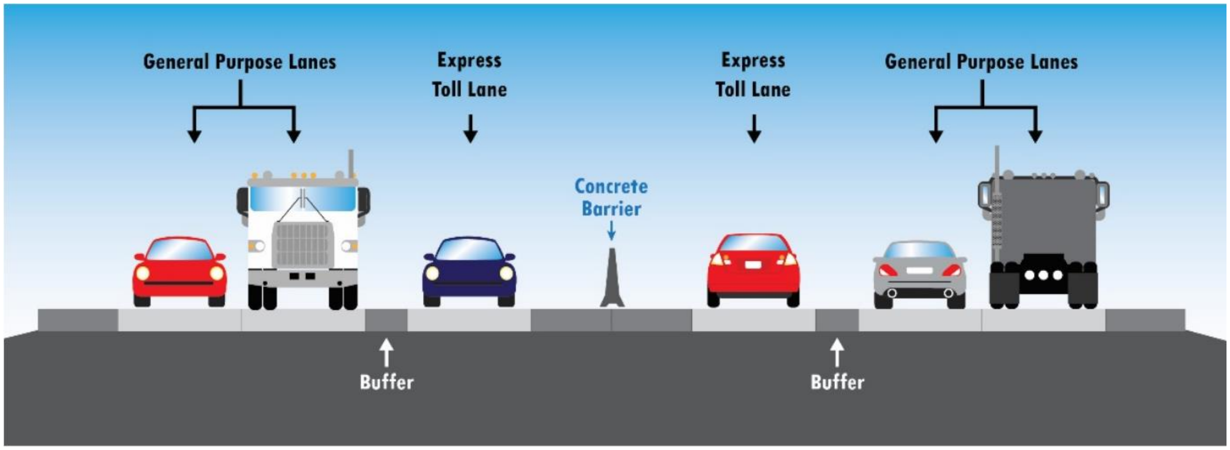
Figure 1-6 illustrates the existing US 69 typical cross section consisting of two general purpose lanes in each direction. **Figure 1-7** illustrates the typical cross section proposed under the Phase 1 Base Case and Phase 2 scenarios. An express lane will be added in each direction between the general-purpose lanes, separated by a buffer.

Figure 1-6 Existing US 69 – Typical Section



Source: HNTB

Figure 1-7 Proposed US 69 Express Lanes – Typical Section



Source: HNTB

1.1.3 Traffic and Toll Revenue Forecasts Description

Two scenarios were analyzed as part of this study for the US 69 express lanes. As previously described, the Phase 1 Base Case assumes the express lanes will extend from north of 151st Street to just north of 103rd Street from 2026 through the entire 40-year forecast horizon. Phase 2 assumes the Phase 1 Base Case configuration from 2026 until 2040, when the southern section of the express lanes from 179th Street to 151st Street is then added thereafter.

Additionally, the two scenarios were analyzed for two assumed strategies: (1) Using the official demographic data provided by MARC and (2) Using the MARC revised demographic data independently reviewed and adjusted by EBP.

1.1.4 Report Structure

In addition to this chapter, the report is divided into the following five chapters that refer to the major work elements undertaken as part of the study.

- **Chapter 2 – Existing Traffic Trends and Characteristics**: The extensive traffic data collected as part of this study is described and summarized in this chapter. Data collection efforts that were undertaken included a traffic count program and speed and delay/travel time data along US 69 and other nearby roadways. The origin-destination (O-D) data obtained from StreetLight Data is summarized, and a historical overview of traffic in the project area is summarized. The methodologies implemented for each of the data collection and analysis efforts and respective results are detailed and summarized herein.

- **Chapter 3 – Background Transportation Characteristics**: The planned highway projects and overall future transportation characteristics anticipated in the Kansas City region are briefly summarized in this chapter based on the MARC's Connected KC 2050 Plan, US 69 Corridor Study Phase 1 Report (HNTB, 2018), and the US 69 Pre-Planning Analysis (HNTB, 2020), with additional input from KDOT, the City of Overland Park and HNTB staff regarding assumptions for specific projects within the study corridor.

- **Chapter 4 – Demographics**: This chapter reviews the historical demographic growth trends in the Kansas City Metro region as defined by the MARC MPO boundary and expected future growth trends. This review is focused on an evaluation of the socioeconomic variables that are used as inputs to the travel demand models. EBP developed the most recent demographic forecasts for the study. The socioeconomic variables include population, households, employment, and major employment establishments, as well as other proposed developments which may have an impact on traffic demand. The assessment of the growth characteristics was also supported through an independent socioeconomic review of both the regionwide and county-level demographics and the individual traffic analysis zones (TAZs) surrounding the US 69 study corridor. The independent demographic review was commissioned to evaluate the MARC 2050 forecasts and provide modifications based on more recent trends, where applicable, to the future growth of population, households, and employment for each TAZ within the study area. The revised demographic forecasts provided by EBP were input into MARC's four-step travel demand forecasting model to generate modified trip tables.

- **Chapter 5 – Travel Demand Modeling**: This chapter describes the travel demand modeling process used to develop the traffic and toll revenue forecasts for the proposed US 69 express lanes. The calibration of the 2019 base year travel demand model is described along with other major elements undertaken as part of the modeling process which included regional demand projections and market share analysis.

- **Chapter 6 – Traffic and Toll Revenue Estimates:** The key assumptions and estimated annual traffic and toll revenue for a 40-year forecast horizon for the proposed US 69 express lanes are presented and summarized in this chapter for the Phase 1 Base Case and Phase 2 scenarios using both the MARC and EBP revised demographic data. This chapter also includes results from sensitivity tests which were conducted to evaluate the impact of potential changes to key input variables influencing the traffic and toll revenue estimates.

Two appendices are also provided, detailing updated work undertaken by the independent demographer (EBP) and the detailed results of the stated preference survey:

- **Appendix A:** Independent Demographic Review, by EBP
- **Appendix B:** Stated Preference Survey Report, by CDM Smith

Chapter 2

Existing Traffic Trends and Characteristics

This chapter provides a summary of the historical traffic trends and characteristics along the existing highway infrastructure in and around the United States Highway 69 (US 69) study corridor, located in Johnson County, Kansas. A summary of the historical traffic counts and growth trends along the study corridor, based on the Kansas Department of Transportation (KDOT) historical database, is also presented herein. A comprehensive traffic count program undertaken along the US 69 corridor with Automatic Traffic Recorder (ATR) counts collected along the major freeways and several arterials within the vicinity of the US 69 study corridor is described in detail in **Section 2.3**. Additionally, traffic counts were also collected along four selected screenlines during 2020. The efforts undertaken supported a complete reevaluation of the baseline condition in 2019 along the corridor, and the 2020 counts were adjusted to reflect the 2019 traffic conditions. This exercise of adjusting to 2019 counts was done with an objective to discount the COVID-19 pandemic related traffic impacts at the 2020 count locations, ensuring that the calibrated model reflected the more typical traffic patterns and travel conditions.

The data collection effort also included average travel speeds data O-D data. Both the speed data and the O-D data were acquired for the base year of 2019. The traffic count and operational data summarized in this chapter were used as input to the model calibration process (discussed in **Chapter 5**), resulting in an updated and enhanced travel demand model. This model was then used to develop traffic and toll revenue estimates for the proposed express lanes along the US 69 study corridor.

2.1 Description of Existing Corridor Facilities

US 69 is a vital component of the transportation network in the KC metro area and the City of Overland Park and is often referred as the backbone of Overland Park. US 69 extends through the city from the junction with I-35 to the southern city limit. It feeds many of the primary east-west arterial corridors in the city, providing connectivity to major employment centers and residential areas.

The section of US 69 under is approximately ten miles long and is a major north-south highway that runs from 179th Street north to 103rd Street. US 69 is one of the state's busiest highways, with significant congestion during peak hours and at other times. The entire study corridor, between 179th Street and 103rd Street, is located in Johnson County, as shown in **Figure 2-1**.

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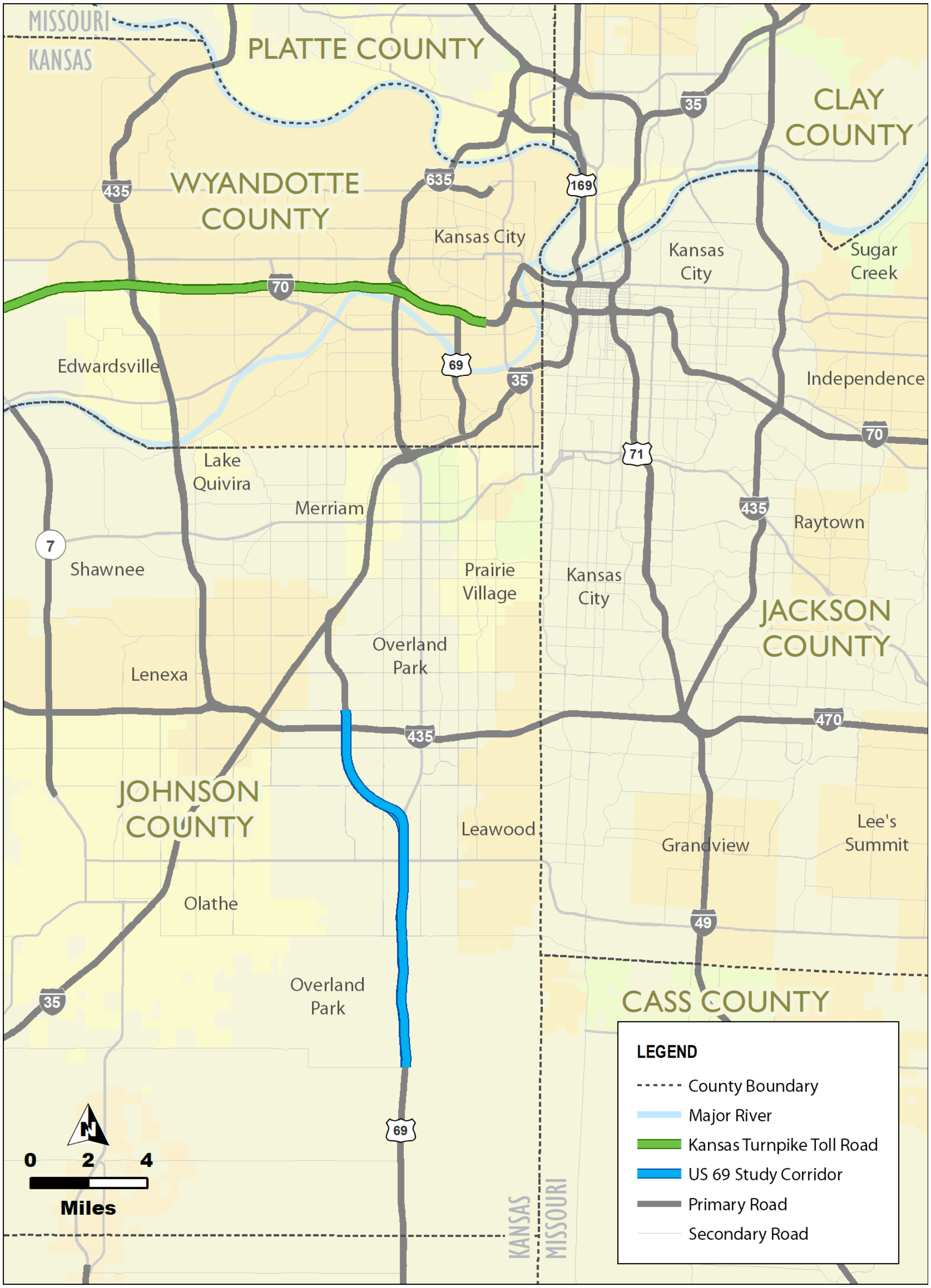
Figure 2-1 US 69 Study Corridor



CDM Smith

2.1.1 Major Toll Roads, Freeways, and Arterials in the Region

As shown in **Figure 2-1**, Kansas City has only one toll facility, the Kansas Turnpike, which operates under fixed pricing. The proposed express lanes along US 69 will be the first express lane facility in Kansas that will operate under a dynamic pricing regime. There are several other key routes in the vicinity of US 69 that will have an impact on the overall demand for the proposed express lanes. The following are the major toll roads, freeways and arterials within the KC metro area:

- **Kansas Turnpike**: The 236-mile Kansas Turnpike is a four- to six-lane toll road between the Oklahoma border in Sumner County and US 69 in Wyandotte County. Currently, the turnpike accepts payment via toll tags and cash paid at toll booths. Within the Kansas City metropolitan boundary, the Kansas Turnpike runs in an east-west direction. The facility carries traffic from the western edge of Kansas City to the downtown area.

- **I-35 Freeway**: I-35 in the Kansas City metropolitan region facilitates travel between the southwestern corner of the region (Olathe) to downtown Kansas City. In Overland Park, the US 69 corridor merges into I-35, providing a direct route towards downtown Kansas City for traffic originating in southern Johnson County and Miami County.

- **I-435 Freeway**: I-435 is a circumferential freeway around Kansas City. The freeway intersects with the US 69 corridor in Overland Park, providing an additional route for the commuters making the north-south movement whilst circumventing the Kansas City downtown traffic.

- **I-49 Freeway**: I-49 is located in Missouri and runs parallel to US 69 approximately nine miles to the east. I-49 provides access to the downtown Kansas City area and serves as an alternative to US 69 for long-distance traffic.

- **Antioch Road:** Antioch Road is a 16-mile long four-lane arterial running north-south, approximately one-half mile to the west of the US 69 study corridor. It crosses the US 69 corridor to the north of 127th Street. Because of its proximity to the study corridor, Antioch Road is one of the main competing arterials that provides an alternate route for US 69.

- **Metcalf Avenue:** Metcalf Avenue is a 16-mile long four-to-six-lane arterial running north-south, about a half-mile to the east of US 69. Metcalf Avenue is another key competitive arterial that runs parallel to the entire stretch of the US 69 study corridor. The northern terminus of Metcalf Avenue, at the I-35 interchange, connects to the I-635 freeway.

- **Blue Valley Parkway:** Blue Valley Parkway is a mile-long roadway that connects US 69 to Metcalf Avenue. It provides access to US 69 southbound towards 135th Street and from US 69 northbound towards Metcalf Avenue.

2.2 Historical Traffic Growth Trends

The following sections provide a detailed description of the traffic data collection efforts that were undertaken as part of this study and summarizes the key observations and trends. The assessment includes a summary of KDOT's historical traffic counts and growth trends along the US 69 study corridor observed since 2000, and a summary of the seasonal variation in traffic observed from information compiled from KDOT's permanent count stations (also known as Automatic Traffic

Recorder or ATR locations). A detailed description of the current traffic exhibited along US 69 and the screenlines selected for this study is also provided herein.

2.2.1 Historical Traffic Growth

An overview of the historical traffic growth between 1999 and 2019 along the US 69 corridor in Johnson County is presented in **Table 2-1**. The historical count data was obtained from KDOT, which collects traffic counts statewide on an annual basis. US 69 to the south of 95th Street has the highest traffic volume along the entire study corridor and grew at an average annual rate of 4.2 percent between 2014 and 2019. US 69 south of 135th Street grew at an average annual rate of 2.5 percent over that same period. US 69 to the south of 167th Street has grown rapidly with a ten-year growth rate of 3.5 percent and five-year growth rate of 6.2 percent.

Table 2-1 Historical Trends in Annual Average Daily Traffic

Location	1999	2009	2014	2019	Last 20-year growth 1999-2019	Last 10-year growth 2009-2019	Last 5-year growth 2014-2019
US 69 at South of 95th St.	87,800	81,400	81,000	99,500	0.6%	2.0%	4.2%
US 69 at South of 135th St.	44,000	45,300	51,500	58,200	1.4%	2.5%	2.5%
US 69 at South of 167th St.	24,000	23,600	24,600	33,300	1.7%	3.5%	6.2%

2.3 Traffic Data Collection

A comprehensive traffic data collection program was conducted during October/November 2020 to collect a series of traffic counts along the study area screenlines. In addition to the screenline counts, 2019 AADT (Average Annual Daily Traffic) volumes were provided by HNTB for locations along the US 69 study corridor (both mainlanes and ramps), and 2019 traffic volumes along the major roadways in the region were obtained from KDOT and Missouri Department of Transportation (MoDOT) count databases. The data collection program for this study is summarized below and is further documented in the following sub-sections.

Gewalt Hamilton Associates, Inc (GHA), a local traffic data collection firm, was contracted by HNTB to collect traffic counts along four selected screenlines within the study area as part of the data collection effort for this study. The counts were collected for a continuous 48-hour period. In addition to the screenline counts, additional counts were collected at selected spot locations along the I-435 and I-35 mainlanes. Moreover, the counts along the US 69 study corridor were obtained from 2019 balanced daily traffic volume summaries developed by HNTB. Additionally, five ATR locations were identified from the KDOT traffic database to garner a better understanding of the daily traffic distribution profile. The ATR counts were summarized at 15-minute time periods to establish a disaggregated temporal distribution of the current corridor traffic demand and to facilitate the development of temporal segmentations within the travel demand model. Factors to convert 2019 AADTs to AWDTs (average weekday traffic) were computed using the five ATR locations. As the travel demand model represents an average weekday condition, an AADT to AWDT factor was then applied to the HNTB-developed 2019 AADTs and 2019 AADT volumes from KDOT that were used for model calibration. Traffic volumes obtained from MoDOT represent AWDT.

Figures 2-2 through **2-4** show the count locations for the screenline, ramp, and ATR counts. **Tables 2-2** and **2-3** provide the full list of screenline and spot traffic count locations. Additional data from permanent counters obtained from KDOT are also shown in **Table 2-4**. **Table 2-5** illustrates the ramp locations along the US 69 study corridor where traffic volumes were obtained from the HNTB-developed balanced traffic profile. For simplicity, the ramp IDs in **Tables 2-2 through 2-5** were kept the same as what was used to collect and summarize Streetlight OD data for the US 69 study corridor ramps. Each table provides a description of the count location and its respective unique identification number.

These counts were adjusted to reflect 2019 traffic conditions, as discussed in **Section 2.3.1**, and subsequently used to calibrate the travel demand models to reflect 2019 traffic conditions, i.e. normal travel patterns before the onset of the COVID-19 pandemic that resulted in significant impact on travel. Traffic counts collected along the major facilities within the corridor provided information regarding the current AWDT volumes and the morning peak, evening peak and off-peak period traffic. Counts collected were initially evaluated for consistency with historical trends, historical seasonal variations as described in **Section 2.3.2**, and overall reasonableness in the magnitude of the observed traffic demand. The final reviewed daily traffic volumes were then used to calibrate the base travel demand model that was used to evaluate the US 69 proposed express lane corridor's future demand potential.

Figure 2-2 Traffic Count Locations

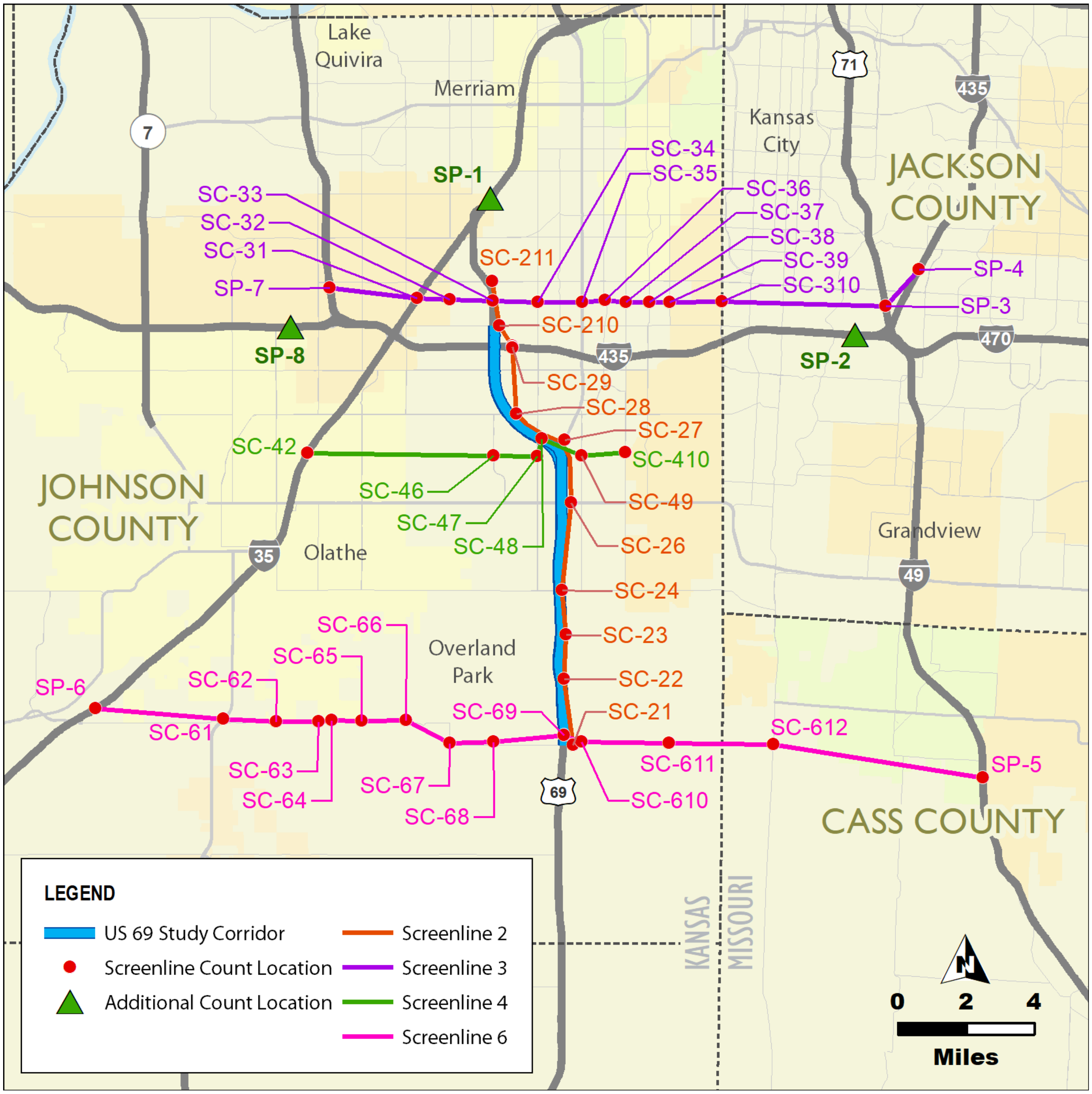


Figure 2-3 Ramp Traffic Volume Locations

Figure 2-4 KDOT Permanent Count Locations

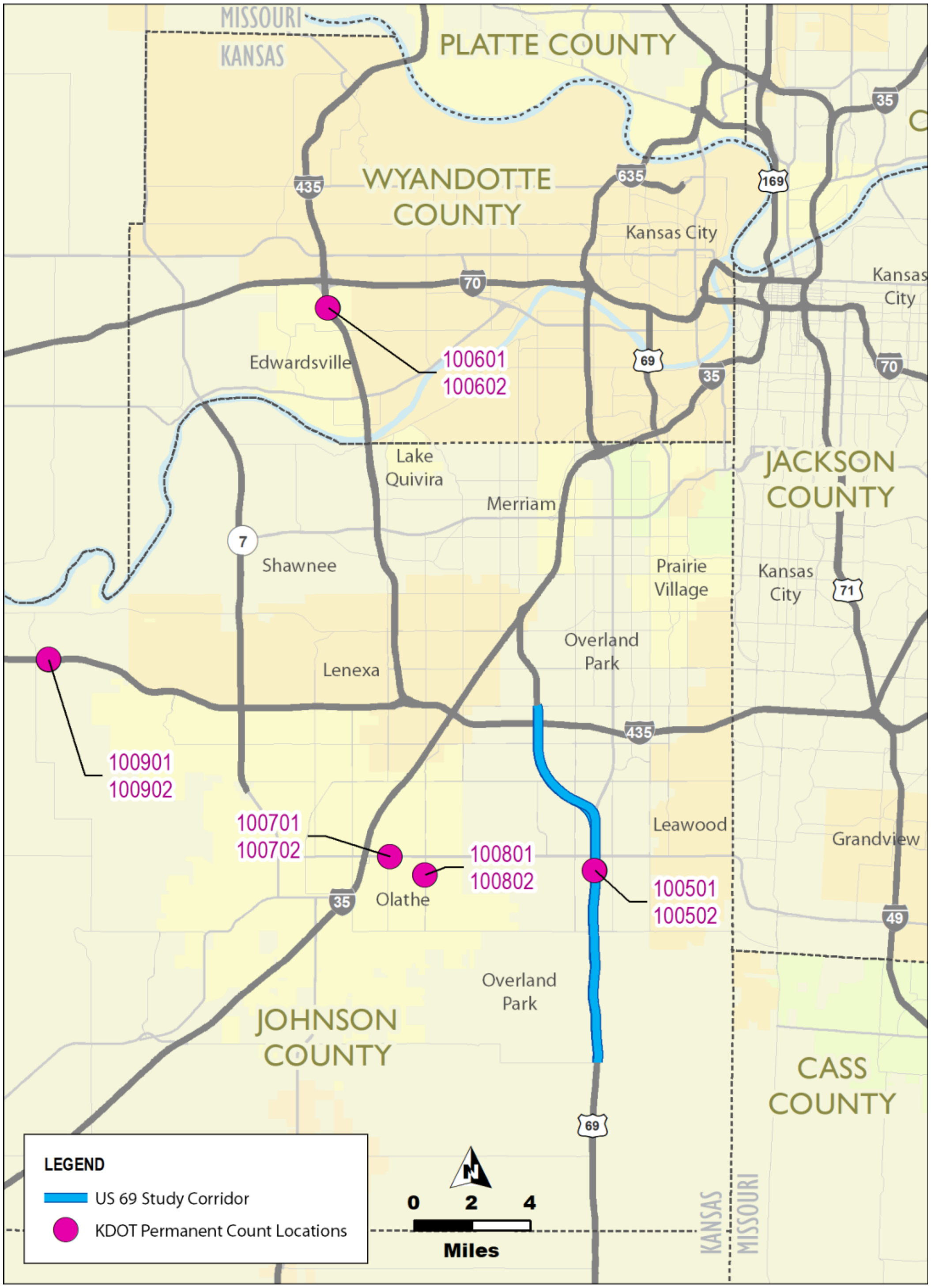


Table 2-2 Screenline Count Locations

ID	Location Description	Location Type	Source
Screenline 1 - East of US 69			
SC-21	179th Street east of US 69	Arterial	GHA Counts
SC-210	103rd Street east of US 69	Arterial	GHA Counts
SC-211	95th Street east of US 69	Arterial	GHA Counts
SC-22	167th Street east of US 69	Arterial	GHA Counts
SC-23	159th Street east of US 69	Arterial	GHA Counts
SC-24	151st Street east of US 69	Arterial	GHA Counts
SC-26	135th Street east of US 69	Arterial	GHA Counts
SC-27	Blue Valley Parkway north of US 69	Arterial	GHA Counts
SC-28	119th Street east of US 69	Arterial	GHA Counts
SC-29	**I-435 east of US 69**	**Mainlane**	**GHA Counts**
Screenline 2 - North of I-435			
SP-7	**I-435 north of SH 10**	**Mainlane**	**GHA Counts**
SC-31	**I-35 north of I-435**	**Mainlane**	**GHA Counts**
SC-310	State Line Road north of I-435	Arterial	GHA Counts
SC-32	Quivira Road north of 99th Street	Arterial	GHA Counts
SC-33	**US 69 north of 103rd Street**	**Mainlane**	**HNTB Daily Count Summary**
SC-34	Antioch Road north of I-435	Arterial	GHA Counts
SC-35	Metcalf Avenue north of 99th Street	Arterial	GHA Counts
SC-36	Lamar Avenue north of I-435	Arterial	GHA Counts
SC-38	Roe Avenue north of I-435	Arterial	GHA Counts
SP-3	**US 71 north of I-435**	**Mainlane**	**MoDOT Daily (AWDT)**
SP-4	**I-435 north of Bannister Road**	**Mainlane**	**MoDOT Daily (AWDT)**
Screenline 3: North of 127th Street			
SC-42	**I-35 north of 127th Street**	**Mainlane**	**GHA Counts**
SC-46	Switzer Road north of 127th Street	Arterial	GHA Counts
SC-47	Antioch Road north of 127th Street	Arterial	GHA Counts
SC-48	**US 69 north of Blue Valley Parkway**	**Mainlane**	**HNTB Daily Count Summary**
SC-49	Metcalf Avenue north of 127th Street	Arterial	GHA Counts
SC-410	Nail Avenue north of 127th Street	Arterial	GHA Counts
Screenline 4: North of 175th Street			
SP-6	**I-35 north of 175th Street**	**Mainlane**	**GHA Counts**
SC-61	**US 169 north of 175th Street**	**Mainlane**	**GHA Counts**
SC-610	Metcalf Avenue north of 175th Street	Arterial	GHA Counts
SC-611	Mission Road north of 175th Street	Arterial	GHA Counts
SC-612	Holmes Road north of 175th Street	Arterial	GHA Counts
SC-62	Ridgeview Road north of 175th Street	Arterial	GHA Counts
SC-63	Renner Road north of 175th Street	Arterial	GHA Counts
SC-64	Legler Road north of 175th Street	Arterial	GHA Counts
SC-65	Lackman Road north of 175th Street	Arterial	GHA Counts
SC-66	Pflumm Road north of 175th Street	Arterial	GHA Counts
SC-67	Quivira Road north of 175th Street	Arterial	GHA Counts
SC-68	Switzer Road north of 175th Street	Arterial	GHA Counts
SC-69	**US 69 north of 179th Street**	**Mainlane**	**HNTB Daily Count Summary**
SP-5	**I-49 north of Cass Parkway**	**Mainlane**	**GHA Counts**

Table 2-3 Spot Count Locations

ID	Location Description	Location Type	Source
SP-1	I-35 east of US 69	Mainlane	GHA Counts
SP-2	I-435 west of US 71	Mainlane	MoDOT Daily (AWDT)
SP-8	SH 10 east of Ridgeview Road	Mainlane	GHA Counts

Table 2-4 KDOT Permanent Count Locations

ID	Location Description	Location Type	Source
100901/902	K-10 east of Kill Creek Road	Freeway	ATR Counts
100601/602	I-435 south of I-70	Freeway	ATR Counts
100801/802	Black Bob Road south of 135th Street	Arterial	ATR Counts
100701/702	135th Street east of Mur-Len Road	Arterial	ATR Counts
100501/502	US 69 Mainlane south of 135th Street	Freeway	ATR Counts

Table 2-5 Ramp Counts along US 69 Study Corridor

ID	Location Description	Ramp Type	Source
102	NB Entrance Ramp from 179th Street	Entrance Ramp	HNTB Daily Traffic Profile
103	SB Exit Ramp to 179th Street	Exit Ramp	HNTB Daily Traffic Profile
202	NB Entrance Ramp from 167th Street	Entrance Ramp	HNTB Daily Traffic Profile
203	SB Exit Ramp to 167th Street	Exit Ramp	HNTB Daily Traffic Profile
301	NB Exit Ramp to 159th Street	Exit Ramp	HNTB Daily Traffic Profile
302	NB Entrance Ramp from 159th Street	Entrance Ramp	HNTB Daily Traffic Profile
303	SB Exit Ramp to 159th Street	Exit Ramp	HNTB Daily Traffic Profile
304	SB Entrance Ramp from 159th Street	Entrance Ramp	HNTB Daily Traffic Profile
401	NB Exit Ramp to 151st Street	Exit Ramp	HNTB Daily Traffic Profile
402	NB Entrance Ramp from 151st Street	Entrance Ramp	HNTB Daily Traffic Profile
403	SB Exit Ramp to 151st Street	Exit Ramp	HNTB Daily Traffic Profile
404	SB Entrance Ramp from 151st Street	Entrance Ramp	HNTB Daily Traffic Profile
501	NB Exit Ramp to 135th Street	Exit Ramp	HNTB Daily Traffic Profile
502	NB Entrance Ramp from 135th Street	Entrance Ramp	HNTB Daily Traffic Profile
503	SB Exit Ramp to 135th Street	Exit Ramp	HNTB Daily Traffic Profile
504	SB Entrance Ramp from 135th Street	Entrance Ramp	HNTB Daily Traffic Profile
505	NB Entrance Ramp from 135th Street	Entrance Ramp	HNTB Daily Traffic Profile
601	NB Exit Ramp to Blue Valley	Exit Ramp	HNTB Daily Traffic Profile
604	SB Entrance Ramp from Blue Valley	Entrance Ramp	HNTB Daily Traffic Profile
701	NB Exit Ramp to 119th Street	Exit Ramp	HNTB Daily Traffic Profile
702	NB Entrance Ramp from 119th Street	Entrance Ramp	HNTB Daily Traffic Profile
703	SB Exit Ramp to 119th Street	Exit Ramp	HNTB Daily Traffic Profile
704	SB Entrance Ramp from 119th Street	Entrance Ramp	HNTB Daily Traffic Profile
801	NB Exit Ramp to College Blvd	Exit Ramp	HNTB Daily Traffic Profile
802	NB Entrance Ramp from College Boulevard	Entrance Ramp	HNTB Daily Traffic Profile
803	SB Exit Ramp to College Boulevard	Exit Ramp	HNTB Daily Traffic Profile
804	SB Entrance Ramp from College Boulevard	Entrance Ramp	HNTB Daily Traffic Profile
805	NB Entrance Ramp from College Boulevard	Entrance Ramp	HNTB Daily Traffic Profile
901	NB Exit Ramp to I-435	Exit Ramp	HNTB Daily Traffic Profile
902	NB Entrance Ramp from I-435	Entrance Ramp	HNTB Daily Traffic Profile
903	NB Exit Ramp to I-435	Exit Ramp	HNTB Daily Traffic Profile
904	NB Entrance Ramp from I-435	Entrance Ramp	HNTB Daily Traffic Profile
1001	NB Exit Ramp to 103rd Street	Exit Ramp	HNTB Daily Traffic Profile
1002	NB Entrance Ramp from 103rd Street	Entrance Ramp	HNTB Daily Traffic Profile
1003	SB Exit Ramp to 103rd Street	Exit Ramp	HNTB Daily Traffic Profile
1101	NB Exit Ramp to 95th Street	Exit Ramp	HNTB Daily Traffic Profile
1102	NB Entrance Ramp from 95th Street	Entrance Ramp	HNTB Daily Traffic Profile
1103	SB Exit Ramp to 95th Street	Exit Ramp	HNTB Daily Traffic Profile
1104	SB Entrance Ramp from 95th Street	Entrance Ramp	HNTB Daily Traffic Profile

2.3.1 Adjusted Traffic Counts

Screenline counts are intended to showcase the traffic demand that flows through a specific unique section of the study area. Typically, they include major routes that carry the overall demand flowing along and/or across the study corridor. They are used to determine the corridor's share of overall demand and are used to highlight potential diversion of traffic into or out of the corridor. They also provide a measure of the overall travel demand estimated by calibrated travel demand model.

Four screenlines were selected to evaluate the existing traffic characteristics within the study area and to establish the base travel demand patterns that were used to calibrate the 2019 base year travel demand model. The four screenlines were:

- Screenline 1: East of US 69
- Screenline 2: North of I-435
- Screenline 3: North of 127th Street
- Screenline 4: North of 175th Street

The four screenline locations are illustrated in **Figure 2-7** and reflects a total of 42 count locations. The counts were obtained for a continuous 48-hour period along each major arterial and freeway as listed in **Tables 2-2** and **2-3.** Following the traffic data collection program, the raw data was processed and evaluated for consistency. Since the counts collected were after the onset of COVID-19, they naturally included traffic impacts due to the pandemic. However, these impacts were normalized back to the model 2019 base year by adjusting the counts using the historically observed trends at selected ATR count locations. For any given screenline count location, the closest ATR count location with similar facility type (arterial or freeway/expressway mainlane) was identified. Subsequently, the COVID-19 impact was assessed on the identified ATR count locations by comparing the November 2019 and 2020 traffic volumes at each period and daily level. The resulting impacts were applied at a period level to the 2020 screenline counts to derive the estimated normalized 2019 counts. **Figures 2-5** and **2-6** show the northbound and southbound count profiles before (November 2019) and after (November 2020) the onset of the COVID-19 pandemic at the US 69 ATR location south of 135th Street.

Table 2-6 provides a summary of the 2019 AWDT volumes and the percentage share of the US 69 corridor demand along the four screenlines shown in **Figure 2-7**. **Tables 2-7** through **2-9** provide the AWDTs for the spot count locations, ATR count locations, and ramps along US 69 corridor, respectively.

Figure 2-5 COVID-19 Trend Adjustment – US 69 ATR Count (South of 135th Street) Northbound

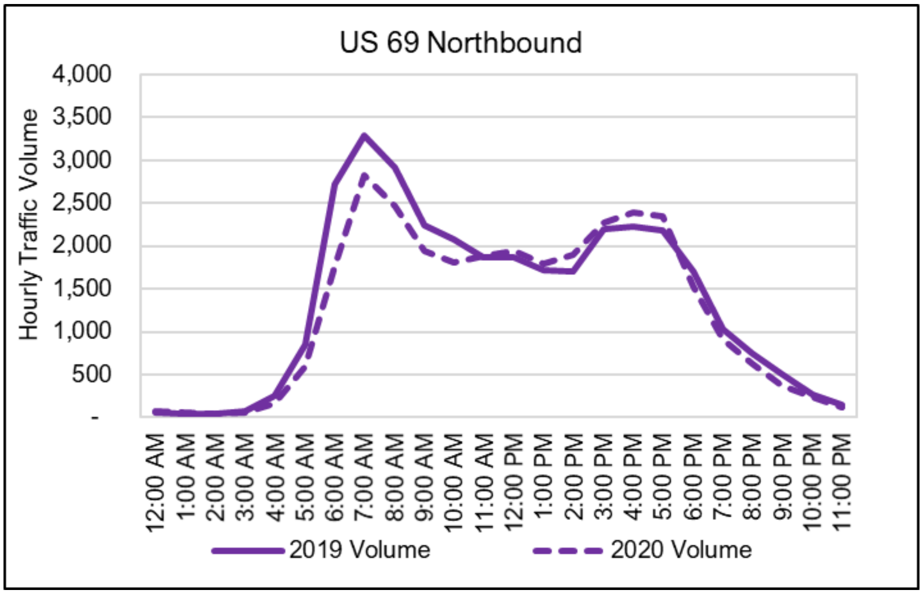
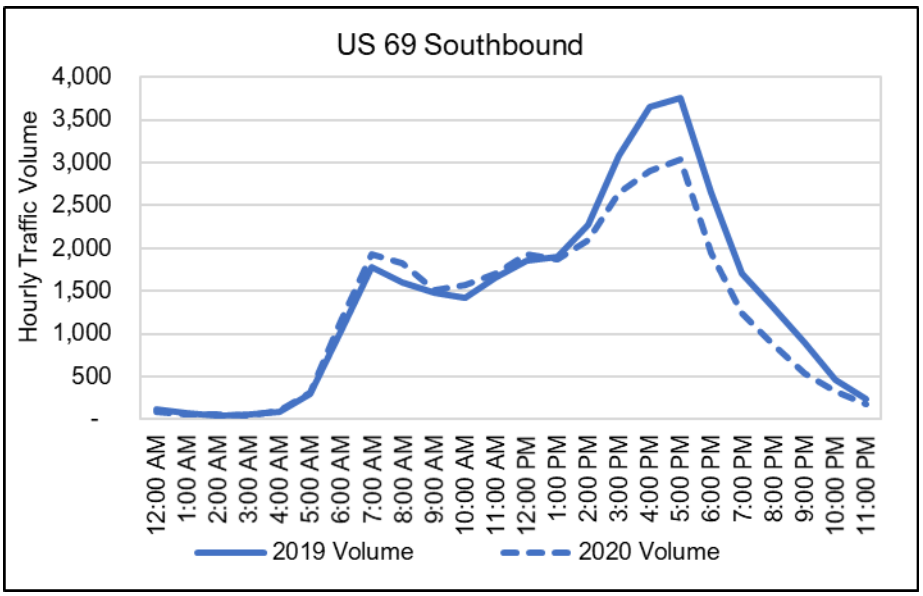


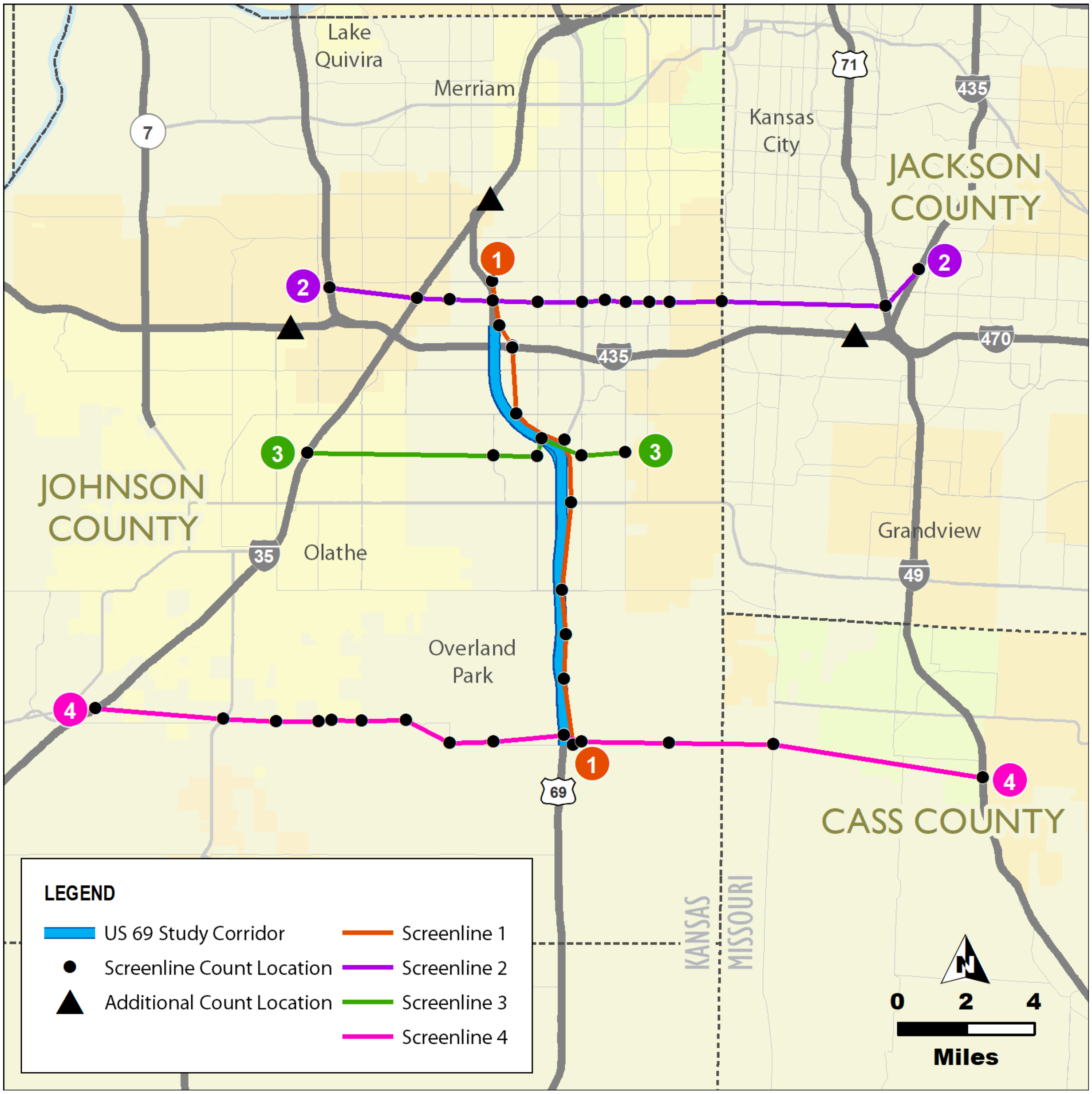
Figure 2-6 COVID-19 Trend Adjustment – US 69 ATR Count (South of 135th Street) Southbound



Screenline 1 – East of US 69 is comprised of 10 traffic count locations between 95th Street and 179th Street. This screenline was selected to capture traffic moving across the study corridor, including traffic entering and exiting the study corridor. As seen in **Table 2-6**, I-435 (including the collector distributor roads and mainlanes) serves most of the screenline traffic with a share of 43.3 percent of the overall screenline traffic. 135th Street is the major arterial along the screenline capturing 13.4 percent of the screenline traffic share.

Screenline 2 – North of I-435 consists of 11 traffic count locations. This screenline captures north-south traffic movements, including all routes competing with US 69. As seen in **Table 2-6**, I-35 contributes to the largest share with 19.2 percent of the overall screenline traffic. The northern terminus of the study corridor (US 69 north of 103rd Street) has the second highest share of the screenline traffic with a share of 16.9 percent. The I-435 and US 71 freeways have shares of 14.4 and 16.2 percent, respectively. Metcalf Avenue is the highest volume arterial route and serves 6.2 percent of the screenline traffic.

Figure 2-7 Screenline Map



Screenline 3– North of 127th Street consists of six traffic count locations. This screenline captures north-south traffic movements, including several of the routes competing with US 69. As seen in **Table 2-6**, I-35 contributes most of the traffic with a share of 47.9 percent of the overall screenline

traffic. US 69 has the second highest share at 25.3 percent. Among the arterial routes, Nail Avenue has the highest traffic share at 8.3 percent.

Screenline 4 – North of 175th Street consists of 14 traffic count locations. This screenline captures north-south traffic movements and includes all routes competing with US 69. As seen in **Table 2-6**, I-35 again contributes a large share with 29.0 percent of the overall screenline traffic, followed by I-49 with 25.5 percent. US 69 has the third highest share of the screenline traffic with a share of 18.9 percent. Among arterial routes, US 169 has the highest traffic share at 14.0 percent.

Table 2-6 Screenline Traffic Volumes and Shares

ID	Location Description	2019 Average Weekday Traffic	Screenline Share
Screenline 1 - East of US 69			
SC-21	179th Street east of US 69	4,900	1.2%
SC-210	103rd Street east of US 69	17,500	4.3%
SC-211	95th Street east of US 69	28,700	7.1%
SC-22	167th Street east of US 69	2,800	0.7%
SC-23	159th Street east of US 69	26,300	6.5%
SC-24	151st Street east of US 69	33,200	8.2%
SC-26	135th Street east of US 69	53,900	13.4%
SC-27	Blue Valley Parkway north of US 69	33,500	8.3%
SC-28	119th Street east of US 69	27,500	6.8%
SC-29	**I-435 east of US 69**	**174,400**	**43.3%**
Screenline 1: Total		**402,700**	**100.0%**
Screenline 2 - North of I-435			
SP-7	**I-435 north of SH 10**	83,600	14.4%
SC-31	**I-35 north of I-435**	111,000	19.2%
SC-310	State Line Road north of I-435	25,400	4.4%
SC-32	Quivira Road north of 99th Street	18,700	3.2%
SC-33	**US 69 north of 103rd Street**	97,700	16.9%
SC-34	Antioch Road north of I-435	18,300	3.2%
SC-35	Metcalf Avenue north of 99th Street	36,100	6.2%
SC-36	Lamar Avenue north of I-435	2,700	0.5%
SC-38	Roe Avenue north of I-435	7,800	1.3%
SP-3	**US 71 north of I-435**	**84,100**	**14.5%**
SP-4	**I-435 north of Bannister Road**	**93,800**	**16.2%**
Screenline 2: Total		**579,200**	**100.0%**
Screenline 3: North of 127th Street			
SC-42	**I-35 north of 127th Street**	122,900	47.9%
SC-46	Switzer Road north of 127th Street	10,100	3.9%
SC-47	Antioch Road north of 127th Street	21,000	8.2%
SC-48	**US 69 north of Blue Valley Parkway**	64,900	25.3%
SC-49	Metcalf Avenue north of 127th Street	**16,700**	**6.5%**
SC-410	Nail Avenue north of 127th Street	**21,200**	**8.3%**
Screenline 3: Total		**256,800**	**100.0%**
Screenline 4: North of 175th Street			
SP-6	**I-35 north of 175th Street**	**55,900**	**29.0%**
SC-61	**US 169 north of 175th Street**	**27,000**	**14.0%**
SC-610	Metcalf Avenue north of 175th Street	4,100	2.1%
SC-611	Mission Road north of 175th Street	1,200	0.6%
SC-612	Holmes Road north of 175th Street	4,900	2.5%
SC-62	Ridgeview Road north of 175th Street	3,000	1.6%
SC-63	Renner Road north of 175th Street	2,100	1.1%
SC-64	Legler Road north of 175th Street	800	0.4%
SC-65	Lackman Road north of 175th Street	3,000	1.6%
SC-66	Pflumm Road north of 175th Street	2,300	1.2%
SC-67	Quivira Road north of 175th Street	1,100	0.6%
SC-68	Switzer Road north of 175th Street	1,900	1.0%
SC-69	**US 69 north of 179th Street**	36,500	18.9%
SP-5	**I-49 north of Cass Parkway**	**49,200**	**25.5%**
Screenline 4: Total		**193,000**	**100.0%**

Table 2-7 Spot Count Traffic Volumes

ID	Location Description	2019 Average Weekday Traffic
SP-1	I-35 east of US 69	158,000
SP-2	I-435 west of US 71	70,600
SP-8	SH 10 east of Ridgeview Road	89,500

Table 2-8 ATR Count Location Traffic Volumes

ID	Location Description	2019 Average Weekday Traffic
100901/902	K-10 east of Kill Creek Road	42,200
100601/602	I-435 south of I-70	79,100
100801/801	Black Bob Road south of 135th Street	23,000
100701/701	135th Street east of Mur-Len Road	35,900
100501/501	US 69 Mainlane south of 135th Street	66,200

Table 2-9 Ramp Traffic Volumes

ID	Location Description	2019 Average Weekday Traffic
102	NB Entrance Ramp from 179th Street	4,200
103	SB Exit Ramp to 179th Street	4,200
202	NB Entrance Ramp from 167th Street	1,600
203	SB Exit Ramp to 167th Street	1,600
301	NB Exit Ramp to 159th Street	3,600
302	NB Entrance Ramp from 159th Street	8,400
303	SB Exit Ramp to 159th Street	8,400
304	SB Entrance Ramp from 159th Street	3,600
401	NB Exit Ramp to 151st Street	5,600
402	NB Entrance Ramp from 151st Street	14,800
403	SB Exit Ramp to 151st Street	14,800
404	SB Entrance Ramp from 151st Street	5,600
501	NB Exit Ramp to 135th Street	7,400
502	NB Entrance Ramp from 135th Street	14,500
503	SB Exit Ramp to 135th Street	22,700
504	SB Entrance Ramp from 135th Street	7,400
505	NB Entrance Ramp from 135th Street	8,200
601	NB Exit Ramp to Blue Valley	16,800
604	SB Entrance Ramp from Blue Valley	16,800
701	NB Exit Ramp to 119th Street	2,700
702	NB Entrance Ramp from 119th Street	15,900
703	SB Exit Ramp to 119th Street	6,400
704	SB Entrance Ramp from 119th Street	2,700
801	NB Exit Ramp to College Blvd	4,400
802	NB Entrance Ramp from College Boulevard	5,500
803	SB Exit Ramp to College Boulevard	6,200
804	SB Entrance Ramp from College Boulevard	15,700
805	NB Entrance Ramp from College Boulevard	5,000
901	NB Exit Ramp to I-435	8,800
902	NB Entrance Ramp from I-435	3,800
903	NB Exit Ramp to I-435	14,900
904	NB Entrance Ramp from I-435	17,500
1001	NB Exit Ramp to 103rd Street	4,300
1002	NB Entrance Ramp from 103rd Street	3,800
1003	SB Exit Ramp to 103rd Street	22,200
1101	NB Exit Ramp to 95th Street	8,300
1102	NB Entrance Ramp from 95th Street	3,800
1103	SB Exit Ramp to 95th Street	3,800
1104	SB Entrance Ramp from 95th Street	8,300

2.3.2 Seasonal Variation Trends

KDOT has several permanent traffic counters along state highways and some arterials throughout Kansas that continuously record traffic volumes. The traffic data was obtained for permanent count stations along three freeways (US 69, I-435, and K-10) and two arterials (135th Street and S. Black Bob Road) to gauge the monthly/seasonal variation in traffic compared to the overall annual average. **Figure 2-8** shows the average monthly variations summarized as seasonal indices. The peak months are typically May, June, September, and October. These seasonal variations were taken into consideration as part of the model calibration to compare AWDT counts to those produced by the travel demand model.

Figure 2-8 Monthly/Seasonal Variation for Average Daily Traffic for US 69

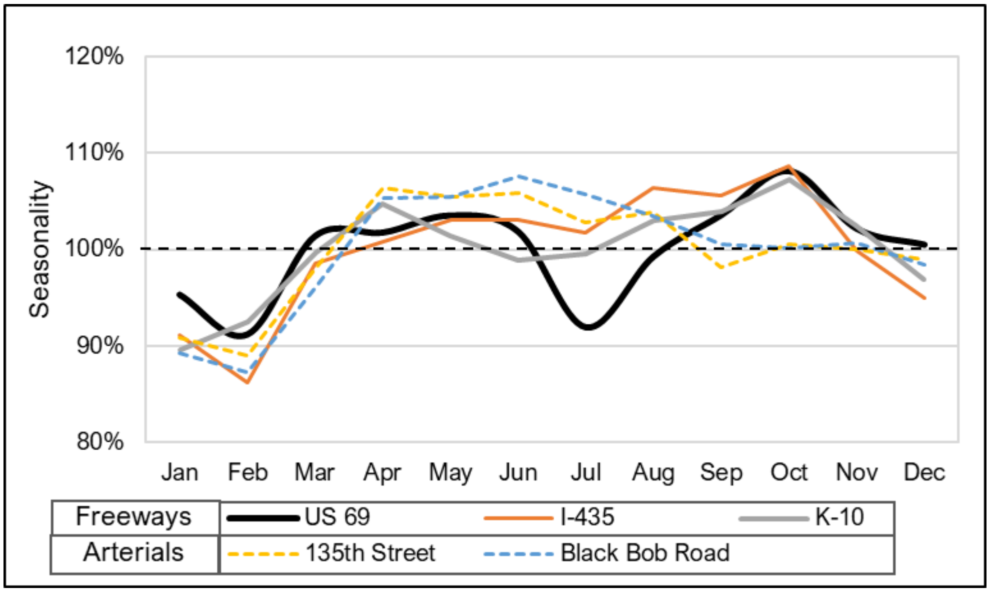
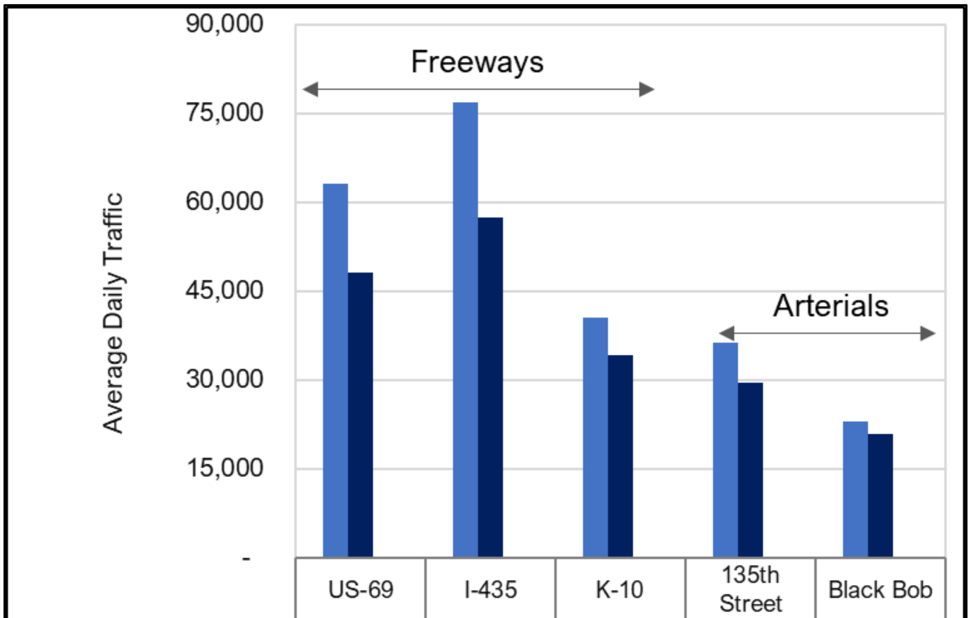


Figure 2-9 summarizes the yearly average weekday versus weekend factors for all the permanent count locations, including the US 69 corridor. The average weekend traffic is approximately 74 to 84 percent and 82 to 90 percent of the AWDT for freeways and arterials, respectively.

Figure 2-9 Average Weekday vs. Weekend Distribution



	US-69	I-435	K-10	135th Street	Black Bob
Avg. Weekday (2019)	63,200	76,800	40,600	36,300	23,100
Avg. Weekend (2019)	48,100	57,400	34,200	29,600	20,800
Weekend Share	76.1%	74.7%	84.2%	81.5%	90.0%

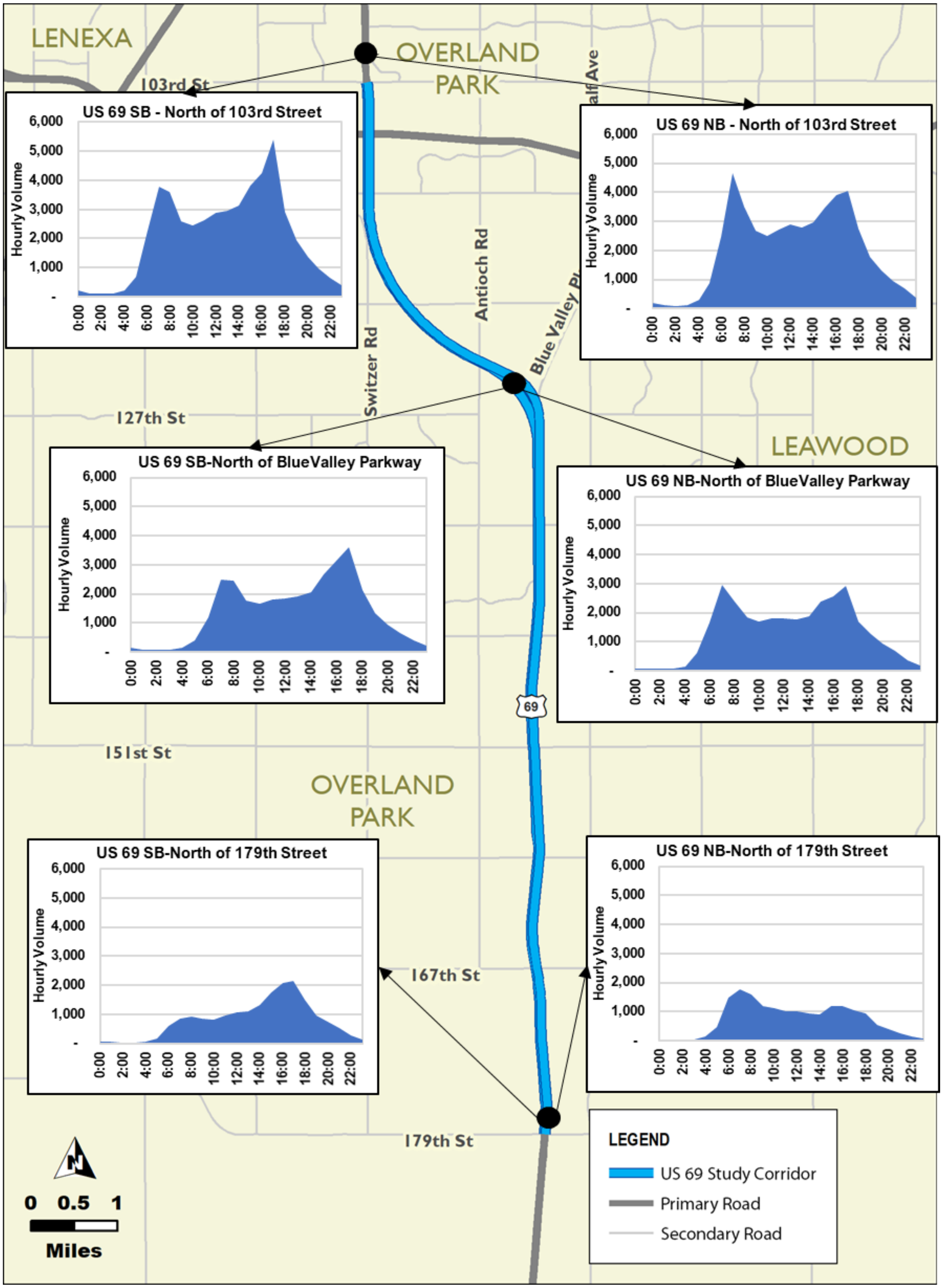
2.3.3 Time-of-Day Traffic Distribution

Comprehensive traffic volume profiles were summarized to show the average traffic demand along US 69 in both the northbound and the southbound directions, for the peak and off-peak periods. The peak periods were further divided into individual hours in the regional travel demand model. The comprehensive mainlane and ramp counts collected along US 69 were used to generate the overall traffic profile along the entire corridor for the four time periods listed below:

- AM Peak Period – 5:00 AM to 9:00 AM;
- Midday Period – 9:00 AM to 3:00 PM;
- PM Peak Period – 3:00 PM to 7:00 PM; and
- Night Period – 7:00 PM to 5:00 AM.

Figure 2-10 summarizes the temporal distribution of the US 69 main lane volumes at three locations along the US 69 study corridor. The 15-minute traffic counts are displayed as hourly volumes by adding the four 15-minute volumes in an hour for illustrative purposes to show the hour in which the highest traffic volume was observed. As shown in the figure, most of the locations displayed peak traffic in the northbound direction during the morning hours and in the southbound direction during the evening hours. The highest hourly equivalent traffic occurred in the southbound direction at 103rd Street with over 5,400 vehicles per hour (vph). The lowest hourly peak period traffic of 900 vph was observed at the southern terminus of the corridor, in the southbound direction.

Figure 2-10 Temporal Distribution of Traffic along US 69 – 2019



2.3.4 Corridor Peak Period Traffic

As described earlier, an analysis of the temporal distribution of the traffic was conducted by analyzing the AWDT volumes, which were obtained from the 15-minute counts taken in October 2020 and combined into the hours in each respective period. This data is summarized in **Figures 2-11** and **2-12** for the AM and PM peak period volumes by travel direction along US 69. The graphics again illustrate that the predominant direction of travel is the northbound direction in the AM peak period with the highest traffic volume north of 103rd Street. Between 103rd Street and 179th Street, the traffic volumes along the US 69 corridor gradually decrease to the minimum volume recorded at the southern terminus of the study corridor, at 179th Street. During the PM peak period, the predominant direction of travel is in the southbound direction, converse of the traffic profile for the northbound direction which exhibits higher traffic during the AM peak period.

Figure 2-11 AM Peak Period (5:00 AM – 9:00 AM) Traffic Volumes along the Study Corridor

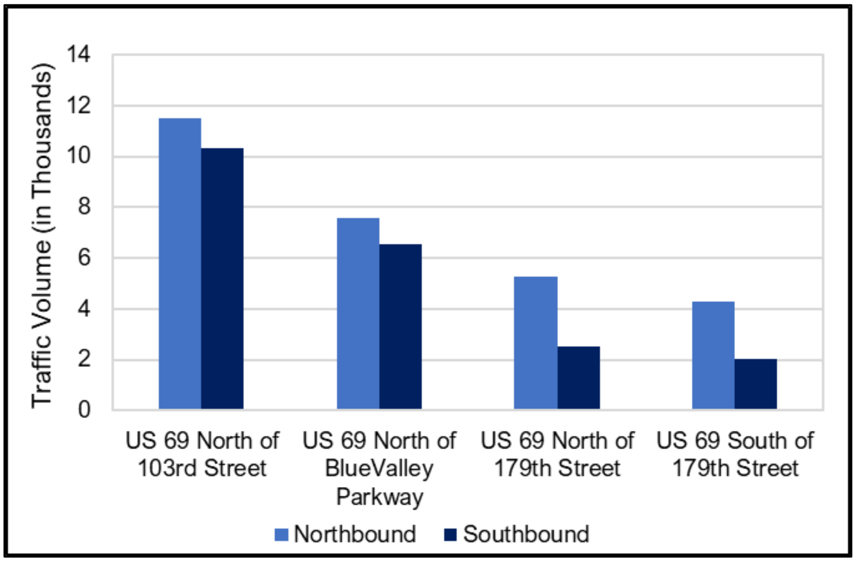
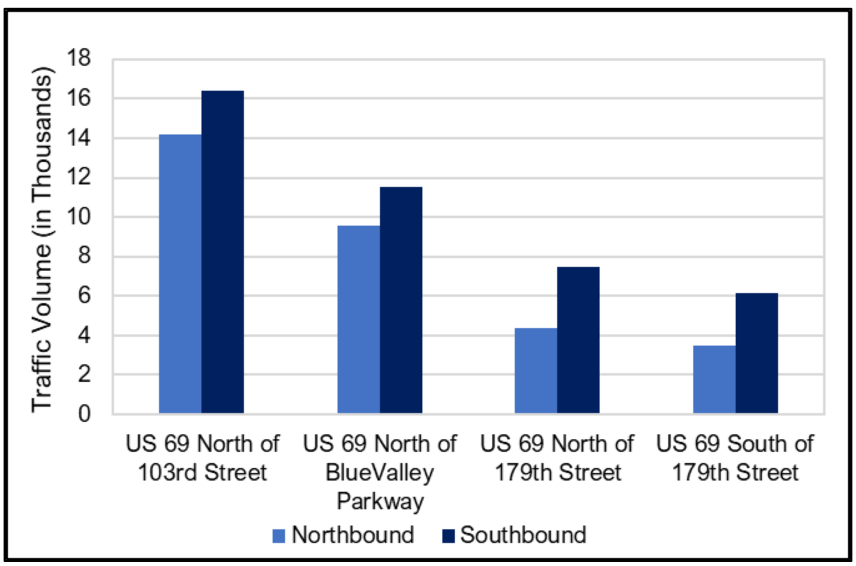


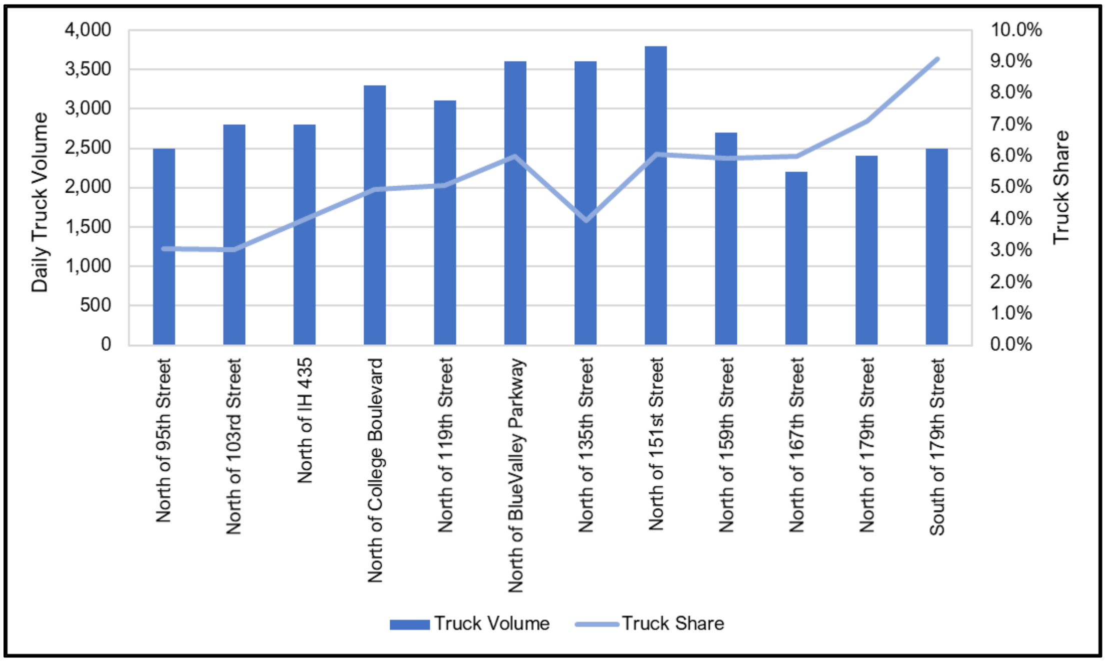
Figure 2-12 PM Peak Period (3:00 PM – 7:00 PM) Traffic Volumes along the Study Corridor



2.3.5 Corridor Daily Truck Share

Figure 2-13 illustrates the 2019 truck traffic volumes along the US 69 corridor, between 95th Street and 179th Street. These truck volumes were estimated from the HNTB-developed 2019 balanced daily traffic volumes summary. As seen in the figure, the US 69 mainlanes north of 151st Street have the highest volume of trucks in 2019 with around 3,800 daily trucks. Truck traffic was low at the southern terminus of the study corridor, near 179th Street and 167th Street. Despite low truck traffic, the highest truck share was observed towards the southern end of corridor (south of 179th Street) as the total traffic is lower compared to northern end of corridor. Truck share of six percent was observed north of 151st Street and Blue Valley Parkway. A four percent truck share was observed north of 135th Street and three percent at the northern end of the study corridor predominately due to the higher overall traffic observed at these locations.

Figure 2-13 2019 Truck Traffic Volumes and Percent Shares along the US 69 Study Corridor



2.4 Speed and Delay Information

One of the crucial inputs for an express lanes study is the current operating characteristics of the study corridor and any competing roadways. Travel time data was collected from two different sources for this study. The first source was historical travel time data obtained from INRIX, Inc., a traffic data company based in Washington State that maintains an archive of travel speed data for thousands of roadways across the United States accumulated by tracking vehicles with GPS-enabled devices. INRIX is a Data as a Service (DaaS) company that monitors traffic flow along approximately 260,000 miles of major freeways, highways, urban and rural arterials, and side streets in the United States. This data provides historical as well as real-time traffic data seven days a week, 24 hours a day in as little as five-minute increments for all metro areas with a population of more than one million. INRIX was engaged to provide travel speed data for several roadways within the study area.

INRIX obtains its data via crowd sourcing and collects travel speed information from various probes, including anonymous cell phones/smartphones and vehicles equipped with GPS devices (trucks, delivery vans, transit vehicles, etc.). The collected data is then processed in real-time to create travel speed information along most of the major roadways.

The second source was the *National Performance Management Research Data Set* (*NPMRDS*). The NPMRDS is a monthly archive of average travel times, reported every five minutes when data is available, on the National Highway System. The travel times are based on vehicle probe-based data. Separate average travel times are included for “all traffic”, freight and passenger travel. FHWA provides access to the NPMRDS to the State DOT and MPO partners for their performance management activities.

2.4.1 Route Selection

Speed information was obtained from INRIX for selected arterial routes in Johnson County, Kansas, and Cass and Jackson counties in Missouri. The speed and delay data for the US 69 corridor and other major highways were extracted from the NPMRDS.

Several arterial routes were selected for analysis to provide a profile of the fluctuation in average travel speeds throughout the US 69 study area and the relationship between demand and congestion levels. INRIX data was collected for 2019 for arterials in the vicinity of the US 69 corridor. It should be noted that the data collected included travel speeds for Tuesday through Thursday. Hence, the data represent a typical weekday and exclude weekends and potentially atypical characteristics of traffic usually observed on Mondays and Fridays.

Similarly, data along the US 69 corridor, obtained from NPMRDS, was collected at the fifteen-minute level for typical weekdays (Tuesday through Thursday) from February through April 2019.

The subsequent section discusses the speed and delay data analyzed along nearby arterial routes within the study area and along the US 69 study corridor.

2.4.2 Speed Information

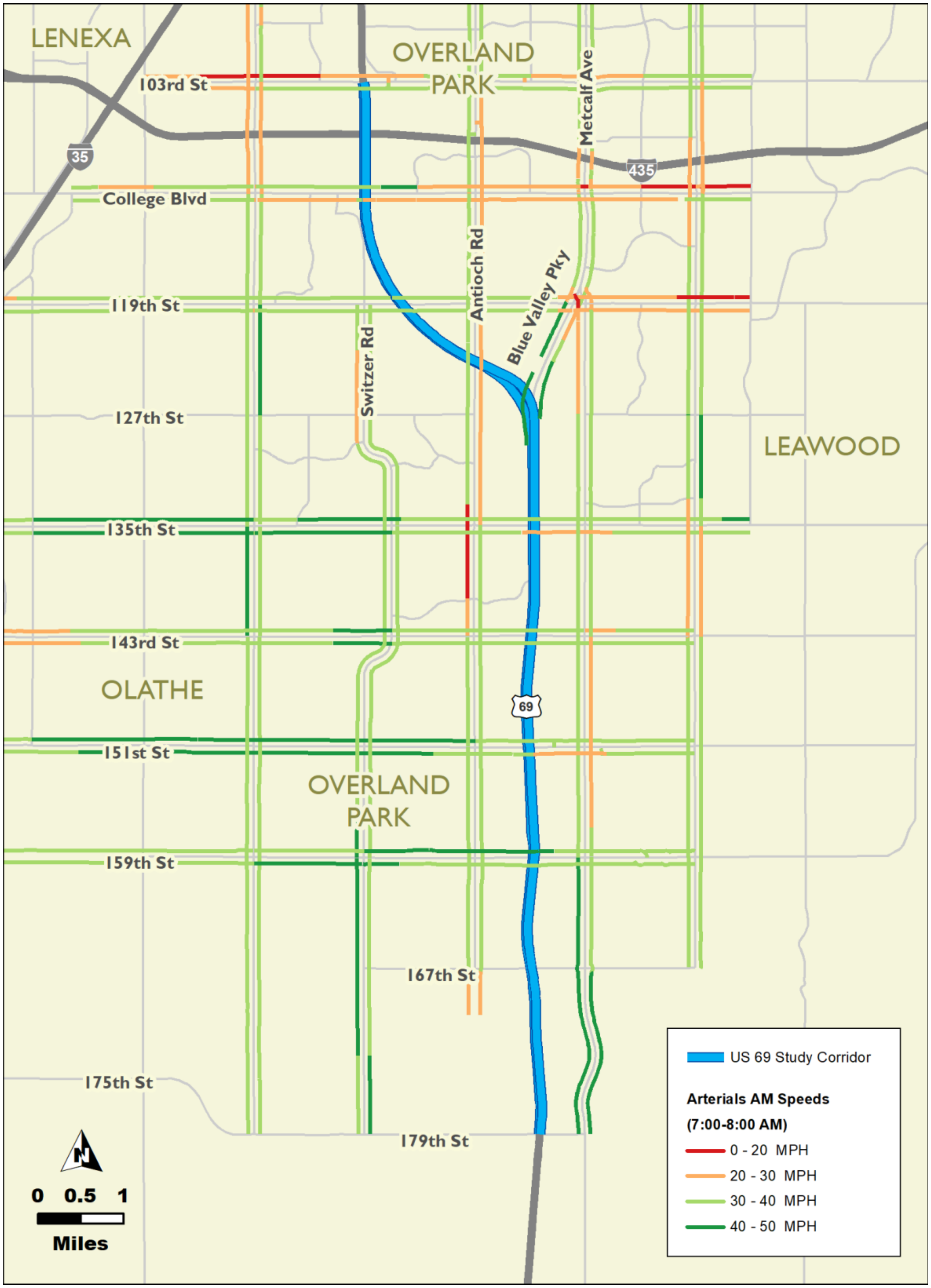
Figures 2-14 and **2-15** illustrate the speed data collected along key arterial routes within the US 69 study area. The data shows some slowdowns around major intersections and further north along 103rd Street and College Boulevard, however, many of the segments were shown to be operating at speeds of 30 mph or higher during the AM and the PM peak hours.

Figures 2-16 and **2-17** illustrate the average travel speeds along US 69 for the AM peak period (5:00 AM to 9:00 AM) and the PM peak period (3:00 PM to 7:00 PM), respectively. The speed data collected in concert with the traffic data collection effort were used to support the development of congestion characteristics and the ensuing volume profiles.

For the morning peak period, the peak direction of travel along US 69 corridor is in the northbound direction as commuters head north towards Kansas City. The corridor becomes congested between 151st Street and 135th Street, with speeds dropping to less than 25 mph. The decrease in speed for this section begins after 7:00 AM and continues through 9:00 AM and is likely due to the higher entrance volume during the morning period from 151st Street. However, the corridor speeds to the north of this section were shown to increase to over 60 mph for the remainder of the corridor length throughout the entire peak period.

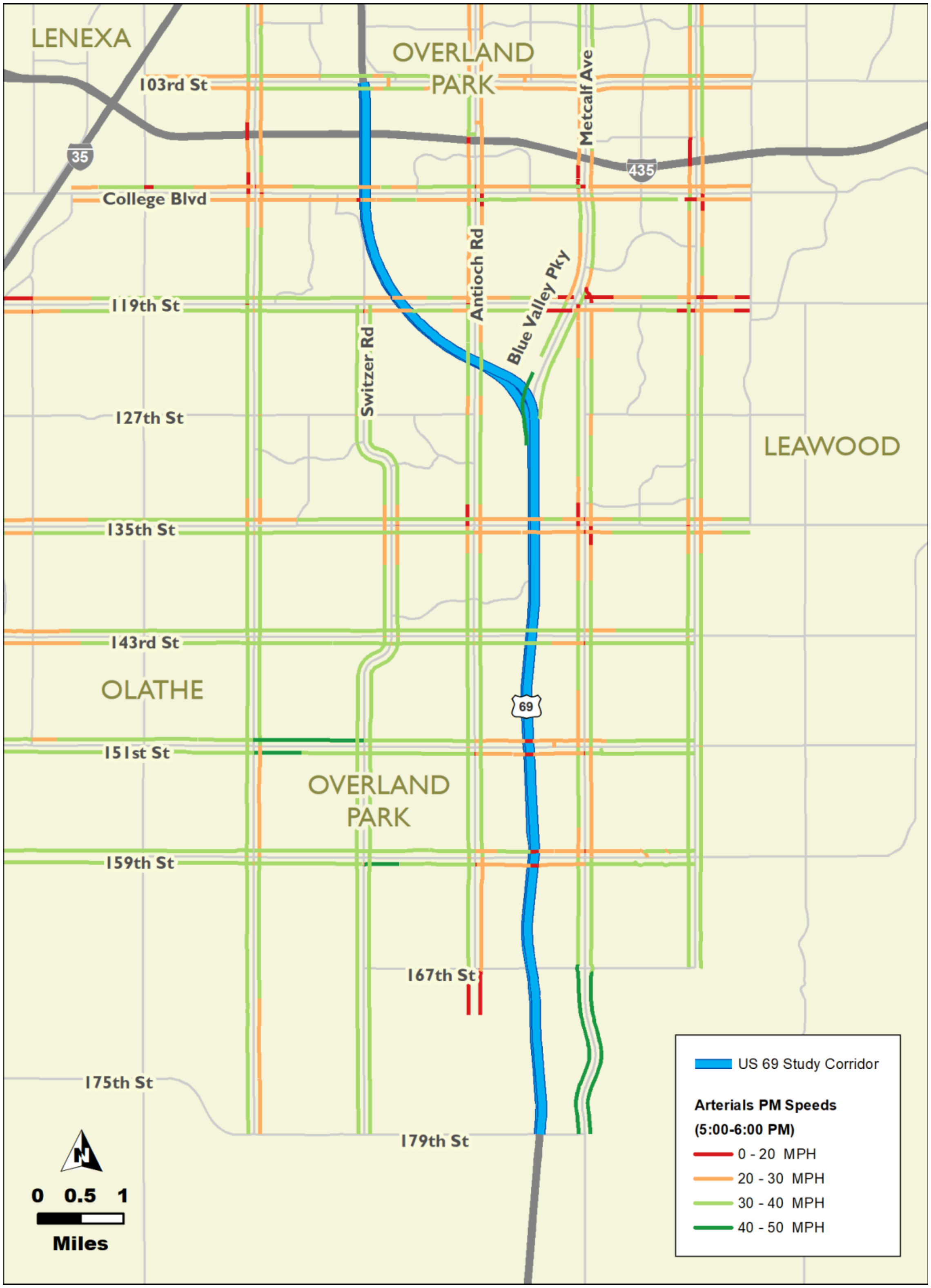
For the evening peak period, the peak direction of travel along US 69 corridor is in the southbound direction. The corridor becomes congested between College Boulevard and north of 151st Street, with speeds dropping to less than 45 mph in this section. At the 119th Street location, speeds drop to less than 25 mph, likely due to the higher southbound volume and the various merge points in this section. Aside from this section, observed speeds are approximately 60 mph and over for all other sections. During the evening peak period, the northbound traffic is also congested between 119th Street and I-435, and otherwise operates under free-flow speeds for the remaining sections and periods. For both the southbound and northbound directions, the lowest speeds are seen during the PM peak hour (5:00 PM to 6:00 PM).

Figure 2-14 2019 Average Weekday Speeds Along Arterials – AM Peak Hour (7:00 AM to 8:00 AM)



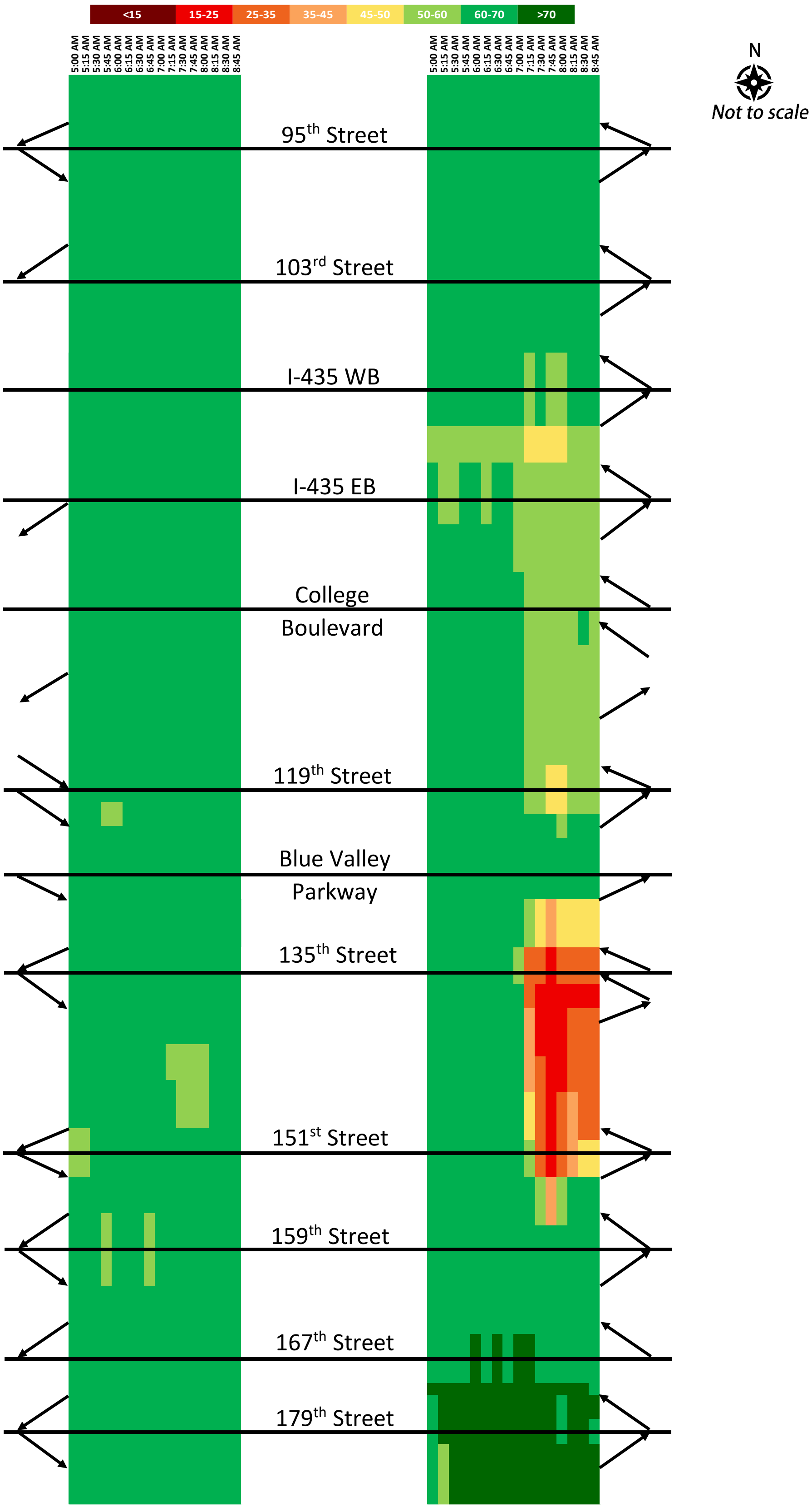
Source: INRIX

Figure 2-15 2019 Average Weekday Speeds Along Arterials – PM Peak Hour (5:00 PM to 6:00 PM)



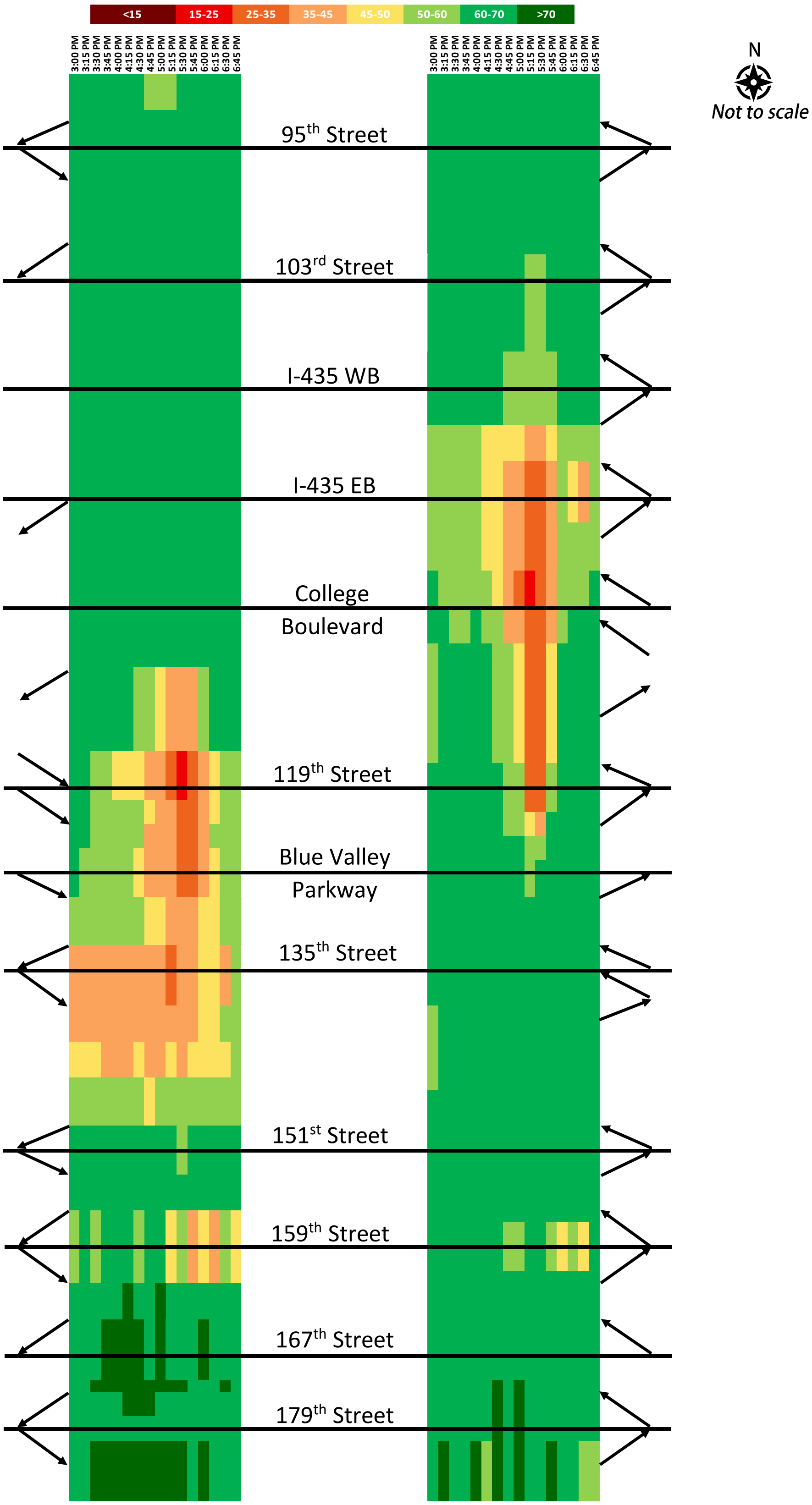
Source: INRIX

Figure 2-16 2019 Average Weekday Speed Profile Along US 69 – AM Peak Period (5:00 AM to 9:00 AM)



Source: NPMRDS

Figure 2-17 2019 Average Weekday Speed Profile Along US 69 – PM Peak Period (3:00 PM to 7:00 PM)



Source: NPMRDS

2.5 Origin-Destination Patterns

O-D data for the US 69 study corridor was obtained from StreetLight Data, a data analytics company based in San Francisco, California that compiles and analyzes the O-D patterns of traffic by tracking vehicles through GPS-enabled devices and mobile phones.

O-D data which represented the average weekday (Tuesday through Thursday) conditions for 2019 was obtained from StreetLight Data and the "location-based services with pass-through" metrics were analyzed to understand the travel pattern of the users passing through different sections of the US 69 study corridor. The data was summarized for an average weekday condition during both the AM Peak (5:00 AM – 9:00 AM) and the PM Peak (3:00 PM – 7:00 PM) periods. **Figure 2-18** illustrates the pass-through locations that were selected to collect the O-D data.

Figure 2-19 summarizes the average O-D patterns of traffic along southbound US 69 south of 87th Street during the AM and the PM peak periods. During the AM peak period, over half of this traffic exits to the intersecting arterials, primarily, 95th Street and 103rd Street and the collector-distributor from 103rd Street to I-435. The remaining half continues southbound along the US 69. Over 32 percent of the southbound traffic was observed to exit to the I-435 freeway. The remaining traffic continues further south with approximately only two percent of the traffic reaching the southern terminus of the study corridor, implying that the majority of traffic was destined to several cross-streets along the corridor. It should be noted that 135th Street exit carried 13.4 percent of the southbound US 69 traffic.

During the PM peak period, approximately 43 percent of traffic along southbound US 69 south of 87th Street exits to the adjacent arterials, primarily, 95th Street and 103rd Street and the collector-distributor from 103rd Street to I-435. As a result, only about 57 percent of the traffic continues southbound along US 69. Over 24 percent of the southbound traffic was observed to exit to I-435, with the remaining traffic continuing further south. Less than four percent of the traffic reaches the southern terminus of the study corridor, again suggesting that the majority of traffic is destined to one of the several cross-streets along the corridor. It should be noted that the 119th Street and 135th Street exits comprise 16.8 and 16.7 percent of the southbound US 69 traffic, respectively.

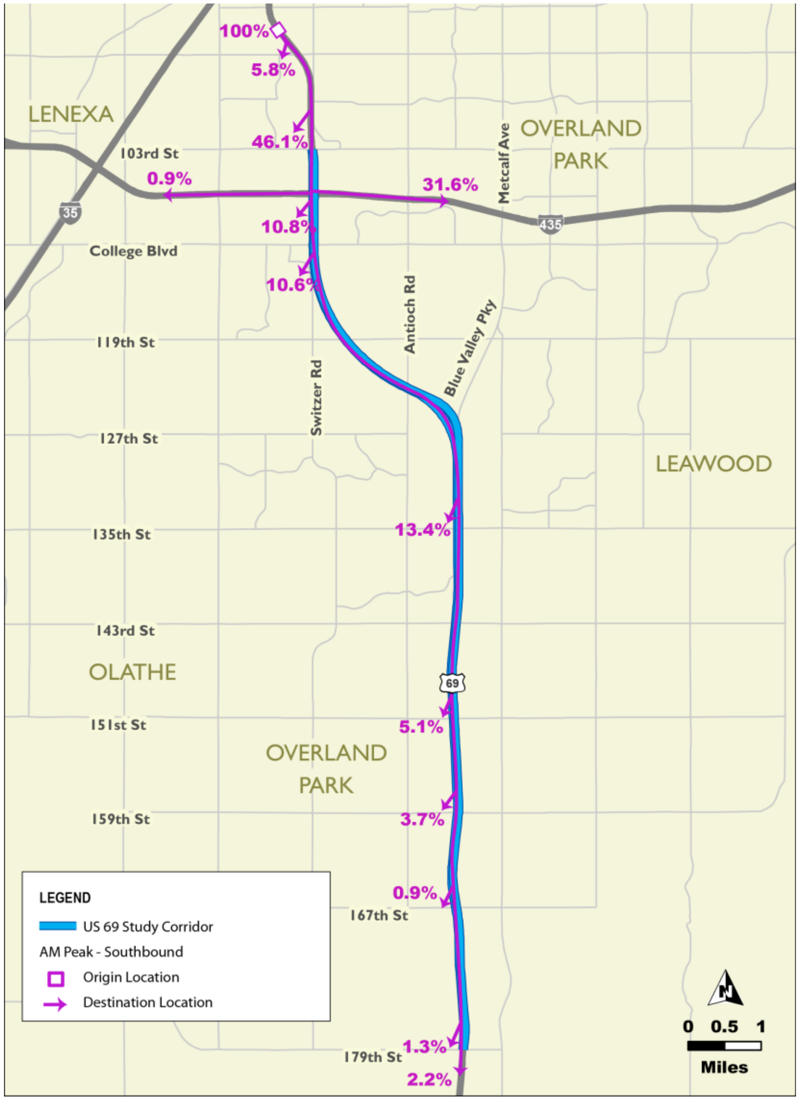
Figure 2-20 exhibits the average O-D pattern of traffic along northbound US 69 from south of 179th Street during the AM and the PM peak periods. During the AM peak period, over 20 percent of the northbound traffic exits to Blue Valley Parkway. Between 179th Street and Blue Valley Parkway, over half of the northbound traffic have destinations along the adjacent arterials. The remaining traffic continues further north, with over four percent of the overall traffic reaching the northern terminus of the study corridor, thus demonstrating that the majority of traffic is destined to the several cross-streets along the corridor.

During the PM peak period, the observed northbound US 69 O-D traffic patterns from south of 179th Street were similar to those observed during the AM peak period, with over two-thirds of the northbound traffic having destinations along the adjacent arterials. Over 16 percent of the northbound traffic was observed to exit at I-435, with the remaining traffic continuing further north. Less than four percent of the overall traffic reaches at the northern terminus of the study corridor.

Figure 2-18 StreetLight OD Locations

Figure 2-19 US 69 Southbound O-D Patterns of Traffic Observed South of 87th Street

AM Peak Period



PM Peak Period

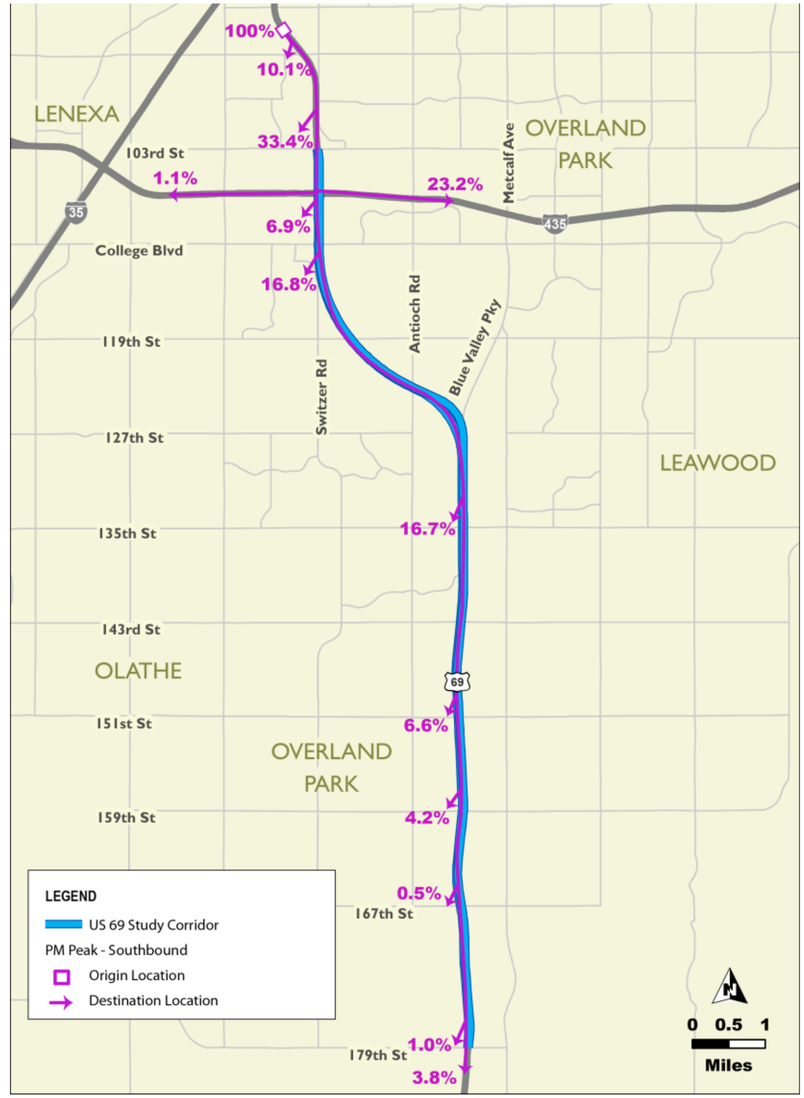
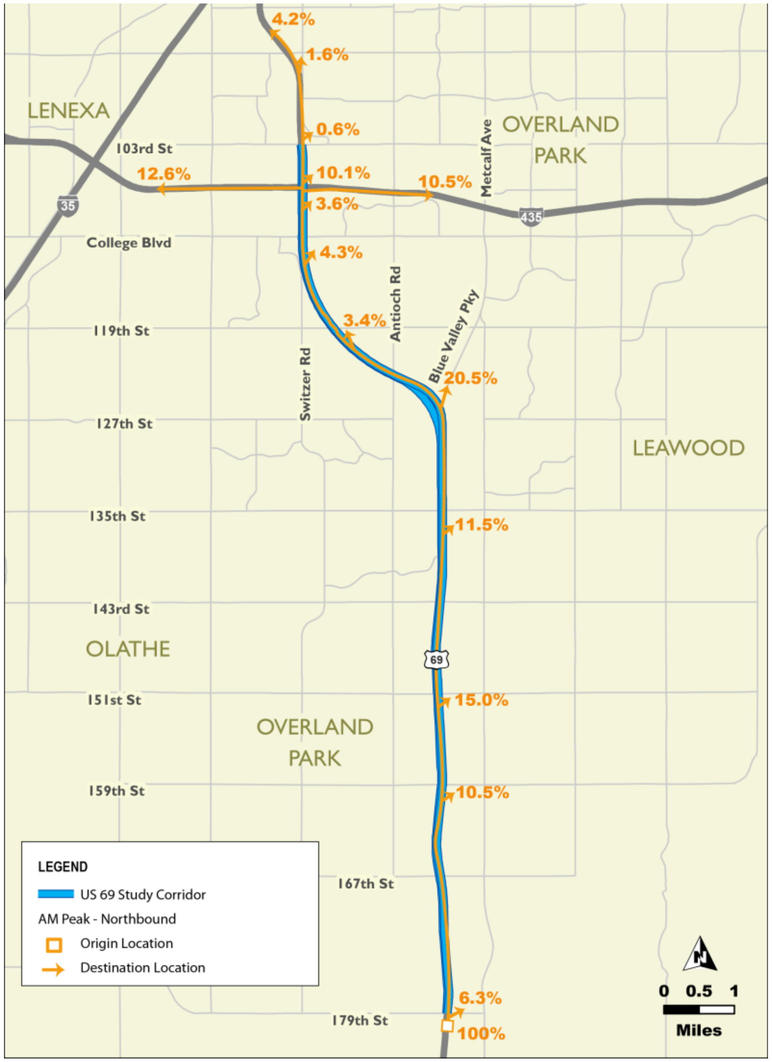
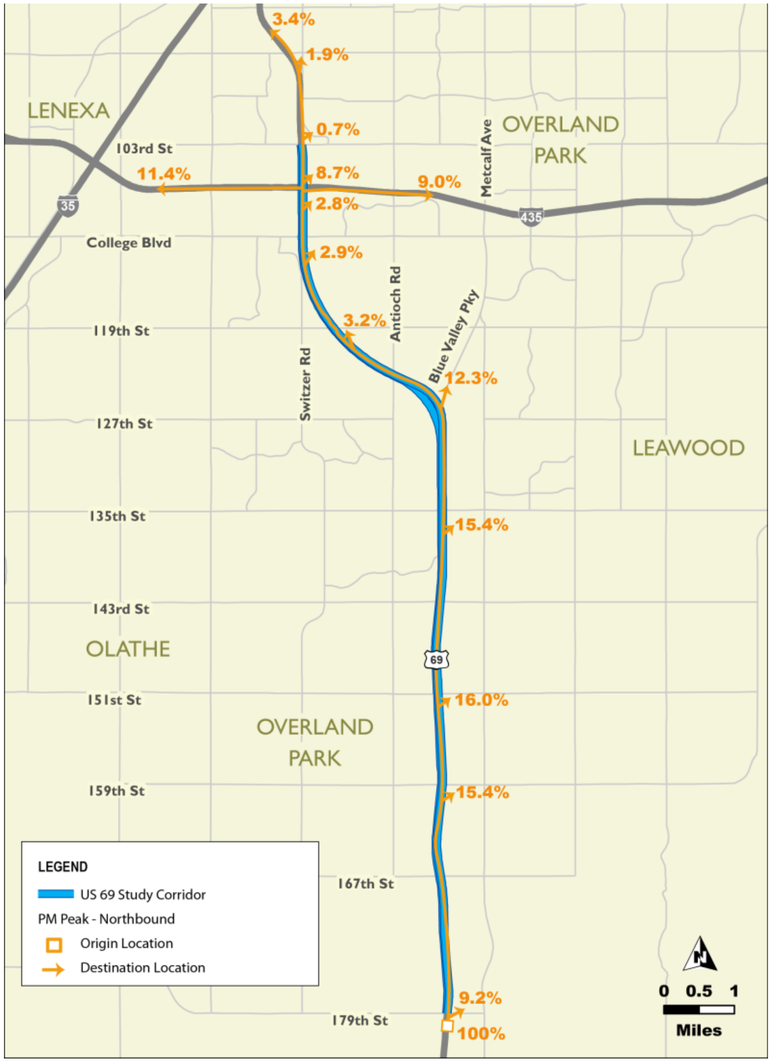


Figure 2-20 US 69 Northbound O-D Patterns of Traffic Observed South of 179th Street

AM Peak Period



PM Peak Period



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Chapter 3

Background Transportation Characteristics

This chapter provides information about existing and forecasted transportation characteristics within the US 69 study area. The information provided herein draws upon the Mid-America Regional Council (MARC) Connected KC 2050 plan, the Metropolitan Transportation Plan (MTP) for Kansas City (*Connected KC 2050*), adopted in June 2020 by MARC – the Metropolitan Planning Organization responsible for conducting multimodal, long-range, regional planning within Kansas City. *Connected KC 2050* is a comprehensive, multimodal transportation strategy developed by MARC to address the mobility needs of the Kansas City area. It serves as a guideline for the region's planned investments in transportation infrastructure and services over the next 30 years. This chapter also refers to the US 69 Phase 1 Report (June 2018) and the US 69 Pre-Planning Analysis (March 2020) both conducted by HNTB for the City of Overland Park, Kansas.

Connected KC 2050 outlines approximately $14.2 billion worth of expenditures through 2050 for transportation projects. This chapter focuses specifically on the highway and public transportation expenditures in order to determine their likely impact on the toll revenue generation potential of the proposed US 69 express lanes. A breakdown of planned transportation investments by type and sponsoring agencies is summarized in **Table 3-1**.

Table 3-1 Connected KC 2050 Plan Infrastructure Investment

Kansas			Missouri			Transit		
	Number of projects	2019 dollars in millions		Number of projects	2019 dollars in millions		Number of projects	2019 dollars in millions
State			**State**			**State**		
Constrained*	23	$2,292	Constrained	17	$882	Constrained	5	$158
Illustrative**	17	$1,131	Illustrative	36	$1,276	Illustrative	10	$1,213
Subtotal	40	$3,423	Subtotal	53	$2,158	Subtotal	15	$1,371
Local			**Local**					
Constrained	177	$2,815	Constrained	67	$1,123			
Illustrative	0	-	Illustrative	73	$3,321			
Subtotal	177	$2,815	Subtotal	140	$4,444			

** Projects above the median score (74.5) and above the median committee ranking (1.51) were included in the financially constrained project listing, if sufficient financial resources were projected to support them.*
*** Projects above both the median score and median committee ranking that could not be supported by projected financial resources were included in the high-priority illustrative list. The plan identifies potential new revenue sources that could be pursued to increase the region's financial capacity in the future.*

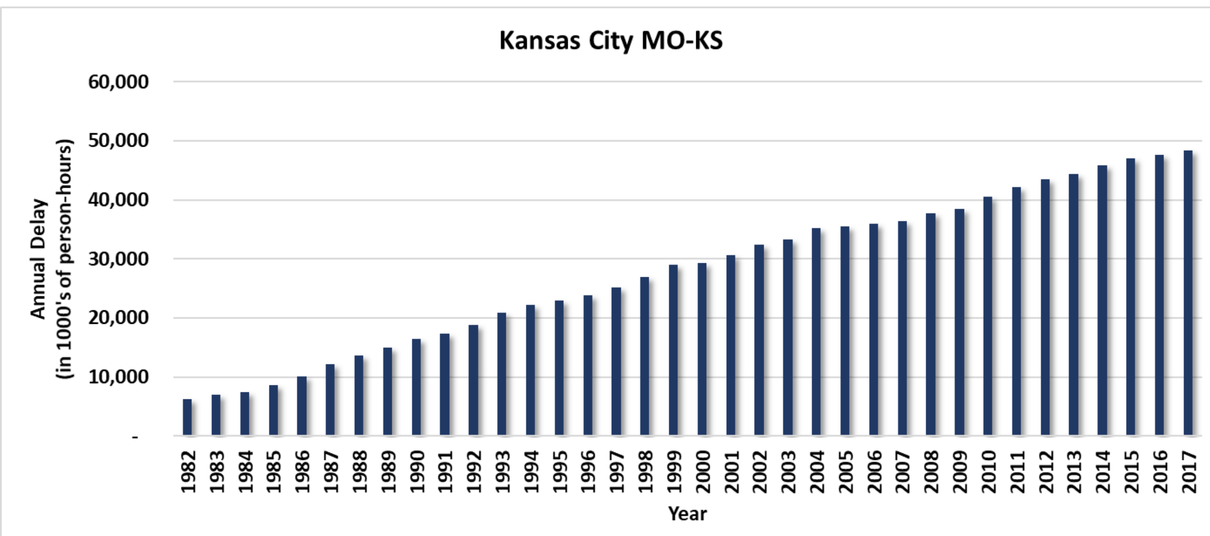
The transportation system defined in the *Connected KC 2050* and described herein was incorporated into the networks and the trip tables used to estimate the traffic and toll revenue for the proposed US 69 express lanes project. The trip tables and networks were obtained from MARC and reflect financially constrained planned transportation infrastructure development over the next 30 years.

Connected KC 2050 identifies US 69 as a part of the National Highway System and as a major freeway within the Kansas City region. The *Connected KC 2050* plan also describes the travel time reliability index as 'fair', and projects identified in the plan are identified to maintain and/or improve that rating. KDOT specifically identified a multi-phase project along US 69 from 103rd Street to 179th Street over the next few decades to implement needed improvements and to sustain the corridor's viability.

3.1 Traffic Congestion Trends

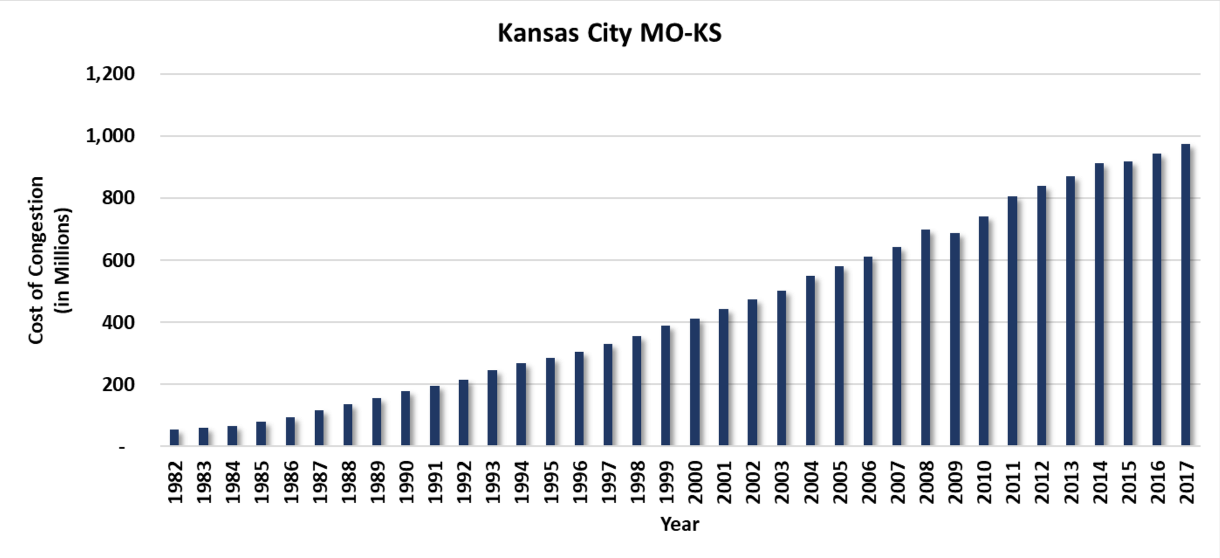
As illustrated in **Figures 3-1** and **3-2**, the Texas A&M Transportation Institute 2018 Urban Mobility Report estimated that the total cost of congestion for the Kansas City metropolitan region in 2017 was approximately $974 million and that total travel delay was approximately 48.3 million hours. The cost of congestion twenty years prior (in 1997), was approximately $329 million and the total travel delay was approximately 25.2 million hours. The costs of congestion and travel delay have therefore grown between 1997 and 2017 at average annual rates of 5.6 and 3.3 percent, respectively. The increases in regional congestion over the last twenty years, in part, is a result of transportation infrastructure construction not keeping up with the high population growth that has occurred within the region. The $14.2 billion in transportation infrastructure investment anticipated over the next 30 years (2020 through 2050) is expected to still lag behind anticipated demand such that total travel delay will likely continue to grow at a high rate for the foreseeable future.

Figure 3-1 Annual Delay Trend for Kansas City



Source: Texas A&M Transportation Institute's (TTI) 2018 Urban Mobility Scorecard

Figure 3-2 Cost of Congestion Trend for Kansas City



Source: Texas Transportation Institute's (TTI) 2018 Urban Mobility Scorecard

The 2019 Congestion Management Report, developed by MARC, shows traffic congestion and reliability data in terms of a variety of performance measures for the Kansas City metropolitan area for the year 2017. The main document of this report organizes and displays this data through ESRI Story Maps. The key findings of the report were:

- Congestion at the "severe" level is seen most prominently on highways leading into and out of downtown Kansas City, Missouri, and on the southern I-435/I-470 corridor. Exceptions include I-70 in Kansas and I-29 north of its merge with I-35. Morning congestion on major roadways is only significant around the University of Kansas Medical Center. Major roadways generally experience more congestion in the afternoon, but little of it rises to the "severe congestion" threshold.

- Reliability is worst on many of the same highway corridors that experience congestion during the peak periods. Unreliability along major roadways increases in the afternoon peak period.

- Historical Corridor Congestion Levels — Congestion generally improved from 2010 to 2012, however, the Travel Time Index for Missouri corridors increased during both the AM and the PM peak periods between 2012 and 2017. The degree of increase varied, up to 11 percent. In Kansas, two corridors had noticeable trends from 2010 to 2017: US 69 northbound improved in the morning, and I-35 southbound worsened in the afternoon.

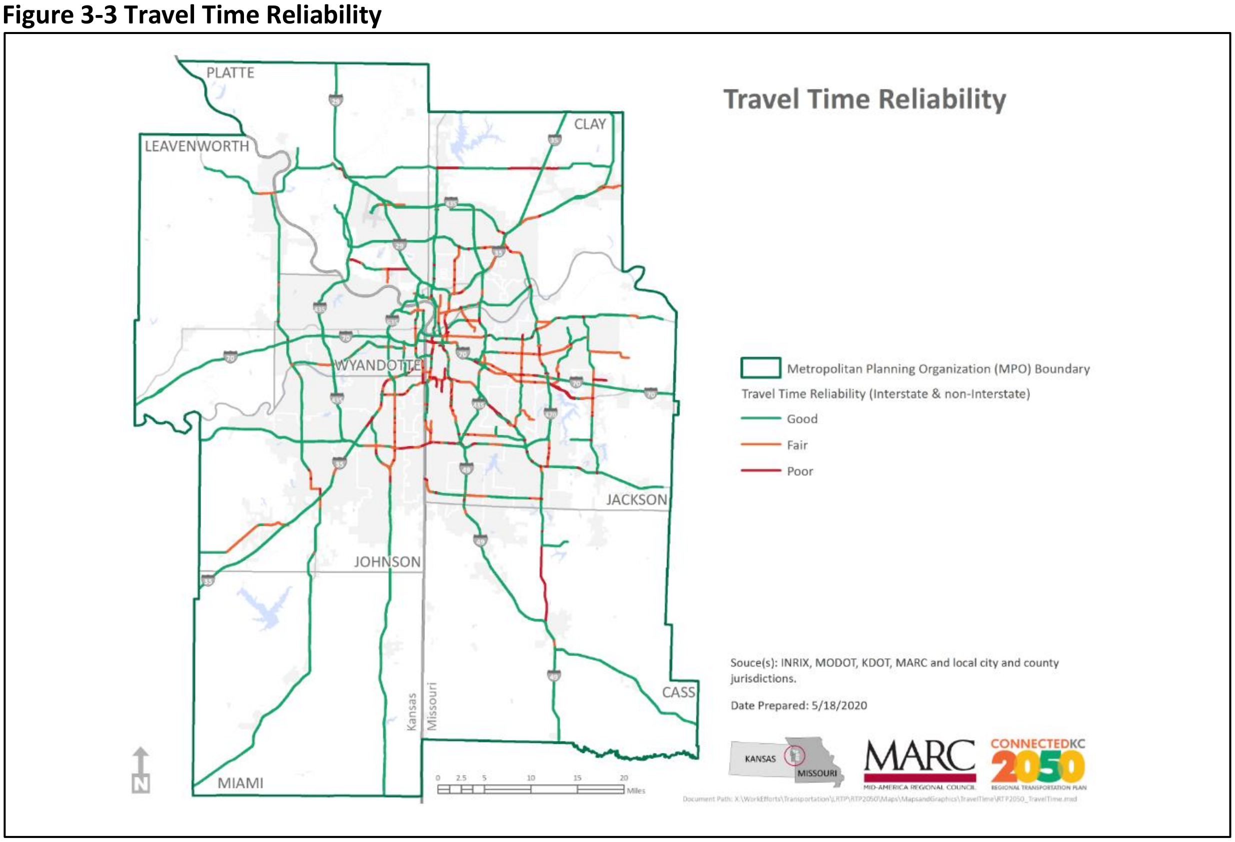
- NHS Level of Travel Time Reliability — This measure of reliability is calculated differently from the Planning Time Index and showed that many of the roads in the Kansas City region experience unreliable travel times, including some roads on the edges of the Kansas City metro area.

- Truck Travel Time Reliability Index — The federal reliability measure for trucks summarizes those interstate highways that experience high levels of unreliable travel times for commercial vehicle traffic. Little to no congestion or unreliability in other measures was indicated along I-70 or I-29 north of I-635 in Kansas, however, moderately unreliable travel times were shown along some segments of I-70.

- Peer Metro Comparisons — According to INRIX, the Kansas City urban area spent 40 hours in congestion per driver in 2017. This was the second lowest amount of time spent in congestion per driver for the 28 peer metros for which INRIX had rankings. The cost of congestion per driver for Kansas City residents was $560 in 2017.
- Average Incident Clearance Time — The MARC region's average incident clearance time for each month ranged from 24 to 33 minutes in 2017. This closely mirrored Missouri's average incident clearance times because there were more incidents logged for Missouri. Kansas's average incident clearance times was always higher than Missouri's and the MARC region's times.
- The continued population growth in the Kansas City metro area will impact travel times in the region due to increasing traffic congestion along many facilities within the region including US 69.

Figure 3-3 shows the travel time reliability for the MPO, which includes the counties of Cass, Clay, Jackson and Platte in Missouri, and Johnson, Leavenworth, Miami, and Wyandotte in Kansas. The US 69 study corridor includes segments classified as fair and poor near I-435 and Blue Valley Parkway.

Figure 3-3 Travel Time Reliability



Source: Connected KC 2050 Performance Measures

3.2 Planned Roadway System Improvements

A multitude of funded roadway recommendations are identified in the *Connected KC 2050* long-range plan to help improve overall system performance of the Kansas City area, including capacity improvements to existing freeways and arterials, as well as several new facilities. **Figures 3-4** and **3-5** highlight recommended arterial and freeway improvement projects, respectively, alongside and within the vicinity of US 69.

Several projects were reviewed and discussed regarding their suitability and timing for inclusion in the travel demand model. Confirmation of some of the project opening dates was received from the City of Overland Park and/or KDOT. Identification of these facilities is important for highlighting improvements that may materially impact T&R along the proposed US 69 express lanes. While some improvements may provide enhanced accessibility to the express lane corridor as feeders – resulting in positive impacts on the future toll revenue potential – others may compete with and dampen the express lanes' future toll revenue potential.

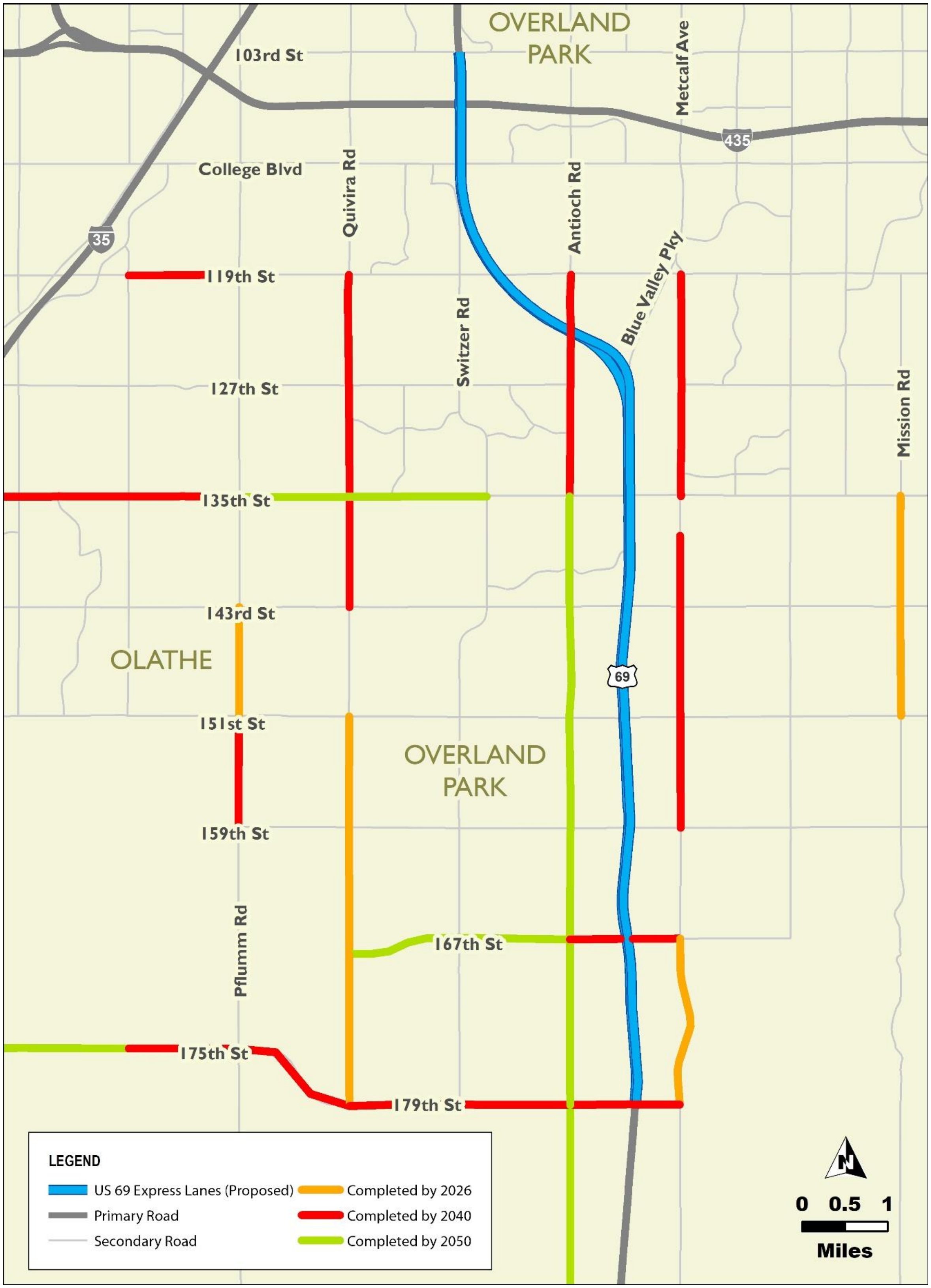
3.2.1 Arterial Projects

The planned improvement projects in the vicinity of the US 69 corridor, as shown in **Figure 3-4,** include capacity expansions along the following main corridors:

- Metcalf Avenue
- Antioch Road
- Quivira Road
- W 119th Street
- W 135th Street
- W 175th Street
- Pflumm Road
- W 167th Street
- Mission Road

A more comprehensive list of these projects is included in **Table 3-2** and key projects are described in more detail thereafter.

Figure 3-4 Proposed Connected KC 2050 Improvements around US 69 – Arterials



CDM Smith

Table 3-2 Future Arterial Projects in the Vicinity of the Study Corridor

Future Roadway Project Improvements						
Source	**Roadway**	**Limits From**	**Limits to**	**Description**	**Opening Year**	**Model Year**
RTP	Antioch Road	W 119th Street	135th Street	Widen from 4 to 6 lanes	2030-2039	2040
RTP	Antioch Road	135th Street	W 167th Street	Widen from 4 to 6 lanes	2040-2049	2050
RTP	Antioch Road	W 167th Street	W 199th Street	Widen from 2 to 4 lanes	2040-2049	2050
RTP	Metcalf Avenue	W 119th Street	159th Street	Widen from 4 to 6 lanes	2030-2039	2040
RTP	Metcalf Avenue	167th Street	179th Street	Widen from 2 to 4 lanes	2020-2025	2026
RTP	W 167th Street	Quivira Road	Switzer Road	New 4 lanes	2040-2049	2050
RTP	W 167th Street	Switzer Road	Antioch Road	Widen from 2 to 4 lanes	2040-2049	2050
RTP	W 167th Street	Antioch Road	Metcalf Avenue	Widen from 2 to 4 lanes	2020-2029	2040
TIP	Mission Road	W 135th Street	W 151st Street	Widen from 2 to 4 lanes	2020-2025	2026
RTP	Quivira Road	W 119th Street	W 143rd Street	Widen from 4 to 6 lanes	2030-2039	2040
RTP	Quivira Road	151st Street	159th Street	Widen from 2 to 4 lanes	2040-2049	2050
TIP	Quivira Road	159th Street	W 179th Street	Widen from 2 to 4 lanes	2020-2025	2026
RTP	W 119th Street	S Black Bob Road	Pflumm Road	Widen from 4 to 6 lanes	2020-2029	2040
RTP	W 135th Street	N Ridgeview Road	Pflumm Road	Widen from 4 to 6 lanes	2020-2029	2040
RTP	W 135th Street	Pflumm Road	Switzer Road	Widen from 4 to 6 lanes	2040-2049	2050
RTP	W 175th Street	Hedge Ln	Lone Elm Road	Widen from 2 to 4 lanes	2020-2029	2040
RTP	W 175th Street	Lone Elm Road	K-7	Widen from 2 to 4 lanes	2030-2039	2040
RTP	W 175th Street	K-7	Ridgeview Road	Widen from 2 to 4 lanes	2020-2029	2040
RTP	W 175th Street	Ridgeview Road	Lackman Road	Widen from 2 to 4 lanes	2040-2049	2050
RTP	W 175th/179th Street	Lackman Road	Metcalf Avenue	Widen from 2 to 4 lanes	2030-2039	2040
TIP	Pflumm Road	W 143rd Street	151st Street	Widen from 2 to 4 lanes	2020-2025	2026
RTP	Pflumm Road	151st Street	W 159th Street	Widen from 2 to 4 lanes	2030-2039	2040

Notes: RTP – Regional Transportation Plan; TIP – Transportation Improvement Plan

The projects listed above could potentially have a significant impact in terms of volume, congestion, or toll revenue along the US 69 express lanes project corridor given their proximity to or direct connection with the corridor. Metcalf Avenue and Antioch Road, which run parallel to, and within a half-mile east and west of the study corridor, respectively, are anticipated to be widened from two to four lanes and four to six lanes by 2050. The widening will accommodate additional traffic that may prefer to use these toll-free alternate routes instead of the US 69 express lanes.

However, widening is also anticipated by 2050 along 167th Street and 179th Street which connect to US 69 near the southern terminus of the study corridor. These expansions could potentially bring more traffic to the US 69 express lanes.

3.2.2 Freeway Projects

In addition to the improvements along the arterials in the vicinity of the US 69 study corridor mentioned above, two other improvements are planned along freeways located in the US 69 study area as shown in **Figure 3-5**. Widening projects are planned east of the study corridor, along I-435 and I-49 as described in **Table 3-3**. I-49 is also a north-south corridor and has the potential to compete with US 69.

Table 3-3 Future Freeway Projects in the Vicinity of the Study Corridor

Source	Roadway	Limits From	Limits to	Description	Opening Year	Model Year
RTP	I-435	Holmes Road	I-49	Widen from 8 to 10 lanes	2040-2049	2050
TIP	I-49	155th Street	N Cass Parkway	Widen from 4 to 6 lanes	2020-2024	2026

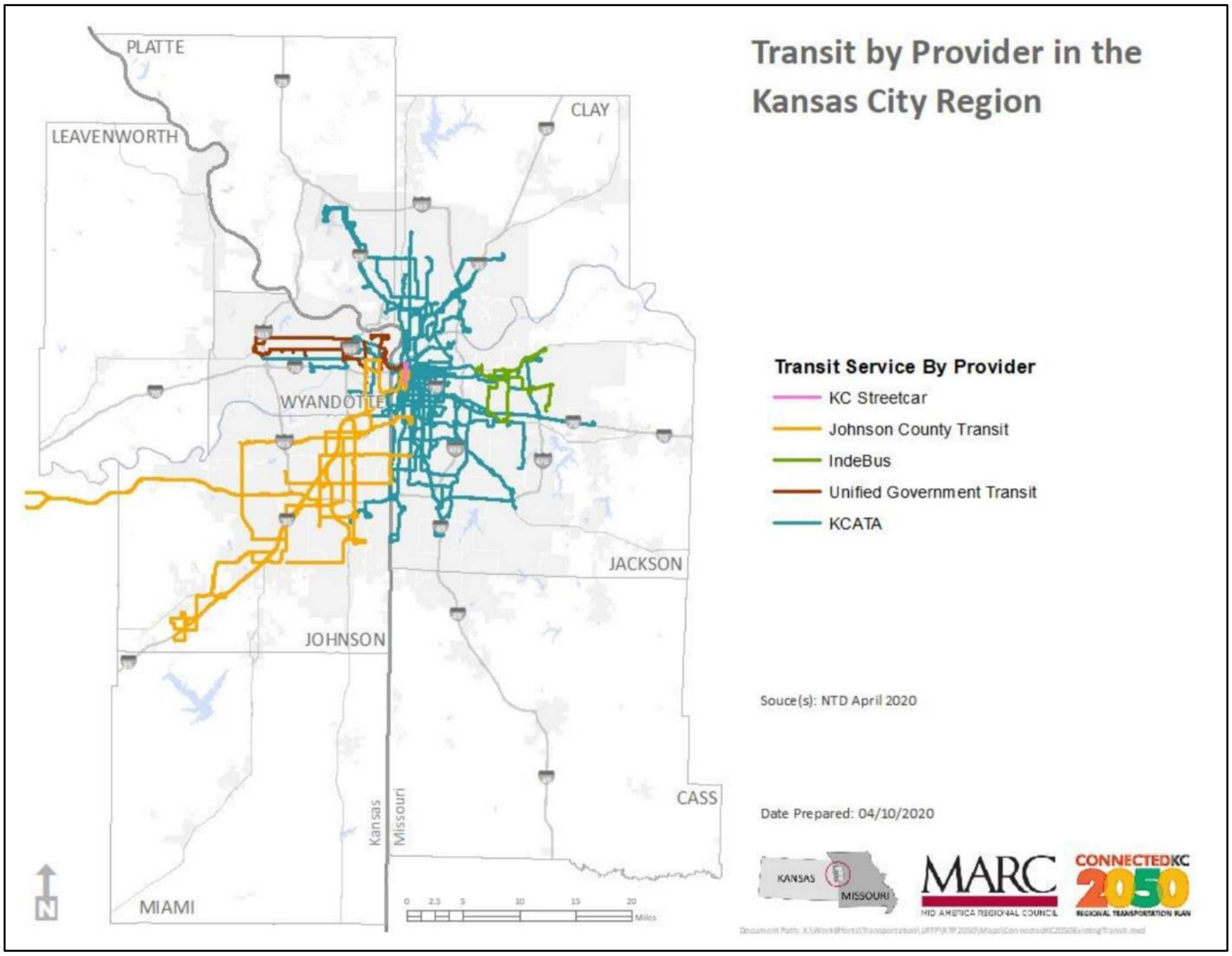
Notes: RTP – Regional Transportation Plan; TIP – Transportation Improvement Plan

Figure 3-5 Proposed Connected KC 2050 Improvements around US 69 – Freeways

3.3 Transit System

The Kansas City region's transit system is a network of services provided by five area transit agencies: the Kansas City Area Transportation Authority (KCATA), Johnson County Transit, Unified Government Transit, the City of Independence, and the Kansas City Streetcar Authority. These agencies operate transit vehicles along pre-determined routes that pick up and drop off people at specified stops. In 2015, the KCATA Board of Commissioners approved a unified branding for these agencies, called RideKC. **Figure 3-6** shows the current Transit providers in the Kansas City region.

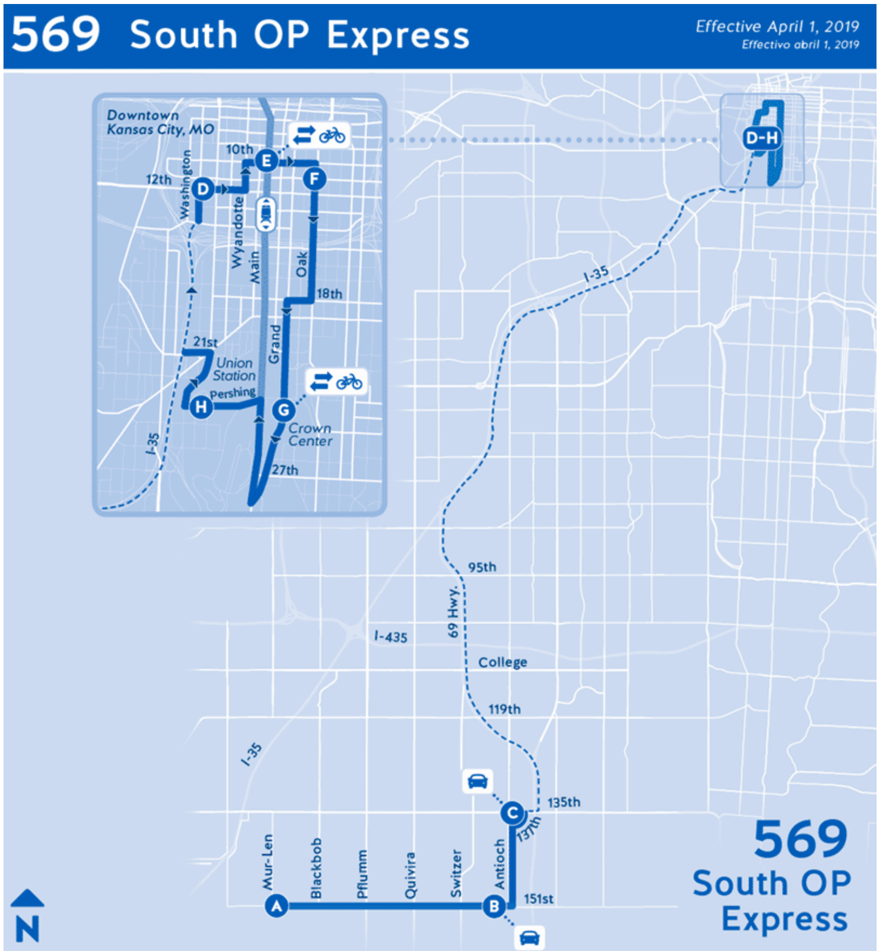
Figure 3-6 Transit Providers in the Kansas City Region



Source: MARC Connected KC Plan 2050

The KC Area Transit Authority (KCATA) operates as the main transit services provider in the Kansas City metro region. Currently US 69 is one of the main thoroughfares for the South Overland Park (OP) Express bus line, as shown in **Figure 3-7**. This is an express service that goes from 151st Street to downtown Kansas City, non-stop, as it travels along US 69 and I-35 and primarily serves as a commuter service. The South OP Express blue line operates from Monday through Friday, in the northbound direction during the morning peak period and in the southbound direction during the afternoon peak period. It is anticipated that this transit route will be able to access the proposed US 69 express lanes and will benefit from the increased reliability provided by the express lanes.

Figure 3-7 South Overland Park (OP) Express Service Route



Source: KCATA Bus Route Service Maps

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Chapter 4

Demographics

This chapter describes the major socioeconomic characteristics of the US 69 study area including both regional and corridor specific trends. The historical and projected demographic characteristics used by the MARC to develop the travel demand modeling trip tables were thoroughly reviewed along with other sources, such as the U.S. Census Bureau and the Bureau of Labor Statistics. These demographic projections are key variables that are utilized in the regional travel demand model to estimate future traffic demand. In June 2020, MARC's Executive Board adopted the new demographic datasets as part of *Connected KC 2050*, the MTP for the Kansas City region, superseding all previous forecasts. This forecast includes eight of the nine counties served by MARC, which are within the metropolitan planning boundary: Cass, Clay, Jackson and Platte in Missouri; Johnson, Leavenworth, Miami, and Wyandotte in Kansas. The demographics adopted by MARC are considered "official" demographics to support the metropolitan planning process and travel demand modeling within the region. To assist with an independent assessment of the future employment and population along the project corridor, an independent subconsultant, *EBP*, was engaged to perform a socioeconomic review and development update along the US 69 corridor. EBP provided an independent opinion of required updates and/or revisions to the underlying socioeconomic growth forecasts for the eight-county region as well as the US 69 study area and is included as **Appendix A**.

The first section of this chapter describes MARC's forecasting process used to generate the official demographics. The next sections provide details of the regional historical and future growth patterns within the eight-county region. The historical and future growth trends in key municipalities within the study area are then described. The final section describes the independent socioeconomic review conducted and the updates made to the official MARC forecasts.

The demographic data included in this chapter ranges from the macroscopic-level (the region) to the corridor-level (surrounding the US 69 corridor). This demographic information was used as input to the trip generation model to estimate the total trips generated within the travel demand model and serves as the foundation for the forecasts of future demand within the study area.

4.1 MARC Demographic Forecasting Process

As required by federal legislation, MARC periodically develops future demographics based on county and regional control totals. The first step in the demographic forecasting process was the adoption of regional control totals of population and employment for 2020, 2030, 2040 and 2050. These regional forecasts were then disaggregated to the county level based on their historical shares of the region's growth. The forecasted county totals are noted in **Table 4-1**. For the eight-county region, the population forecast from MARC is projecting an annual average growth rate of 0.7 percent from 2020 to 2050.

Table 4-1 Eight-County MARC Population Control Totals

8-County Region	2020	2030	2040	2050	Annual Average Growth Rate (2020-2050)
Total	2,067,600	2,241,600	2,400,300	2,546,900	0.7%

Source: Connected KC 2050

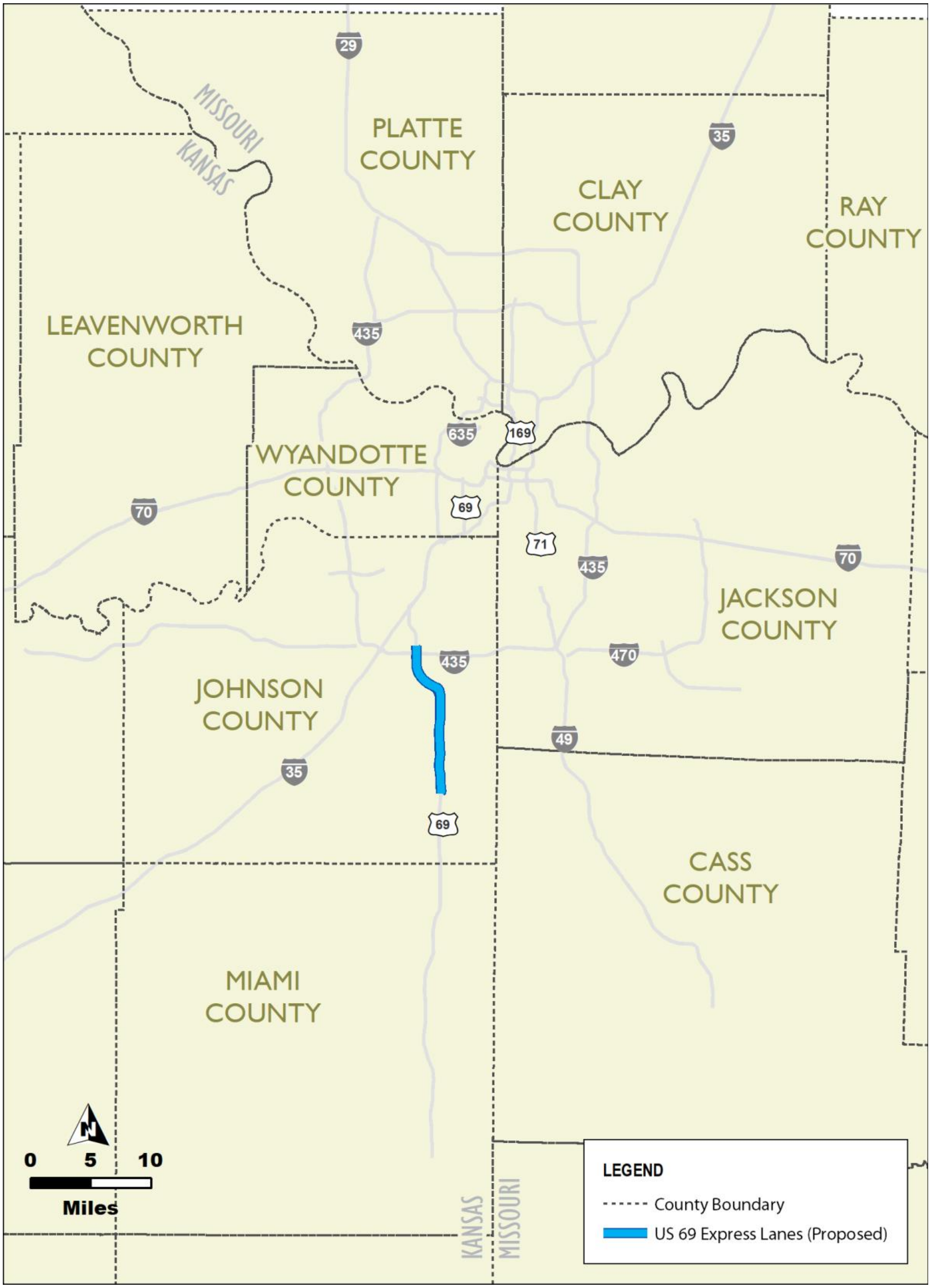
The county control totals were then used to allocate the region's population, household, and employment growth to Traffic Analysis Zones (TAZs) according to the development probabilities calculated from MARC's 'Paint the Town' land use change model. The TAZ-level forecasts derived by MARC serve as the basic geographical unit for generating traffic demand within the regional travel demand model and are used to analyze impacts of specific transportation policies and investments that might be undertaken in support of regional goals and objectives adopted by the MARC Board and stated in the MTP.

4.2 Historical and Future Regional Growth

The Kansas City metropolitan area, which includes 14 counties in Kansas and Missouri, represents 40 percent of Kansas' gross domestic product (GDP) and 23 percent of Missouri's. Manufacturing, trade, and transportation are considered the region's largest exports, and the metro area is home to four Fortune 500 companies.

The MARC Metropolitan Planning Organization (MPO) region, described in the *Connected KC 2050* plan, includes eight of the 14 counties within the Kansas MSA. The following sections summarize the historical and future population, employment, and household trends, as well as historical income levels for the eight-county region. **Figure 4-1** illustrates the spatial relationship of each county encompassed within the MARC MPO region and highlights the US 69 study corridor which traverses Johnson County.

Figure 4-1 Eight-County MARC MPO Region



4.2.1 Historical and Future Regional Population Trends

Recent countywide population data from 2010 to 2020 is presented in **Table 4-2**. These values reflect the data from the U.S. Census Bureau's annual population estimates program. The eight-county population grew at an annual average growth rate of 0.8 percent between 2010 and 2020 according to U.S. Census Bureau. This growth rate was higher than the growth rate for the states of Kansas and Missouri for the same time period.

Most of the existing population in the eight-county region is concentrated within two counties, Johnson County, Kansas, and Jackson County, Missouri. Although Jackson County had the highest population the last ten years, it is evident that population growth in Jackson County has slowed down in recent years, predominately a result of the greater maturation of the county and as more people have moved into the surrounding counties.

Johnson County has the second largest population among the eight counties. The population of Johnson County increased at an average annual rate of 1.1 percent between 2010 and 2020, adding more than 61,000 new residents which resulted in 607,200 residents in 2020. The rate of population growth experienced in Johnson County between 2010 and 2020 was the third highest among the eight counties and was higher than the population growth seen in the combined eight-county region during the same period.

Table 4-2 Historical Short-Term Population Trends

Region	2010	2011	2012	2013	2014	2015	2016
Cass	99,800	100,000	100,500	100,700	100,900	101,400	102,600
Clay	222,600	225,300	227,600	230,400	233,100	235,300	238,800
Jackson	674,900	675,600	677,600	680,100	683,300	687,200	692,800
Johnson	**545,700**	**553,000**	**559,600**	**566,700**	**573,300**	**580,200**	**586,600**
Leavenworth	76,500	77,100	77,700	78,200	78,700	79,300	80,400
Miami	32,900	32,700	32,700	32,900	32,900	32,800	33,000
Platte	89,700	90,900	92,200	93,400	94,900	96,600	98,800
Wyandotte	157,600	158,000	159,400	161,000	162,300	163,800	164,900
Total	**1,899,700**	**1,912,600**	**1,927,300**	**1,943,400**	**1,959,400**	**1,976,600**	**1,997,900**
Kansas	**2,858,300**	**2,869,700**	**2,886,000**	**2,894,300**	**2,901,900**	**2,910,700**	**2,913,000**
Missouri	**5,996,100**	**6,011,200**	**6,026,000**	**6,043,000**	**6,059,100**	**6,075,400**	**6,091,400**

Table 4-2 Historical Short-Term Population Trends (Continued)

Region	2017	2018	2019	2020	Average Annual Growth (2010-2020)
Cass	103,500	104,800	105,700	106,800	0.7%
Clay	242,800	246,800	250,500	253,500	1.3%
Jackson	698,800	701,800	704,400	705,900	0.5%
Johnson	**592,100**	**599,000**	**602,900**	**607,200**	**1.1%**
Leavenworth	81,300	81,700	81,900	82,200	0.7%
Miami	33,500	33,700	34,200	34,300	0.4%
Platte	101,300	103,000	104,700	106,500	1.7%
Wyandotte	165,300	165,800	166,000	165,300	0.5%
Total	**2,018,600**	**2,036,600**	**2,050,300**	**2,061,700**	**0.8%**
Kansas	**2,910,900**	**2,912,700**	**2,912,600**	**2,913,800**	**0.2%**
Missouri	**6,111,400**	**6,126,000**	**6,140,500**	**6,151,500**	**0.3%**

Source: U.S. Census Bureau, Population Estimates Program

Table 4-3 shows the MARC forecasted population trends from 2020 to 2050 for each county within the eight-county region. Population in the eight-county region is expected to increase from 2.1 million in 2020 to 2.5 million by 2050, corresponding to an annual growth rate of 0.7 percent.

Based on MARC estimates, Johnson and Jackson counties were estimated to account for approximately 64 percent of the total population within the eight-county region in 2020, as shown in **Table 4-3**. As indicated, Jackson and Johnson counties will continue to comprise the largest population centers in the eight-county area, and Johnson County is expected to become the most populous of the eight counties by 2050.

The continued population growth in the MARC MPO region will affect travel times by increasing traffic congestion along many facilities within the region, including US 69. The MARC MPO region currently (2019) experiences congested traffic conditions during both the AM and the PM peak periods. According to the *Connected KC 2050* plan, population growth will likely result in significant impact on travel demand along the US 69 corridor.

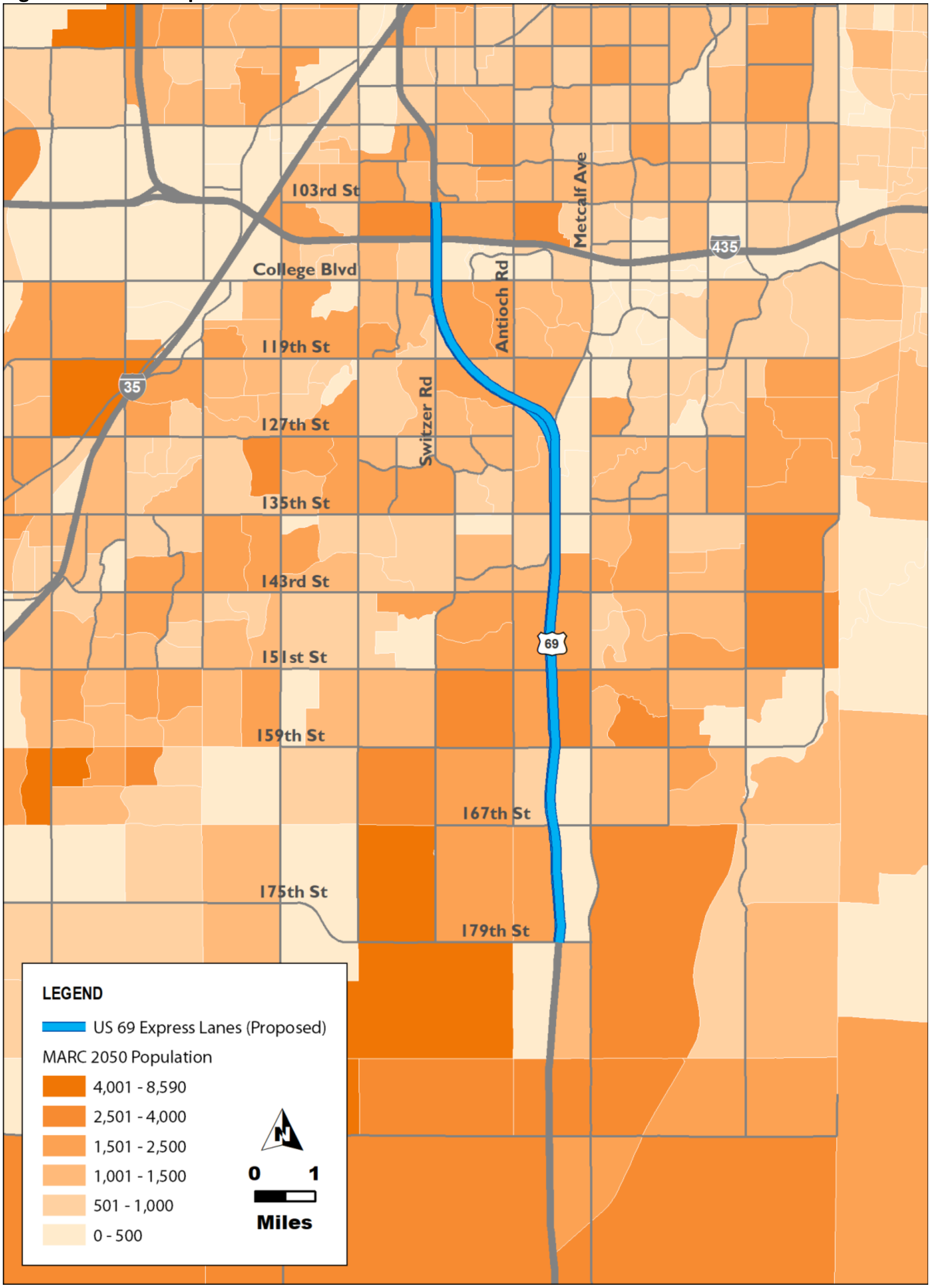
Figure 4-1 shows the projected population and its relative distribution within the eight-county region based on MARC 2050 population forecasts.

Table 4-3 Future Long-Term Population Trends from MARC

County	2020	2030	2040	2050	Average Annual Growth (2020-2050)	Population Distribution by County	
						2020	2050
Cass	107,000	117,000	126,200	134,600	0.8%	5.2%	5.3%
Clay	250,500	280,500	307,900	333,200	1.0%	12.1%	13.1%
Jackson	710,000	739,500	766,300	791,100	0.4%	34.3%	31.1%
Johnson	**612,200**	**684,600**	**749,700**	**808,900**	**0.9%**	**29.6%**	**31.8%**
Leavenworth	82,500	88,800	94,600	100,000	0.6%	4.0%	3.9%
Miami	34,400	36,700	39,800	43,500	0.8%	1.7%	1.7%
Platte	105,000	119,900	133,500	146,100	1.1%	5.1%	5.7%
Wyandotte	166,000	174,600	182,300	189,500	0.4%	8.0%	7.4%
Total	**2,067,600**	**2,241,600**	**2,400,300**	**2,546,900**	**0.7%**	**100.0%**	**100.0%**

Source: Connected KC 2050

Figure 4-1 MARC Population Forecast – 2050



4.2.2 Historical and Future Regional Employment Trends

Employment statistics are another indicator of the relative trip attractions to the study area. Strong employment growth in an area generally indicates potential increased demand for transportation infrastructure, especially if the level of employment is high relative to levels of population in the same area. The countywide historical employment trends from 2010 through 2020 for the eight-county region are shown in **Table 4-4**. These trends are based on the data from the Bureau of Labor Statistics (BLS).

From the employment trough in 2010 to its peak in 2019, the eight-county region added over 130,000 jobs at a rate of 1.5 percent per year, and the MSA's unemployment rate fell to levels not seen in 50 years. This tight labor market was the result not only of the demand for workers by employers, but also a slowing of growth in labor supply as the post-WWII Baby Boomers started turning 65 in increasing numbers this decade. However, employment decreased by 5.2 percent in the eight-county region between 2019 and 2020 due to the COVID-19 pandemic dropping to levels similar to 2015.

Johnson County has the second largest number of jobs among the eight counties. Employment in Johnson County increased at an average annual rate of 2.0 percent between 2010 and 2019, adding more than 57,000 new jobs which resulted in more than 353,000 jobs in 2019. Between 2019 and 2020, employment in Johnson County decreased by 4.9 percent because of the COVID-19 pandemic.

Table 4-4 Historical Short-Term Employment Trends

Region	2010	2011	2012	2013	2014	2015	2016
Cass	22,500	22,400	22,900	23,300	24,100	25,200	25,600
Clay	89,400	88,500	86,200	88,900	93,200	97,600	102,600
Jackson	339,600	340,100	347,700	348,000	350,300	358,300	363,100
Johnson	**296,400**	**302,300**	**310,200**	**320,000**	**328,000**	**334,700**	**337,900**
Leavenworth	21,300	21,100	20,900	20,700	20,400	20,600	20,900
Miami	7,800	7,500	7,600	7,700	8,000	8,000	8,400
Platte	38,800	39,300	39,400	39,800	40,800	41,500	44,400
Wyandotte	79,700	81,200	84,100	82,900	86,400	88,300	90,500
Total	**895,500**	**902,400**	**919,000**	**931,300**	**951,200**	**974,200**	**993,400**

Table 4-4 Historical Short-Term Employment Trends (Continued)

Region	2017	2018	2019	2020	Average Annual Growth (2010-2019)	Average Annual Growth (2019-2020)
Cass	25,900	26,900	27,000	25,900	2.0%	-4.1%
Clay	104,900	104,300	104,600	100,200	1.8%	-4.2%
Jackson	367,700	370,800	374,700	352,900	1.1%	-5.8%
Johnson	**342,400**	**349,300**	**353,500**	**336,200**	**2.0%**	**-4.9%**
Leavenworth	21,100	21,100	20,900	20,100	-0.2%	-3.8%
Miami	8,400	8,500	8,600	8,200	1.1%	-4.7%
Platte	45,600	47,300	48,200	43,800	2.4%	-9.1%
Wyandotte	91,000	90,500	90,500	86,800	1.4%	-4.1%
Total	**1,007,000**	**1,018,700**	**1,028,000**	**974,100**	**1.5%**	**-5.2%**

Source: Bureau of Labor Statistics
Note: 2020 average estimates are based on data through September 2020

Table 4-5 shows the MARC forecasted employment trends from 2020 to 2050 for each county within the eight-county region. The *Connected KC 2050* specifically emphasizes that the 2020 to 2050 forecasts were developed before the COVID-19 pandemic, however, a modest recession in the early 2020's was expected and included in those forecasts.

Although employment grew at moderate levels between 2010 and 2019, this trough-to-peak rate of employment expansion is not consistent with long-term trends. The model used to generate future estimates, from Regional Economic Models, Inc. (REMI), anticipates that nationwide labor force growth will continue to slow significantly in the 2020s and beyond as most of the Baby Boomers leave the labor force entirely, immigration trends downward and birth rates decline. Slow growth in the available workers will constrain future employment growth.

As a result, the eight-county study area is expected to add a net of 63,000 jobs between 2020 and 2030 as the economy absorbs the impact of another recession and a slower growth in labor supply. After 2020, employment growth is projected to accelerate slightly to a little over 74,000 between 2030 to 2040 and 89,000 between 2040 and 2050.

As shown in **Table 4-5**, Jackson and Johnson counties continue to be the major employment centers in the region, with employment in 2020 comprising approximately 36 percent and 35 percent of the eight-county area's total employment, respectively. However, in 2050, Johnson County is forecasted to be the county with the highest employment in the region. The change in employment distribution is the result of slower employment growth in Jackson County as compared to the relatively rapid growth in the surrounding counties during the last several years.

Johnson County employment is projected to grow at an average annual rate of 0.8 percent between 2020 and 2050. The growth will bring 103,000 new jobs to the county. Between 2020 and 2050, almost 226,000 additional jobs are expected to be added in the eight-county region, at an average annual growth rate of 0.6 percent.

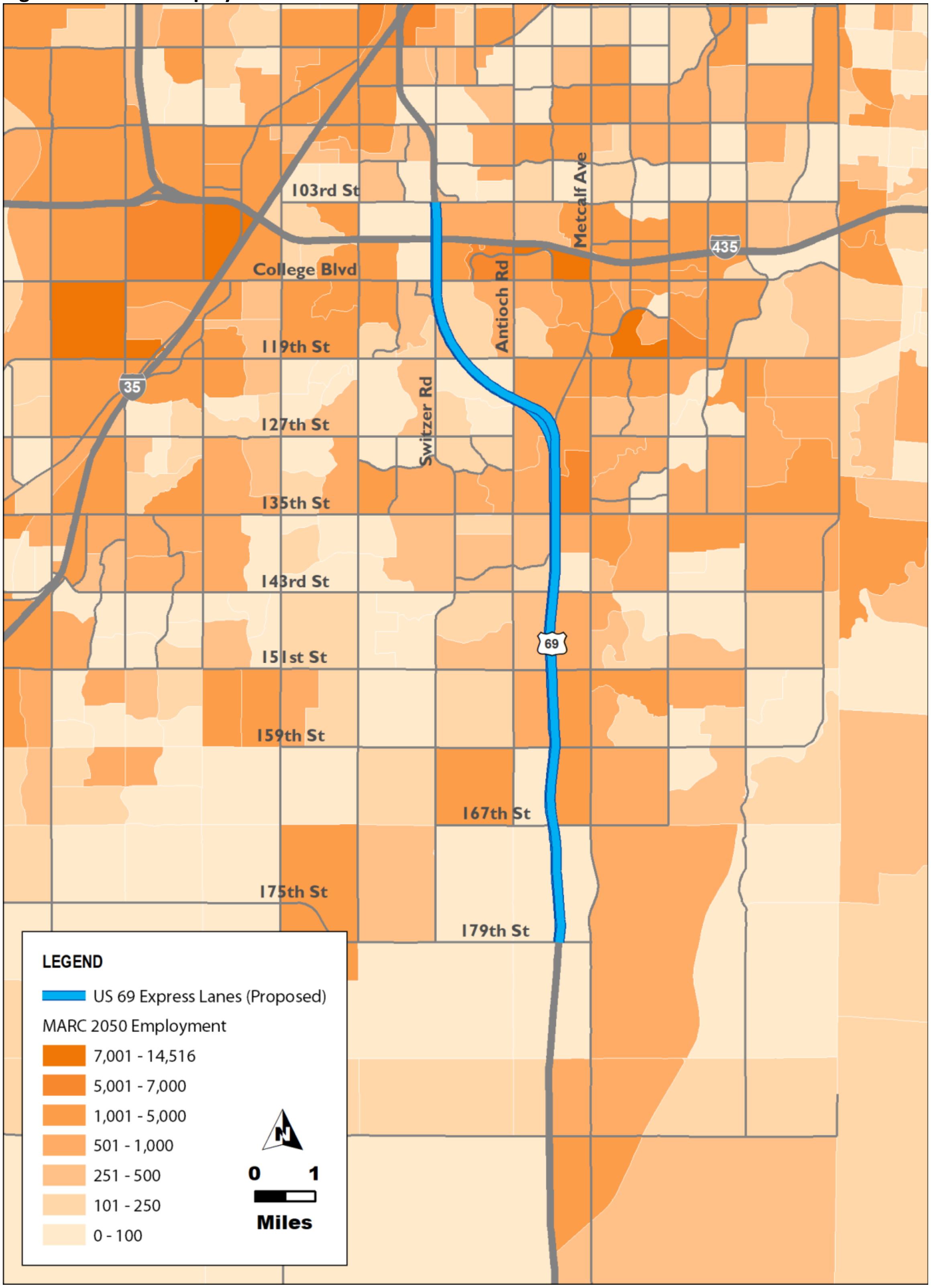
Figure 4-2 shows the projected employment and its relative distribution within the eight-county region based on MARC 2050 employment forecasts.

Table 4-5 Future Long-Term Employment Trends from MARC

County	2020	2030	2040	2050	Average Annual Growth (2020-2050)	Employment Distribution by County	
						2020	2050
Cass	29,800	32,200	35,100	38,600	0.9%	2.8%	3.0%
Clay	108,300	115,300	123,400	133,200	0.7%	10.0%	10.2%
Jackson	386,000	397,700	411,400	427,900	0.3%	35.7%	32.7%
Johnson	**372,700**	**401,500**	**435,400**	**476,100**	**0.8%**	**34.5%**	**36.4%**
Leavenworth	24,100	24,700	25,500	26,300	0.3%	2.2%	2.0%
Miami	9,500	10,100	10,900	11,800	0.7%	0.9%	0.9%
Platte	52,400	57,400	63,400	70,500	1.0%	4.8%	5.4%
Wyandotte	98,000	104,800	112,700	122,300	0.7%	9.1%	9.4%
Total	**1,080,800**	**1,143,700**	**1,217,800**	**1,306,700**	**0.6%**	**100.0%**	**100.0%**

Source: Connected KC 2050

Figure 4-2 MARC Employment Forecast – 2050



Source: Connected KC 2050

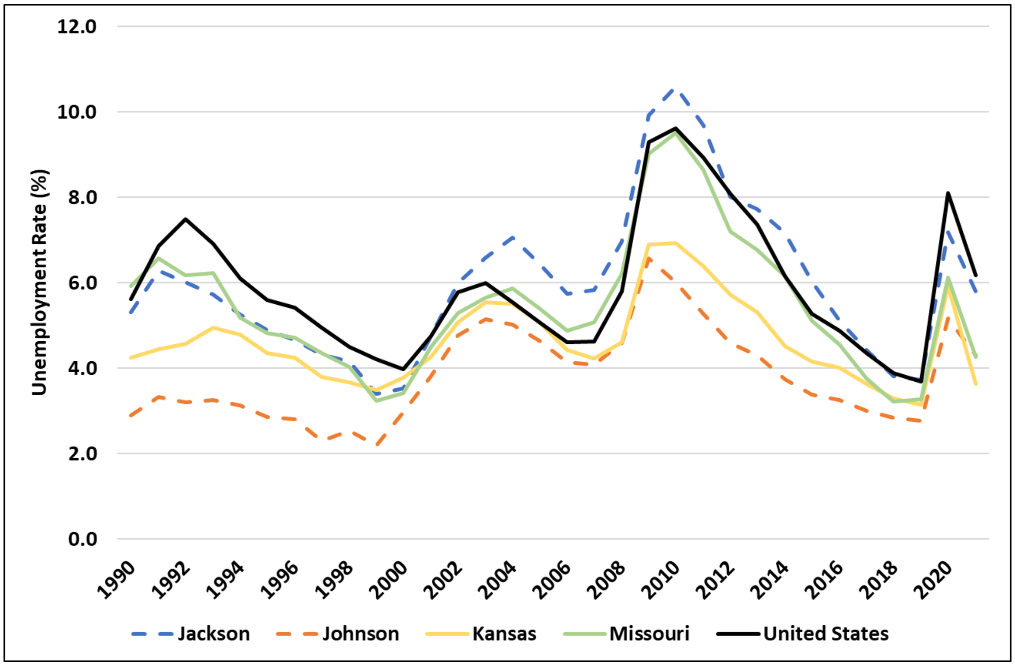
The unemployment rates between 1990 and 2021 for Jackson County, Johnson County, the states of Kansas and Missouri, and the United States are shown in **Table 4-6** and illustrated in **Figure 4-3**. The unemployment rate for Jackson County continually remained in line with the Missouri statewide unemployment rate prior to 2000. However, following 2000, the Jackson County unemployment rate has trended higher than the Missouri statewide rate and the national unemployment rate. Between 2008 and 2009, the unemployment rates spiked in both Jackson and Johnson counties because of the national economic recession. In 2010, unemployment rates peaked for both Jackson and Johnson counties as well as for the states of Kansas and Missouri and the United States. There was another spike in unemployment rates in 2020 due to the economic slowdown resulting from the COVID-19 pandemic, which increased the unemployment rates for Jackson and Johnson counties to 7.2 and 5.2 percent, respectively.

Table 4-6 Historical Unemployment Rate Trends

Year	Unemployment Rate				
	Jackson, MO	Johnson, KS	Kansas	Missouri	United States
1990	5.3	2.9	4.3	5.9	5.6
1991	6.3	3.3	4.5	6.6	6.9
1992	6.0	3.2	4.6	6.2	7.5
1993	5.7	3.3	4.9	6.2	6.9
1994	5.3	3.1	4.8	5.2	6.1
1995	4.9	2.9	4.4	4.8	5.6
1996	4.7	2.8	4.3	4.7	5.4
1997	4.3	2.3	3.8	4.4	4.9
1998	4.2	2.5	3.7	4.0	4.5
1999	3.4	2.2	3.5	3.2	4.2
2000	3.5	3.0	3.8	3.4	4.0
2001	4.8	3.8	4.3	4.5	4.7
2002	6.0	4.8	5.1	5.3	5.8
2003	6.6	5.2	5.6	5.7	6.0
2004	7.1	5.0	5.5	5.9	5.5
2005	6.4	4.6	5.1	5.4	5.1
2006	5.7	4.1	4.4	4.9	4.6
2007	5.8	4.1	4.2	5.1	4.6
2008	7.0	4.6	4.6	6.2	5.8
2009	9.9	6.6	6.9	9.0	9.3
2010	10.6	6.0	6.9	9.5	9.6
2011	9.7	5.3	6.4	8.6	8.9
2012	8.0	4.6	5.7	7.2	8.1
2013	7.7	4.3	5.3	6.8	7.4
2014	7.2	3.8	4.5	6.2	6.2
2015	6.0	3.4	4.2	5.1	5.3
2016	5.1	3.3	4.0	4.6	4.9
2017	4.4	3.0	3.6	3.8	4.4
2018	3.8	2.8	3.3	3.2	3.9
2019	3.7	2.8	3.1	3.3	3.7
2020	7.2	5.2	5.9	6.1	8.1
2021*	5.8	4.3	3.6	4.3	6.2

Source: Bureau of Labor Statistics (BLS)
**Data shown is through March 2021*

Figure 4-3 Historical Unemployment Rate Trends



Source: Bureau of Labor Statistics (BLS)
Note: Data shown is through March 2021

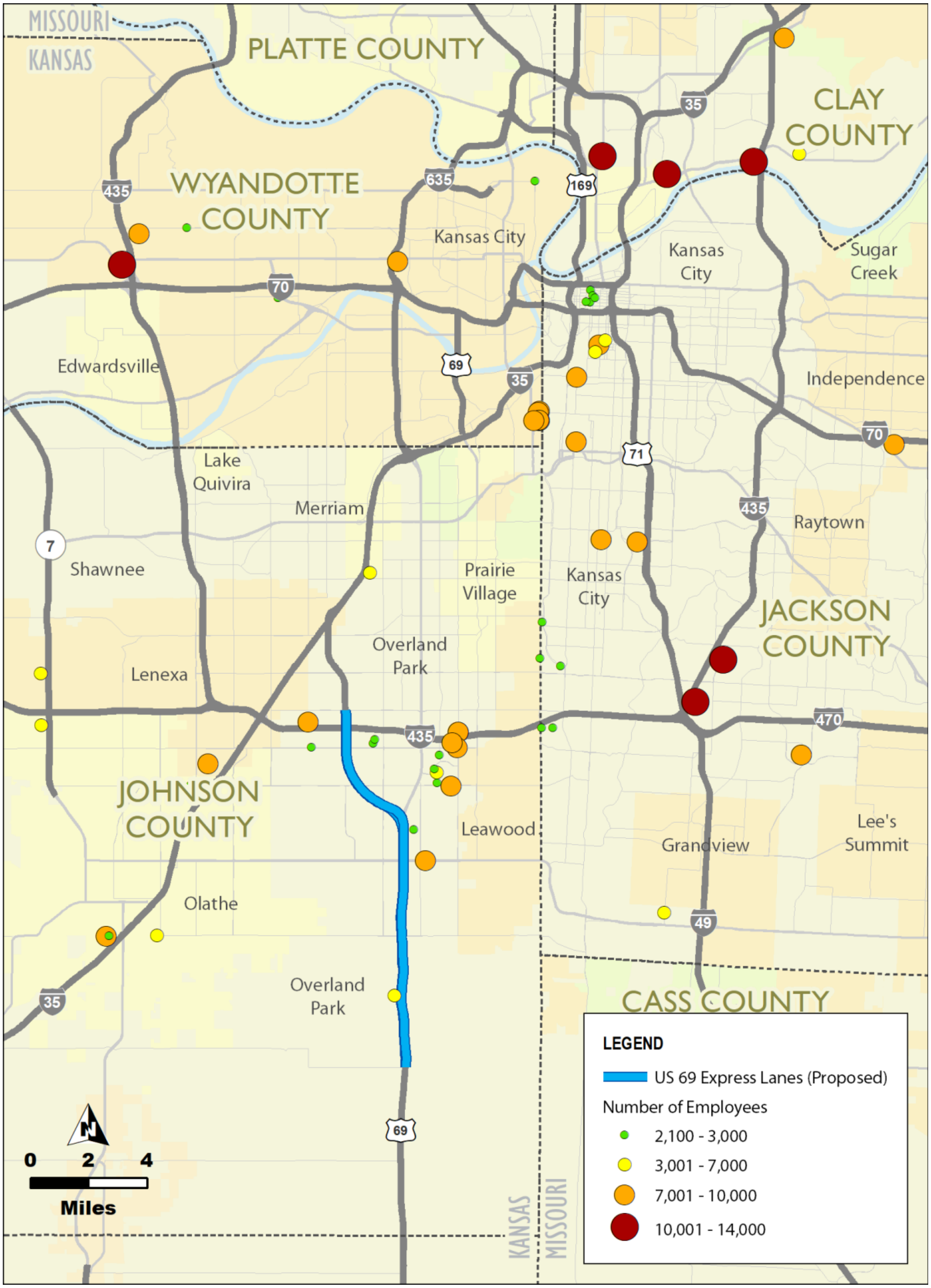
4.2.3 Study Area Employment

Much of the analysis of future development potential is based on the identification of major employment establishments located within the study corridor.

The major employment establishments were reviewed to better understand key economic generators along the corridor that are likely to affect the existing and future traffic demand. **Figure 4-4** illustrates the companies sourced from the CBRE GIS database for top employers in the Kansas City metropolitan area (updated in 2019).

Two of the ten highest ranked employers, Overland Park Regional Medical Center and Menorah Medical Center, are located approximately 1 mile and 2 miles respectively to the northern limit of the study corridor. There are several other key employers located in the region that the project corridor serves, including the Children's Mercy Blue Valley and Advent Health.

Figure 4-4 Largest Public and Private Companies in the Vicinity of the Study Corridor



Source: CBRE Kansas City Metropolitan Area Top Employers (2019)

4.2.4 Historical and Future Regional Household Trends

The number of households is a socioeconomic measure that is closely correlated to population. Households are also the preferred method for estimating travel demand in the trip generation step of travel demand modeling since the number of vehicle trips is more strongly correlated with the number of household units, rather than purely the number of persons.

Recent countywide household data from 2010 to 2019 is presented in **Table 4-7**. Household units grew at a rate of 0.6 percent per year for this period for the eight-county region.

Table 4-7 Historical Short-Term Household Trends

Region	2010	2011	2012	2013	2014	2015	2016
Cass	39,300	39,700	40,000	40,100	40,300	40,400	40,500
Clay	91,700	93,000	93,400	93,800	94,300	94,500	95,100
Jackson	311,400	311,900	312,200	312,300	313,100	314,000	315,500
Johnson	**222,200**	**224,900**	**226,300**	**227,600**	**229,300**	**231,000**	**233,100**
Leavenworth	28,300	28,500	28,700	28,800	28,900	29,000	29,100
Miami	13,000	13,100	13,200	13,200	13,200	13,300	13,300
Platte	38,300	38,900	39,100	39,400	39,600	39,900	40,200
Wyandotte	66,800	66,800	66,800	66,800	66,900	67,100	67,300
Total	**811,000**	**816,800**	**819,700**	**822,000**	**825,600**	**829,200**	**834,100**

Table 4-7 Historical Short-Term Household Trends (Continued)

Region	2017	2018	2019	Average Annual Growth (2010-2019)
Cass	41,000	41,400	41,800	0.7%
Clay	96,100	96,900	97,900	0.7%
Jackson	318,200	320,500	323,200	0.4%
Johnson	**235,800**	**238,700**	**241,800**	**0.9%**
Leavenworth	29,400	29,600	29,800	0.6%
Miami	13,500	13,600	13,700	0.6%
Platte	40,700	41,300	41,800	1.0%
Wyandotte	67,700	68,000	68,100	0.2%
Total	**842,400**	**850,000**	**858,100**	**0.6%**

Source: U.S. Census Bureau, American Community Survey 5-Year Estimates

Table 4-8 shows the MARC forecasted household trends from 2020 to 2050 for each county within the eight-county region. It is estimated that nearly 230,000 households will be added in the eight-county region between 2020 to 2050, at an average annual growth rate of 0.8 percent.

Historically, Jackson County had the highest number of households among the eight counties and is estimated to continue having the highest number in future years. Johnson County is estimated to add over 95,000 households between 2020 and 2050 at an average annual growth rate of 1.1 percent.

Table 4-8 Future Long-Term Household Trends

County	2020	2030	2040	2050	Average Annual Growth (2020-2050)	Household Distribution by County	
						2020	2050
Cass	41,000	46,000	50,700	55,300	1.0%	5.1%	5.3%
Clay	93,400	103,700	113,500	122,900	0.9%	11.6%	11.9%
Jackson	292,800	311,300	328,900	345,800	0.6%	36.3%	33.4%
Johnson	**236,900**	**270,500**	**302,100**	**332,200**	**1.1%**	**29.4%**	**32.1%**
Leavenworth	27,100	28,700	30,300	31,800	0.5%	3.4%	3.1%
Miami	13,000	14,300	16,000	17,900	1.1%	1.6%	1.7%
Platte	40,900	47,300	53,400	59,200	1.2%	5.1%	5.7%
Wyandotte	61,000	64,300	67,500	70,600	0.5%	7.6%	6.8%
Total	**806,100**	**886,100**	**962,400**	**1,035,700**	**0.8%**	**100.0%**	**100.0%**

Source: Connected KC 2050

4.2.5 Regional Median Household Income Trends

Travel demand, and more specifically demand for tolled facilities, is sensitive to the amount of disposable income available within a household. A reliable indicator of a household's propensity for trip-making, or a motorist's willingness to pay a toll, is the median household income. Generally, households with higher incomes tend to make more trips than those with lower incomes due to their higher disposable incomes. The value-of-time (VOT) is a key factor that defines motorists' willingness to pay tolls, and it also tends to be higher for households with higher incomes.

The most recent median household income data from the U.S. Census Bureau for all eight counties in the region is provided in **Table 4-9.** The median household income data presented in the table indicates that when reported in 2019 real dollars, median household income in the region grew considerably between 2000 and 2008 but had a decline after the global recession. Median household income for most of the counties was back to the 2008 levels by 2014 or 2015 as shown in the table. The median household incomes of Johnson (Kansas) and Platte (Missouri) counties have been consistently higher than rest of the counties in the region.

Table 4-9 Median Household Income Trends

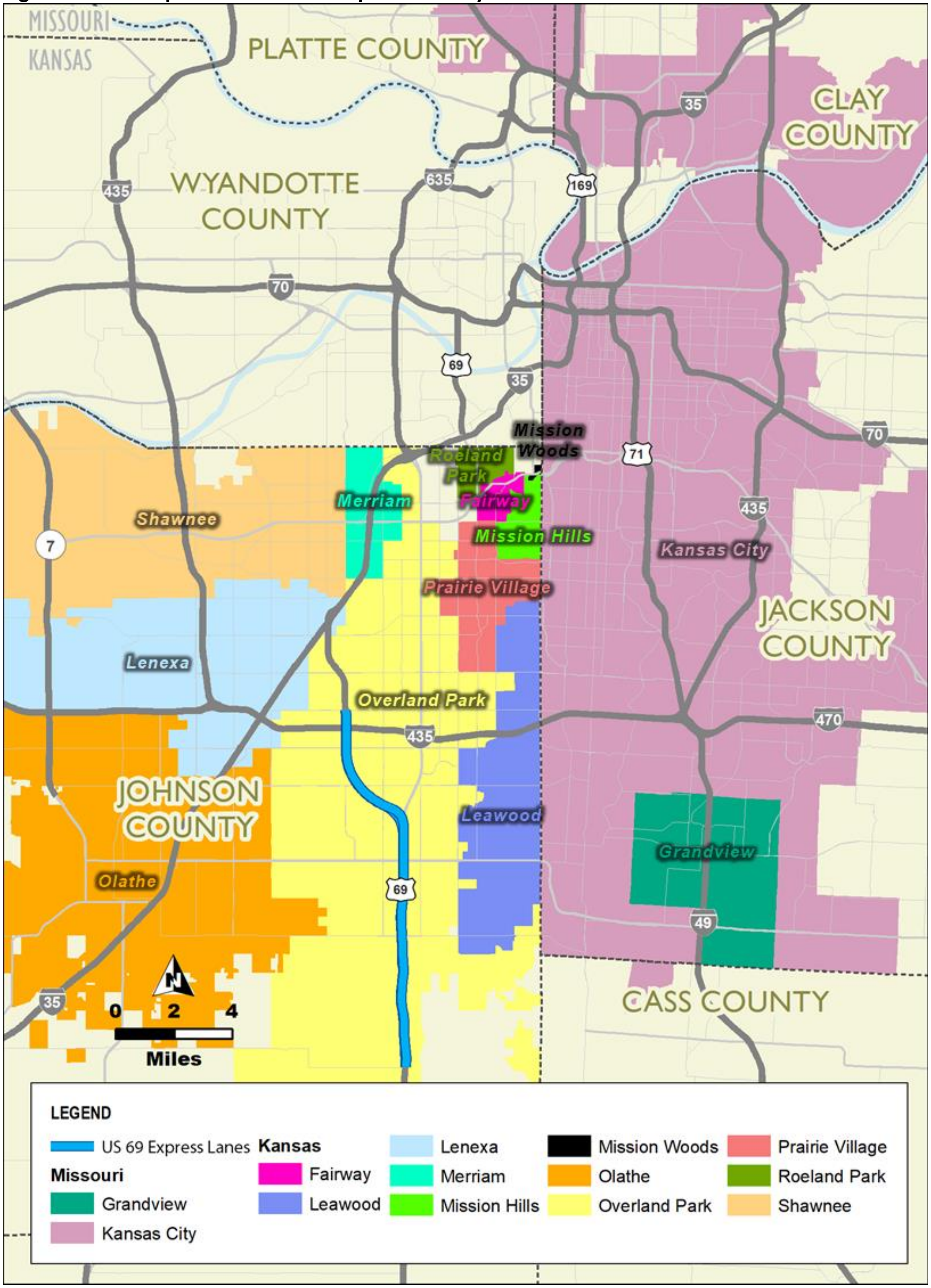
Year	Kansas				Missouri			
	Johnson	Leavenworth	Miami	Wyandotte	Cass	Clay	Jackson	Platte
2000	$66,800	$48,500	$45,300	$33,100	$50,700	$50,600	$42,100	$59,200
2001	$66,700	$48,700	$45,500	$32,500	$50,100	$50,400	$41,100	$58,400
2002	$67,000	$50,100	$47,100	$32,500	$50,800	$52,200	$41,800	$59,100
2003	$66,800	$50,800	$49,000	$33,000	$51,700	$53,700	$42,200	$60,100
2004	$68,000	$51,500	$51,700	$33,300	$53,000	$54,000	$42,400	$61,000
2005	$66,900	$54,300	$53,700	$34,600	$55,400	$54,000	$43,300	$61,400
2006	$70,000	$55,100	$56,200	$36,900	$55,500	$54,000	$44,200	$63,200
2007	$72,000	$58,900	$59,200	$37,500	$61,000	$58,300	$44,400	$64,400
2008	$76,300	$60,200	$61,200	$39,200	$61,900	$58,800	$47,300	$67,100
2009	$72,000	$57,700	$57,700	$37,300	$59,200	$58,000	$45,800	$65,900
2010	$71,400	$60,800	$58,400	$37,800	$57,400	$55,800	$44,600	$67,800
2011	$70,700	$61,600	$57,600	$38,000	$55,000	$59,000	$44,500	$63,700
2012	$73,700	$59,700	$64,600	$37,800	$56,400	$58,200	$44,600	$67,300
2013	$74,100	$65,400	$59,700	$38,700	$63,000	$60,600	$46,800	$68,400
2014	$76,100	$65,500	$63,900	$37,100	$61,000	$61,600	$46,200	$70,900
2015	$83,000	$61,500	$62,400	$41,700	$63,000	$65,100	$48,400	$72,500
2016	$80,900	$67,600	$67,700	$43,400	$64,400	$66,000	$50,800	$77,900
2017	$83,500	$70,700	$69,300	$46,000	$65,800	$67,700	$52,600	$75,700
2018	$87,100	$70,800	$71,800	$47,100	$71,400	$68,900	$55,900	$82,600
2019	$91,900	$75,800	$74,400	$47,300	$73,900	$70,700	$57,900	$84,500
Average Annual Growth Rate 2000-2010	0.7%	2.3%	2.6%	1.3%	1.2%	1.0%	0.6%	1.4%
Average Annual Growth Rate 2010-2019	2.8%	2.5%	2.7%	2.5%	2.8%	2.7%	2.9%	2.5%

Source: U.S. Census Bureau (Release: Small Area Income and Poverty Estimates)
2019 Dollars, Not Seasonally Adjusted

4.3 Historical Municipal Growth

The historical demographic growth in the Johnson (Kansas) and Jackson (Missouri) counties is described in this section, with a focus on the underlying demographic characteristics of the municipalities that the facility serves. **Figure 4-5** shows a map of these municipalities.

Figure 4-5 Municipalities in the Vicinity of the Study Corridor



4.3.1 Historical Population Trends

The historical population trends for the municipalities in the study area are presented in **Table 4-10** using data from the U.S. Census Bureau. The average annual population growth in the past decade ranged from a low of -0.3 percent for the cities of Mission Hills to a high of 1.6 percent for the City of Lenexa. Most of the cities near the study corridor have shown moderate growth during the past decade.

The City of Overland Park, where the study corridor is located, is the most populous city in Johnson County. It experienced an average annual population growth rate of 1.3 percent between 2010 and 2019, adding approximately 22,000 new residents during this time. Kansas City, Missouri, is the most populous city to the east of the study corridor. Between 2010 and 2019, Kansas City, Missouri gained 35,000 residents which translates into an annual growth rate of 0.8 percent.

Table 4-10 Population for Cities in the Study Area

County	City	2010 Population	2019 Population	Annual Average Growth Rate (2010-2019)
Johnson County, Kansas	Olathe	125,900	140,600	1.2%
	Overland Park	**173,300**	**195,500**	**1.3%**
	Lenexa	48,200	55,600	1.6%
	Shawnee	62,200	65,800	0.6%
	Leawood	31,900	34,700	0.9%
	Prairie Village	21,500	22,300	0.4%
	Mission Hills	3,600	3,500	-0.3%
	Fairway	3,900	4,000	0.3%
	Roeland Park	6,700	6,700	0.0%
	Merriam	11,000	11,100	0.1%
	Mission Woods	9,300	9,900	0.7%
Jackson County, Missouri	Kansas City	459,900	495,300	0.8%
	Grandview	24,500	24,900	0.2%

Source: U.S. Census Bureau
Note: The above summary includes cities for which the 2010 population was greater than 1,000

4.3.2 Historical Municipal Median Household Income Trends

Table 4-11 shows the median household incomes (in 2019 dollars) for the major cities/towns near the US 69 corridor. Median household income ranged between $47,100 and $250,000. The municipalities with the lowest and highest median incomes were Grand View, Missouri and Mission Hills, Kansas, respectively. Overland Park, where the study corridor is located, has a median household income of $91,500.

Table 4-11 Median Household Income for Major Cities

County	City	Median Household Income
Johnson County, Kansas	Olathe	$94,300
	Overland Park	**$91,500**
	Lenexa	$87,100
	Shawnee	$84,900
	Leawood	$157,500
	Prairie Village	$91,100
	Mission Hills	$250,000
	Fairway	$112,000
	Roeland Park	$76,000
	Merriam	$63,800
	Mission Woods	$180,000
Jackson County, Missouri	Kansas City	$55,300
	Grandview	$47,100

Source: 2019 American Community Survey 5-Year Estimates
Note: The above summary includes cities for which the 2010 population was greater than 1,000

4.4 Independent Socioeconomic Review

An independent socioeconomic assessment was undertaken to evaluate the validity of the current and anticipated growth in population, employment, and households within the US 69 corridor study area. A summary of the results from the independent socioeconomic review (by *EBP*) and a comparison with the MARC forecasts is described in this section.

EBP was engaged to perform a socioeconomic review and development update along the US 69 corridor and provide an independent opinion of required updates and/or revisions to the underlying socioeconomic growth forecasts for the eight-county region. The independent socioeconomic review was commissioned to provide 2019 data for the base year model and provide updates based on more recent trends, where applicable, to the future growth in population, employment, and households for each TAZ within the US 69 study corridor area. Most of the reviewed TAZs are within the Jackson and Johnson County boundaries. These modified demographics were used as part of this study and were utilized as input into the four-step travel demand forecasting model to generate the model trip tables.

The current and potential future economic development and the distribution of population and employment within the US 69 study corridor area was investigated at a detailed TAZ level. This analysis was undertaken to gain a better understanding of the growth patterns that are expected within the corridor over the next 30 years. This included an examination of the demographic forecasts for the area immediately adjacent to the study corridor and within the broader study area.

Population and employment growth between 2019 and 2050 for the TAZs along the study corridor based on the revised forecasts are highlighted in **Figure 4-6** through **Figure 4-13**. These figures show that economic activity and urbanized areas are concentrated around major highway corridors.

4.4.1 Population Growth Estimates

Figures 4-6 and **4-7** show 2019 and 2050 population estimates, respectively, as provided by *EBP.* The majority of the TAZs in the vicinity of the corridor have a moderate range of population (1,000 to 3,000 per TAZ) with a higher population in the northern segments (north of 159th Street) of the study corridor, as compared with the southern segment. Population estimates for 2050 depict similar population distribution pattern in the northern segment of the study corridor.

Figure 4-8 shows the estimated short-term population growth between 2019 and 2025 by TAZ, as provided by *EBP*. A significant amount of population growth in the zones near the northern terminus of the study corridor is expected through 2025. Several zones south of 151st Street are expected to grow by over 150 residents per TAZ by 2025. This significant population growth in the area north of the study corridor will likely produce additional traffic demand along the US 69 corridor as these residents' commute towards the core business district of Kansas City for work. Conversely, along the study corridor itself, a decrease in population is expected in several zones between 151st Street and the I-435 corridor.

Figure 4-9 shows the estimated long-term population growth between 2025 and 2050 by TAZ, as provided by *EBP*. A significant amount of population growth in the zones near the northern terminus of the study corridor is expected through 2050. Overall, an increase in population is expected in several zones around the study corridor.

4.4.2 Employment Growth Estimates

Figures 4-10 and **Figure 4-11** show 2019 and 2050 employment estimates, respectively, as provided by *EBP.* High employment zones are in the northern segment (north of 135th Street) of the study corridor. Notably, a majority of the TAZs in the vicinity of I-435 and I-35 are high employment zones. Similarly, 2050 employment estimates depict similar employment distribution in the study area.

Figure 4-12 shows the estimated short-term employment growth between 2019 and 2025 by TAZ, as provided by *EBP*. A significant amount of employment growth in the zones near the northern terminus of the study corridor is expected through 2025. Several zones to the east of the northern terminus of the study corridor are expected to grow by over 100 jobs per TAZ by 2025. This significant job growth of TAZs in the vicinity of I-435 and I-35 will likely produce additional commuter traffic demand along the US 69 corridor.

Figure 4-13 shows the estimated long-term employment growth between 2025 and 2050 by TAZ, as provided by EBP. A significant amount of employment growth in the zones near the northern terminus of the study corridor is expected through 2050. This significant job growth in TAZs in the vicinity of I-435 and I-35 will likely produce additional commuter traffic demand along the US 69 corridor.

Reviewing the population and employment density graphs in general provides an indication of the imbalance in the future origin and destination patterns that can be expected within the study region as a result of current land-use policies. In the future, population will grow denser along the areas near the US 69 corridor from north of 159th Street to south of I-35. Meanwhile, the employment is expected to remain concentrated in several areas relatively close to the freeway corridors in the study region (I-35 and I-435). As a result of sprawling population growth patterns and the relative concentration of employment centers, it is expected that traffic demand along the major corridors accessing the employment zones in the northern segment of the study corridor will continue to grow.

Figure 4-6 *EBP* Population Estimate – 2019

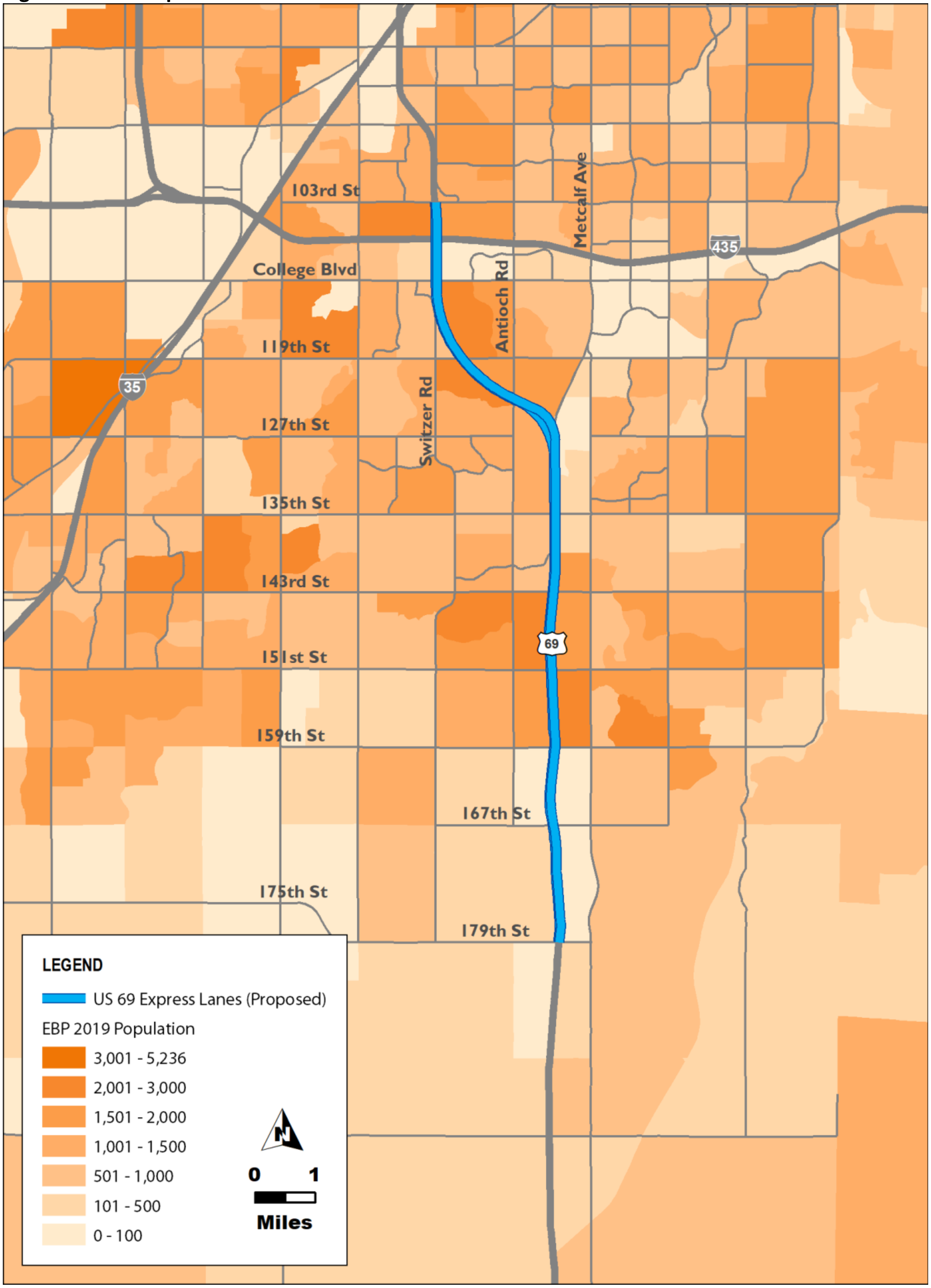


Figure 4-7 *EBP* Population Forecast – 2050

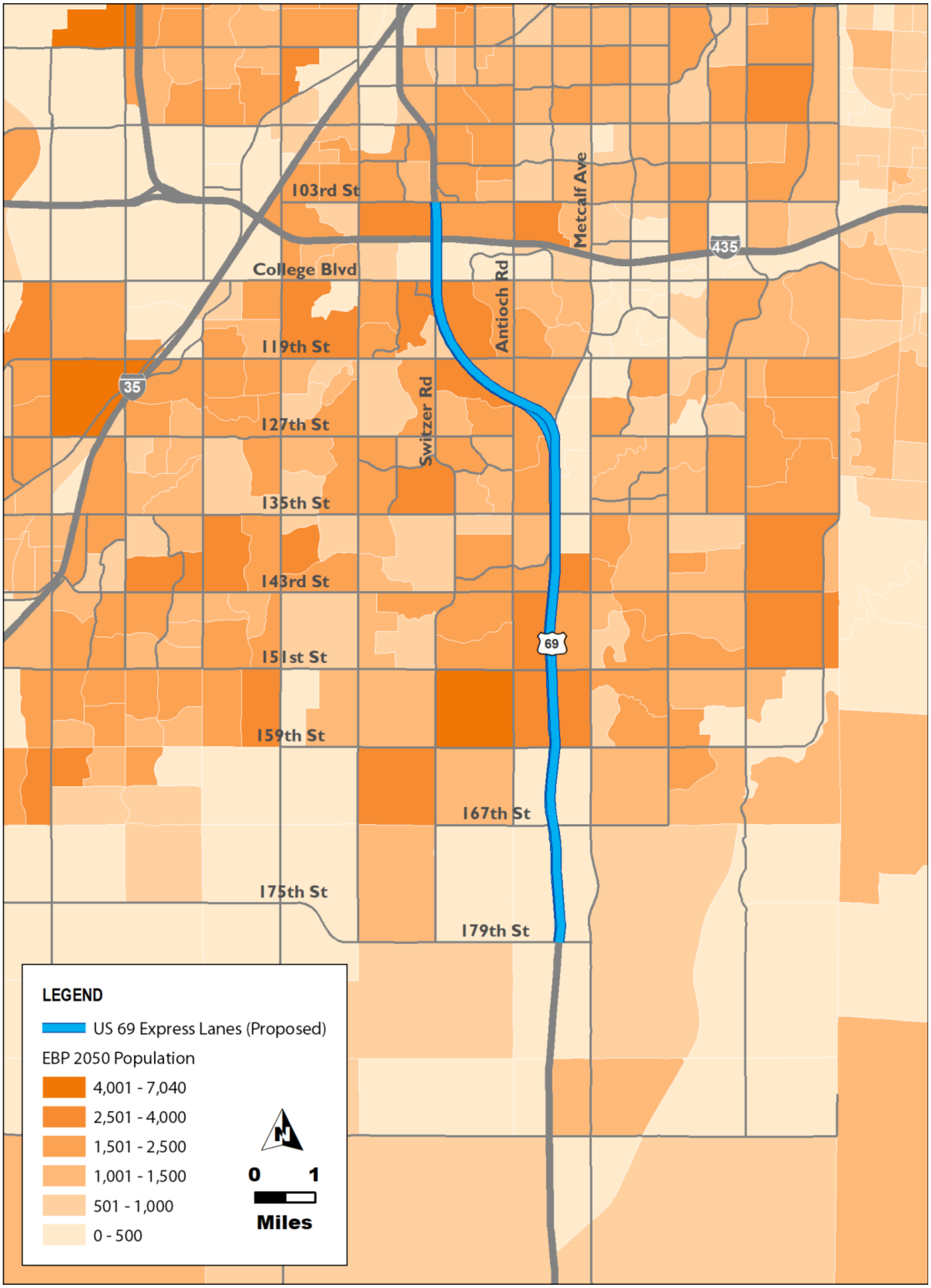


Figure 4-8 2025 vs 2019 Population Difference – *EBP* Forecast

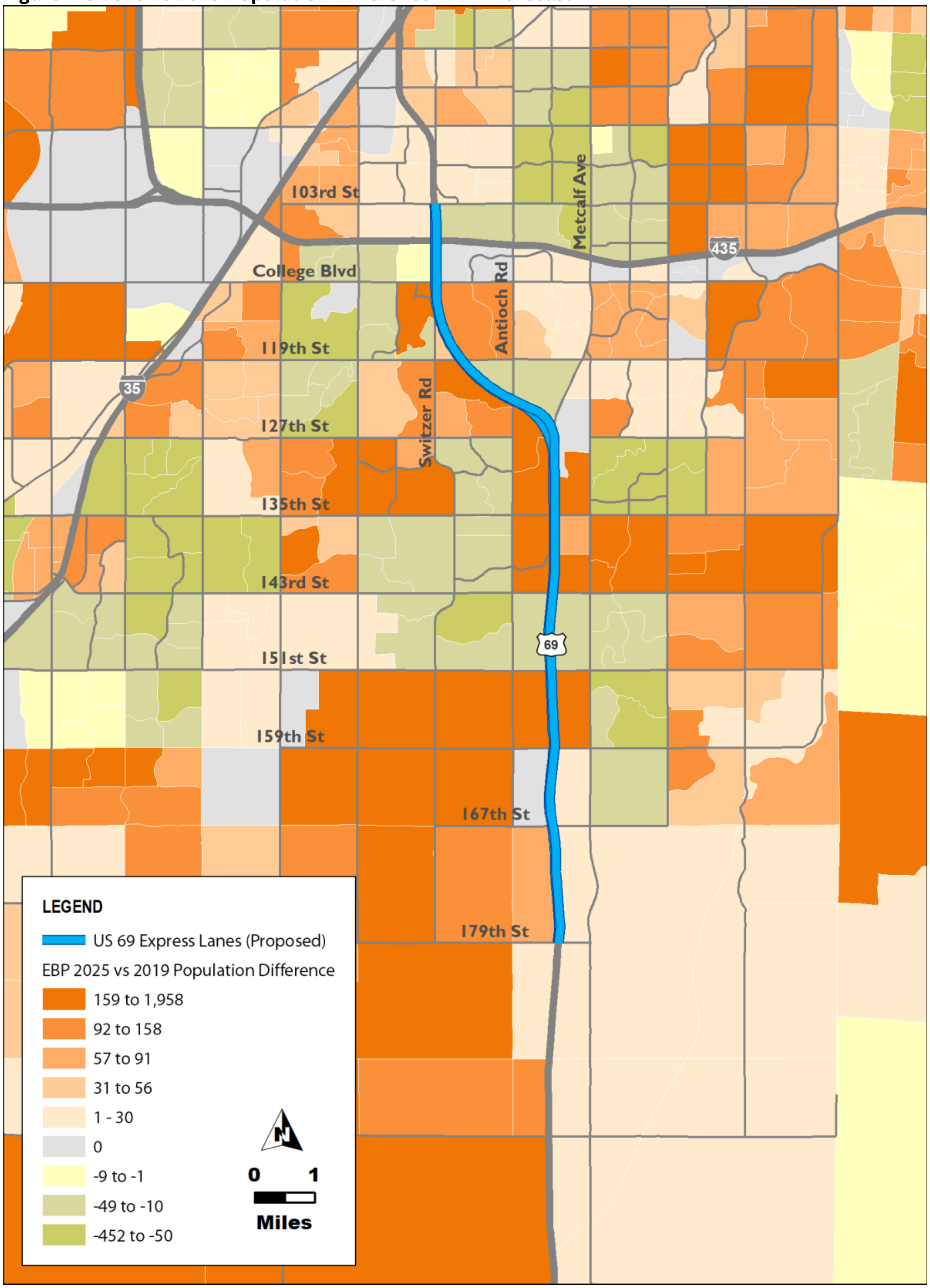


Figure 4-9 2050 vs 2025 Population Difference – *EBP* Forecast

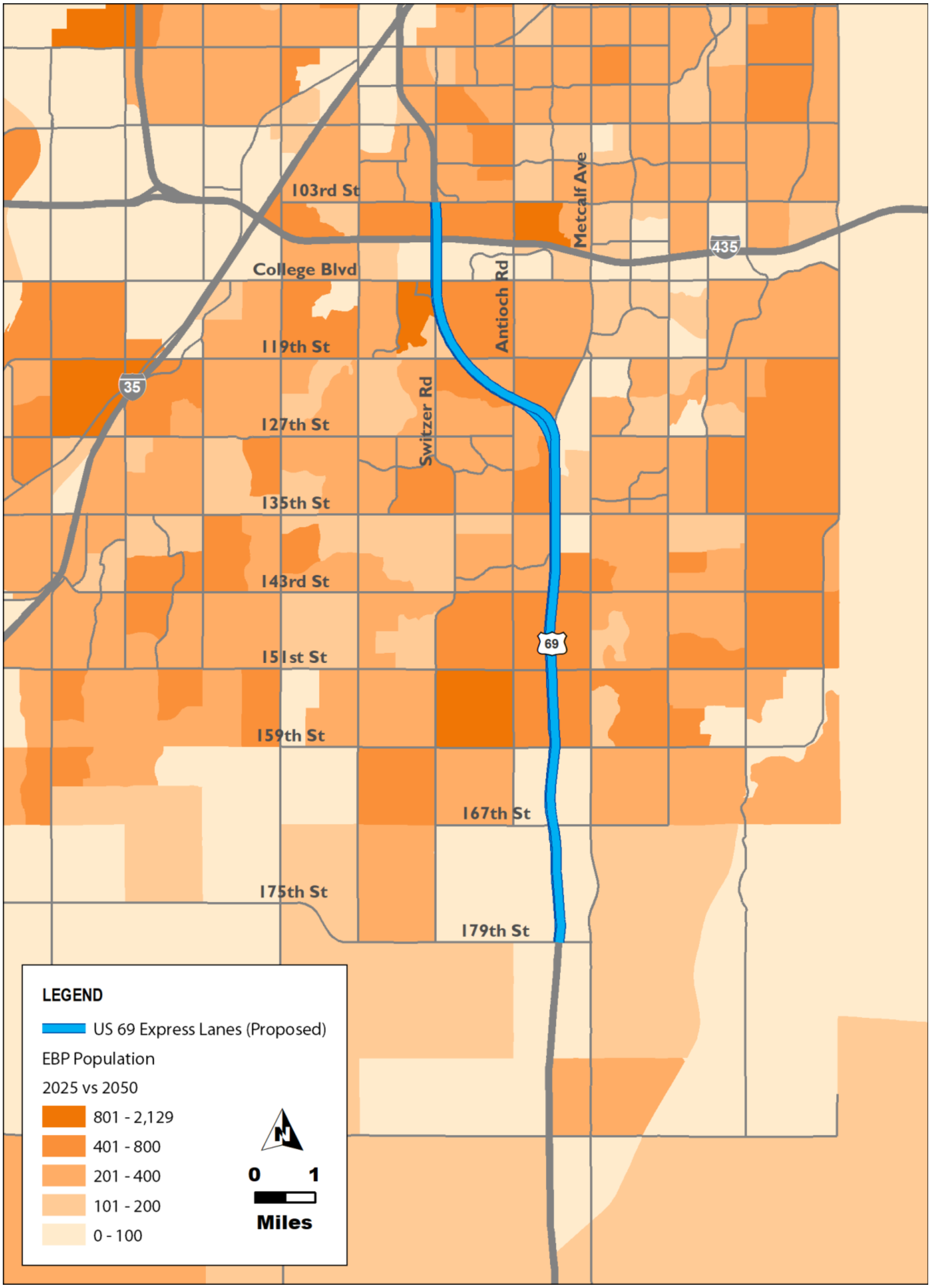


Figure 4-10 *EBP* Employment Estimate – 2019

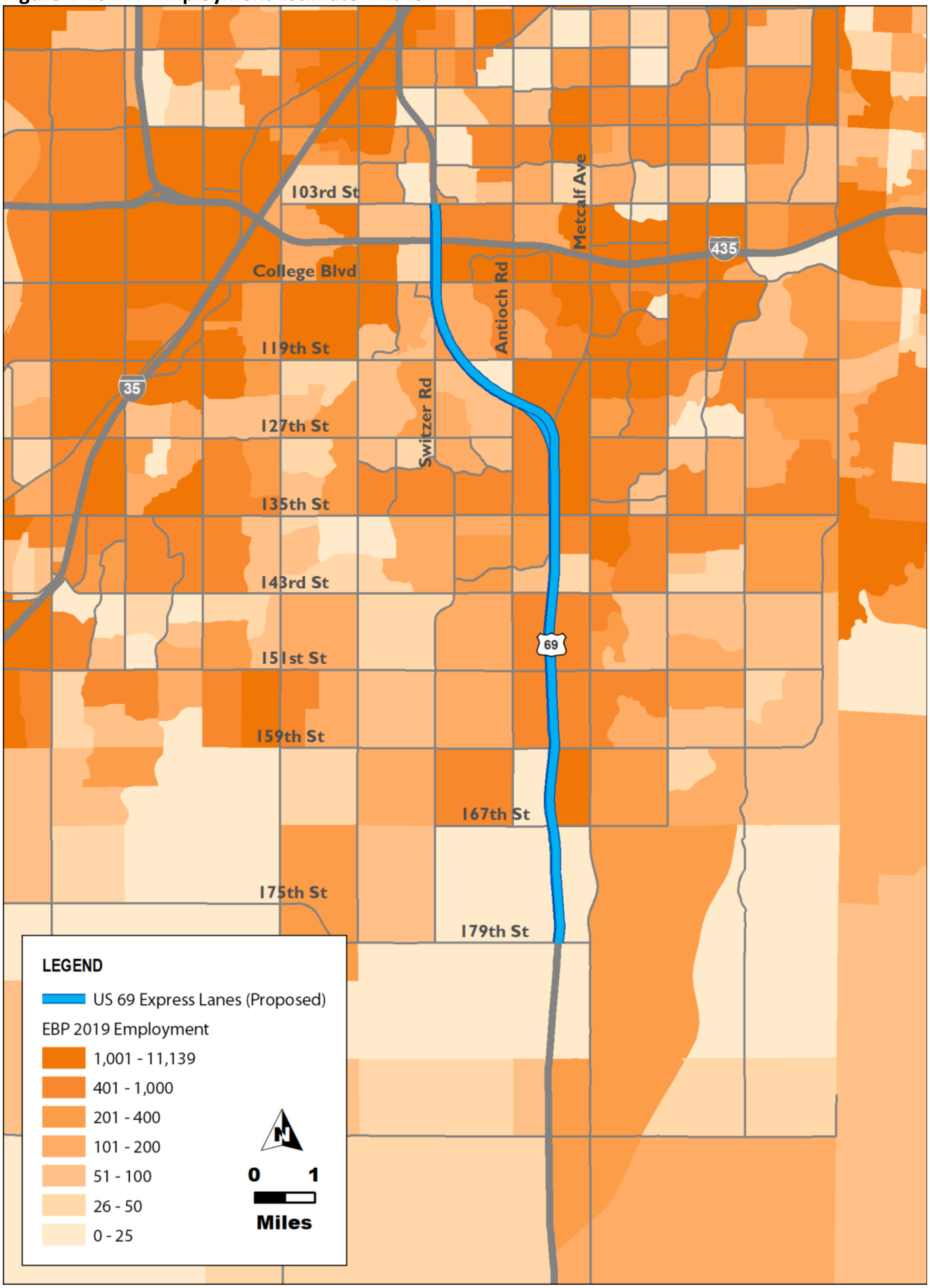


Figure 4-11 *EBP* Employment Forecast – 2050

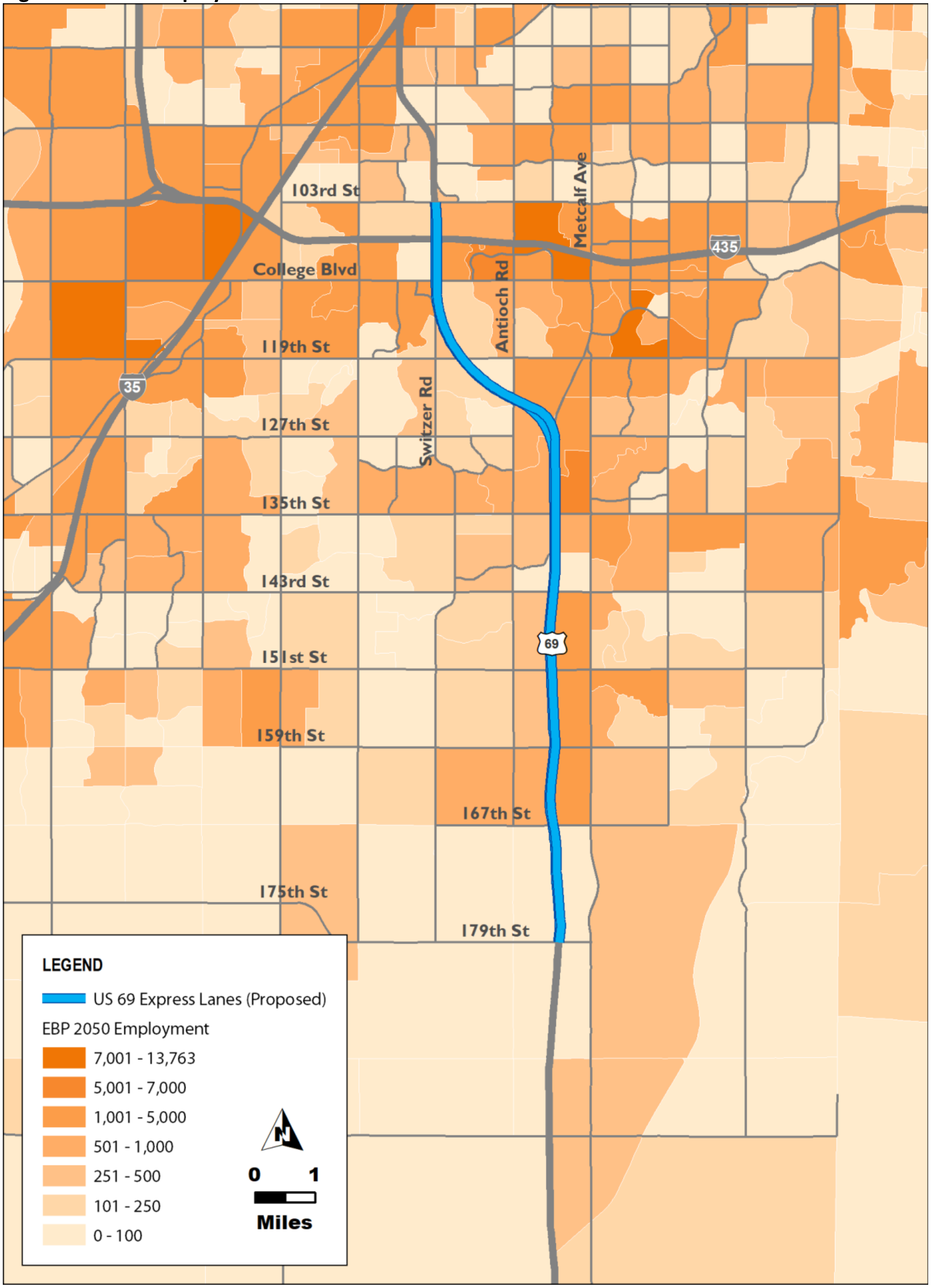


Figure 4-12 2025 vs 2019 Employment Difference – *EBP* Forecast

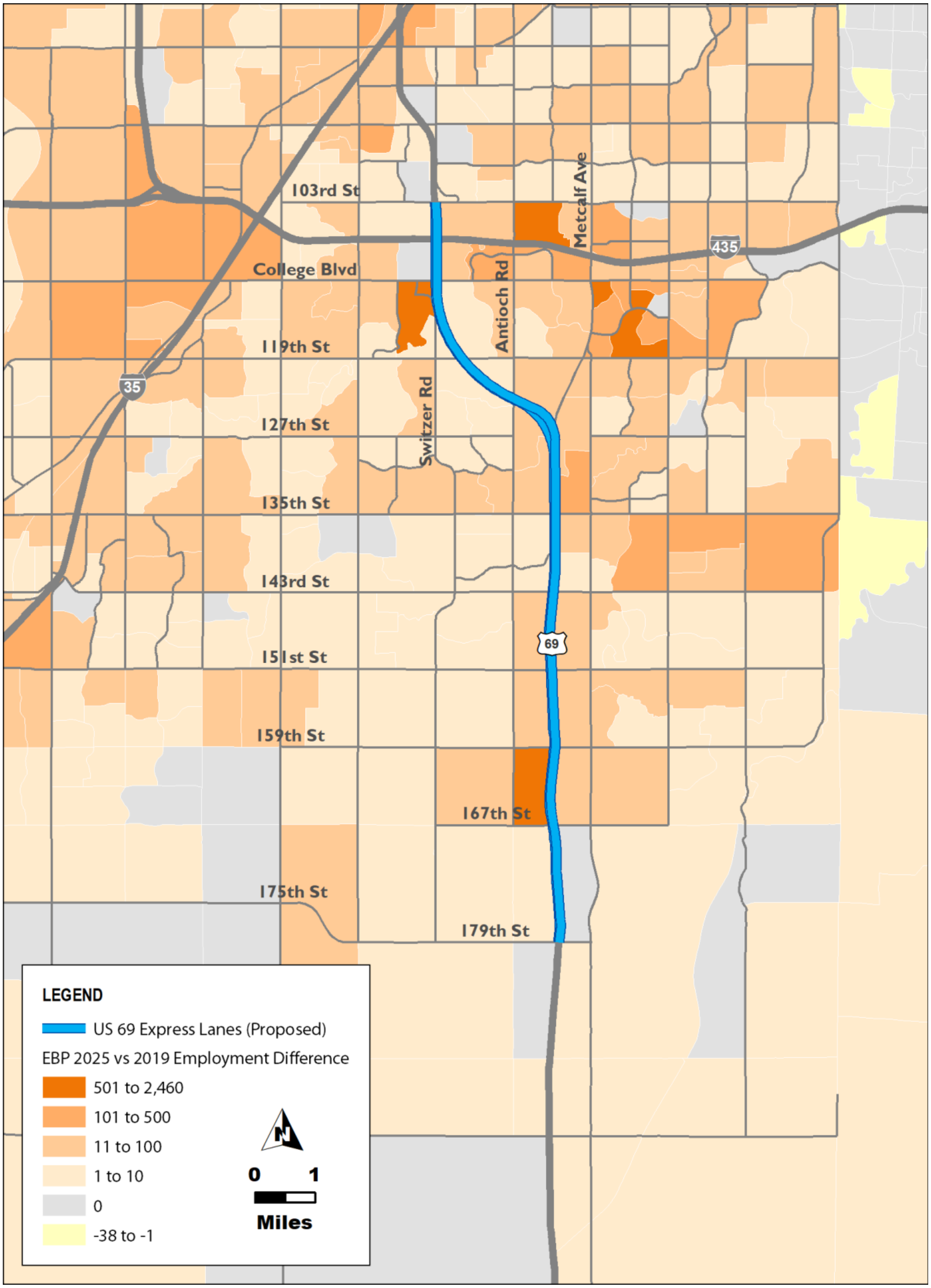
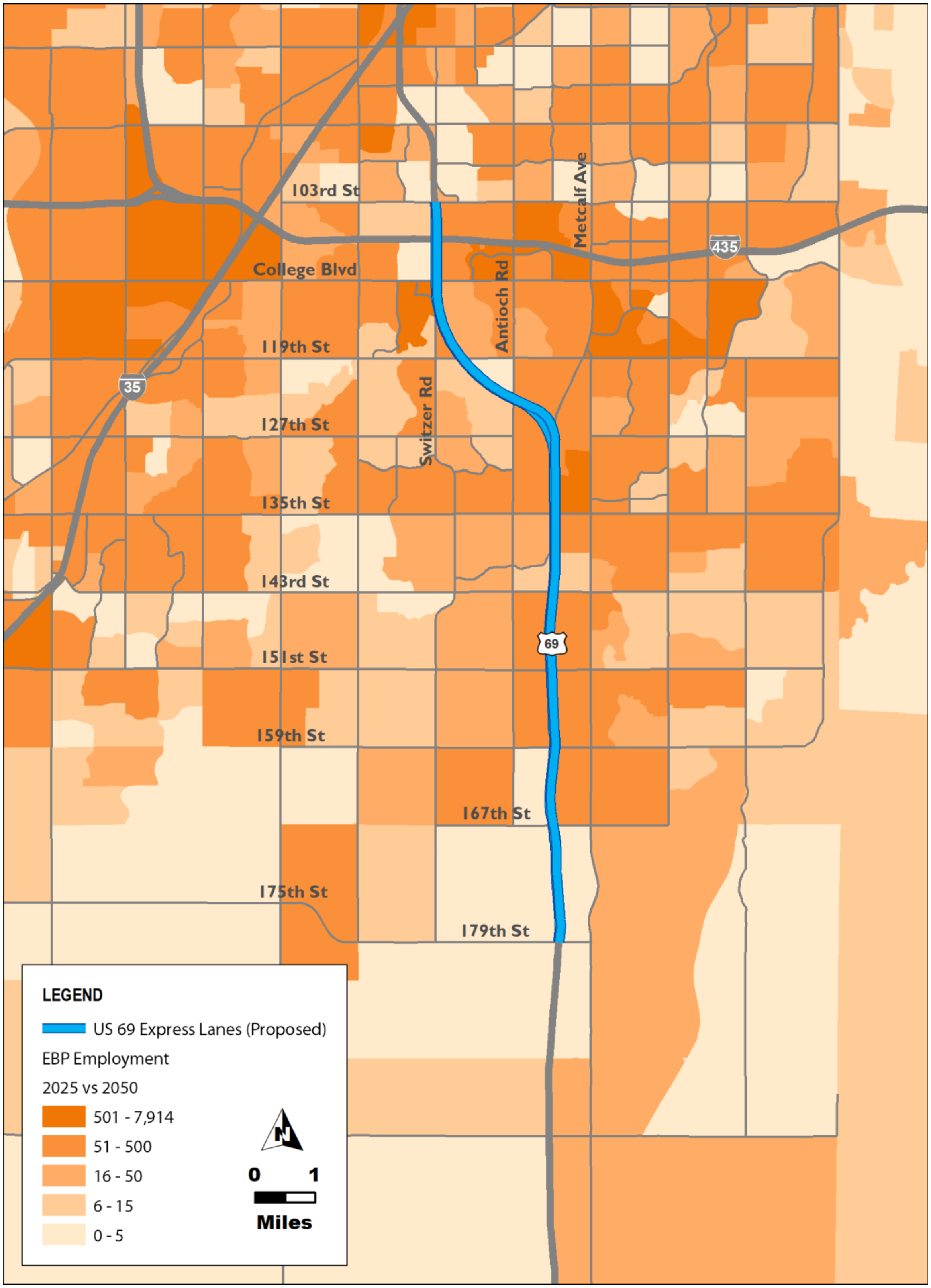


Figure 4-13 2050 vs 2025 Employment Difference – *EBP* Forecast



4.4.3 Comparison with Official MARC Forecasts

A comparison was made between the official MARC socioeconomic forecasts and the revised forecast developed by *EBP* to understand how the two forecasts differ from each other at the county level, corridor level and at the individual TAZ level in the vicinity of the US 69 study corridor.

The qualifier "official" refers to the MARC demographics datasets. Adjustments made to the population and employment forecasts by *EBP* to update the MARC official demographics datasets along the US 69 corridor, as well as the eight-county MARC MPO region, are referred to as the "revised" demographic datasets. The revised demographics datasets reflect changes to the socioeconomic trends that have occurred or have been announced since the development of the official demographics datasets. One set of T&R estimates for the US 69 corridor included in this report were developed using official MARC demographics and another set was developed using the revised demographics datasets prepared by *EBP*.

Table 4-12 shows a comparison of the official and revised population projections for Johnson County (Kansas) and Jackson County (Missouri), and the eight-county region for the years 2020, 2030, 2040, and 2050. The revised population forecast for the eight-county region is less than the official MARC forecast for the years 2020 through 2050. The 10-year (2020 to 2030) and 30-year (2020 to 2050) growth rates for population in the eight-county region are also lower for the revised population estimates provided by *EBP*. The 10-year and 30-year growth rates for the Johnson County revised population estimates decreased slightly as compared with the official population estimates. For Jackson County, population estimates also decreased as compared with the official population estimates.

Table 4-12 Comparison of Population Forecasts

Year	Johnson County, KS		Jackson County, MO		Eight-County Region	
	Official	Revised	Official	Revised	Official	Revised
2020	612,200	599,100	710,000	708,000	2,067,500	2,050,200
2030	684,600	673,500	739,500	736,600	2,241,600	2,208,200
2040	749,700	738,300	766,300	745,200	2,400,400	2,309,800
2050	808,900	797,900	791,100	753,900	2,546,900	2,395,700
CAGR 2020-2030	1.1%	1.2%	0.4%	0.4%	0.8%	0.7%
CAGR 2020-2050	0.9%	1.0%	0.4%	0.2%	0.7%	0.5%

Source: Mid-American Regional Council (MARC); EBP

Table 4-13 shows a comparison of the official and revised employment projections for Johnson County (Kansas) and Jackson County (Missouri), and the eight-county region for the years 2020, 2030, 2040 and 2050. Like the population forecasts, the revised employment forecasts for the eight-county region are less than official MARC forecasts for the years 2020 through 2050, with the exception of 2030, for which it is higher by over 7,000. However, the 10-year (2020 to 2030) growth rates for employment are higher for the revised employment estimates provided by *EBP*. The 30-year (2020 to 2050) growth rates are similar to the official demographics' growth rates.

Table 4-13 Comparison of Employment Forecasts

Year	Johnson County, KS		Jackson County, MO		Eight-County Region	
	Official	Revised	Official	Revised	Official	Revised
2020	372,700	364,800	386,000	374,100	1,080,800	1,052,800
2030	401,500	414,100	397,700	392,500	1,143,800	1,150,900
2040	435,400	443,200	411,400	394,800	1,217,900	1,199,500
2050	476,100	470,500	427,900	395,100	1,306,800	1,242,500
CAGR 2020-2030	0.7%	1.3%	0.3%	0.5%	0.6%	0.9%
CAGR 2020-2050	0.8%	0.9%	0.3%	0.2%	0.6%	0.6%

Source: Mid-American Regional Council (MARC); EBP

Zonal-level comparisons for population and employment between the revised, and the official MARC forecasts for 2020 and 2050 are illustrated in **Figures 4-14** through **4-17** and highlight the demographic revisions that were implemented for several zones within the study area based on a thorough review of zonal characteristics and future development patterns for each zone.

Figure 4-14 *EBP* vs MARC Population Delta – 2019

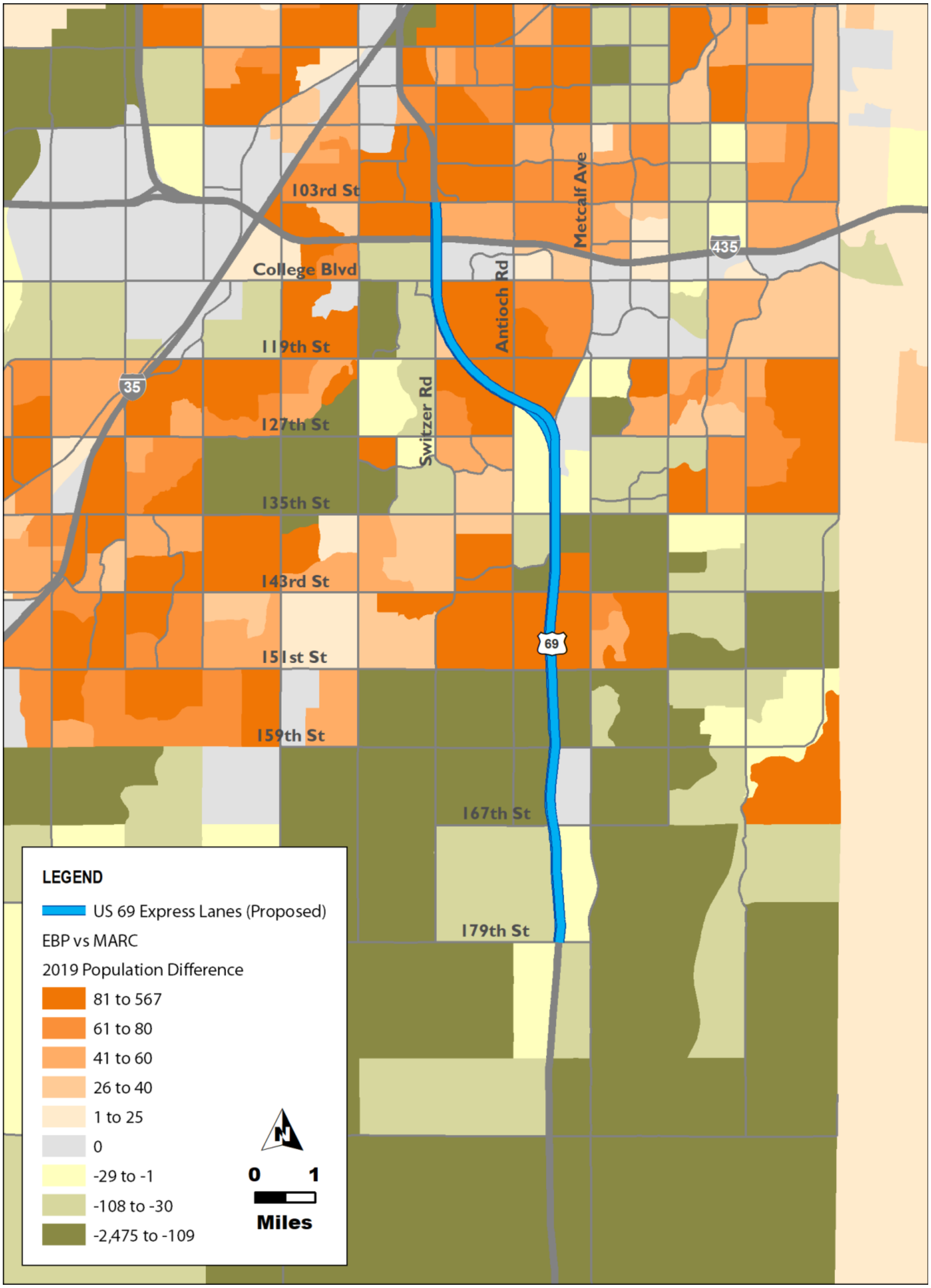


Figure 4-15 *EBP* vs MARC Employment Delta – 2019

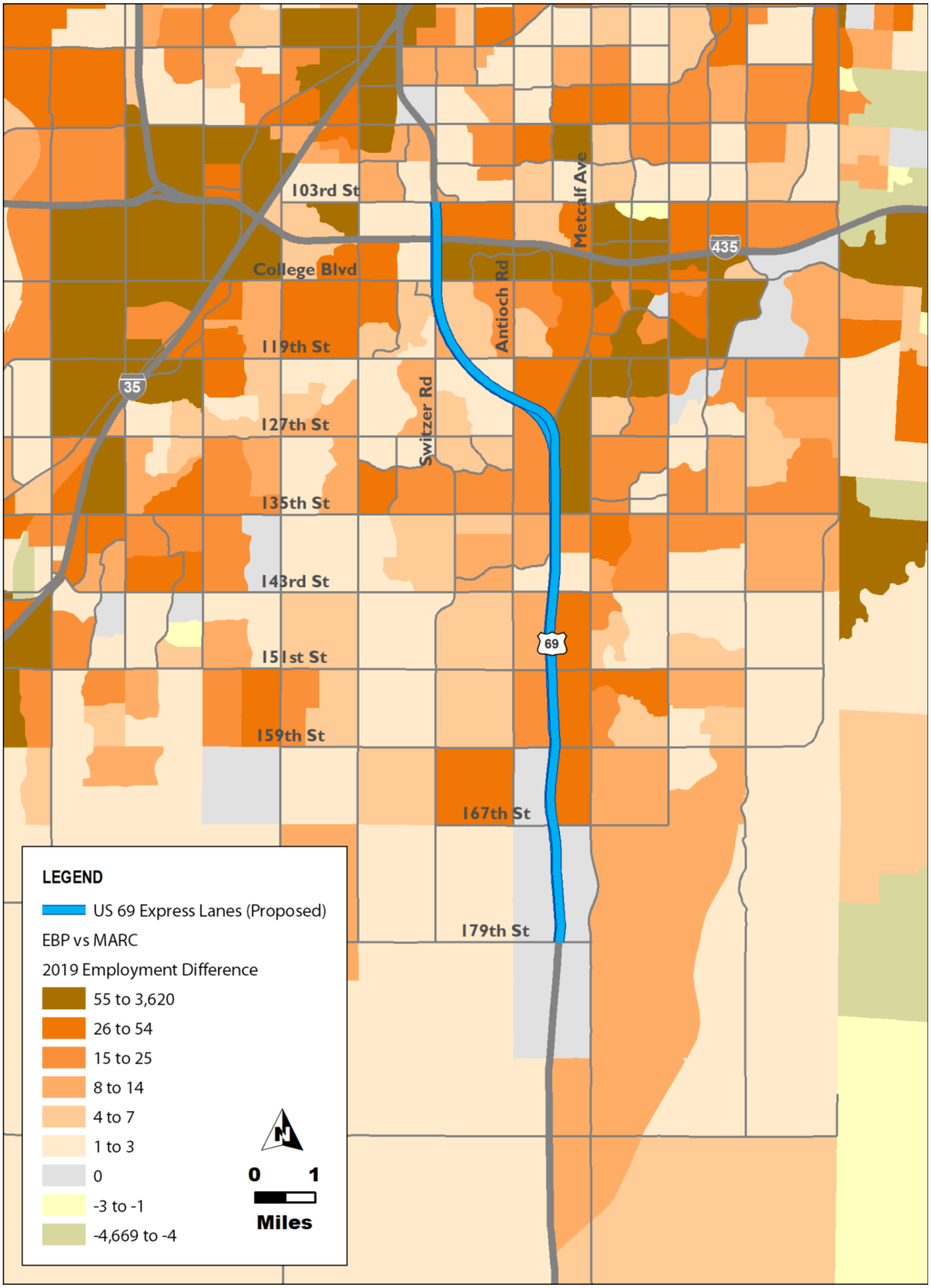


Figure 4-16 *EBP* vs MARC Population Delta – 2050

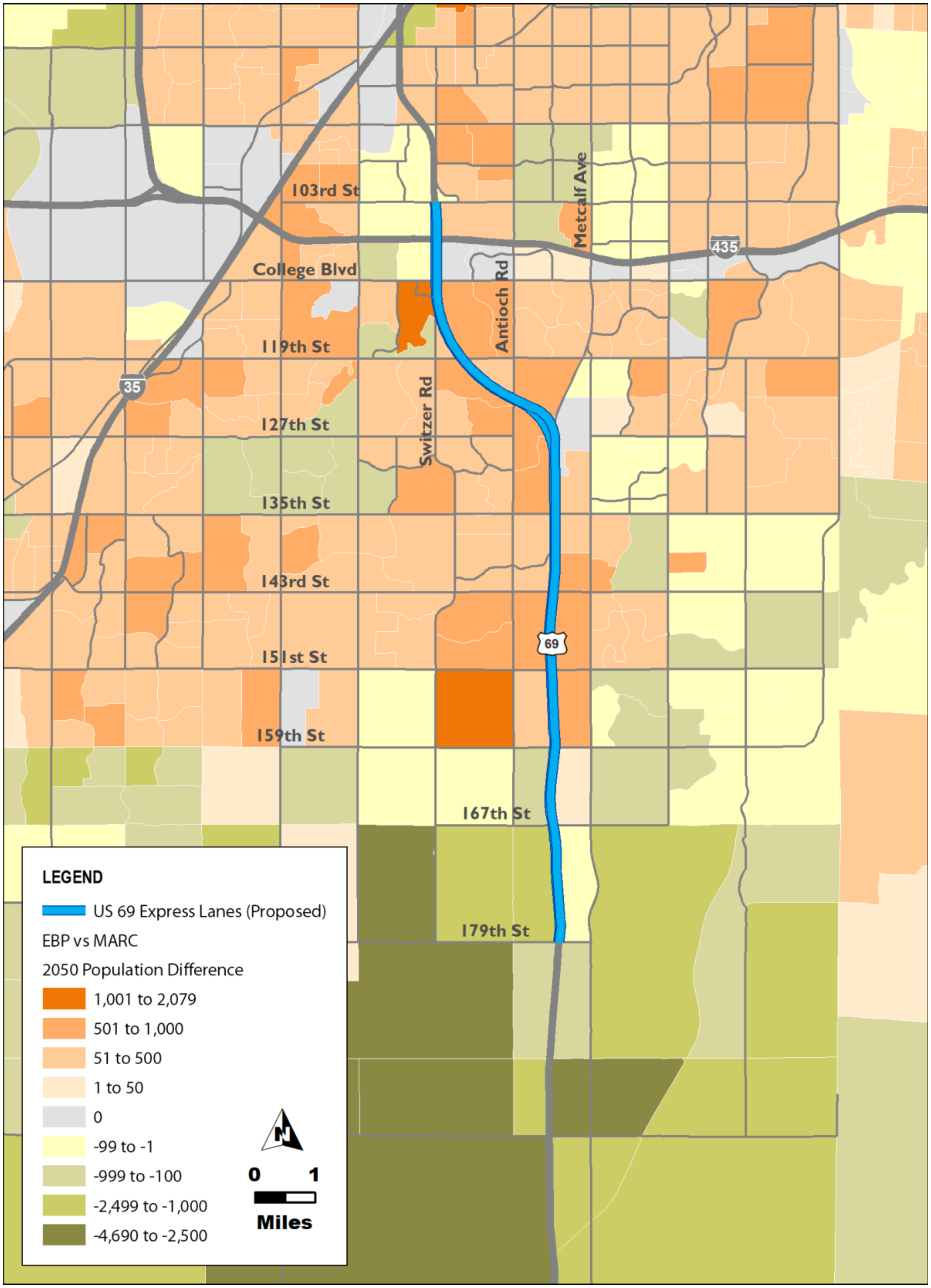
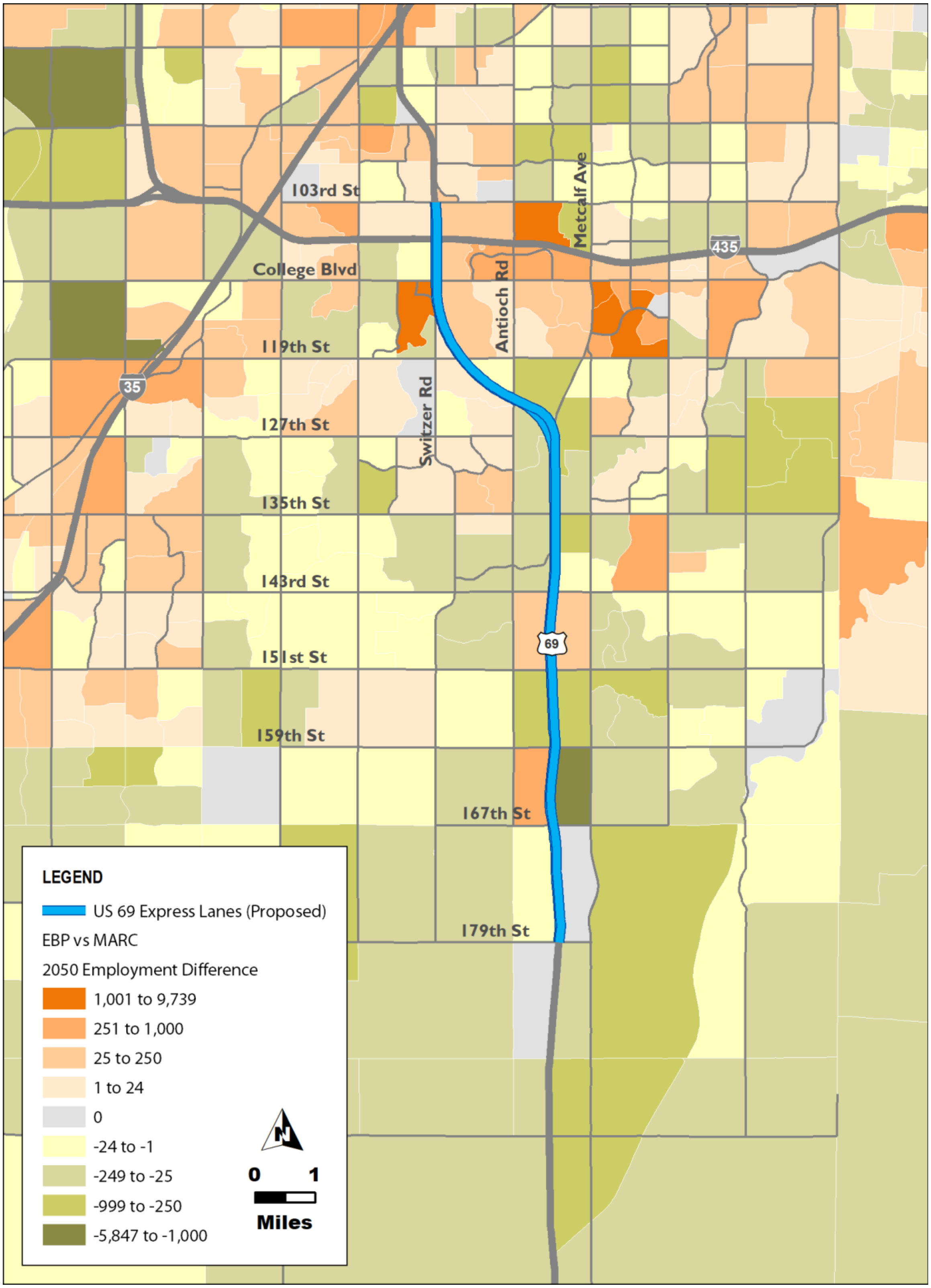


Figure 4-17 *EBP* vs MARC Employment Delta – 2050



4.5 Other Socioeconomic Indicators

4.5.1 Consumer Price Index

The consumer price index for all urban consumers (CPI-U) is the most widely used measure of inflation and serves as a key economic indicator. The CPI-U determines the aggregate price level of a specific market basket of goods and services that are consumed by typical urban households. This is done by calculating the average going price of each item in the market basket. Food, clothing, housing, transportation (including tolls) and entertainment are all included in the basket. Income taxes and investment items such as stocks and bonds are not included. The Bureau of Labor Statistics of the U.S. Department of Labor calculates the CPI-U every month.

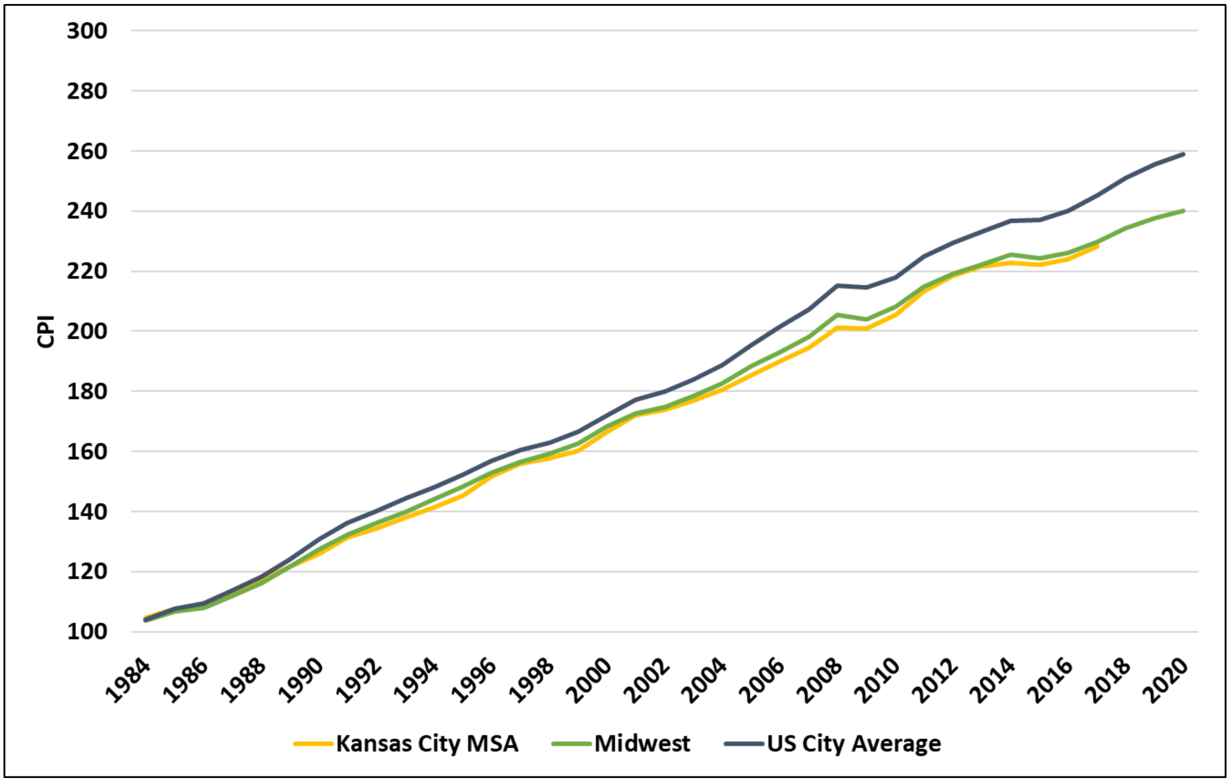
The consumer price index for the base timeframe (1982-1984) is 100. Inflation is determined by finding the percentage change in the CPI-U from one year to the next. **Table 4-14** and **Figure 4-18** give the historical trends for CPI-U from 1984 to 2017 for the Kansas City MSA, and from 1984 to 2020 for the Midwest region (Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin) and the United States. As indicated in **Figure 4-18**, the CPI-U for the Kansas City MSA has continually increased at a rate similar to the CPI-U for both the Midwest Region and the United States. This indicates that the inflation rate in Kansas City is consistent with the rate of inflation seen nationwide. In Kansas City, the CPI-U has grown at an average annual rate of 2.7 percent per year from 1984 to 2007, which is lower than the rate of growth experienced by the Midwest region and the nation during that time. Between 2007 and 2017, Kansas City's CPI-U grew at an average annual rate of 1.6 percent, at an annual rate of 1.5 percent for the Midwest region, and at an average annual rate of 1.7 percent for the United States. It should also be noted that the CPI-U for all the three geographical locations sharply increased between 2007 and 2008 and decreased between 2008 and 2009.

Table 4-14 Consumer Price Index for All Urban Consumers

Year	Kansas City MSA	Growth	Midwest	Growth	US City Average	Growth
1984	104.5	-	103.6	-	103.9	-
1985	107.7	3.1%	106.8	3.1%	107.6	3.6%
1986	108.7	0.9%	108.0	1.1%	109.6	1.9%
1987	113.1	4.0%	111.9	3.6%	113.6	3.6%
1988	117.4	3.8%	116.1	3.8%	118.3	4.1%
1989	121.6	3.6%	121.5	4.7%	124.0	4.8%
1990	126.0	3.6%	127.4	4.9%	130.7	5.4%
1991	131.2	4.1%	132.4	3.9%	136.2	4.2%
1992	134.3	2.4%	136.1	2.8%	140.3	3.0%
1993	138.1	2.8%	140.0	2.9%	144.5	3.0%
1994	141.3	2.3%	144.0	2.9%	148.2	2.6%
1995	145.3	2.8%	148.4	3.1%	152.4	2.8%
1996	151.6	4.3%	153.0	3.1%	156.9	3.0%
1997	155.8	2.8%	156.7	2.4%	160.5	2.3%
1998	157.8	1.3%	159.3	1.7%	163.0	1.6%
1999	160.1	1.5%	162.7	2.1%	166.6	2.2%
2000	166.6	4.1%	168.3	3.4%	172.2	3.4%
2001	172.2	3.4%	172.8	2.7%	177.1	2.8%
2002	174.0	1.0%	174.9	1.2%	179.9	1.6%
2003	177.0	1.7%	178.3	1.9%	184.0	2.3%
2004	180.7	2.1%	182.6	2.4%	188.9	2.7%
2005	185.3	2.5%	188.4	3.2%	195.3	3.4%
2006	190.1	2.6%	193.0	2.4%	201.6	3.2%
2007	194.5	2.3%	198.1	2.7%	207.3	2.8%
2008	201.2	3.4%	205.4	3.7%	215.3	3.8%
2009	201.0	-0.1%	204.1	-0.6%	214.5	-0.4%
2010	205.4	2.2%	208.0	2.0%	218.1	1.6%
2011	213.5	4.0%	214.7	3.2%	224.9	3.2%
2012	218.5	2.3%	219.1	2.0%	229.6	2.1%
2013	221.6	1.4%	222.2	1.4%	233.0	1.5%
2014	222.7	0.5%	225.4	1.5%	236.7	1.6%
2015	222.3	-0.2%	224.2	-0.5%	237.0	0.1%
2016	224.1	0.8%	226.1	0.8%	240.0	1.3%
2017	228.2	1.9%	229.9	1.7%	245.1	2.1%
2018	-	-	234.3	1.9%	251.1	2.4%
2019	-	-	237.8	1.5%	255.7	1.8%
2020	-	-	240.0	1.0%	258.8	1.2%
Compounded Annual Growth	**1984-2007**	**2.7%**	**1984-2007**	**2.9%**	**1984-2007**	**3.0%**
	2007-2017	**1.6%**	**2007-2017**	**1.5%**	**2007-2017**	**1.7%**

Source: Bureau of Labor Statistics, CPI-U Not Seasonally Adjusted
Note: The Kansas City MSA CPI data was discontinued after 2017

Figure 4-18 Consumer Price Index for All Urban Consumers



Source: Bureau of Labor Statistics, CPI-U Not Seasonally Adjusted
Note: The Kansas City MSA CPI data was discontinued after 2017

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Chapter 5

Travel Demand Modeling

This chapter describes the development and calibration of the travel demand model that was used to evaluate the proposed US 69 express lanes. The travel demand modeling methodology that was used to develop the traffic and toll revenue forecasts for the express lanes is summarized in **Figure 5-1**.

A profile of the existing traffic demand that was observed along the US 69 corridor and other major roadways in the study area is presented in **Chapter 2** based on the data collected along the US 69 corridor and selected screenlines, speed data along US 69 and potential competing routes, and other travel characteristics. These travel characteristics became the foundation upon which the travel demand model was developed and calibrated. The model development for the traffic and toll revenue estimation process involved three levels of analysis as described below.

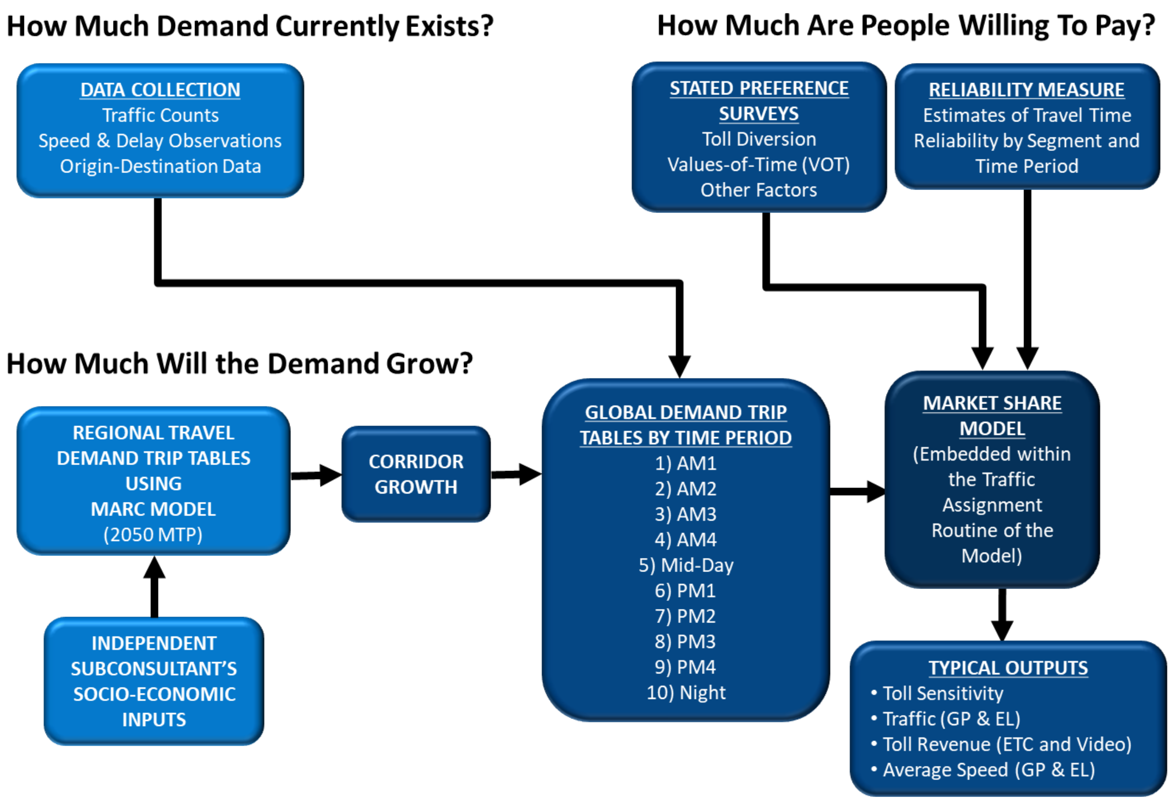
1. ***Global Demand Estimates*** – The global demand is an estimate of the amount of total traffic demand that will likely use the US 69 corridor under existing and future conditions. An economic assessment of the regional socioeconomics was performed as part of this study to provide a gauge of what the total global demand will be in the future within the corridor. Regional highway networks, obtained from the MARC model, were reviewed to ensure that the future planned improvements within the US 69 study area as well as the overall Kansas City metro region were updated to incorporate the latest planned infrastructure improvements. Updated regional socioeconomic data developed by an independent subconsultant (as described in **Chapter 4**) was used to develop global travel demand estimates for the US 69 study corridor. The updated socioeconomic data was incorporated within the MARC travel demand model to develop existing and future year trip tables.

2. ***Travel Time Reliability Coefficients*** – Travelers make their decisions regarding the use of express lanes based on many factors, which include the need to reliably reach their intended destination. Without the reliability component, traditional toll road utilization models tend to underestimate the level of express lanes usage typically observed when based solely on travel time savings. Corridor reliability was assessed under current conditions using *NPMRDS* traffic congestion information to measure the variability in travel times along the US 69 corridor during each peak period. This analysis produced a ratio representing the typical increase in travel time over the average travel time due to congestion issues as a proxy for reliability. The average travel times estimated by the travel demand model were then adjusted using the reliability ratio coefficient as a measure of drivers' perception of the worst-case congestion condition typically experienced along the general-purpose (GP) lanes and the reliability buffer they tend to overlay when making a routing and travel decision. These coefficients were estimated for discrete segments by direction along the US 69 corridor for each individual time period used in the model.

3. ***Market Share Model*** – The market share model was used to estimate the traffic that will choose to use the express lanes under varying congestion characteristics and toll rates. The share of the corridor traffic that uses the express lanes is based on several factors that include the location of access points in relation to the GP lane configuration, the time savings offered by the express lanes, and the magnitude of toll rates charged.

The flow chart in **Figure 5-1** shows the general relationship between the various analysis components and provides an overview of the forecasting methodology.

Figure 5-1 Travel Demand Modeling Process



Note: GP – General Purpose Lanes, EL – Express Lanes

5.1 Model Development and Refinements

The socioeconomic forecasts and highway networks from the MARC's *Connected KC 2050 Plan* (2050 MTP) regional model were used as the basis for developing the travel demand model for this study. Trip tables generated from MARC's model were used for the 2019 base year as well as 2026, 2040, and 2050 forecast years based on the revised socioeconomics. The MARC model produces hourly trip tables for each of the 24 hours in a day. The hourly trip tables generated from the MARC model were for a single combined mode and were not segregated into auto and truck trips or occupancy levels. The highway networks obtained from the MARC model included roadway segment parameters such as length, functional class, area type, number of lanes, speed, and capacity.

Express lanes projects typically need to be studied in more detailed time periods to evaluate the operational characteristics of the corridor that may necessitate differing pricing regimes to effectively manage traffic within the lanes. Toll rate sensitivity analyses and testing was performed for each identified time period to gauge the optimum level of toll rates to ensure that the express lanes operate above a minimum travel speed of 50 miles per hour.

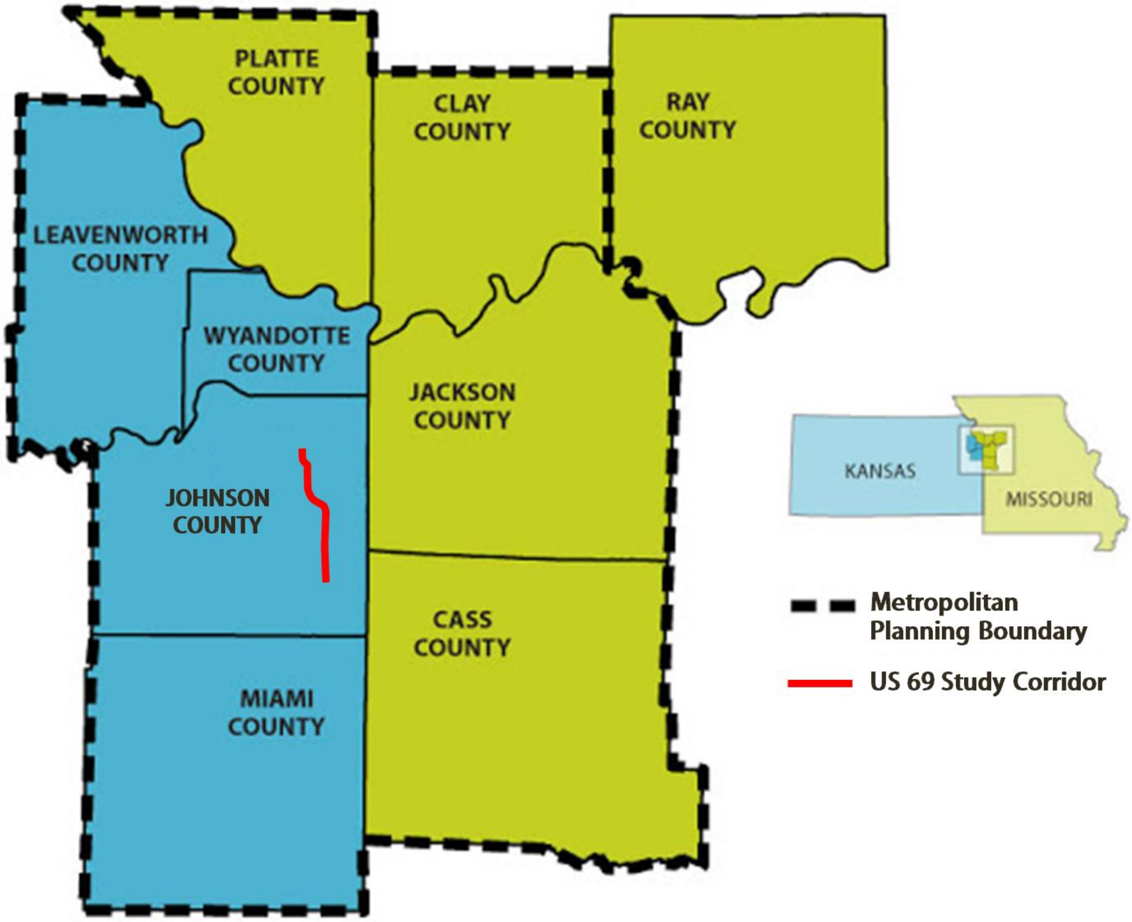
The highway networks obtained from MARC encompassed eight counties that were segmented into 2,510 TAZs. The modeling area boundary is shown in **Figure 5-2.** Because the model included the entire KC metro region, it covered a large area surrounding the US 69 express lanes study corridor and included all major competing and connecting routes within the study area. The networks and associated trip tables were used within the market share model to develop traffic and toll revenue estimates for the US 69 express lanes and are described in more detail in subsequent sections.

The official trip tables, provided by MARC, were at the hourly level as described earlier. The demand for express lanes like the ones proposed along the US 69 corridor is sensitive to traffic congestion which varies significantly during different times of the day. This typically requires a more detailed assessment of the traffic patterns during peak and off-peak periods to evaluate the operational characteristics of the corridor. The traffic demand and resulting congestion typically necessitates differing pricing regimes to effectively maintain traffic flow at or above targeted minimum speeds or level of service. To model the varying traffic conditions during different times of the day, the model used for this study included ten time periods. The hourly trip tables for the mid-day and overnight hours, when there is no significant congestion and lower traffic demand, were combined to save model computational time. The toll rates are also expected to remain at minimum levels during the mid-day and overnight hours because there is minimal congestion during these off-peak hours. The ten time periods that were used in the model are listed below:

- AM1 Peak Period – 5:00 AM to 6:00 AM
- AM2 Peak Period – 6:00 AM to 7:00 AM
- AM3 Peak Period – 7:00 AM to 8:00 AM
- AM4 Peak Period – 8:00 AM to 9:00 AM
- Mid-day Period – 9:00 AM to 3:00 PM
- PM1 Peak Period – 3:00 PM to 4:00 PM
- PM2 Peak Period – 4:00 PM to 5:00 PM
- PM3 Peak Period – 5:00 PM to 6:00 PM
- PM4 Peak Period – 6:00 PM to 7:00 PM
- Night Period – 7:00 PM to 5:00 AM

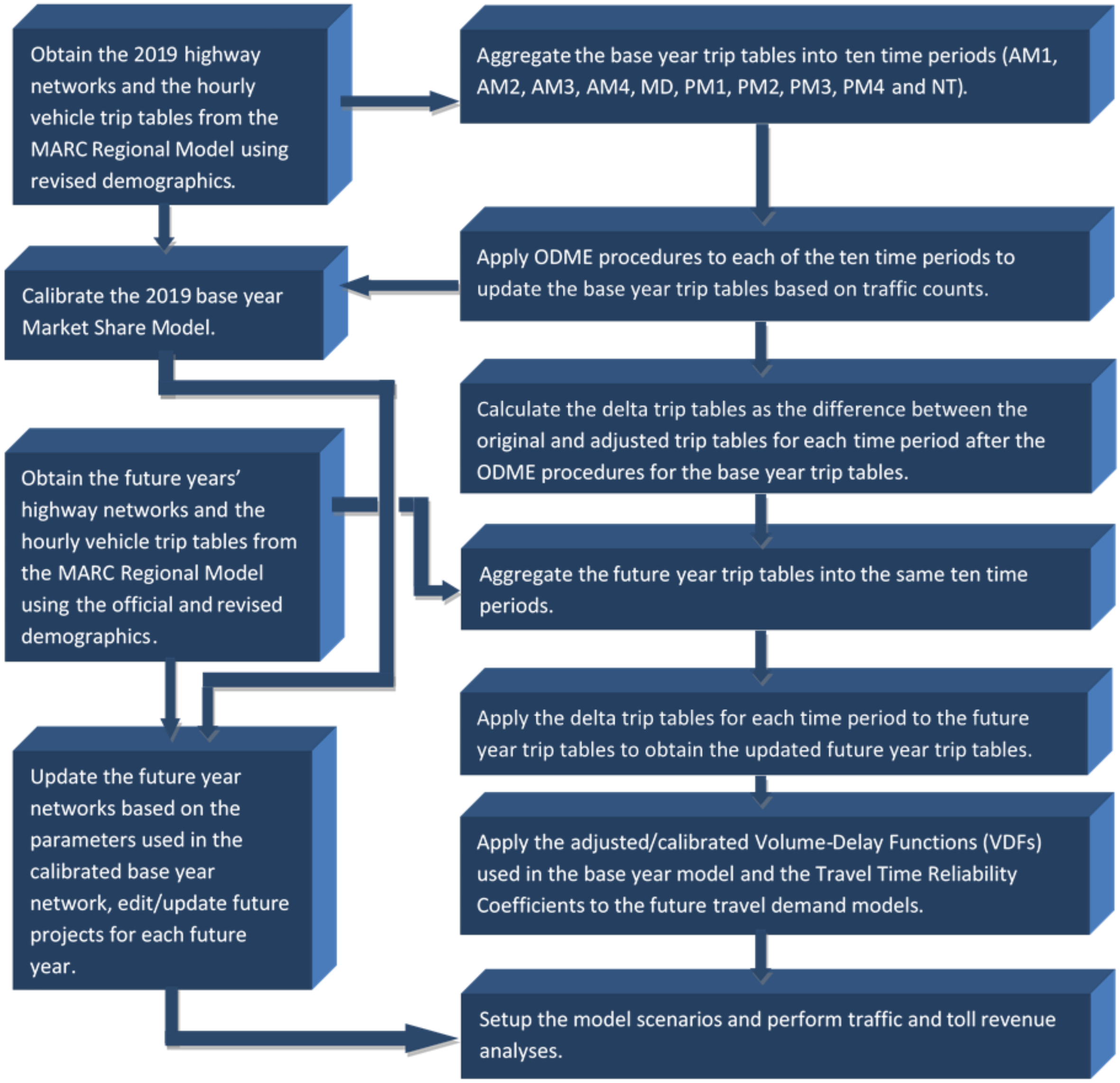
An Origin-Destination Matrix Estimation (ODME) technique was then applied to update the trip tables to better reflect existing traffic volumes along the major highways and screenlines within the study area based on recently collected data, as described in **Chapter 2**. The ODME procedure was applied to each of the ten time periods separately, and an extensive evaluation was performed to ensure the trip tables generated from the ODME procedure reasonably reflected the existing traffic characteristics along the US 69 corridor as indicated by both the traffic counts and observed travel speeds. Delta trip tables were calculated using the before and after ODME trip tables for each of the ten time periods for the base year. These delta trip tables were then applied to future year trip tables separately for each time period to reflect the corrections applied to the base year model.

Figure 5-2 Modeling Area Boundary



The overall modeling process used in the study is summarized in **Figure 5-3** and described in further detail in subsequent sections.

Figure 5-3 Flowchart of the Modeling Process



5.2 Global Demand Estimates

The global traffic demand (defined as the total potential traffic traveling within the US 69 corridor including collector-distributor roads, general purpose lanes, and express lanes) was estimated using the regional travel demand model. The regional travel demand model was used in two ways: 1) to provide the base travel patterns, and 2) to develop traffic growth characteristics. The model development for the future global demand estimates required updates to the highway network, the development of a socioeconomic database, and finally trip table modifications, which are all described in more detail below.

5.2.1 Highway Network

The Kansas City regional highway network based on the *Connected KC 2050* metropolitan transportation plan was used as the base network for this study. *Connected KC 2050* was also referenced to review and update the roadways within the US 69 study area; and to ensure the future projects and highway improvements were correctly coded in all future year networks to reflect their intended phasing. The US 69 corridor was edited to incorporate the "as-built" configuration of the study corridor and included the configuration and location of ramps, segment lengths and number of travel lanes. Specific opening dates for several of the future background projects within the 2050 MTP for the region were updated based on input from KDOT staff.

Other elements also reviewed in the networks included centroid connections, free flow speeds, link lengths, number of lanes, and link capacities. The updated networks were tested to ensure that all the network characteristics were reasonably incorporated in the model.

5.2.2 Socioeconomic Assumptions

MARC's socioeconomic forecasts adopted by the MARC Board of Directors were developed using information from the 2018 population estimates from the Census Bureau, residential building permit data from the Greater Kansas City Homebuilders Association, the Longitudinal Employer–Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) employment data from the Census Bureau and the Quarterly Census of Employment and Wages (QCEW) from the U.S. Department of Labor. EBP, an independent subconsultant was contracted to review these socioeconomic factors and update them at the corridor level. The independent socioeconomic assessment was undertaken to evaluate the validity of the current and anticipated growth of population and employment for Johnson County as well as the overall Kansas City Metropolitan Area (which encompasses the regional modeling area) for the years 2019, 2025, 2040 and 2050. The independent socioeconomic review is summarized in **Chapter 4** and the full report from EBP describing the socioeconomic review is included as **Appendix A** to this report.

Another important due diligence review of the MARC socioeconomic database was undertaken by comparing the respective regional and county-level total population and employment forecasts from several other independent sources, including the U.S. Census Bureau and the U.S. Bureau of Labor Statistics. The traffic and toll revenue estimates for the US 69 corridor based on the revised socioeconomics datasets as well as those based on the official MARC forecasts are presented in **Chapter 6**.

5.3 Model Calibration

The screenline counts collected in October and November 2020, the US 69 corridor mainline and ramp counts and the regional daily counts were analyzed, and the travel characteristics for each individual time period used in the model were extracted and summarized where applicable. The traffic data based on this analysis was used as the basis to calibrate and adjust the model parameters as warranted and is summarized in more detail in the following sections.

5.3.1 Traffic Assignment Calibration

Table 5-1 lists the ratios of the model-estimated and observed vehicle-miles-traveled (VMT) along links categorized by area-type (AT) and facility-type (FT) for the daily traffic along the roadway links where traffic data was collected. **Table 5-2** reflects the number of (one-way) model links where traffic count observations were made for each AT and FT category. **Table 5-1** shows that on a 24-hour basis the model-estimated VMT for the overall area-type (row totals) and the facility-type (column totals) categories were within 14 percent of the observed VMT. The overall estimated VMT for the model was within one percent of the observed VMT.

Table 5-3 through **5-12** illustrate the same information for each of the ten individual time periods used in the model as defined earlier in this chapter. **Table 5-13** shows the number of (one-way) model links for which hourly count data was available to support the estimation of VMT ratios for each time period. There were some variations in the VMT ratios for individual time periods along minor arterials, collectors and ramps, however, the overall VMT ratios for the two main facility-type categories, freeways and expressways were within ten percent. It is worth noting that most travel occurs along these two FT categories and they account for a majority of the overall VMT in the region.

Table 5-1 Estimated/Observed VMT Ratios for Daily Traffic

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	1.00	1.00	1.01	1.02	1.42	1.07	0.97	1.00
Urban	1.01	1.01	1.00	1.06				1.01
Suburban	1.00	1.00	1.03	1.02	1.01	1.00		1.00
Rural	1.01	1.03	1.63	1.00	1.09	1.01		1.03
ALL	**1.00**	**1.01**	**1.14**	**1.01**	**1.14**	**1.07**	**0.97**	**1.01**

Table 5-2 Number of One-way Links with Counts used in the Estimation of Daily VMT Ratios

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	50	20	28	6	4	29	20	157
Urban	8	1	2	6				17
Suburban	38	26	4	11	4	5		88
Rural	28	24	10	5	16	1		84
ALL	**124**	**71**	**44**	**28**	**24**	**35**	**20**	**346**

Table 5-3 Estimated / Observed VMT Ratios for AM1 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	0.94	1.10	1.11	1.03	3.07		0.84	1.00
Urban								
Suburban	1.01	1.04	1.42		0.95			1.04
Rural	0.78	1.07	0.98		1.37			0.98
ALL	**0.92**	**1.08**	**1.14**	**1.03**	**1.50**		**0.84**	**1.00**

Table 5-4 Estimated / Observed VMT Ratios for AM2 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	0.98	1.03	1.05	1.00	1.76		1.00	1.01
Urban								
Suburban	1.00	1.01	1.43		1.01			1.02
Rural	0.95	1.02	0.98		1.16			1.00
ALL	**0.98**	**1.02**	**1.09**	**1.00**	**1.23**		**1.00**	**1.01**

Table 5-5 Estimated / Observed VMT Ratios for AM3 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	1.03	0.97	1.01	1.01	1.26		1.07	1.01
Urban								
Suburban	0.96	1.02	1.01		0.99			1.00
Rural	1.12	1.01	0.99		1.05			1.03
ALL	**1.03**	**0.99**	**1.01**	**1.01**	**1.08**		**1.07**	**1.01**

Table 5-6 Estimated / Observed VMT Ratios for AM4 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	1.01	1.02	1.01	1.01	1.36		0.92	1.01
Urban								
Suburban	1.00	1.02	1.01		1.02			1.01
Rural	1.26	1.12	1.00		1.02			1.14
ALL	**1.03**	**1.06**	**1.01**	**1.01**	**1.09**		**0.92**	**1.04**

Table 5-7 Estimated / Observed VMT Ratios for Mid-Day Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	0.99	1.01	1.02	1.01	1.42		0.93	1.00
Urban								
Suburban	1.00	1.00	1.00		1.02			1.00
Rural	1.02	1.06	1.00		1.02			1.05
ALL	**1.00**	**1.02**	**1.01**	**1.01**	**1.10**		**0.93**	**1.01**

Table 5-8 Estimated / Observed VMT Ratios for PM1 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	0.98	1.00	0.99	1.00	1.53		0.97	0.99
Urban								
Suburban	0.98	1.02	0.96		1.02			1.01
Rural	0.98	0.99	0.99		1.06			0.99
ALL	**0.98**	**1.00**	**0.99**	**1.00**	**1.15**		**0.97**	**1.00**

Table 5-9 Estimated / Observed VMT Ratios for PM2 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	1.00	1.00	1.00	1.01	1.53		1.09	1.01
Urban								
Suburban	0.98	1.00	1.02		1.01			0.99
Rural	0.97	0.99	0.98		1.24			0.99
ALL	**1.00**	**0.99**	**1.00**	**1.01**	**1.21**		**1.09**	**1.00**

Table 5-10 Estimated / Observed VMT Ratios for PM3 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	1.05	1.00	1.00	1.00	1.51		1.15	1.03
Urban								
Suburban	0.98	0.99	1.11		0.98			1.00
Rural	0.99	0.97	1.00		1.31			0.98
ALL	**1.03**	**0.98**	**1.01**	**1.00**	**1.22**		**1.15**	**1.01**

Table 5-11 Estimated / Observed VMT Ratios for PM4 Peak Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	1.01	1.03	1.01	1.00	1.38		1.12	1.02
Urban								
Suburban	1.08	1.01	1.00		1.02			1.03
Rural	1.04	1.15	0.99		1.07			1.12
ALL	**1.02**	**1.07**	**1.01**	**1.00**	**1.13**		**1.12**	**1.05**

Table 5-12 Estimated / Observed VMT Ratios for Night Period

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	0.98	1.00	0.99	1.01	1.29		0.89	0.99
Urban								
Suburban	1.04	0.99	1.02		1.01			1.01
Rural	0.99	1.26	0.99		1.07			1.17
ALL	**0.99**	**1.09**	**0.99**	**1.01**	**1.11**		**0.89**	**1.04**

Table 5-13 Number of One-way Links with Counts used in the Estimation of Time Period VMT Ratios

AT\FT	Interstates	Expwys	Minor Art	Principal Art	Collectors	Art Ramps	Fwy Ramps	ALL
CBD Fringe	10	10	24	2	4		2	52
Urban								
Suburban	2	8	4		4			18
Rural	4	6	2		16			28
ALL	**16**	**24**	**30**	**2**	**24**	**0**	**2**	**98**

In addition to the comparison of the estimated versus observed VMTs, four screenlines were developed along the corridor, as shown in **Figure 5-4**, and complemented with regional spot counts in the study area to analyze the total corridor traffic trends and to compare the base model outputs with the current traffic characteristics within the US 69 corridor. Screenlines 2, 3 and 4 were selected to cross the US 69 corridor while Screenline 1 runs parallel just to the east of US 69.

Table 5-14 shows the comparison between the model estimated volumes and the observed traffic for the four screenlines shown in **Figure 5-4**. The table shows the 24-hour observed traffic counts and the corresponding 24-hour model estimated traffic volumes for each of the individual count locations as well as the total traffic across each screenline. The table also shows the percentage variation in model-assigned volumes as compared to the observed traffic counts. The total estimated screenline volumes are within three percent of the observed counts for all four screenlines, which is well within the acceptable target of +/- ten percent variation. Hence, the overall model calibration based on the total screenline volumes was considered to be reasonable.

Figure 5-4 Screenline Locations

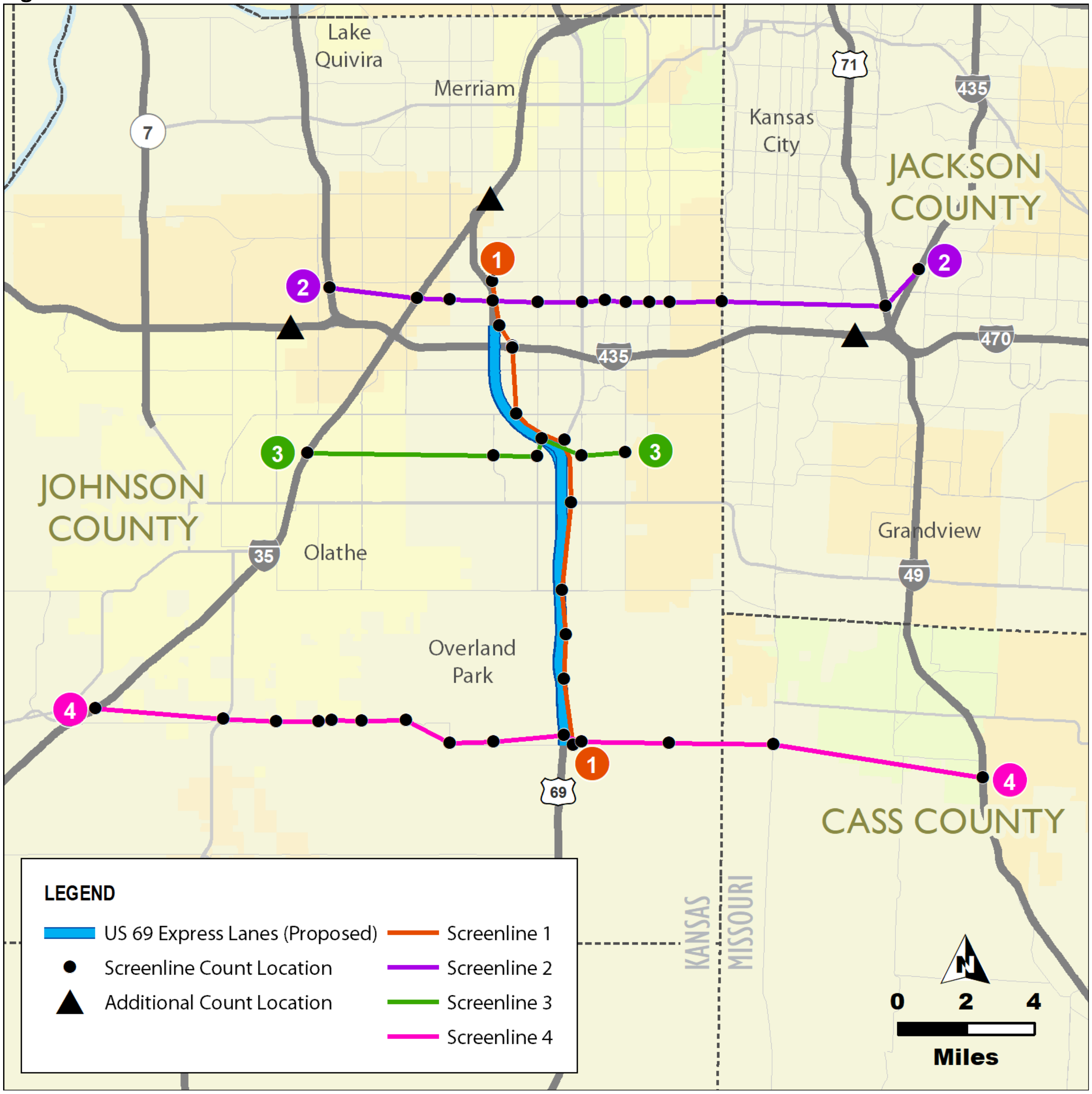


Table 5-14 Observed and Estimated Screenline Volumes

ID	Location Description	2019 Average Weekday Counts	Model Volume	% Difference
Screenline 1: East of US 69				
SC-21	179th Street	4,900	6,000	22.4%
SC-210	103rd Street	17,500	17,500	0.0%
SC-211	95th Street	28,700	28,800	0.3%
SC-22	167th Street	2,800	3,600	28.6%
SC-23	159th Street	26,300	26,700	1.5%
SC-24	151st Street	33,200	33,400	0.6%
SC-26	135th Street	53,900	53,600	-0.6%
SC-27	Blue Valley Parkway	33,500	42,600	27.2%
SC-28	119th Street	27,500	28,200	2.5%
SC-29	I-435	174,400	172,900	-0.9%
Screenline 2 Total:		**402,700**	**413,300**	**2.6%**
Screenline 2: North of IH 435				
SP-7	I-435	83,600	86,700	3.7%
SC-31	I-35	111,000	113,400	2.2%
SC-310	State Line Road	25,400	25,200	-0.8%
SC-32	Quivira Road	18,700	18,700	0.0%
SC-33	US 69	97,700	95,900	-1.8%
SC-34	Antioch Road	18,300	18,100	-1.1%
SC-35	Metcalf Avenue	36,100	36,400	0.8%
SC-36	Lamar Avenue	2,700	4,300	59.3%
SC-38	Roe Avenue	7,800	8,000	2.6%
SP-3	US 71	84,100	84,000	-0.1%
SP-4	I-435	93,800	93,600	-0.2%
Screenline 3 Total:		**579,200**	**584,300**	**0.9%**
Screenline 3: North of 127th Street				
SC-42	I-35	122,900	123,400	0.4%
SC-46	Switzer Road	10,100	14,200	40.6%
SC-47	Antioch Road	21,000	21,000	0.0%
SC-48	US 69	64,900	61,300	-5.5%
SC-49	Metcalf Avenue	16,700	17,800	6.6%
SC-410	Nail Avenue	21,200	20,500	-3.3%
Screenline 4 Total:		**256,800**	**258,200**	**0.5%**
Screenline 4: North of 175th Street				
SP-6	I-35	55,900	55,500	-0.7%
SC-61	US 169	27,000	26,900	-0.4%
SC-610	Metcalf Avenue	4,100	4,300	4.9%
SC-611	Mission Road	1,200	1,300	8.3%
SC-612	Holmes Road	4,900	4,700	-4.1%
SC-62	Ridgeview Road	3,000	3,600	20.0%
SC-63	Renner Road	2,100	2,200	4.8%
SC-65	Lackman Road	3,000	3,200	6.7%
SC-66	Pflumm Road	2,300	2,700	17.4%
SC-67	Quivira Road	1,100	1,200	9.1%
SC-68	Switzer Road	1,900	1,900	0.0%
SC-69	US 69	36,500	36,800	0.8%
SP-5	I-49	49,200	50,200	2.0%
Screenline 6 Total:		**192,200**	**194,500**	**1.2%**

SC-64 is not included because it was not included in the travel demand model

5.3.2 Network Speeds Calibration

The model results were also reviewed to confirm that the congested travel speeds estimated by the model along the US 69 corridor were reasonable. This analysis was performed to ensure that the toll traffic predicted by the model was based on acceptable estimates of speeds and travel times along the corridor. This was an essential part of the model calibration since the level of congestion in the corridor is the primary reason for diversion of traffic to the express lanes. **Figure 5-5** shows the location of the various routes where the speed and delay data were collected.

Tables 5-15 through **5-17** summarize the model estimated and observed travel speeds for the US 69 corridor as well as other parallel routes within the study area (as shown in **Figure 5-5**) for the AM peak hour (7:00 am - 8:00 am), Mid-Day (9:00 am – 3:00 pm) and the PM peak hour (5:00 pm - 6:00 pm) respectively. The AM and the PM peak hours represent the time periods during which the peak traffic congestion occurs under the existing conditions in the morning and the evening peak periods. The tables highlight the range of observed travel speeds (minimum and maximum) along with the average observed travel speeds and the model-estimated average travel speeds along each segment by direction for each of the three time periods. The tables also provide detailed speed comparison along the US 69 main lanes for each segment between major roadways. In most instances, the model-estimated average speeds are within +/- ten miles per hour (mph) of the observed values. The level of calibration of travel speeds was deemed reasonable given the fact that the travel demand models do not inherently have the capability to directly model freeway traffic operations phenomena such as queue spillbacks, flow metering at bottlenecks, and delays associated with weaving movements. The models also do not explicitly include the delays associated with stop signs and signalized intersections along arterials.

Figure 5-5 Location of Speed and Delay Routes

Table 5-15 Observed and Estimated Travel Speeds During the AM Peak Hour – 7:00 am to 8:00 am

Corridor	Direction	From	To	Observed			Estimated	Difference
				Min	Max	Average		
US 69	NB	199th Street	179th Street	45	79	71	70	-1
US 69	NB	179th Street	151st Street	15	74	57	68	11
US 69	NB	151st Street	Blue Valley Parkway	14	67	30	21	-9
US 69	NB	Blue Valley Parkway	I-435	30	68	57	53	-4
US 69	NB	I-435	103rd Street	38	70	58	45	-12
US 69	NB	103rd Street	I-35	43	71	64	65	1
US 69	SB	I-35	103rd Street	40	69	63	65	2
US 69	SB	103rd Street	I-435	40	72	65	65	-1
US 69	SB	I-435	Blue Valley Parkway	47	68	63	63	0
US 69	SB	Blue Valley Parkway	151st Street	30	69	61	65	4
US 69	SB	151st Street	179th Street	42	71	66	68	3
US 69	SB	179th Street	199th Street	56	74	68	70	-2
Antioch Road	NB	179th Street	151st Street	22	35	29	28	-1
Antioch Road	NB	151st Street	135th Street	17	34	26	16	-10
Antioch Road	NB	135th Street	127th Street	18	31	25	28	3
Antioch Road	NB	127th Street	I-435	26	39	35	29	-5
Antioch Road	NB	I-435	95th Street	25	36	32	42	10
Antioch Road	SB	95th Street	I-435	30	34	32	22	-10
Antioch Road	SB	I-435	127th Street	19	37	32	24	-8
Antioch Road	SB	127th Street	135th Street	13	37	28	30	2
Antioch Road	SB	135th Street	151st Street	11	38	22	34	12
Antioch Road	SB	151st Street	179th Street	26	38	33	42	9
Metcalf Avenue	NB	US 69	I-435	18	41	34	29	-5
Blue Valley Parkway	NB	I-435	95th Street	25	36	31	23	-8
Metcalf Avenue	SB	95th Street	I-435	17	40	31	26	-5
Blue Valley Parkway	SB	I-435	US 69	19	45	33	21	-13
Metcalf Avenue	NB	179th Street	151st Street	20	38	30	28	-1
Metcalf Avenue	NB	151st Street	135th Street	31	38	34	23	-11
Metcalf Avenue	NB	135th Street	127th Street	24	42	31	20	-11
Metcalf Avenue	NB	127th Street	Blue Valley Parkway	28	48	35	42	7
Metcalf Avenue	SB	Blue Valley Parkway	127th Street	12	31	21	25	4
Metcalf Avenue	SB	127th Street	135th Street	31	36	34	30	-4
Metcalf Avenue	SB	135th Street	151st Street	27	40	36	34	-1
Metcalf Avenue	SB	151st Street	179th Street	33	47	39	42	3

Table 5-16 Observed and Estimated Travel Speeds During Mid-Day – 9:00 am to 3:00 pm

Corridor	Direction	From	To	Observed			Estimated	Difference
				Min	Max	Average		
US 69	NB	199th Street	179th Street	45	75	69	70	1
US 69	NB	179th Street	151st Street	22	73	67	68	2
US 69	NB	151st Street	Blue Valley Parkway	32	71	64	64	1
US 69	NB	Blue Valley Parkway	I-435	13	70	64	65	0
US 69	NB	I-435	103rd Street	35	77	61	64	3
US 69	NB	103rd Street	I-35	46	72	64	65	1
US 69	SB	I-35	103rd Street	44	71	65	65	0
US 69	SB	103rd Street	I-435	34	73	66	65	-1
US 69	SB	I-435	Blue Valley Parkway	43	70	64	65	1
US 69	SB	Blue Valley Parkway	151st Street	5	71	56	65	9
US 69	SB	151st Street	179th Street	39	72	66	68	2
US 69	SB	179th Street	199th Street	21	75	67	70	-3
Antioch Road	NB	179th Street	151st Street	1	42	28	27	-0
Antioch Road	NB	151st Street	135th Street	9	42	29	25	-5
Antioch Road	NB	135th Street	127th Street	11	42	33	29	-4
Antioch Road	NB	127th Street	I-435	7	42	32	34	2
Antioch Road	NB	I-435	95th Street	8	41	30	42	12
Antioch Road	SB	95th Street	I-435	6	38	27	27	-0
Antioch Road	SB	I-435	127th Street	7	42	29	25	-4
Antioch Road	SB	127th Street	135th Street	10	41	29	29	0
Antioch Road	SB	135th Street	151st Street	8	42	31	33	3
Antioch Road	SB	151st Street	179th Street	10	42	30	42	12
Metcalf Avenue	NB	US 69	I-435	8	48	31	27	-3
Blue Valley Parkway	NB	I-435	95th Street	17	48	32	29	-2
Metcalf Avenue	SB	95th Street	I-435	7	45	30	28	-2
Blue Valley Parkway	SB	I-435	US 69	9	45	30	29	-1
Metcalf Avenue	NB	179th Street	151st Street	5	44	25	28	4
Metcalf Avenue	NB	151st Street	135th Street	13	45	33	30	-3
Metcalf Avenue	NB	135th Street	127th Street	5	42	29	33	4
Metcalf Avenue	NB	127th Street	Blue Valley Parkway	11	51	36	42	6
Metcalf Avenue	SB	Blue Valley Parkway	127th Street	8	40	22	28	7
Metcalf Avenue	SB	127th Street	135th Street	7	40	30	30	-1
Metcalf Avenue	SB	135th Street	151st Street	4	42	28	34	5
Metcalf Avenue	SB	151st Street	179th Street	6	47	36	42	6

Table 5-17 Observed and Estimated Travel Speeds during the PM Peak Hour – 5:00 pm to 6:00 pm

Corridor	Direction	From	To	Observed			Estimated	Difference
				Min	Max	Average		
US 69	NB	199th Street	179th Street	57	78	70	70	0
US 69	NB	179th Street	151st Street	56	73	66	68	2
US 69	NB	151st Street	Blue Valley Parkway	27	70	62	59	-3
US 69	NB	Blue Valley Parkway	I-435	14	70	45	45	-1
US 69	NB	I-435	103rd Street	18	69	42	41	-1
US 69	NB	103rd Street	I-35	43	70	61	65	4
US 69	SB	I-35	103rd Street	15	71	61	63	2
US 69	SB	103rd Street	I-435	5	71	52	63	11
US 69	SB	I-435	Blue Valley Parkway	5	65	32	47	15
US 69	SB	Blue Valley Parkway	151st Street	7	66	41	41	-0
US 69	SB	151st Street	179th Street	39	73	66	67	2
US 69	SB	179th Street	199th Street	57	75	70	70	0
Antioch Road	NB	179th Street	151st Street	12	36	26	18	-8
Antioch Road	NB	151st Street	135th Street	5	41	25	17	-8
Antioch Road	NB	135th Street	127th Street	10	39	25	27	2
Antioch Road	NB	127th Street	I-435	7	39	25	25	-1
Antioch Road	NB	I-435	95th Street	13	36	26	41	15
Antioch Road	SB	95th Street	I-435	8	35	24	17	-7
Antioch Road	SB	I-435	127th Street	8	43	26	12	-14
Antioch Road	SB	127th Street	135th Street	8	39	26	19	-7
Antioch Road	SB	135th Street	151st Street	9	41	27	23	-4
Antioch Road	SB	151st Street	179th Street	16	40	28	42	14
Metcalf Avenue	NB	US 69	I-435	11	44	31	20	-11
Blue Valley Parkway	NB	I-435	95th Street	10	40	29	18	-11
Metcalf Avenue	SB	95th Street	I-435	5	43	27	21	-6
Blue Valley Parkway	SB	I-435	US 69	12	43	27	16	-11
Metcalf Avenue	NB	179th Street	151st Street	3	36	20	22	2
Metcalf Avenue	NB	151st Street	135th Street	10	41	29	29	-0
Metcalf Avenue	NB	135th Street	127th Street	7	40	25	20	-4
Metcalf Avenue	NB	127th Street	Blue Valley Parkway	20	49	33	39	7
Metcalf Avenue	SB	Blue Valley Parkway	127th Street	5	38	20	15	-4
Metcalf Avenue	SB	127th Street	135th Street	11	39	27	17	-10
Metcalf Avenue	SB	135th Street	151st Street	9	39	24	20	-4
Metcalf Avenue	SB	151st Street	179th Street	8	48	34	34	-0

5.4 Travel Time Reliability Coefficients

The travel time reliability coefficients were incorporated into the travel demand model based on an analysis of historical speed data from *NPMRDS* along the US 69 general purpose lanes. *NPMRDS* speed data was analyzed using hourly data from February through April 2019, and a measure of travel time variability – or "unreliability" – was estimated by directional segments along the US 69 study corridor, for each of the ten time periods used in the model. A coefficient-of-variability (CV) was estimated as shown in the formula below:

$$CV = \frac{Std\ Deviation\ of\ Travel\ Time}{Average\ Travel\ Time}$$

Since travel time frequency distributions tend to be skewed toward the free flow travel time, the average travel time is often close to the normal congested travel time, while the magnitude of the standard deviation is sensitive to the relative distribution of higher-than-average travel times that occur in the corridor. The CV ratio is thus a coefficient with a value greater than or equal to 1.0 and is used to increase GP lane congested travel times to account for measured reliability effects.

Table 5-18 and **5-19** show the range of CV values used on the GP lane segments along the US 69 study corridor in the northbound and the southbound direction, respectively, based on an analysis of the *NPMRDS* speed data.

Table 5-18 Values of Coefficient-of-Variation (CV) by Time Period – US 69 Northbound

From	To	AM1	AM2	AM3	AM4	MD	PM1	PM2	PM3	PM4	NT
199th Street	179th Street	1.09	1.12	1.09	1.07	1.00	1.03	1.04	1.04	1.07	1.00
179th Street	151st Street	1.09	1.12	1.19	1.09	1.00	1.03	1.09	1.04	1.07	1.00
151st Street	Blue Valley Parkway	1.12	1.13	1.29	1.33	1.00	1.22	1.08	1.06	1.06	1.00
Blue Valley Parkway	I-435	1.11	1.11	1.11	1.12	1.00	1.16	1.23	1.34	1.07	1.00
I-435	103rd Street	1.12	1.11	1.09	1.07	1.00	1.13	1.14	1.13	1.08	1.00
103rd Street	I-35	1.14	1.10	1.09	1.09	1.00	1.06	1.06	1.06	1.07	1.00

Reliability coefficients were not applied to the MD and NT periods.

Table 5-19 Values of Coefficient-of-Variation (CV) by Time Period – US 69 Southbound

From	To	AM1	AM2	AM3	AM4	MD	PM1	PM2	PM3	PM4	NT
I-35	103rd Street	1.08	1.09	1.09	1.08	1.00	1.07	1.28	1.40	1.05	1.00
103rd Street	I-435	1.10	1.11	1.10	1.07	1.00	1.06	1.05	1.05	1.06	1.00
I-435	Blue Valley Parkway	1.08	1.10	1.06	1.06	1.00	1.74	2.13	1.83	1.98	1.00
Blue Valley Parkway	151st Street	1.07	1.10	1.19	1.16	1.00	1.69	1.78	1.65	1.56	1.00
151st Street	179th Street	1.06	1.07	1.06	1.19	1.00	1.07	1.05	1.05	1.09	1.00
179th Street	199th Street	1.07	1.10	1.04	1.08	1.00	1.07	1.05	1.04	1.08	1.00

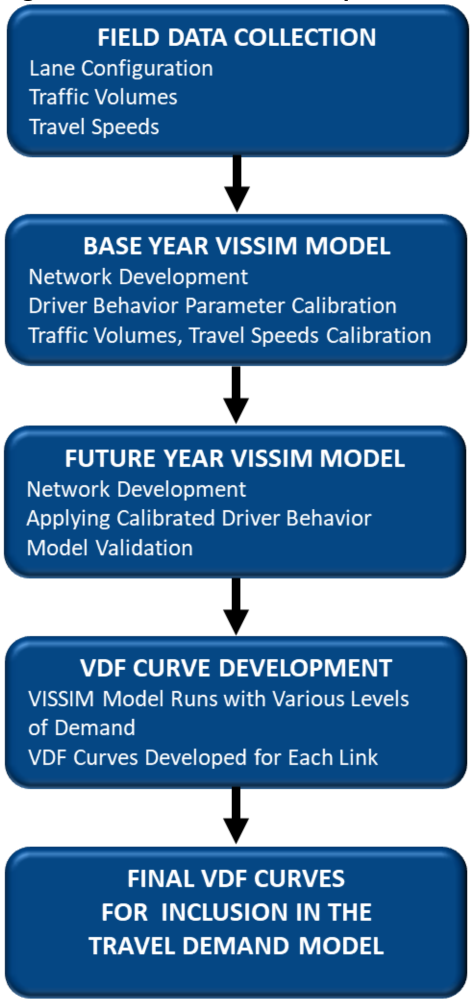
Reliability coefficients were not applied to the MD and NT periods.

5.5 Travel Time Simulation Model (VISSIM)

Travel demand model volume-delay functions (VDFs) and roadway segment capacities typically do not adequately replicate the impacts of merging and weaving maneuvers on the freeway operating speeds and capacity, and nor can they reflect the impacts of downstream queuing along the freeway segments, or the flow metering effects of bottlenecks along the corridor. A microscopic simulation modeling software package called VISSIM was used to assist in estimating the impacts of travel speeds on different segments of the US 69 study corridor, taking into consideration the existing geometric configuration of the corridor and the future configuration that included the proposed express lanes. The VISSIM model attempts to evaluate each vehicle as a separate entity and introduces a certain level of randomness to the vehicles' behavior. The roadway geometry and interaction with other vehicles influences the behavior of each vehicle in the model and provides a profile of the delay characteristics that each link is likely to exhibit as demand builds along the various corridor segments.

Figure 5-6 depicts the VISSIM modeling process and reflects the field data collection, base-year model calibration, future-year VISSIM model development, and the VISSIM model runs used to create VDFs for various segments of the US 69 corridor. The development of the base year model required the current geometric configuration of the US 69 study corridor, the existing traffic volume at each of the entrance and exit ramps, and the current travel speed profiles along the US 69 general purpose lanes.

Figure 5-6 VDF Curves Development Process using VISSIM Simulation Model



The base-year VISSIM network was created by coding the roadway network into the VISSIM model using aerial photographs as the background image and included the number of lanes, location of the auxiliary lanes, and lane drops. The 2019 balanced traffic volume summary was used as an input to the VISSIM model which was calibrated to reflect the traffic characteristics within the corridor for both the AM and the PM peak periods. The traffic volumes and travel speeds generated from the VISSIM model were then compared to the observed data to ensure that the base year VISSIM model adequately reflected the actual traffic conditions.

Future year VISSIM models were developed based on the design files of the future roadway configuration and were used to model the future corridor travel characteristics. Traffic growth rates from the travel demand model were applied to the existing demand and used as an input to the VISSIM simulation models and the results were reviewed to ensure that the models were performing reasonably. A series of VISSIM model runs were performed using differing levels of traffic demand by diverting more traffic from the express lanes to the GP lanes for the AM and the PM peak periods resulting in the development of speed-flow relationships also known as VDF curves for individual highway segments. Several model runs were performed for each peak period by direction of travel along the US 69 corridor. Within each time period, and for each link, a relationship was developed between the traffic demand on each link and the model estimated travel speed. Specific VDF curves were developed for each link along the GP lanes by plotting the relationship between traffic demand and travel speed for the various model runs at different demand levels for each GP lane segment. These volume-delay curves were used within the travel demand model to estimate congestion and traffic assignment was performed using the VDF curves to generate the final set of traffic and toll revenue forecasts.

5.6 Market Share Model

A market share model was embedded within the traffic assignment routine used in the travel demand model to provide an estimate of the traffic and toll revenue forecasts for the express lanes along the US 69 study corridor. The travel time between a path using the express lanes is compared to the travel time along a path using the next best non-toll route (most likely the adjacent GP lanes). For each travel movement, the proportion of motorists expected to use the express lanes was a function of the computed time savings, including the additional impact of the CV and VDF curves as described in **Section 5.4** and **5.5,** and the cost to use the lanes (cost-per-minute saved) versus the value placed on time savings by the motorist (value-of-time or VOT). The share of each traffic movement assigned to the express lanes was based on the estimated distribution of VOT developed from the stated preference surveys of travelers using the US 69 corridor. Motorists with VOTs greater than the cost per minute saved were more likely to choose the express lanes while those with lower VOTs tended to not choose the express lane facility. The choice to use the express lanes along the US 69 corridor is also dependent on the origin-destination patterns of the travelers given that the express lanes will serve travelers whose travel patterns allow them to access the express lanes through the limited number of access locations that are provided along the proposed US 69 express lanes.

5.6.1 Key Parameters

Some of the key parameters that significantly influence the traffic and toll revenue forecasts for the proposed express lanes along the US 69 corridor are:

Value-of-Time – The VOTs used in this study were based on an analysis of the responses provided in the stated preference (SP) survey of the users of US 69 conducted within the corridor in early 2021. Further details regarding the VOT values used in the models are provided in **Appendix B**.

Value-of-Reliability – VORs used in this study were also based on an analysis of the responses provided in the SP survey of the users of US 69. The VOR was estimated to be approximately 60 percent of the VOT. Hence, the CV values applied to the travel time savings to account for the reliability provided by the proposed express lanes (as shown in **Tables 5-18** and **5-19**) were reduced by 40 percent in the models when estimating the diversion of traffic to the express lanes.

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Chapter 6

Traffic and Toll Revenue Estimates

This chapter presents the traffic and toll revenue estimates for the proposed express lanes along the US 69 corridor located in Johnson County, Kansas. These estimates are based on the future configuration of the US 69 corridor described in **Chapter 1,** the historical and existing traffic trends and characteristics as summarized in **Chapter 2**, the background transportation system and anticipated future improvements as discussed in **Chapter 3**, the socioeconomic and demographic trends as highlighted in **Chapter 4,** and the travel demand models and modeling procedures as outlined in **Chapter 5**. The assumptions used in the development of the traffic and toll revenue forecasts, the specific details on the estimated travel time savings, and the share of traffic demand estimated to use the express lanes are also described and summarized herein for the Phase 1 Base Case and Phase 2 scenarios. The resulting transactions and toll revenue estimates developed for a 40-year forecast horizon for the proposed US 69 express lanes are then summarized.

The future toll revenue potential of the US 69 express lanes corridor was evaluated for a Phase 1 Base Case scenario and a Phase 2 scenario for two assumed strategies: (1) Using the official socioeconomic data provided by the MARC, herein referred to as "MARC Phase 1 Base Case" and "MARC Phase 2" and (2) Using the MARC socioeconomic data independently reviewed and updated by EBP, herein referred to as "EBP Phase 1 Base Case" and "EBP Phase 2".

6.1 Project Configuration and Toll Collection

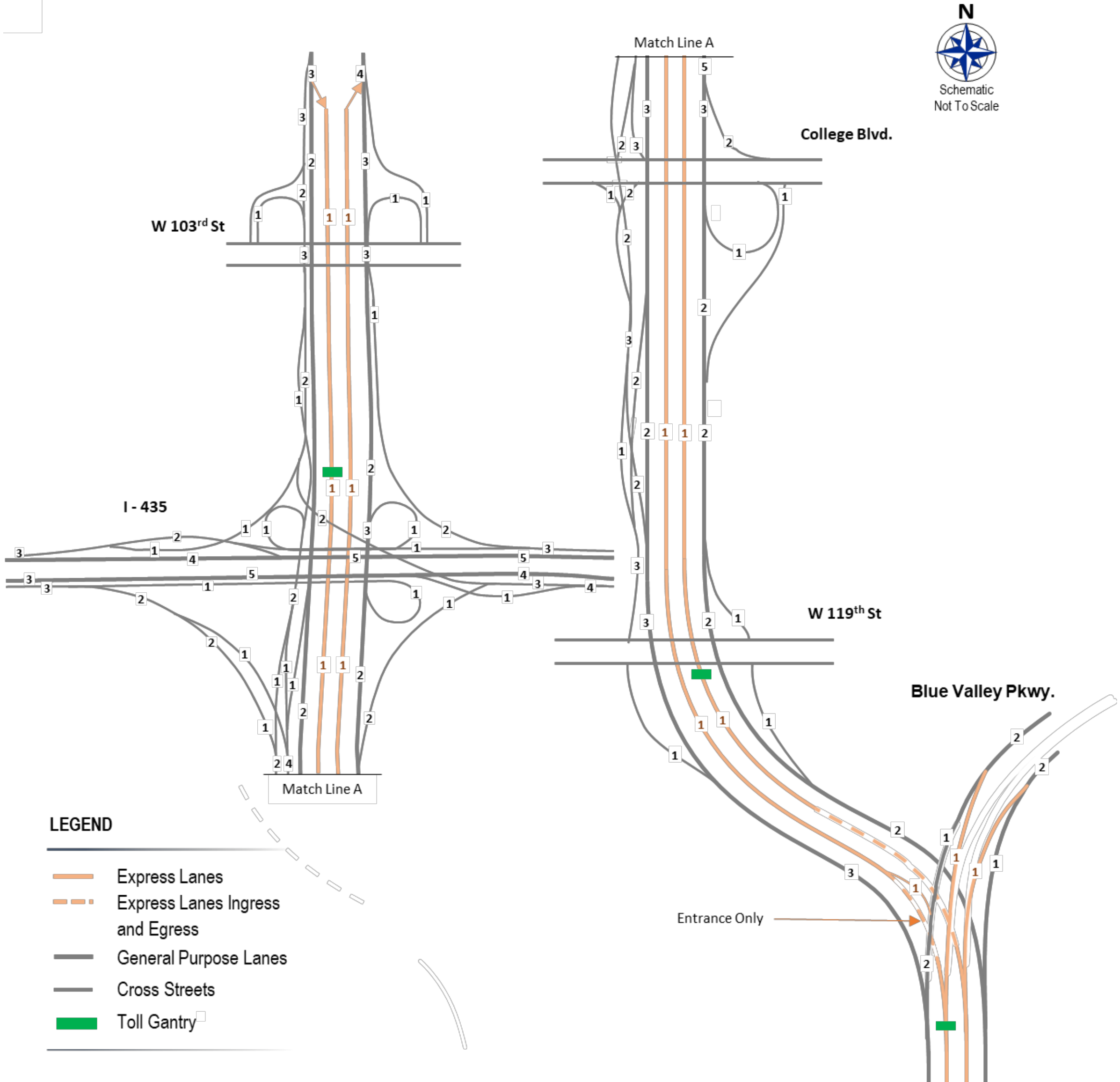
The configuration of the Phase 1 Base Case and Phase 2 along with the preliminary toll gantry locations/toll collection points used in the travel demand model is discussed in this section.

6.1.1 Project Configuration

The US 69 study corridor is approximately 10.5 miles long and currently includes two general-purpose lanes in each direction between 103rd Street and 179th Street. This section of US 69 falls entirely within Johnson County, runs parallel to US 169 and somewhat parallel to I-35, which runs diagonally across Johnson County from southwest to northeast, until they merge a few miles north of the US 69/I-435 interchange. No other interstate intersects the US 69 study corridor, however, the corridor intersects with several major arterials including College Avenue, 119th Street, 135th Street, and 151st Street. Metcalf Avenue and Antioch Avenue are other major arterials running parallel to US 69 a half-mile on either side of the corridor.

The proposed US 69 express lanes will include a single inside lane along the corridor in both directions. The Phase 1 Base Case express lanes are assumed to open in 2026 and the will extend from north of 151st Street to just north of 103rd Street with an ingress/egress location just north of Blue Valley Parkway. The corridor enhancements will also include an additional GP lane between 151st and Blue Valley Parkway and changes to the ramp configuration at 135th Street. The Phase 2 configuration is assumed to open in 2040 will maintain the Phase 1 enhancements and will extend the express lanes from 151st Street to 179th Street. **Figure 6-1** through **6-4** show the proposed configuration of the US 69 express lanes for the Phase 1 Base Case and Phase 2, respectively.

Figure 6-1 US 69 Study Corridor – Express Lanes Phase 1 Base Case Configuration (103rd Street to Blue Valley Parkway)



Notes:

Toll gantry locations are preliminary and for analysis only, subject to change

Figure 6-2 US 69 Study Corridor – Express Lanes Phase 1 Base Case Configuration (135th Street to 151st Street)

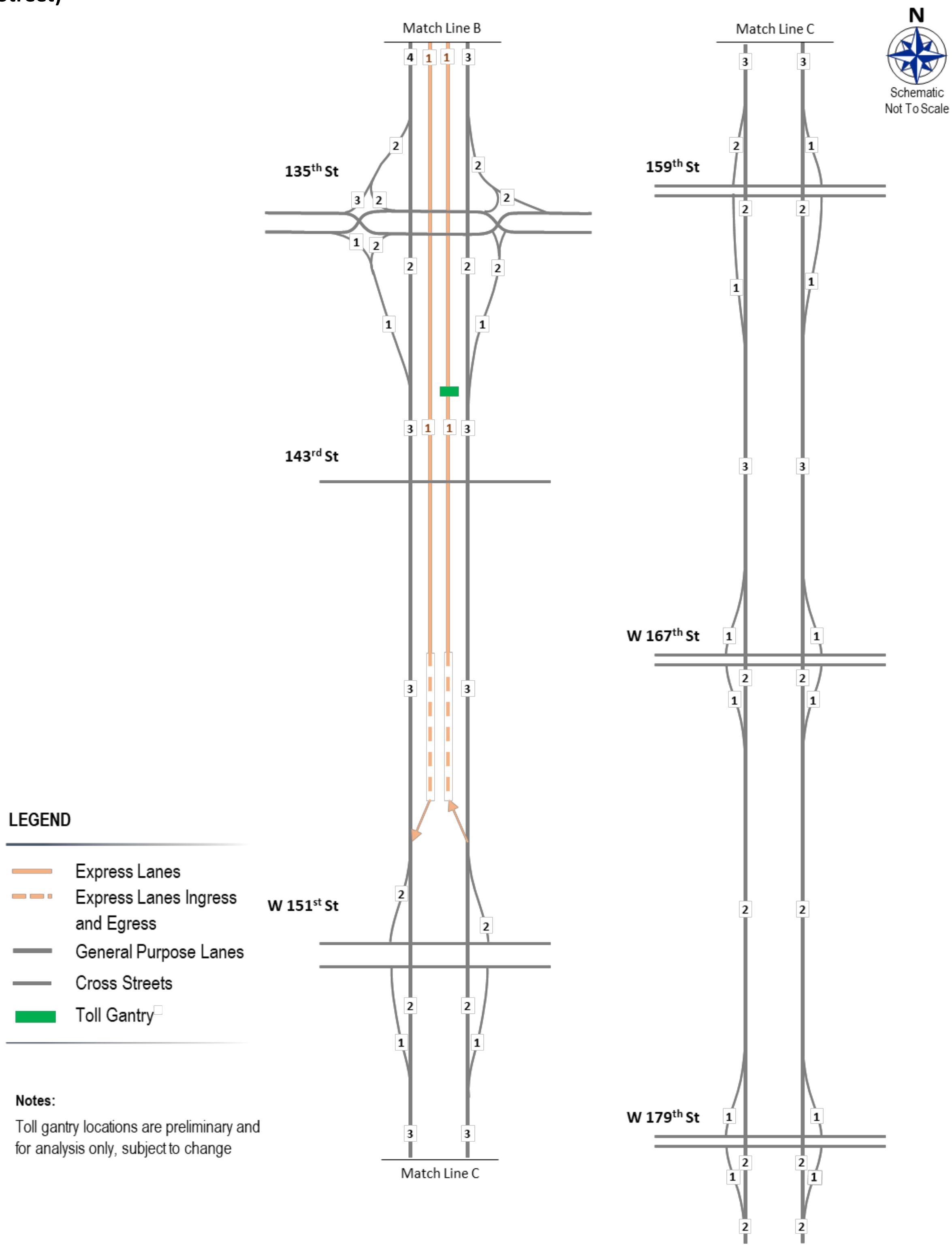


Figure 6-3 US 69 Study Corridor – Express Lanes Phase 2 Configuration (103rd Street to Blue Valley Parkway)

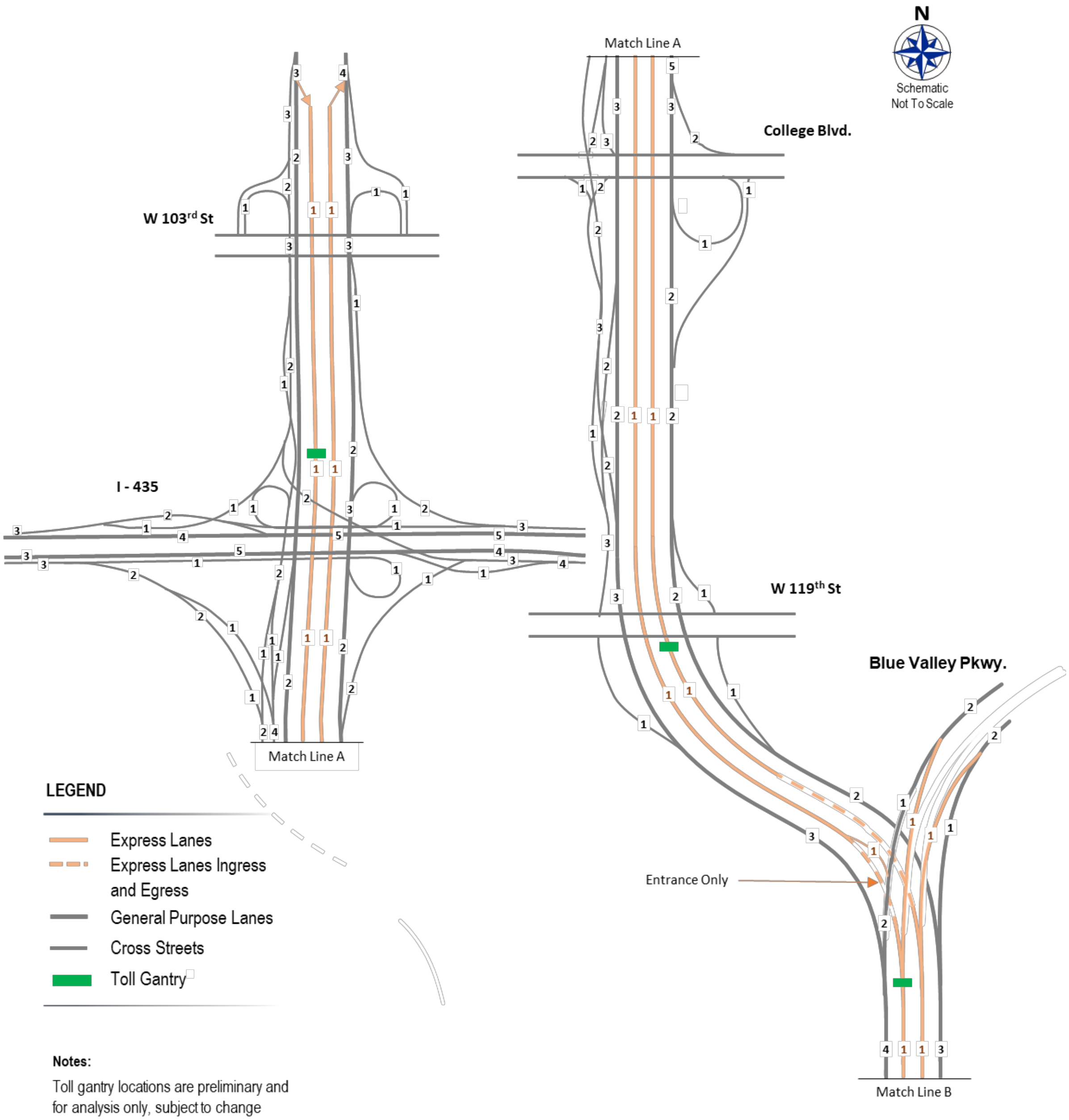
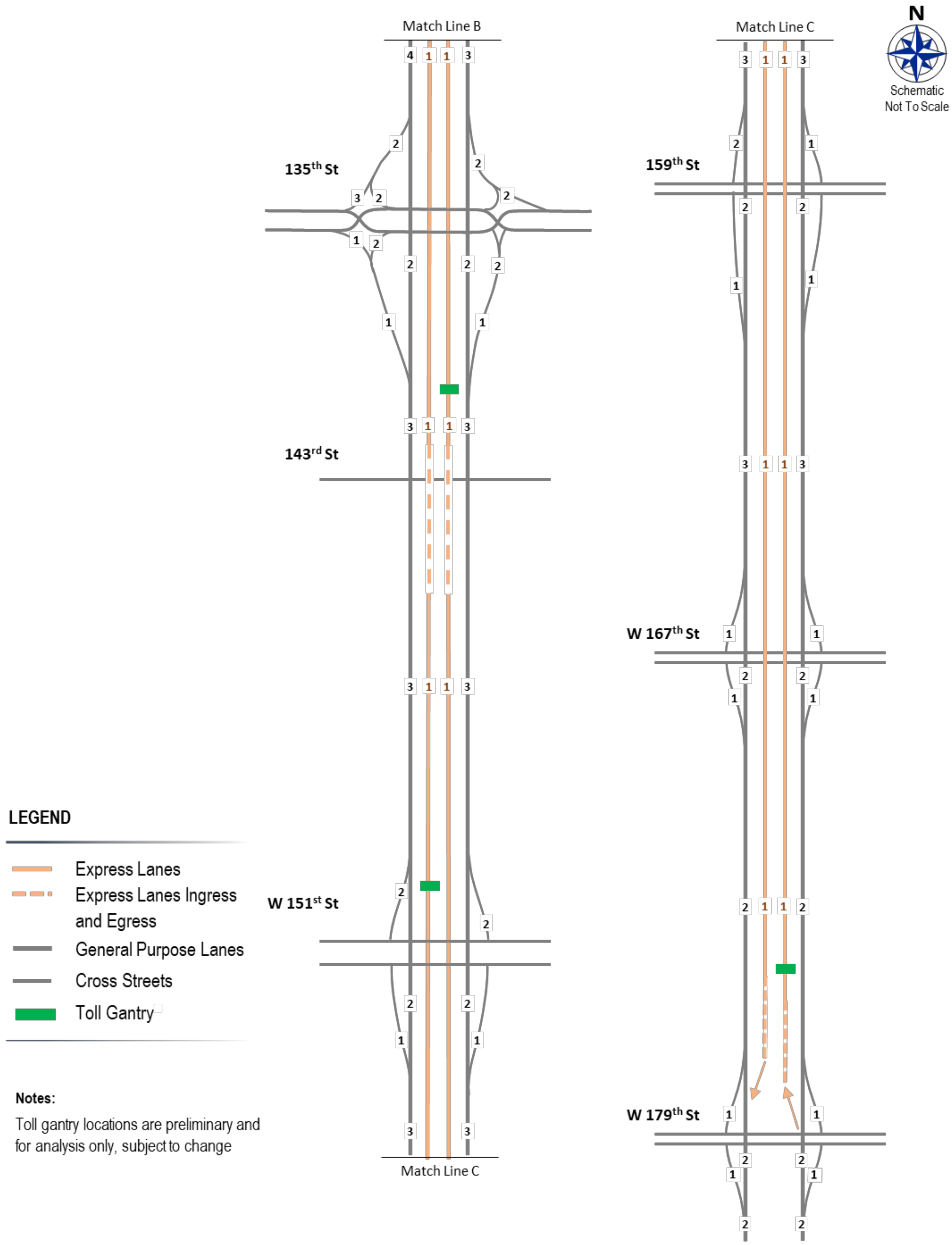


Figure 6-4 US 69 Study Corridor – Express Lanes Phase 2 Configuration (135th Street to 179th Street)



6.1.2 Toll Gantry Locations and Toll Collection

The toll configuration for the study corridor is based on a tolling zone concept where the entire express lanes corridor is divided into three zones with a single toll gantry located within each zone facilitating the implementation of a real-time variable tolling regime along the US 69 express lanes corridor. Each zone consists of a minimum of one express lane ingress and one egress location such that variable tolling is implemented independently within each zone. Under this tolling scheme, users of the express lanes can use the lane on an individual tolling zone basis and can decide whether or not to use the next tolling zone based on the toll rate being charged at the moment they approach the downstream zone. The toll rates fluctuate dynamically based on the traffic demand within the corridor. The toll rates charged are communicated to the drivers through variable message signs in advance of each upcoming tolling zone. This provides an opportunity for users to exit the express lanes if the toll rates for the downstream tolling zone are deemed to be too high. Similarly, the GP lane traffic can also enter the express lanes at any tolling zone if the toll rate charged for that zone is acceptable with respect to the perceived time savings benefit from using the express lanes based on the congestion levels that is experienced in the GP lanes.

The tolling concept evaluated is comprised of a toll gantry in each direction located between 179th Street and 151st Street (Phase 2 only), between 151st Street and Blue Valley Parkway, and between Blue Valley Parkway and 103rd Street as shown in **Figure 6-1** through **6-4**.

Details regarding the assumed toll collection policy are outlined in **Section 6.3**. The toll rates charged for trucks will be based on an (N-1) tolling formula where 'N' is number of axles, such that the toll rates charged to trucks equates to the number of axles minus one, multiplied by the toll rate for passenger cars. In addition, a 50 percent surcharge for video tolling/Pay-by-Plate (PBP) customers was assumed for all vehicles without a valid K-TAG or other interoperable transponder.

6.2 Traffic and Toll Revenue Assumptions

The 40-year traffic and toll revenue estimates for the US 69 corridor were developed based on the following additional basic assumptions:

- The tolls will be collected using automatic vehicle identification (AVI) for vehicles equipped with toll transponders and video tolling (PBM) for vehicles without toll transponders, and there will be no provision for cash tolls. The toll collection operations were assumed to be actively monitored and strictly enforced to minimize the potential revenue loss due to toll evasion.
- The video tolling surcharge will be 50 percent of the transponder toll charge.
- The starting transponder market share for the express lane users was assumed to be 50 percent in 2026, increasing to a maximum market share of 75 percent by 2050 which was assumed to remain constant for all years thereafter.
- No toll leakage adjustments were applied to the toll revenue estimates included in this report. The traffic and toll revenue results therefore reflect **gross** toll revenues which is the sum of transponder and video base revenues on 100 percent of all forecasted vehicles using the express lanes. Video surcharge revenue is included in the total toll revenue shown in the

tables. It was assumed that toll leakage will be incorporated directly in the financial models to align with the collection business rules adopted at a later date.

- Transportation improvements as detailed in the *Connected KC 2050* (MARC 2050) Metropolitan Transportation Plan (MTP) for the Kansas City region adopted in June 2020 by MARC were reviewed and discussed with KDOT for inclusion in the model networks. No other competing routes or capacity improvements were considered to be constructed within the 40-year forecast horizon and no additional GP lane capacity expansions, outside those proposed in Connected KC 2050 described herein, were considered along the study corridor.
- The minimum per mile toll rate was assumed to be 10 cents in 2021 dollars and was escalated at one percent per year applied annually.
- The US 69 express lanes will be well maintained, efficiently operated, and effectively signed and promoted to encourage maximum usage.
- The annualization factor for transactions and toll revenue (transaction and revenue days) for the US 69 corridor were assumed to be 280 days and 265 days, respectively. The weekend revenue reduction was undertaken to reflect the reduced and more evenly distributed weekend demand profiles resulting in lower traffic congestion during the weekends and thus yielding reduced toll rates and lower traffic levels for the express lanes compared to the typical weekday.
- Commercial vehicles/trucks with more than two-axles will be allowed to use the express lanes. However, truck trip tables were not available directly from the MARC models. A post model adjustment was thus made which assumed a two percent truck usage on the express lanes. Trucks were assumed to pay an average of three times the auto toll rate as derived from the average truck-axle distribution along the corridor.
- Estimates of transactions and toll revenue included in this report were adjusted to reflect "ramp-up" during the early years of operation. The ramp-up volume was assumed to be 90 percent of the model estimate in 2026, 95 percent in 2027 and 100 percent in 2028 and for all subsequent years under the Base Case (the segment between 103rd Street to 151st Street). For the section between 151st Street and 179th Street (Phase 2) assumed to open in 2040, the ramp-up was assumed to be 90 percent in 2040, 95 percent in 2041 and 100 percent in 2042 and for all subsequent years.
- High occupancy vehicles (HOV 2+) will not receive discounts. However emergency vehicles and first responders will be allowed to access the express lanes toll-free.
- Toll rates for the years beyond the model horizon year of 2050 were determined based on growth trends between the model years and congestion pricing to maintain the desired minimum speed of 50 mph.
- The express lanes' traffic growth rate is based on the model forecasted growth up to the year 2050 and extrapolated beyond 2050 based on the estimated growth trends between the model years.

- The value-of-time (VOT) and vehicle operating cost were escalated at an average rate of 2.0 percent per year for the forecast period based on an economic analysis of the region. The VOT values were obtained from a stated preference (SP) survey undertaken in early 2021 as described in **Appendix B**.
- Economic growth in the study corridor is based upon data provided by the MARC and the revised socioeconomic projections and growth patterns (by EBP) as described in **Chapter 4** and included as **Appendix A**.
- Motor fuel and any other source of power for operating the motor vehicles will remain in adequate supply and increases in price will not substantially exceed overall inflation over the long-term.
- No local, regional, or national emergency will arise that may abnormally restrict the use of motor vehicles.
- No change will occur in vehicle technology that will significantly affect the vehicle carrying capacity or vehicle operating speeds.

Any significant departure from the above assumptions will materially affect the reported traffic and toll revenue estimates for the US 69 express lanes study corridor.

6.3 Toll Rates

Unlike a typical toll road, express lanes are located within the median of an existing corridor and are aligned to operate next to the GP lanes that provide direct competition as a non-toll option. Because of this design configuration, the express lanes' traffic and toll revenue has a high degree of sensitivity to the operating conditions along the GP lanes. Typically, as toll rates in the express lanes are reduced, a higher share of the GP lane users choose to use the express lanes. The resulting reduction in traffic on the GP lanes then decreases congestion in these lanes. However, as congestion decreases in the GP lanes, the travel time savings associated with the express lanes also decreases, resulting in reduced use of the express lanes. This series of trade-offs continues until an equilibrium is reached between the operating conditions along the GP lanes, the express lanes, and the toll rates charged for the use of express lanes.

Table 6-1 through **6-4** show the nominal tolls along the corridor for the AM and the PM peak hour for each travel direction in 2026, 2040 and 2050 under each of the configuration and socioeconomic growth scenarios analyzed for the proposed US 69 express lanes.

The toll rates beyond 2050 were escalated based on the inflation rate (CPI of 1.0 percent annually). Additional toll rate growth to reflect equivalent congestion pricing was applied if the express lanes service flow speed dropped below 50 mph to ensure an acceptable level-of-service along the express lanes. The minimum toll rates were escalated at 1.0 percent per year.

Table 6-1 Estimated Nominal Tolls at Individual Toll Gantries for EBP Phase 1 Base Case

Gantry		Between 103rd Street and Blue Valley Parkway	Between Blue Valley Parkway and 151st Street
AM Peak Hour (7:00 AM - 8:00 AM)			
2026	NB	$0.40	$0.80
	SB	$0.35	$0.30
2040	NB	$0.75	$1.40
	SB	$0.40	$0.35
2050	NB	$0.85	$2.10
	SB	$0.45	$0.40
PM Peak Hour (5:00 PM – 6:00 PM)			
2026	NB	$0.35	$0.40
	SB	$0.35	$0.75
2040	NB	$0.40	$0.55
	SB	$0.40	$1.50
2050	NB	$0.45	$0.55
	SB	$0.45	$2.15

Table 6-2 Estimated Nominal Tolls at Individual Toll Gantries for MARC Phase 1 Base Case

Gantry		Between 103rd Street and Blue Valley Parkway	Between Blue Valley Parkway and 151st Street
AM Peak Hour (7:00 AM - 8:00 AM)			
2026	NB	$0.40	$0.80
	SB	$0.35	$0.30
2040	NB	$0.75	$3.00
	SB	$0.40	$0.35
2050	NB	$1.80	$4.70
	SB	$0.45	$0.40
PM Peak Hour (5:00 PM – 6:00 PM)			
2026	NB	$0.35	$0.40
	SB	$0.35	$0.75
2040	NB	$0.40	$0.55
	SB	$0.40	$3.00
2050	NB	$0.65	$0.55
	SB	$0.45	$4.65

Table 6-3 Estimated Nominal Tolls at Individual Toll Gantries for EBP Phase 2

Gantry		Between 103rd Street and Blue Valley Parkway	Between Blue Valley Parkway and 151st Street	Between 151st Street and 179th Street
AM Peak Hour (7:00 AM - 8:00 AM)				
2026	NB	$0.40	$0.80	
	SB	$0.35	$0.30	
2040	NB	$0.75	$1.40	$0.55
	SB	$0.40	$0.35	$0.55
2050	NB	$0.85	$2.50	$0.60
	SB	$0.45	$0.40	$0.60
PM Peak Hour (5:00 PM – 6:00 PM)				
2026	NB	$0.35	$0.40	
	SB	$0.35	$0.75	
2040	NB	$0.40	$0.55	$0.55
	SB	$0.40	$1.50	$0.55
2050	NB	$0.45	$0.55	$0.60
	SB	$0.45	$2.70	$0.60

Table 6-4 Estimated Nominal Tolls at Individual Toll Gantries for MARC Phase 2

Gantry		Between 103rd Street and Blue Valley Parkway	Between Blue Valley Parkway and 151st Street	Between 151st Street and 179th Street
AM Peak Hour (7:00 AM - 8:00 AM)				
2026	NB	$0.40	$0.80	
	SB	$0.35	$0.30	
2040	NB	$0.75	$2.60	$1.50
	SB	$0.40	$0.35	$0.55
2050	NB	$1.20	$4.00	$2.50
	SB	$0.45	$0.40	$0.60
PM Peak Hour (5:00 PM – 6:00 PM)				
2026	NB	$0.35	$0.40	
	SB	$0.35	$0.75	
2040	NB	$0.40	$0.55	$0.55
	SB	$0.40	$3.10	$0.55
2050	NB	$0.65	$0.55	$0.60
	SB	$0.45	$5.60	$0.60

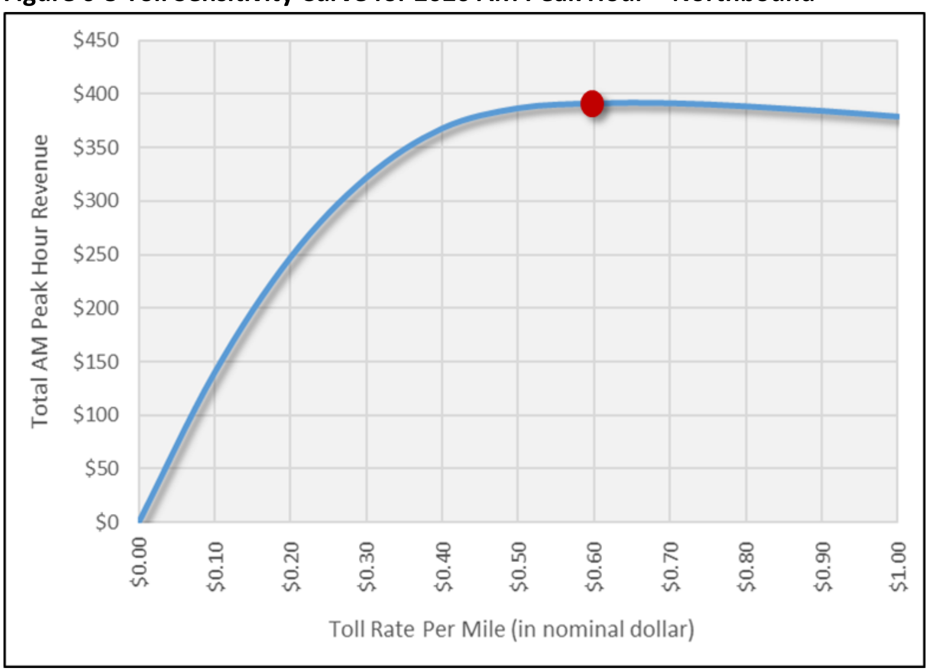
6.4 Toll Sensitivity Analysis

Toll sensitivity analysis involves testing a series of toll rates to determine how price affects traffic demand along the express lanes, taking into account characteristics of the transportation network and motorists' willingness-to-pay tolls.

In general, a toll sensitivity curve suggests that when the toll rate increases, a portion of travelers will divert from the express lanes to non-toll routes and thus decrease the share of toll transactions on the express lanes. The initial increases from a low toll rate level typically result in increased toll revenue until an optimal point where the maximum toll revenue is generated. Additional rate increases beyond this optimal toll rate level yields diminished toll revenue as the magnitude of diverted traffic exceeds the net return generated by the toll rate increase.

CDM Smith evaluated the traffic and toll revenue potential under a range of alternative toll rates for the Phase 2 scenario, using the revised EBP socioeconomic data, for years 2026 and 2050. **Figure 6-5** and **6-6** illustrate the toll sensitivity curves for the US 69 express lanes for future year 2026 for the AM peak hour in the northbound direction and the PM peak hour in the southbound direction, respectively. **Figure 6-7** and **6-8** illustrate the toll sensitivity curves for future year 2050 for the AM peak hour in the northbound direction and the PM peak hour for the southbound direction. These were estimated by testing the uniform impact of toll rate changes at all toll gantries along the US 69 express lanes. Also shown as stars are the assumed toll rates per mile for the express lanes in 2026. These curves demonstrate that overall, there is some potential for revenue enhancement through toll increases above the assumed toll rate levels for the US 69 express lanes, if warranted.

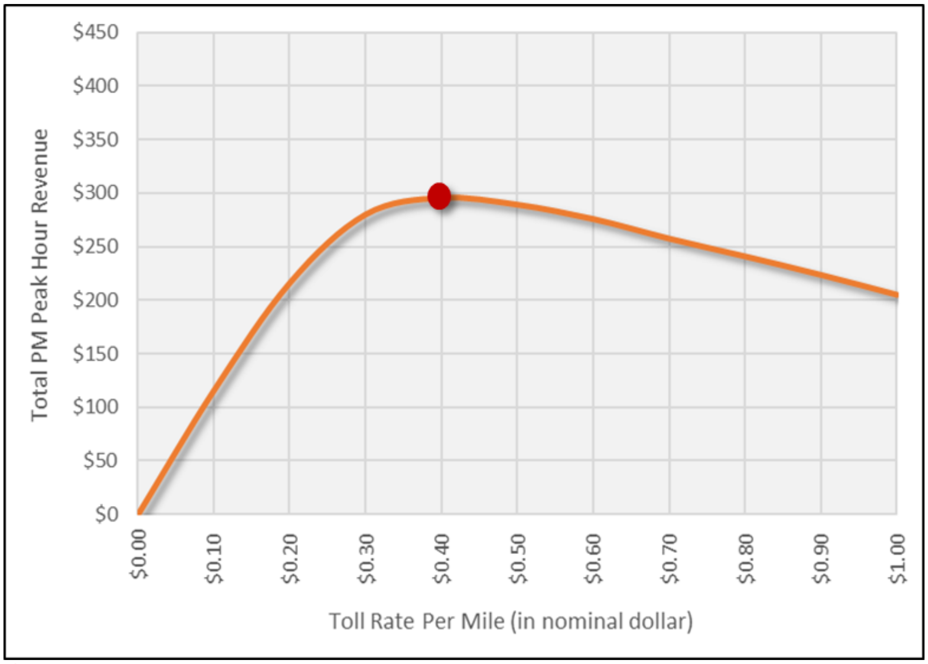
Figure 6-5 Toll Sensitivity Curve for 2026 AM Peak Hour – Northbound



● *Peak toll rate per mile*

Toll sensitivity curve is for system level and is for the two-axle transponder toll rate

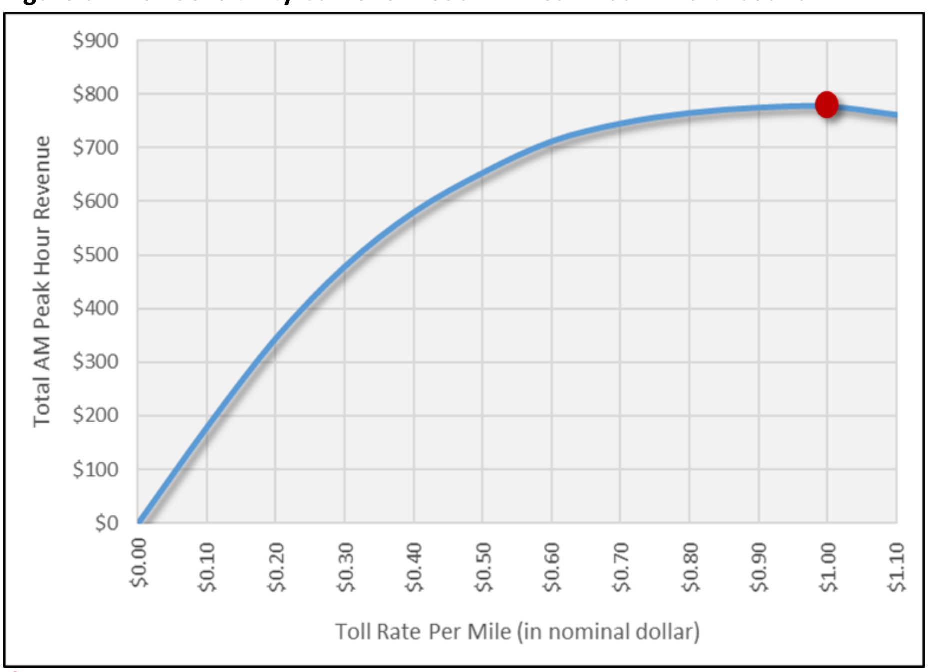
Figure 6-6 Toll Sensitivity Curve for 2026 PM Peak Hour - Southbound



Peak toll rate per mile

Toll sensitivity curve is for system level and is for the two-axle transponder toll rate

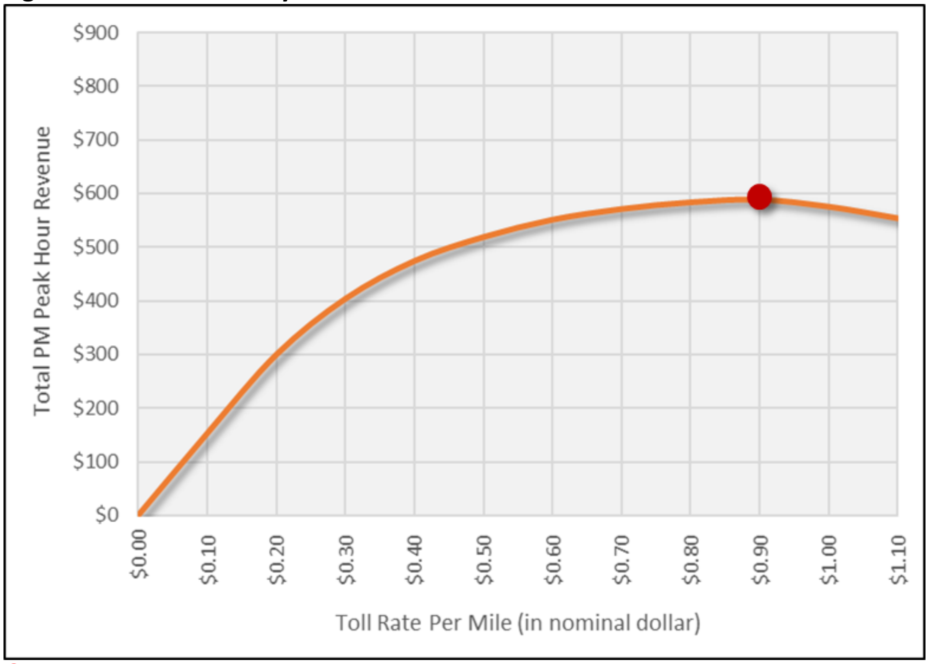
Figure 6-7 Toll Sensitivity Curve for 2050 AM Peak Hour - Northbound



Peak toll rate per mile

Toll sensitivity curve is for system level and is for the two-axle transponder toll rate

Figure 6-8 Toll Sensitivity Curve for 2050 PM Peak Hour - Southbound



● *Peak toll rate per mile*
Toll sensitivity curve is for system level and is for the two-axle transponder toll rate

6.5 Express Lanes' Traffic Shares

Projected traffic volumes in 2026, 2040 and 2050 under Phase 2 (using the MARC socioeconomic data) and the proportion of traffic using the express lanes at a representative location within each of the three tolling zones along the US 69 study corridor are summarized in **Table 6-5** and **6-6** for the AM and the PM peak period, respectively.

As shown in **Table 6-5**, express lane traffic along the southern tolling zone (north of 167th Street) and the central tolling zone (north of 135th Street) have the highest share of traffic for all years in the northbound direction during the AM peak period, estimated to be 22 percent in 2040 and 23 percent in 2050, while the lowest share of express lane traffic is estimated to be in northern tolling zone, within the vicinity of 119th Street.

Table 6-5 Express Lanes' Traffic Shares During the AM Peak Period

Year	Direction	North of 167th Street			North of 135th Street			North of 119th Street		
		Express Lane	GP Lanes	EL Share	Express Lane	GP Lanes	EL Share	Express Lane	GP Lanes	EL Share
2026	NB		6,900		3,000	13,200	19%	1,400	11,500	11%
	SB		3,000		500	9,400	5%	100	6,500	2%
2040	NB	3,000	10,600	22%	4,100	14,200	22%	2,300	13,000	15%
	SB	200	4,200	5%	900	9,900	8%	300	7,500	4%
2050	NB	3,300	10,800	23%	4,500	14,800	23%	2,600	13,500	16%
	SB	300	4,300	7%	1,100	10,000	10%	300	7,800	4%

The highest share of express lane traffic is anticipated to be in the southbound direction along the southern tolling zone (north of 167th Street) during the PM peak period (31 percent in 2040 and 29 percent in 2050), as shown in **Table 6-6**. The lowest proportion of express lane traffic is estimated to be at the same location, but in the northbound direction.

Table 6-6 Express Lanes' Traffic Shares During the PM Peak Period

Year	Direction	North of 167th Street			North of 135th Street			North of 119th Street		
		Express Lane	GP Lanes	EL Share	Express Lane	GP Lanes	EL Share	Express Lane	GP Lanes	EL Share
2026	NB		5,100		1,700	15,200	10%	1,400	13,100	10%
	SB		10,200		5,400	17,900	23%	2,100	10,500	17%
2040	NB	700	7,900	8%	2,700	14,800	15%	2,600	13,500	16%
	SB	5,000	11,100	31%	6,400	19,200	25%	3,500	14,800	19%
2050	NB	1,000	7,900	11%	3,500	15,000	19%	3,100	13,900	18%
	SB	5,000	12,000	29%	6,500	20,900	24%	3,500	16,100	18%

6.6 Travel Time Savings Analysis

The primary factor influencing travelers' decision to use an express lane facility is travel time savings offered by the facility. The average travel time savings offered by the US 69 express lanes under Phase 2 using the MARC socioeconomic data in the peak direction of travel in 2026, 2040 and 2050, is summarized in **Table 6-7**. The table illustrates the average model-estimated travel times along the GP lanes and the express lanes for the following selected movements:

- Between 179th Street and 151st Street (southern terminus of the express lanes under Phase 2);
- Between 151st Street and Blue Valley Parkway; and
- Between Blue Valley Parkway and 103rd Street (northern terminus of the express lanes).

As shown in **Table 6-7**, travel time savings offered by the express lanes are expected to be significant during the peak periods. Also, travel time savings in 2050 are expected to be higher than those in 2026 and 2040, since traffic and congestion are anticipated to increase along the study corridor in the future.

During the AM peak period, traveling 4.3 miles from 179th Street to 151st Street along the express lanes will save approximately 3.5 minutes (43 percent) compared to the GP lanes in 2040, and 4.8 minutes (50 percent) in 2050. A trip from 151st Street to Blue Valley Parkway along the express lanes will save approximately 0.5 minutes (11 percent) in 2026, 1.0 minute (22 percent) in 2040 and 1.4 minutes (29 percent) in 2050 compared to traveling on the GP lanes. Similarly, a trip from Blue Valley Parkway to 103rd Street along the express lanes will save approximately 1.3 minutes (37 percent) in 2026, 2.2 minutes (49 percent) in 2040 and 3.0 minutes (57 percent) in 2050 compared to traveling along the GP lanes.

During the PM peak period, the southbound traffic is expected to experience lower travel time savings compared to the AM peak period savings in the northbound direction. The southbound express lanes between 103rd Street and Blue Valley Parkway are expected to result in marginal travel time savings of 0.2 minutes (5 percent), 0.8 minutes (20 percent), and 1.2 minutes (27 percent) in 2026, 2040, and 2050, respectively. The express lanes between Blue Valley Parkway and 151st Street will similarly provide travel time savings of 0.5 minutes (17 percent) in 2026, 0.7 minutes (23 percent) in 2040 and 1.3 minutes (35 percent) in 2050. A trip from 151st Street to 179th Street along the express lanes will save approximately 1.2 minutes (23 percent) in 2040 and 1.6 minutes (29 percent) in 2050 compared to traveling on the GP lanes.

Table 6-7 Travel Time Savings Summary

Time Period	Direction of Travel	US 69 Segment		Distance (miles)	Travel Time (minutes)		Travel Time Savings	
		From	To		Express Lanes	GP Lanes	Minutes	Percent
2026								
AM Peak	Northbound	151st Street	Blue Valley Pkwy	4.1	3.9	4.4	0.5	11%
		Blue Valley Pkwy	103rd Street	2.4	2.3	3.6	1.3	37%
PM Peak	Southbound	103rd Street	Blue Valley Pkwy	3.6	3.3	3.4	0.2	5%
		Blue Valley Pkwy	151st Street	2.9	2.4	2.9	0.5	17%
2040								
AM Peak	Northbound	179th Street	151st Street	4.3	4.6	8.1	3.5	43%
		151st Street	Blue Valley Pkwy	3.4	3.3	4.3	1.0	22%
		Blue Valley Pkwy	103rd Street	2.4	2.3	4.5	2.2	49%
PM Peak	Southbound	103rd Street	Blue Valley Pkwy	3.6	3.2	4.0	0.8	20%
		Blue Valley Pkwy	151st Street	2.2	2.4	3.2	0.7	23%
		151st Street	179th Street	4.3	3.8	4.9	1.2	23%
2050								
AM Peak	Northbound	179th Street	151st Street	4.3	4.8	9.5	4.8	50%
		151st Street	Blue Valley Pkwy	3.4	3.4	4.8	1.4	29%
		Blue Valley Pkwy	103rd Street	2.4	2.3	5.4	3.0	57%
PM Peak	Southbound	103rd Street	Blue Valley Pkwy	3.6	3.2	4.4	1.2	27%
		Blue Valley Pkwy	151st Street	2.2	2.5	3.8	1.3	35%
		151st Street	179th Street	4.3	3.8	5.4	1.6	29%

6.7 Toll Diversion Analysis

The projected AWDT volumes in 2026, 2040 and 2050 (using the MARC socioeconomic data) under Phase 1 Base Case and Phase 2 compared to the No-Build scenario at three representative screenlines within each tolling zone are summarized in **Table 6-8** through **6-10**. **Table 6-8** summarizes the two-way traffic volumes and screenline share (in parentheses) along US 69 and parallel routes just to the east and west of the corridor, north of 167th Street. **Table 6-9** and **6-10** summarize the same data, but for the US 69 segment located north of 135th Street and north of 119th Street, respectively.

As shown in **Table 6-8**, the screenline shares stay consistent for each route for the three scenarios in all years. US 69 traffic increases by three to four percent under Phase 1 Base Case as compared to the No-Build and by four to six percent under Phase 2.

Traffic along the parallel routes is most affected north of 135th Street, as shown in **Table 6-9**. Traffic along these routes decreases by up to nine percent compared to the No-Build scenario, while traffic along US 69 increases by six to ten percent under both the Phase 1 Base Case and Phase 2. However, the screenline shares stay consistent for each route for the three scenarios in all years.

The screenline shares also stay consistent for each route for the three scenarios in all years north of 119th Street, as shown in **Table 6-10**. Traffic along these routes decreases by up to four percent compared to the No-Build scenario, while traffic along US 69 increases by four to seven percent for the Phase 1 Base Case and four to eight percent for Phase 2.

Table 6-8 Screenline North of 167th Street

Year	Scenario	North of 167th Street						
		Quivira Road	Switzer Road	Antioch Road	US 69 (GP+EL)	Metcalf Avenue	Nall Avenue	Mission Road
2026	No-Build	1,300 (2%)	2,450 (4%)	850 (1%)	43,600 (69%)	3,500 (6%)	5,800 (9%)	5,850 (9%)
	MARC Phase 1	1,300 (2%)	2,550 (4%)	950 (1%)	45,250 (69%)	3,550 (5%)	5,900 (9%)	5,850 (9%)
	MARC Phase 2	1,300 (2%)	2,550 (4%)	950 (1%)	45,250 (69%)	3,550 (5%)	5,900 (9%)	5,850 (9%)
2040	No-Build	2,500 (2%)	6,950 (6%)	2,400 (2%)	76,450 (64%)	9,300 (8%)	7,700 (6%)	13,250 (11%)
	MARC Phase 1	2,400 (2%)	6,900 (6%)	2,500 (2%)	78,650 (65%)	9,350 (8%)	7,650 (6%)	13,250 (11%)
	MARC Phase 2	2,400 (2%)	6,750 (6%)	2,350 (2%)	80,100 (66%)	9,100 (7%)	7,550 (6%)	13,200 (11%)
2050	No-Build	3,850 (3%)	6,800 (5%)	3,500 (3%)	79,300 (63%)	10,300 (8%)	8,400 (7%)	14,000 (11%)
	MARC Phase 1	3,900 (3%)	6,850 (5%)	3,650 (3%)	81,850 (63%)	10,450 (8%)	8,400 (7%)	14,000 (11%)
	MARC Phase 2	3,850 (3%)	6,750 (5%)	3,200 (2%)	83,850 (65%)	10,100 (8%)	8,300 (6%)	13,950 (11%)

No-Build and Phase 1 include the US 69 GP lanes only for all years; Phase 2 includes the US 69 GP lanes only in 2026

Table 6-9 Screenline North of 135th Street

Year	Scenario	North of 135th Street						
		Quivira Road	Switzer Road	Antioch Road	US 69 (GP+EL)	Metcalf Avenue	Nall Avenue	Mission Road
2026	No-Build	16,300 (8%)	10,200 (5%)	20,650 (10%)	114,450 (54%)	20,350 (10%)	19,700 (9%)	8,600 (4%)
	MARC Phase 1	15,650 (7%)	9,650 (5%)	20,200 (9%)	121,750 (57%)	18,800 (9%)	19,050 (9%)	8,600 (4%)
	MARC Phase 2	15,650 (7%)	9,650 (5%)	20,200 (9%)	121,750 (57%)	18,800 (9%)	19,050 (9%)	8,600 (4%)
2040	No-Build	21,000 (9%)	9,300 (4%)	26,250 (11%)	122,200 (52%)	27,100 (11%)	20,700 (9%)	10,200 (4%)
	MARC Phase 1	20,450 (8%)	8,600 (4%)	24,800 (10%)	132,600 (55%)	25,650 (11%)	20,400 (8%)	9,950 (4%)
	MARC Phase 2	20,250 (8%)	8,450 (3%)	25,100 (10%)	132,600 (55%)	25,600 (11%)	20,300 (8%)	10,050 (4%)
2050	No-Build	21,500 (9%)	10,100 (4%)	28,100 (11%)	126,950 (51%)	28,350 (11%)	21,550 (9%)	10,700 (4%)
	MARC Phase 1	20,700 (8%)	9,550 (4%)	26,250 (10%)	140,100 (55%)	26,500 (10%)	21,100 (8%)	10,600 (4%)
	MARC Phase 2	20,550 (8%)	9,200 (4%)	26,150 (10%)	139,650 (55%)	26,800 (11%)	20,900 (8%)	10,500 (4%)

No-Build includes the US 69 GP lanes only for all years

Table 6-10 Screenline North of 119th Street

Year	Scenario	North of 119th Street					
		Quivira Road	Switzer Road	Antioch Road	US 69 (GP+EL)	Metcalf Avenue	Nall Avenue
2026	No Build	21,100 (11%)	7,400 (4%)	17,900 (9%)	80,000 (40%)	43,200 (22%)	30,950 (15%)
	MARC Phase 1	20,700 (10%)	7,850 (4%)	17,600 (9%)	83,200 (41%)	42,750 (21%)	31,100 (15%)
	MARC Phase 2	20,700 (10%)	7,850 (4%)	17,600 (9%)	83,200 (41%)	42,750 (21%)	31,100 (15%)
2040	No Build	22,400 (10%)	6,550 (3%)	19,750 (9%)	97,850 (45%)	40,800 (19%)	31,150 (14%)
	MARC Phase 1	22,050 (10%)	6,500 (3%)	19,250 (9%)	103,900 (47%)	40,450 (18%)	30,750 (14%)
	MARC Phase 2	22,050 (10%)	6,600 (3%)	19,150 (9%)	104,200 (47%)	40,450 (18%)	30,700 (14%)
2050	No Build	23,800 (10%)	7,550 (3%)	21,150 (9%)	101,850 (44%)	42,400 (18%)	32,700 (14%)
	MARC Phase 1	23,100 (10%)	7,500 (3%)	20,200 (9%)	108,950 (47%)	42,350 (18%)	32,200 (14%)
	MARC Phase 2	23,200 (10%)	7,650 (3%)	20,450 (9%)	109,700 (47%)	41,850 (18%)	32,150 (14%)

No-Build includes the US 69 GP lanes only for all years
Mission Road not included because it does not extend north of 119th Street

6.8 Estimated Annual Transactions and Gross Toll Revenues

As previously described, the annual transactions and toll revenue estimates for the US 69 study corridor were evaluated under the Phase 1 Base Case and Phase 2 scenario for two assumed socioeconomic growth assumptions, using EBP and MARC socioeconomic forecasts, for the 40-year forecast horizon. The annual transactions and toll revenue estimates based on EBP's socioeconomic forecasts under the Phase 1 Base Case are shown in **Table 6-11**. The annual transactions are estimated to be 4.28 million in 2026 and are estimated to increase to 6.88 million by 2040 and 7.64 million by 2050. The estimated toll revenues generated by the proposed express lanes along US 69 is approximately $2.47 million (nominal) in 2026. The annual toll revenue is estimated to grow to approximately $5.02 million (nominal) by 2040 and $6.41 million (nominal) by 2050. **Figures 6-9** and **6-10** illustrate the variations in the estimated 40-year forecast period annual transactions and toll revenues, respectively. The projected decline in both transactions and toll revenues between 2039 and 2040 is due to the assumed capacity expansion along parallel arterials including Metcalf and Antioch occurring in 2040**. Table 6-12** shows the average annual growth rates for transactions and toll revenues between various forecast years under the Phase 1 Base Case using EBP's revised socioeconomic data.

Table 6-11 Annual Transaction and Gross Toll Revenue Estimates under EBP Phase 1 Base Case

Year	Annual Transactions			Annual Gross Toll Revenues (Nominal Dollars) (2)		
	Transponder	Video	Total	Transponder	Video(1,3)	Total
2026	2,140,000	2,140,000	4,280,000	$997,000	$1,475,000	$2,472,000
2027	2,468,000	2,284,000	4,752,000	$1,185,000	$1,642,000	$2,827,000
2028	2,818,000	2,430,000	5,248,000	$1,392,000	$1,819,000	$3,211,000
2029	3,037,000	2,456,000	5,493,000	$1,542,000	$1,908,000	$3,450,000
2030	3,258,000	2,481,000	5,739,000	$1,697,000	$1,998,000	$3,695,000
2031	3,478,000	2,507,000	5,985,000	$1,857,000	$2,087,000	$3,944,000
2032	3,698,000	2,533,000	6,231,000	$2,023,000	$2,176,000	$4,199,000
2033	3,918,000	2,559,000	6,477,000	$2,193,000	$2,265,000	$4,458,000
2034	4,138,000	2,585,000	6,723,000	$2,368,000	$2,352,000	$4,720,000
2035	4,358,000	2,611,000	6,969,000	$2,548,000	$2,440,000	$4,988,000
2036	4,577,000	2,637,000	7,214,000	$2,734,000	$2,527,000	$5,261,000
2037	4,796,000	2,661,000	7,457,000	$2,924,000	$2,614,000	$5,538,000
2038	5,013,000	2,685,000	7,698,000	$3,120,000	$2,701,000	$5,821,000
2039	5,224,000	2,706,000	7,930,000	$3,320,000	$2,787,000	$6,107,000
2040	4,583,000	2,300,000	6,883,000	$2,741,000	$2,282,000	$5,023,000
2041	4,700,000	2,261,000	6,961,000	$2,865,000	$2,293,000	$5,158,000
2042	4,816,000	2,221,000	7,037,000	$2,991,000	$2,303,000	$5,294,000
2043	4,932,000	2,181,000	7,113,000	$3,119,000	$2,311,000	$5,430,000
2044	5,047,000	2,142,000	7,189,000	$3,250,000	$2,317,000	$5,567,000
2045	5,162,000	2,102,000	7,264,000	$3,384,000	$2,322,000	$5,706,000
2046	5,277,000	2,063,000	7,340,000	$3,519,000	$2,326,000	$5,845,000
2047	5,392,000	2,024,000	7,416,000	$3,657,000	$2,328,000	$5,985,000
2048	5,508,000	1,984,000	7,492,000	$3,798,000	$2,328,000	$6,126,000
2049	5,623,000	1,945,000	7,568,000	$3,940,000	$2,327,000	$6,267,000
2050	5,737,000	1,906,000	7,643,000	$4,085,000	$2,324,000	$6,409,000
2051	5,787,000	1,923,000	7,710,000	$4,183,000	$2,381,000	$6,564,000
2052	5,839,000	1,939,000	7,778,000	$4,284,000	$2,439,000	$6,723,000
2053	5,889,000	1,955,000	7,844,000	$4,386,000	$2,500,000	$6,886,000
2054	5,939,000	1,970,000	7,909,000	$4,491,000	$2,562,000	$7,053,000
2055	5,988,000	1,985,000	7,973,000	$4,599,000	$2,625,000	$7,224,000
2056	6,017,000	1,993,000	8,010,000	$4,688,000	$2,676,000	$7,364,000
2057	6,046,000	2,001,000	8,047,000	$4,778,000	$2,730,000	$7,508,000
2058	6,075,000	2,010,000	8,085,000	$4,871,000	$2,784,000	$7,655,000
2059	6,104,000	2,018,000	8,122,000	$4,965,000	$2,838,000	$7,803,000
2060	6,134,000	2,026,000	8,160,000	$5,061,000	$2,895,000	$7,956,000
2061	6,160,000	2,034,000	8,194,000	$5,158,000	$2,952,000	$8,110,000
2062	6,186,000	2,042,000	8,228,000	$5,256,000	$3,010,000	$8,266,000
2063	6,212,000	2,050,000	8,262,000	$5,356,000	$3,069,000	$8,425,000
2064	6,238,000	2,058,000	8,296,000	$5,459,000	$3,130,000	$8,589,000
2065	6,264,000	2,066,000	8,330,000	$5,563,000	$3,192,000	$8,755,000

(1) Video Revenue includes video surcharge
(2) Nominal Dollars - Year of Expenditure/Collection also referred as future year dollars
(3) No toll leakage adjustments were applied to the toll revenue estimates

Figure 6-9 Annual Transactions under EBP Phase 1 Base Case

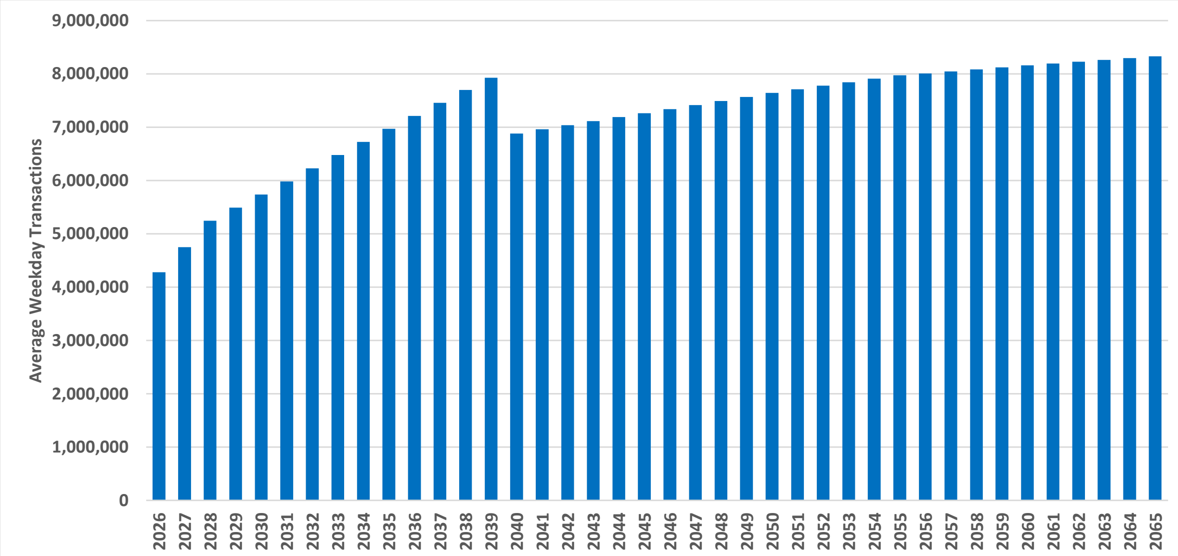


Figure 6-10 Annual Gross Toll Revenues in Nominal Dollars under EBP Phase 1 Base Case

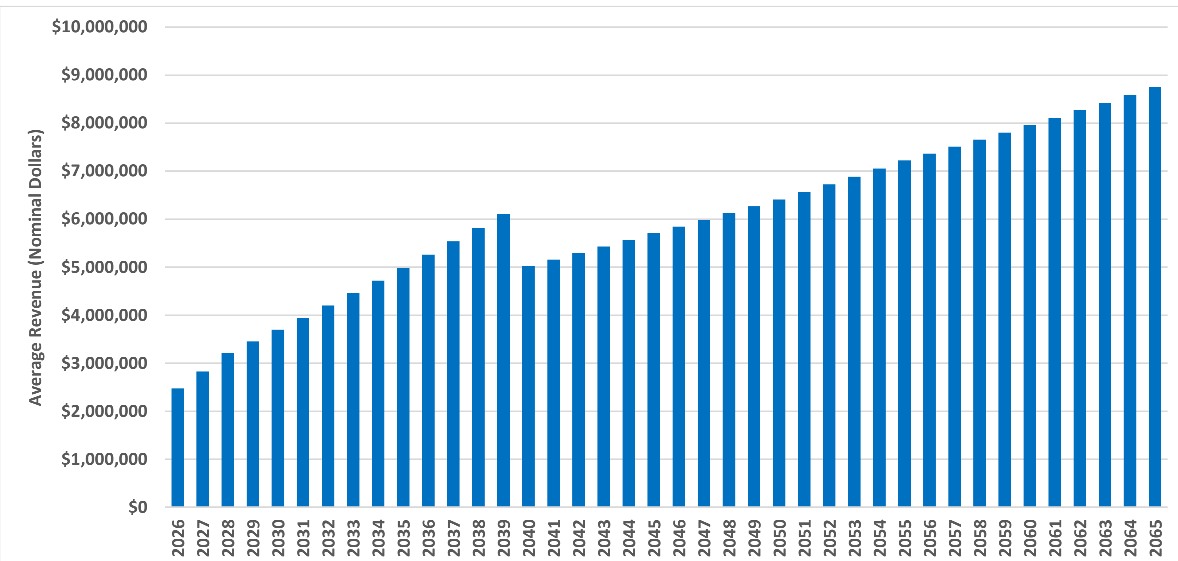


Table 6-12 Annual Transactions and Gross Toll Revenues under EBP Phase 1 Base Case

Year	Annual Transactions	Total Annual Gross Toll Revenues (in nominal dollars)
2026	4,280,000	$2,472,000
2030	5,739,000	$3,695,000
2040	6,883,000	$5,023,000
2050	7,643,000	$6,409,000
2060	8,160,000	$7,956,000
Average Annual Growth Rate		
2026-2030	7.6%	10.6%
2030-2040	1.8%	3.1%
2040-2050	1.1%	2.5%
2050-2060	0.7%	2.2%

The annual transactions and toll revenue estimates under the Phase 1 Base Case scenario using MARC's socioeconomic forecasts are shown in **Table 6-13**. The annual transactions are estimated to be 4.28 million in 2026 and increase to 7.98 million by 2040 and 8.21 million by 2050. The toll revenues generated by the express lanes are estimated to be approximately $2.47 million (nominal) in 2026. The annual toll revenues increase to approximately $7.45 million (nominal) by 2040 and $11.63 million (nominal) by 2050. **Figures 6-11** and **6-12** illustrate the variations in the estimated 40-year forecast period annual transactions and toll revenues, respectively. The projected decline in both transactions and toll revenues between 2039 and 2040 is again due to the assumed capacity expansion along parallel arterials including Metcalf and Antioch occurring in 2040. **Table 6-14** shows the average annual growth rates for transactions and toll revenues between various forecast years for the Phase 1 Base Case scenario using MARC's socioeconomic forecasts.

Table 6-13 Annual Transaction and Gross Toll Revenue Estimates under MARC Phase 1 Base Case

Year	Annual Transactions			Annual Gross Toll Revenues (Nominal Dollars) (2)		
	Transponder	Video	Total	Transponder	Video(1,3)	Total
2026	2,140,000	2,140,000	4,280,000	$997,000	$1,475,000	$2,472,000
2027	2,520,000	2,309,000	4,829,000	$1,266,000	$1,740,000	$3,006,000
2028	2,926,000	2,484,000	5,410,000	$1,567,000	$2,022,000	$3,589,000
2029	3,201,000	2,536,000	5,737,000	$1,810,000	$2,212,000	$4,022,000
2030	3,475,000	2,589,000	6,064,000	$2,063,000	$2,399,000	$4,462,000
2031	3,749,000	2,642,000	6,391,000	$2,325,000	$2,584,000	$4,909,000
2032	4,023,000	2,695,000	6,718,000	$2,596,000	$2,767,000	$5,363,000
2033	4,297,000	2,748,000	7,045,000	$2,877,000	$2,948,000	$5,825,000
2034	4,571,000	2,801,000	7,372,000	$3,166,000	$3,127,000	$6,293,000
2035	4,846,000	2,853,000	7,699,000	$3,465,000	$3,304,000	$6,769,000
2036	5,116,000	2,903,000	8,019,000	$3,774,000	$3,479,000	$7,253,000
2037	5,383,000	2,952,000	8,335,000	$4,091,000	$3,652,000	$7,743,000
2038	5,649,000	2,999,000	8,648,000	$4,418,000	$3,822,000	$8,240,000
2039	5,912,000	3,045,000	8,957,000	$4,754,000	$3,991,000	$8,745,000
2040	5,346,000	2,633,000	7,979,000	$4,055,000	$3,392,000	$7,447,000
2041	5,427,000	2,575,000	8,002,000	$4,344,000	$3,534,000	$7,878,000
2042	5,507,000	2,518,000	8,025,000	$4,639,000	$3,668,000	$8,307,000
2043	5,589,000	2,460,000	8,049,000	$4,939,000	$3,794,000	$8,733,000
2044	5,669,000	2,403,000	8,072,000	$5,244,000	$3,912,000	$9,156,000
2045	5,751,000	2,345,000	8,096,000	$5,554,000	$4,021,000	$9,575,000
2046	5,831,000	2,288,000	8,119,000	$5,870,000	$4,122,000	$9,992,000
2047	5,911,000	2,231,000	8,142,000	$6,191,000	$4,215,000	$10,406,000
2048	5,992,000	2,173,000	8,165,000	$6,517,000	$4,300,000	$10,817,000
2049	6,072,000	2,116,000	8,188,000	$6,848,000	$4,377,000	$11,225,000
2050	6,152,000	2,059,000	8,211,000	$7,185,000	$4,445,000	$11,630,000
2051	6,180,000	2,067,000	8,247,000	$7,346,000	$4,548,000	$11,894,000
2052	6,206,000	2,075,000	8,281,000	$7,511,000	$4,653,000	$12,164,000
2053	6,232,000	2,083,000	8,315,000	$7,680,000	$4,760,000	$12,440,000
2054	6,258,000	2,091,000	8,349,000	$7,853,000	$4,869,000	$12,722,000
2055	6,285,000	2,099,000	8,384,000	$8,030,000	$4,982,000	$13,012,000
2056	6,311,000	2,108,000	8,419,000	$8,211,000	$5,097,000	$13,308,000
2057	6,338,000	2,116,000	8,454,000	$8,396,000	$5,215,000	$13,611,000
2058	6,365,000	2,124,000	8,489,000	$8,586,000	$5,336,000	$13,922,000
2059	6,391,000	2,133,000	8,524,000	$8,780,000	$5,460,000	$14,240,000
2060	6,419,000	2,141,000	8,560,000	$8,978,000	$5,586,000	$14,564,000
2061	6,446,000	2,149,000	8,595,000	$9,182,000	$5,716,000	$14,898,000
2062	6,473,000	2,158,000	8,631,000	$9,389,000	$5,849,000	$15,238,000
2063	6,501,000	2,166,000	8,667,000	$9,602,000	$5,985,000	$15,587,000
2064	6,528,000	2,175,000	8,703,000	$9,820,000	$6,123,000	$15,943,000
2065	6,557,000	2,183,000	8,740,000	$10,043,000	$6,266,000	$16,309,000

(1) Video Revenue include video surcharge
(2) Nominal Dollars - Year of Expenditure/Collection also referred as future year dollars
(3) No toll leakage adjustments were applied to the toll revenue estimates

Figure 6-11 Annual Transactions under MARC Phase 1 Base Case

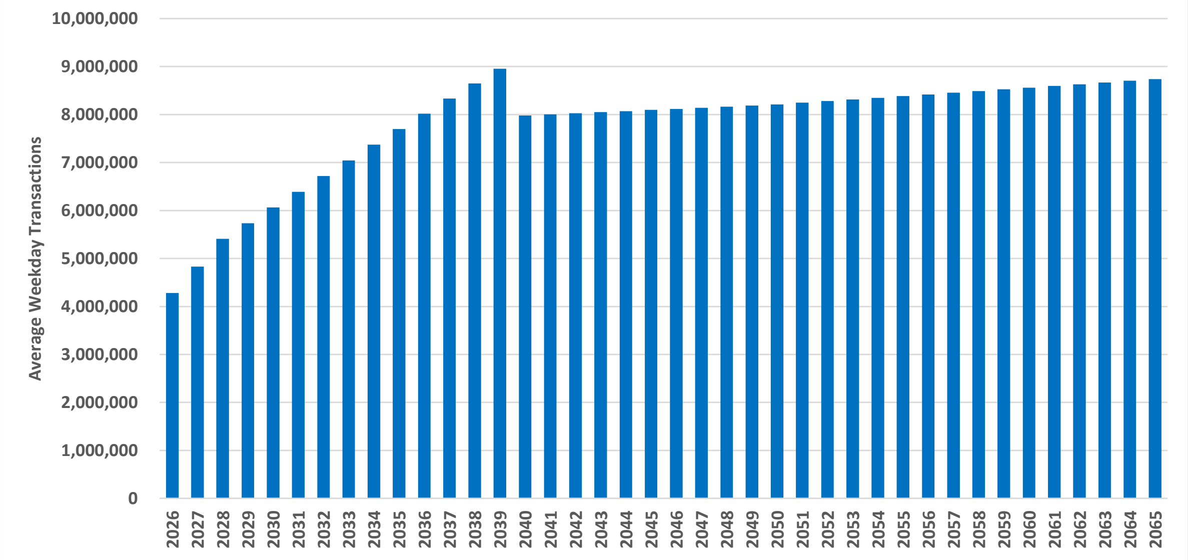


Figure 6-12 Annual Gross Toll Revenues in Nominal Dollars under MARC Phase 1 Base Case

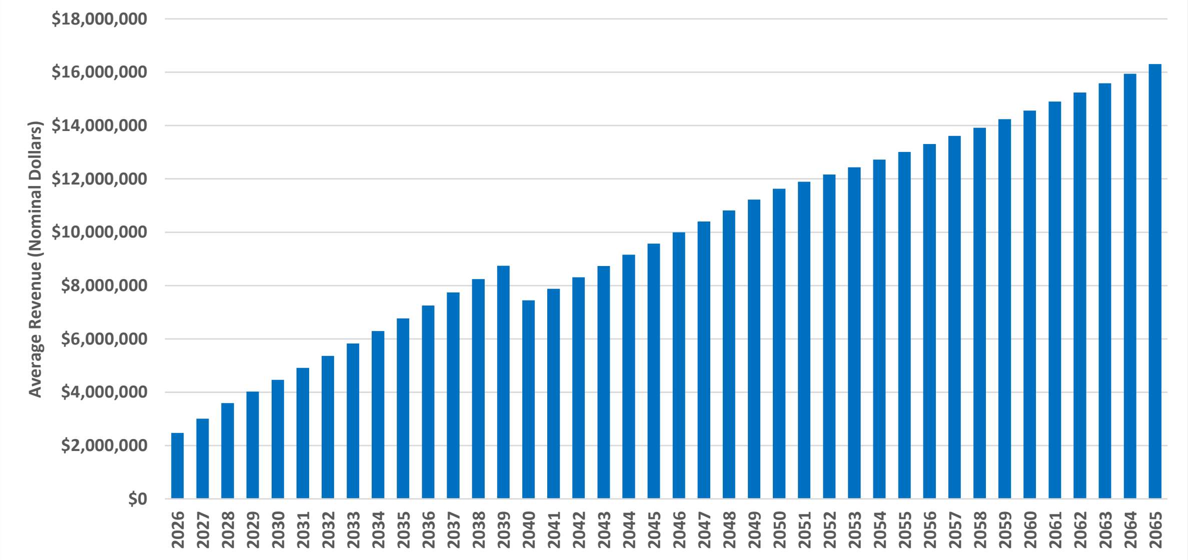


Table 6-14 Annual Transactions and Gross Toll Revenues under MARC Phase 1 Base Case

Year	Annual Transactions	Total Gross Annual Toll Revenues (in nominal dollars)
2026	4,280,000	$2,472,000
2030	6,064,000	$4,462,000
2040	7,979,000	$7,447,000
2050	8,211,000	$11,630,000
2060	8,560,000	$14,564,000
Average Annual Growth Rate		
2026-2030	9.1%	15.9%
2030-2040	2.8%	5.3%
2040-2050	0.3%	4.6%
2050-2060	0.4%	2.3%

The annual transactions and toll revenue estimates generated using EBP's socioeconomic forecast under the Phase 2 scenario are shown in **Table 6-15**. The annual transactions are estimated to be 4.28 million in 2026 and are estimated to increase to about 7.82 million by 2040 and 9.55 million by 2050. The estimated toll revenue generated by the express lanes is estimated to be approximately $2.47 million (nominal) in 2026. The annual toll revenue is estimated to grow to approximately $5.64 million (nominal) by 2040 and $8.15 million (nominal) by 2050. **Figures 6-13** and **6-14** summarize the variations in the estimated annual transactions and annual toll revenue respectively for the 40-year forecast period. The projected decline in both transaction and toll revenue between 2039 and 2040 is more muted under this scenario as any reduction in demand for the express lanes due to the assumed capacity expansion on parallel arterials is mostly offset by the additional traffic and toll revenue generated by the southern extension of the express lanes that is assumed to occur at the same time, in 2040. **Table 6-16** shows the average annual growth rates in annual transactions and annual toll revenue between various forecast years for the Phase 2 scenario using EBP's revised socioeconomic forecasts.

Table 6-15 Annual Transaction and Gross Toll Revenue Estimates under EBP Phase 2

Year	Annual Transactions			Annual Gross Toll Revenues (Nominal Dollars) (2)		
	Transponder	Video	Total	Transponder	Video(1,3)	Total
2026	2,140,000	2,140,000	4,280,000	$997,000	$1,475,000	$2,472,000
2027	2,468,000	2,284,000	4,752,000	$1,185,000	$1,642,000	$2,827,000
2028	2,818,000	2,430,000	5,248,000	$1,392,000	$1,819,000	$3,211,000
2029	3,037,000	2,456,000	5,493,000	$1,542,000	$1,908,000	$3,450,000
2030	3,258,000	2,481,000	5,739,000	$1,697,000	$1,998,000	$3,695,000
2031	3,478,000	2,507,000	5,985,000	$1,857,000	$2,087,000	$3,944,000
2032	3,698,000	2,533,000	6,231,000	$2,023,000	$2,176,000	$4,199,000
2033	3,918,000	2,559,000	6,477,000	$2,193,000	$2,265,000	$4,458,000
2034	4,138,000	2,585,000	6,723,000	$2,368,000	$2,352,000	$4,720,000
2035	4,358,000	2,611,000	6,969,000	$2,548,000	$2,440,000	$4,988,000
2036	4,577,000	2,637,000	7,214,000	$2,734,000	$2,527,000	$5,261,000
2037	4,796,000	2,661,000	7,457,000	$2,924,000	$2,614,000	$5,538,000
2038	5,013,000	2,685,000	7,698,000	$3,120,000	$2,701,000	$5,821,000
2039	5,224,000	2,706,000	7,930,000	$3,320,000	$2,787,000	$6,107,000
2040	5,150,000	2,674,000	7,824,000	$3,071,000	$2,574,000	$5,645,000
2041	5,394,000	2,670,000	8,064,000	$3,291,000	$2,637,000	$5,928,000
2042	5,642,000	2,666,000	8,308,000	$3,519,000	$2,697,000	$6,216,000
2043	5,836,000	2,632,000	8,468,000	$3,722,000	$2,731,000	$6,453,000
2044	6,030,000	2,598,000	8,628,000	$3,929,000	$2,762,000	$6,691,000
2045	6,221,000	2,564,000	8,785,000	$4,140,000	$2,790,000	$6,930,000
2046	6,412,000	2,529,000	8,941,000	$4,356,000	$2,815,000	$7,171,000
2047	6,603,000	2,494,000	9,097,000	$4,577,000	$2,837,000	$7,414,000
2048	6,793,000	2,460,000	9,253,000	$4,802,000	$2,856,000	$7,658,000
2049	6,979,000	2,423,000	9,402,000	$5,031,000	$2,872,000	$7,903,000
2050	7,166,000	2,386,000	9,552,000	$5,265,000	$2,886,000	$8,151,000
2051	7,259,000	2,417,000	9,676,000	$5,415,000	$2,970,000	$8,385,000
2052	7,354,000	2,448,000	9,802,000	$5,569,000	$3,056,000	$8,625,000
2053	7,450,000	2,480,000	9,930,000	$5,728,000	$3,145,000	$8,873,000
2054	7,543,000	2,510,000	10,053,000	$5,892,000	$3,237,000	$9,129,000
2055	7,637,000	2,541,000	10,178,000	$6,060,000	$3,331,000	$9,391,000
2056	7,702,000	2,562,000	10,264,000	$6,204,000	$3,412,000	$9,616,000
2057	7,768,000	2,583,000	10,351,000	$6,351,000	$3,495,000	$9,846,000
2058	7,836,000	2,604,000	10,440,000	$6,502,000	$3,579,000	$10,081,000
2059	7,903,000	2,626,000	10,529,000	$6,657,000	$3,666,000	$10,323,000
2060	7,971,000	2,648,000	10,619,000	$6,816,000	$3,755,000	$10,571,000
2061	8,006,000	2,659,000	10,665,000	$6,944,000	$3,828,000	$10,772,000
2062	8,041,000	2,670,000	10,711,000	$7,076,000	$3,901,000	$10,977,000
2063	8,076,000	2,681,000	10,757,000	$7,209,000	$3,977,000	$11,186,000
2064	8,111,000	2,693,000	10,804,000	$7,346,000	$4,054,000	$11,400,000
2065	8,147,000	2,704,000	10,851,000	$7,485,000	$4,132,000	$11,617,000

(1) Video Revenue include video surcharge
(2) Nominal Dollars - Year of Expenditure/Collection also referred as future year dollars
(3) No toll leakage adjustments were applied to the toll revenue estimates

Figure 6-13 Annual Transactions for under EBP Phase 2

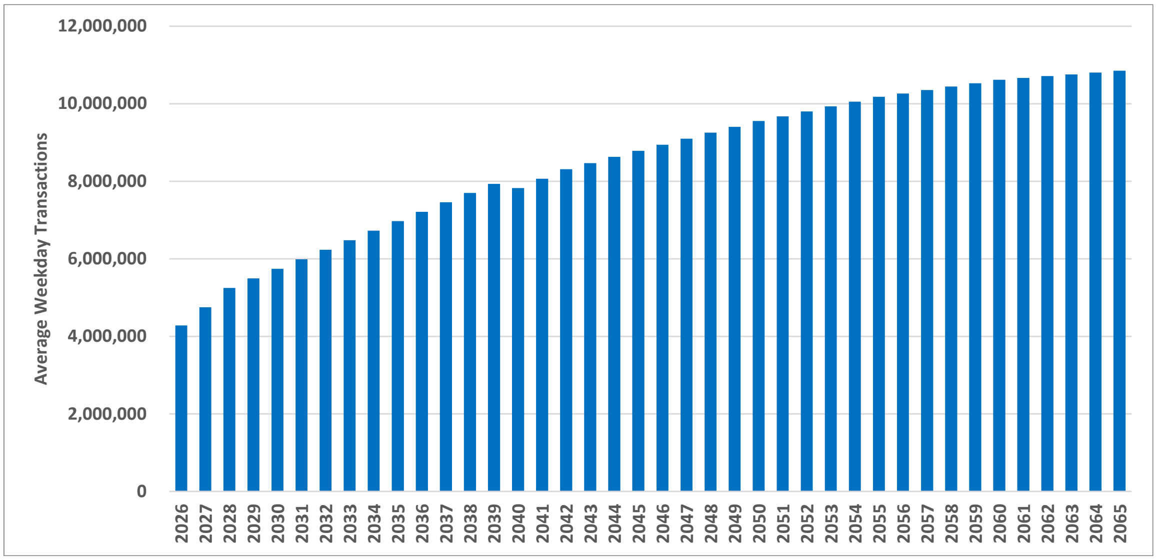


Figure 6-14 Annual Gross Toll Revenues in Nominal Dollars under EBP Phase 2

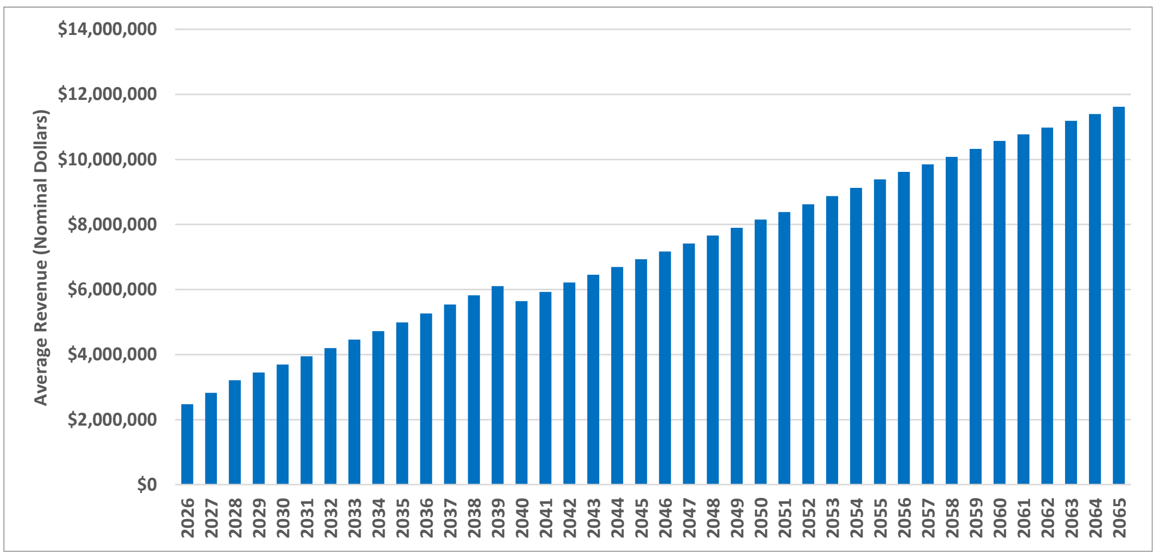


Table 6-16 Annual Transactions and Gross Toll Revenues under EBP Phase 2

Year	Annual Transactions	Total Gross Annual Toll Revenues (in nominal dollars)
2026	4,280,000	$2,472,000
2030	5,739,000	$3,695,000
2040	7,824,000	$5,645,000
2050	9,552,000	$8,151,000
2060	10,619,000	$10,571,000
Average Annual Growth Rate		
2026-2030	7.6%	10.6%
2030-2040	3.2%	4.3%
2040-2050	2.0%	3.7%
2050-2060	1.1%	2.6%

The annual transactions and toll revenue estimates for the Phase 2 scenario using MARC's socioeconomic forecasts are shown in **Table 6-17**. The annual transactions are estimated to be 4.28 million in 2026 and are estimated to increase to about 9.77 million by 2040 and 11.12 million by 2050. The estimated toll revenue generated by the express lanes is estimated to be approximately $2.47 million (nominal) in 2026. The annual toll revenue is estimated to grow to approximately $9 million (nominal) by 2040 and $14.32 million (nominal) by 2050. **Figures 6-15** and **6-16** summarize the variations in the estimated annual transactions and annual toll revenue respectively for the 40-year forecast period. **Table 6-18** shows the average annual growth rates in annual transactions and annual toll revenue between various forecast years for the Phase 2 scenario using MARC's socioeconomic forecasts.

Table 6-17 Annual Transaction and Gross Toll Revenue Estimates under MARC Phase 2

Year	Annual Transactions			Annual Gross Toll Revenues (Nominal Dollars) (2)		
	Transponder	Video	Total	Transponder	Video(1,3)	Total
2026	2,140,000	2,140,000	4,280,000	$997,000	$1,475,000	$2,472,000
2027	2,520,000	2,309,000	4,829,000	$1,266,000	$1,740,000	$3,006,000
2028	2,926,000	2,484,000	5,410,000	$1,567,000	$2,022,000	$3,589,000
2029	3,201,000	2,536,000	5,737,000	$1,810,000	$2,212,000	$4,022,000
2030	3,475,000	2,589,000	6,064,000	$2,063,000	$2,399,000	$4,462,000
2031	3,749,000	2,642,000	6,391,000	$2,325,000	$2,584,000	$4,909,000
2032	4,023,000	2,695,000	6,718,000	$2,596,000	$2,767,000	$5,363,000
2033	4,297,000	2,748,000	7,045,000	$2,877,000	$2,948,000	$5,825,000
2034	4,571,000	2,801,000	7,372,000	$3,166,000	$3,127,000	$6,293,000
2035	4,846,000	2,853,000	7,699,000	$3,465,000	$3,304,000	$6,769,000
2036	5,116,000	2,903,000	8,019,000	$3,774,000	$3,479,000	$7,253,000
2037	5,383,000	2,952,000	8,335,000	$4,091,000	$3,652,000	$7,743,000
2038	5,649,000	2,999,000	8,648,000	$4,418,000	$3,822,000	$8,240,000
2039	5,912,000	3,045,000	8,957,000	$4,754,000	$3,991,000	$8,745,000
2040	6,451,000	3,316,000	9,767,000	$4,876,000	$4,128,000	$9,004,000
2041	6,707,000	3,303,000	10,010,000	$5,305,000	$4,323,000	$9,628,000
2042	6,968,000	3,287,000	10,255,000	$5,749,000	$4,510,000	$10,259,000
2043	7,137,000	3,226,000	10,363,000	$6,139,000	$4,635,000	$10,774,000
2044	7,308,000	3,164,000	10,472,000	$6,538,000	$4,748,000	$11,286,000
2045	7,479,000	3,102,000	10,581,000	$6,945,000	$4,851,000	$11,796,000
2046	7,650,000	3,040,000	10,690,000	$7,361,000	$4,944,000	$12,305,000
2047	7,819,000	2,979,000	10,798,000	$7,786,000	$5,025,000	$12,811,000
2048	7,990,000	2,917,000	10,907,000	$8,220,000	$5,095,000	$13,315,000
2049	8,160,000	2,855,000	11,015,000	$8,662,000	$5,155,000	$13,817,000
2050	8,330,000	2,793,000	11,123,000	$9,114,000	$5,205,000	$14,319,000
2051	8,440,000	2,830,000	11,270,000	$9,394,000	$5,367,000	$14,761,000
2052	8,548,000	2,865,000	11,413,000	$9,682,000	$5,534,000	$15,216,000
2053	8,656,000	2,901,000	11,557,000	$9,979,000	$5,707,000	$15,686,000
2054	8,761,000	2,935,000	11,696,000	$10,286,000	$5,885,000	$16,171,000
2055	8,862,000	2,968,000	11,830,000	$10,602,000	$6,068,000	$16,670,000
2056	8,934,000	2,991,000	11,925,000	$10,877,000	$6,227,000	$17,104,000
2057	9,006,000	3,014,000	12,020,000	$11,159,000	$6,390,000	$17,549,000
2058	9,077,000	3,036,000	12,113,000	$11,448,000	$6,558,000	$18,006,000
2059	9,147,000	3,059,000	12,206,000	$11,746,000	$6,731,000	$18,477,000
2060	9,215,000	3,081,000	12,296,000	$12,051,000	$6,908,000	$18,959,000
2061	9,250,000	3,091,000	12,341,000	$12,304,000	$7,055,000	$19,359,000
2062	9,284,000	3,102,000	12,386,000	$12,562,000	$7,206,000	$19,768,000
2063	9,318,000	3,113,000	12,431,000	$12,826,000	$7,359,000	$20,185,000
2064	9,353,000	3,124,000	12,477,000	$13,096,000	$7,516,000	$20,612,000
2065	9,387,000	3,135,000	12,522,000	$13,372,000	$7,677,000	$21,049,000

(1) Video Revenue include video surcharge
(2) Nominal Dollars - Year of Expenditure/Collection also referred as future year dollars
(3) No toll leakage adjustments were applied to the toll revenue estimates

Figure 6-15 Annual Transactions under MARC Phase 2

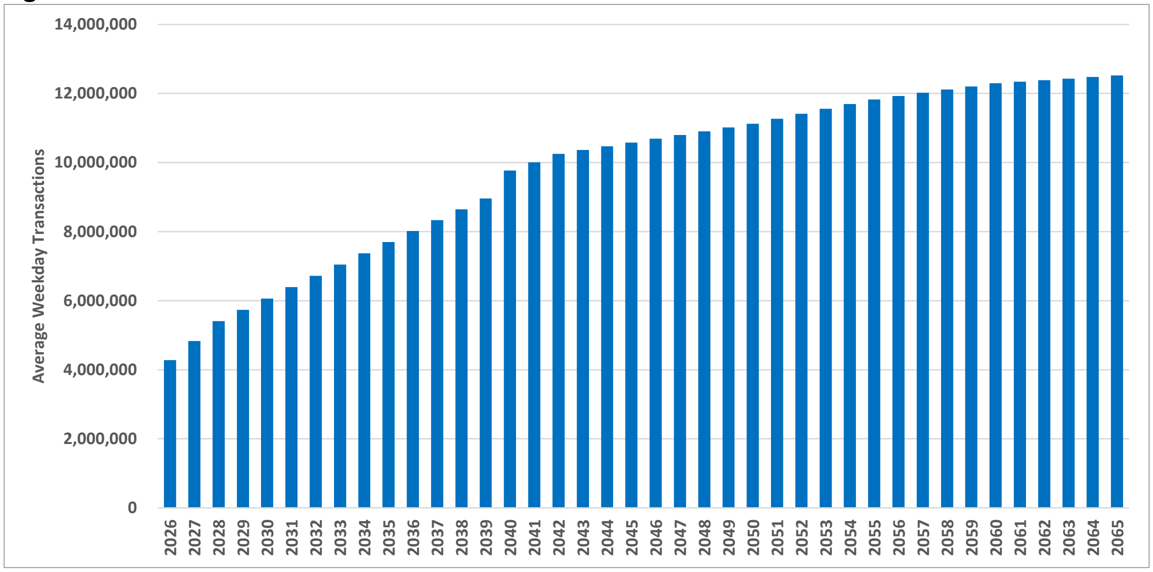


Figure 6-16 Annual Gross Toll Revenues in Nominal Dollars under MARC Phase 2

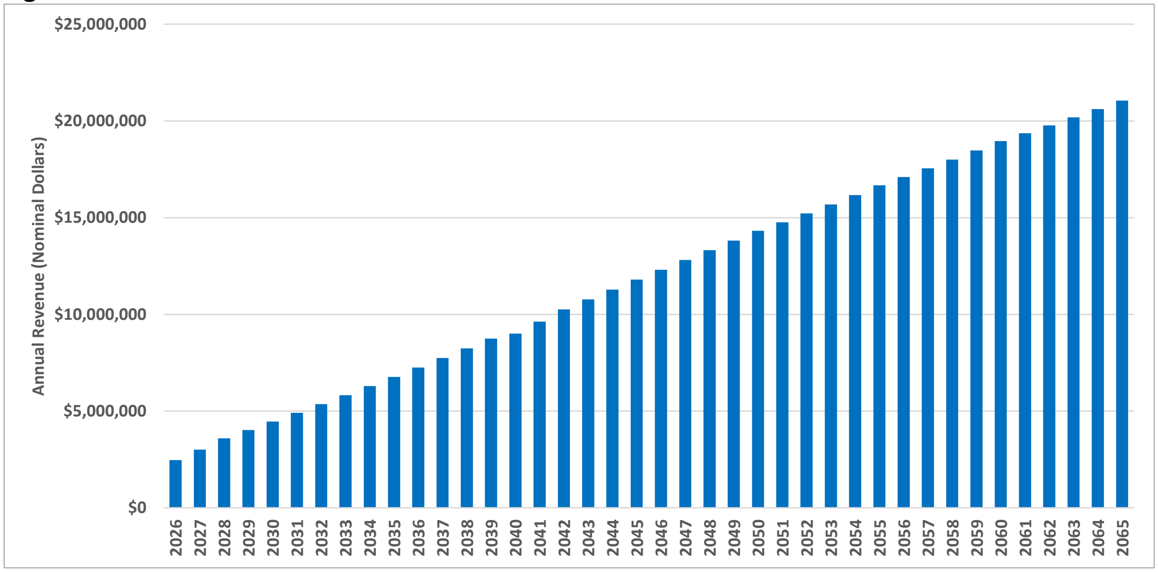


Table 6-18 Annual Transactions and Gross Toll Revenues under MARC Phase 2

Year	Annual Transactions	Total Gross Annual Toll Revenues (in nominal dollars)
2026	4,280,000	2,472,000
2030	6,064,000	4,462,000
2040	9,767,000	9,004,000
2050	11,123,000	14,319,000
2060	12,296,000	18,959,000
Average Annual Growth Rate		
2026-2030	9.1%	15.9%
2030-2040	4.9%	7.3%
2040-2050	1.3%	4.8%
2050-2060	1.0%	2.9%

6.9 Sensitivity Analyses

Sensitivity analyses of the US 69 express lanes were undertaken to quantify the range under which the toll revenue generated by the facility may fall based on varying assumptions regarding key variables influencing the toll revenue potential of the express lanes corridor. The following section describes seven different sensitivity scenarios that were conducted for the years 2026 and 2050 to estimate the impact of several key input variables on the future forecasts of the toll revenues. The scenarios were structured to quantify the downside risk for several while also providing an assessment of the upside potential through the use of the official socioeconomic forecasts from MARC. The following provides a summary of the seven senstivities undertaken for the MARC Phase 2 scenario.

6.9.1 Value-of-Time Changes (+/- 20 Percent)

Motorists' willingness-to-pay tolls is influenced by a combination of their perceived value-of-time (VOT) and their expected travel time savings. The VOTs for drivers in the study area were estimated using the SP survey conducted in early 2021. The high and low VOT tests assumed an increase and decrease in VOT by 20 percent as compared to the values assumed under the MARC Phase 2 scenario.

6.9.2 Higher Toll Transponder Share

Another sensitivity test was performed by changing the assumed toll transponder transactions' share along the US 69 express lanes. The sensitivity test assumed a higher share of toll transponder transactions than that assumed under the MARC Phase 2 scenario to determine its impact on toll revenue. In 2026, the toll transponder transactions' share was increased to 60 percent (compared to 50 percent under the MARC Phase 2 scenario) reaching 85 percent in 2050 (compared to 75 percent under the MARC Phase 2 scenario).

6.9.3 No Trucks Allowed in the Express Lanes

Under the MARC Phase 2 scenario, commercial vehicles/trucks with more than two-axles are allowed access to the express lanes. A sensitivity test was performed to assess the impact of not allowing truck traffic along the US 69 express lanes.

6.9.4 Transaction and Revenue Days Changes

A weekend revenue reduction was undertaken to reflect the reduced and more evenly distributed weekend demand profiles resulting in lower traffic congestion during the weekends and thus yielding reduced toll rates and lower traffic levels for the express lanes compared to the typical weekday. The high and low transaction and revenue days sensitivity tests assumed a 10 day increase (290 transaction days and 275 revenue days) and decrease (270 transaction days and 255 revenue days) in transaction and revenue days at each toll gantry compared to the transaction and revenue days assumed under the MARC Phase 2 scenario (280 transaction days and 265 revenue days).

6.9.5 No Thoroughfare Improvements

This sensitivity was performed to test the impact of excluding the planned thoroughfare improvements based on *Connected KC 2050* that were assumed to occur in 2040 and 2050 and were included in the MARC Phase 2 scenario.

6.9.6 High Demand Growth

This sensitivity test analyzed the impact of excluding extended telecommuting trends, thereby not assuming a higher rate of work-from-home (WFH) trends as was considered under the MARC Phase 2 scenario. In addition, a 20 percent increase in the VOT in the region was also assumed under this sensitivity test.

6.9.7 Changes in Socioeconomic Growth

This scenario simulated the effect of changes in the socioeconomic growth in the region by +/- five percent as compared to the MARC Phase 2 scenario. Note that for this scenario a reduction/increase of five percent was applied directly to the growth in trip tables as a proxy for the change in socioeconomic growth.

Figure 6-17 and **6-18** show the results of the sensitivity analysis for the US 69 corridor in 2026 and 2050, respectively.

Figure 6-17 Sensitivity Analysis Summary Chart – 2026

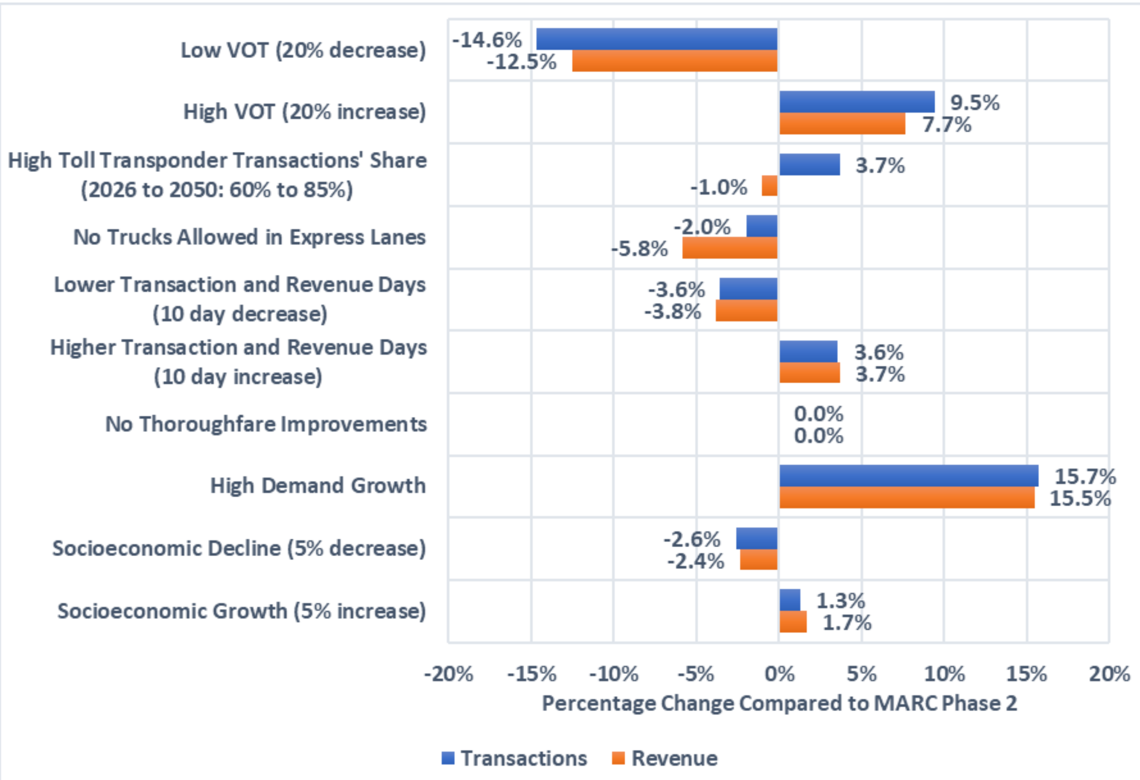
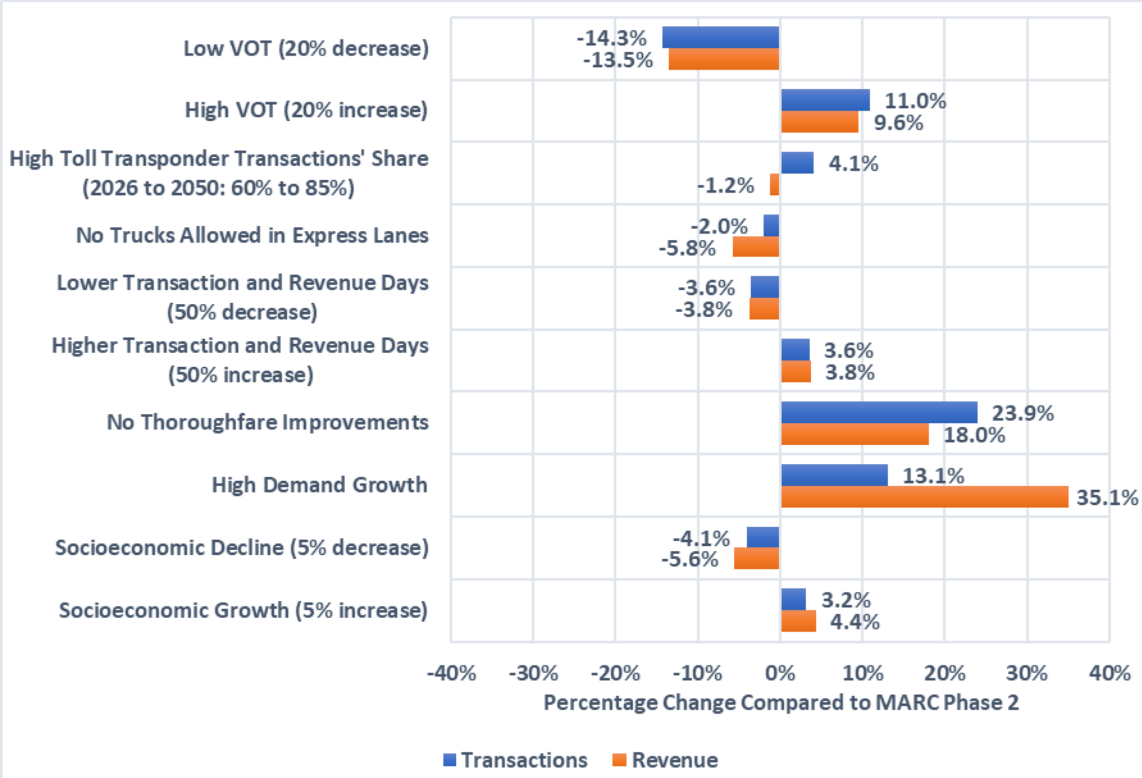


Figure 6-18 Sensitivity Analysis Summary Chart – 2050



As shown in **Figures 6-17** and **6-18**, the results demonstrate that with decreasing VOTs, demand growth, transaction and revenue days or truck share, the traffic and toll revenue potential decreases. Conversely, increasing these values, as well as excluding thoroughfare improvements in 2050, led to higher transactions and toll revenues as compared to the MARC Phase 2 scenario. The higher toll transponder transactions share scenario led to an increase in transactions but a lower revenue due to a decrease in video surcharge revenue.

Table 6-19 provides the annual transaction and gross toll revenue forecasts (in thousands) respectively for the MARC Phase 2 scenario and each of the seven sensitivity scenarios along with the numerical and percentage difference in the annual transaction and gross toll revenue estimates between each of the sensitivity scenarios and the MARC Phase 2 scenario.

Table 6-19 Sensitivity Tests – Impact on Transactions and Toll Revenue

Sensitivity Test	Annual Transactions (in '000s)		Annual Toll Revenue (in '000s)	
	2026	2050	2026	2050
Phase 2 Using MARC Forecasts	**4,280**	**11,123**	**$2,472**	**$14,319**
Low VOT (20% decrease)	**3,653**	**9,534**	**$2,162**	**$12,388**
Difference vs. Base	-627	-1,589	-310	-1,931
Percentage Impact vs. Base	-14.6%	-14.3%	-12.5%	-13.5%
High VOT (20% increase)	**4,685**	**12,342**	**$2,662**	**$15,687**
Difference vs. Base	405	1,219	190	1,368
Percentage Impact vs. Base	9.5%	11.0%	7.7%	9.6%
High Toll Transponder Transactions' Share (2026 to 2050: 60% to 85%)	**4,438**	**11,581**	**$2,447**	**$14,147**
Difference vs. Base	158	458	-26	-172
Percentage Impact vs. Base	3.7%	4.1%	-1.0%	-1.2%
No Trucks Allowed in Express Lanes	**4,195**	**10,906**	**$2,328**	**$13,493**
Difference vs. Base	-85	-217	-144	-826
Percentage Impact vs. Base	-2.0%	-2.0%	-5.8%	-5.8%
Lower Transaction and Revenue Days (10-day decrease)	**4,127**	**10,726**	**$2,378**	**$13,778**
Difference vs. Base	-153	-397	-94	-541
Percentage Impact vs. Base	-3.6%	-3.6%	-3.8%	-3.8%
Higher Transaction and Revenue Days (10-day increase)	**4,433**	**11,521**	**$2,564**	**$14,859**
Difference vs. Base	153	398	92	540
Percentage Impact vs. Base	3.6%	3.6%	3.7%	3.8%
No Thoroughfare Improvements	**4,280**	**13,786**	**$2,472**	**$16,899**
Difference vs. Base	0	2,663	0	2,580
Percentage Impact vs. Base	0.0%	23.9%	0.0%	18.0%
High Demand Growth	**4,954**	**12,578**	**$2,854**	**$19,341**
Difference vs. Base	674	1,455	382	5,022
Percentage Impact vs. Base	15.7%	13.1%	15.5%	35.1%
Socioeconomic Decline (5% decrease)	**4,169**	**10,668**	**$2,413**	**$13,516**
Difference vs. Base	-111	-455	-59	-803
Percentage Impact vs. Base	-2.6%	-4.1%	-2.4%	-5.6%
Socioeconomic Growth (5% increase)	**4,334**	**11,479**	**$2,513**	**$14,951**
Difference vs. Base	54	356	41	632
Percentage Impact vs. Base	1.3%	3.2%	1.7%	4.4%

Appendix A

Independent Economic Review

This appendix contains the documentation of the independent economic review as provided by the subconsultant, *EBP*. This report was provided to CDM Smith in May 2021.

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DRAFT

EBP

TO: Kip Strauss (HNTB) and Yagnesh Jarmarwala (CDM Smith)
FROM: Adam Blair (EBP)
DATE: May 14, 2021
RE: 69 Express Project, Phase 1 Technical Documentation (EBP Task 1 and Task 2)

This document describes the methodology and results EBP employed for (a) developing county- and zone-level socioeconomic forecasts and (b) investigating the presence of major activity centers surrounding US 69 in Johnson County, Kansas. This information will be used in the U.S. 69 traffic and toll revenue estimates.

Executive Summary

EBP's review of the Mid-America Regional Council's (MARC) long-range socioeconomic forecast found an overestimation of 2015 population equaling about 32,400 people. However, the agency's estimates of households and employment are much closer to actual values in 2015. The implication of overestimating population is that the forecast begins with a higher base year when compared with forecasts that begin with actual 2015 population.

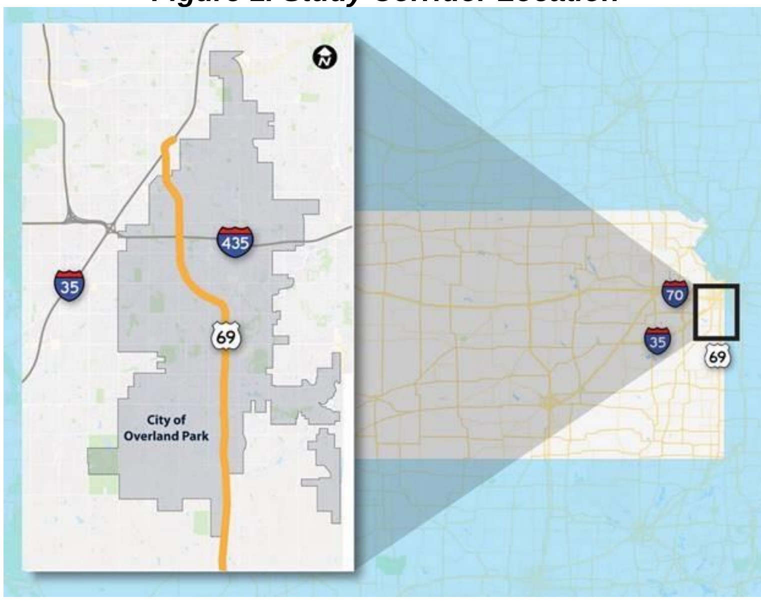
Between today and 2050, EBP expects less population and household growth but slightly more employment growth than what MARC forecasts for Johnson County and the surrounding region. This is due to changes in historical data mentioned above and the use of a different employment forecast source than what MARC uses. By 2050, EBP's high growth scenario exceeds MARC's baseline for population, households, and employment.

At a subcounty level, EBP expects already-developed areas in Johnson County to receive most of the growth in the coming decades. This assessment is based on research of planned and in-progress development projects; input from regional stakeholders; and a review of MARC and Johnson County's own growth assumptions.

Region of Analysis

EBP developed forecasts for an 8-county region that MARC uses in its travel model. The region includes Johnson County, Leavenworth County, Miami County, and Wyandotte County in Kansas, and Cass County, Clay County, Jackson County, and Platte County in Missouri. The study corridor is in Johnson County, Kansas, with its exact location shown in Figure 1 below.

Figure 1. Study Corridor Location



Validating Base Year Data

We began by comparing the 2015 base year forecast produced by MARC to actual estimated historical data to determine how much of a difference exists for population, households, and employment. This step is important because it indicates the extent to which future year forecast differences are explained by differences in the base year or "jumping off point" that growth rates apply to.

The tables below provide a comparison between 2015 MARC values and 2015 population and households from the American Community Survey (ACS) and 2015 employment from the Quarterly Census of Employment and Wages (QCEW), a U.S. Bureau of Labor Statistics product. Table 1 shows that the MARC forecast overestimated 2015 population for most study region counties. Taken together, MARC's regional population total is about 32,400 above what the ACS estimates the actual population was in 2015. In Johnson County, there is an overestimate of about 13,300 people.

Table 1. Comparison between Forecast and Actual Estimated Population, 2015

County	2015 Population ACS Actual	2015 Population MARC Forecast	Difference
Cass	100,781	101,605	+824
Clay	230,361	235,645	+5,284
Jackson	680,905	687,633	+6,728
Johnson	566,814	580,161	+13,347
Leavenworth	78,227	79,316	+1,089
Miami	32,688	32,552	-136
Platte	93,394	96,091	+2,697
Wyandotte	160,806	163,363	+2,557
MARC Region	**1,943,976**	**1,976,366**	**+32,390**

Sources: MARC and American Community Survey 2011-2015 5-Year Estimates

Table 2 shows that MARC's household forecast for 2015 nearly matches the ACS's estimate of actual households. Regionally, there is an overestimate of just 22 households. In Johnson County, MARC underestimated by 1 household. This indicates that MARC updated its forecast to reflect actual household data from the ACS.

Table 2. Comparison between Forecast and Actual Estimated Households, 2015

County	2015 Households ACS Actual	2015 Households MARC Forecast	Difference
Cass	37,945	37,944	-1
Clay	87,676	87,677	+1
Jackson	274,485	274,488	+3
Johnson	219,735	219,734	-1
Leavenworth	26,747	26,749	+2
Miami	12,560	12,561	+1
Platte	37,556	37,562	+6
Wyandotte	58,870	58,881	+11
MARC Region	**755,574**	**755,596**	**+22**

Sources: MARC and American Community Survey 2011-2015 5-Year Estimates

Table 3 shows that MARC's 2015 forecast underestimated employment at a regional level by about 900 jobs. In Johnson County, MARC underestimated employment by about 16,100 jobs. MARC overestimates employment by about 15,700 jobs in Jackson County, Missouri, which includes part of Kansas City.

Table 3. Comparison between Forecast and Actual Estimated Employment, 2015

County	2015 Employment QCEW Actual	2015 Employment MARC Forecast	Difference
Cass	25,169	26,384	+1,215
Clay	97,566	95,157	-2,409
Jackson	358,270	373,934	+15,664
Johnson	334,691	318,559	-16,132
Leavenworth	20,579	18,705	-1,874
Miami	8,027	8,707	+680
Platte	41,520	41,910	+390
Wyandotte	88,302	89,867	+1,565
MARC Region	**974,124**	**973,223**	**-901**

Sources: MARC and Quarterly Census of Employment and Wages

In conclusion, our review found that the MARC forecast overestimated 2015 population by about 32,400 people. However, its estimates of households and employment are much closer to actual values in 2015. The implication of overestimating population is that the forecast begins with a higher base year when compared with forecasts that begin with actual 2015 population.

Forecast Methodology

EBP developed a base case and two alternative scenario forecasts representing a base case (medium scenario), high growth scenario, and low growth scenario. These scenarios are based on population, household, and employment forecasts developed by Moody's Analytics for the Kansas City region. Moody's produces socioeconomic forecasts used by government agencies and private companies around the world.

In addition to their baseline forecast, Moody's provides alternative forecast scenarios that incorporate different assumptions regarding monetary policy, fiscal policy, the strength of the U.S. dollar, energy prices, and the COVID-19 pandemic. The Moody's baseline forecast represents the most likely outcome. Moody's alternative scenarios S0 and S4 constituted the adopted high growth and low growth scenarios, respectively.

- S0 is Moody's "Upside – 4th Percentile" alternative scenario. According to Moody's, "This above-baseline scenario is designed so that there is a 4% probability that the economy will perform better than in this scenario, broadly speaking, and a 96% probability that it will perform worse."[1]

- S4 is Moody's "Downside – 96th Percentile" alternative scenario. According to Moody's, "In this scenario, there is a 96% probability that the economy will perform better, broadly speaking, and a 4% probability that it will perform worse."

The Moody's baseline forecast is available for individual counties in Missouri and Kansas, whereas the alternative scenario forecasts are available only for the Kansas City metropolitan statistical area (MSA). Because of this, EBP applied county shares from the baseline forecast to the MSA-level scenario forecasts to develop high- and low-growth scenarios at a county level. EBP also developed employment forecasts for three "super sectors": retail, service, and other (e.g., construction, manufacturing, utilities). We did so by applying sector shares from MARC's baseline forecast to total employment by year.

To develop the forecasts, EBP first adjusted the MARC baseline forecast to correct for over- and underestimation described in Tables 1-3. We then applied annual growth rates from Moody's to generate a forecast series for years 2025, 2030, 2040, and 2050. The latest historical year became 2020, which was important for capturing the impacts of the COVID-19 pandemic, especially on employment.

Johnson County Forecasts

This section focuses on Johnson County since it is where the study corridor is located. Figure 2 provides a comparison of MARC's baseline population forecast for Johnson County with EBP's base case (medium), high growth, and low growth forecasts.[2] The figure legend shows growth rates between 2010-2050. Growth rates range from 28 percent under the low growth scenario to 36 percent under the high growth scenario.

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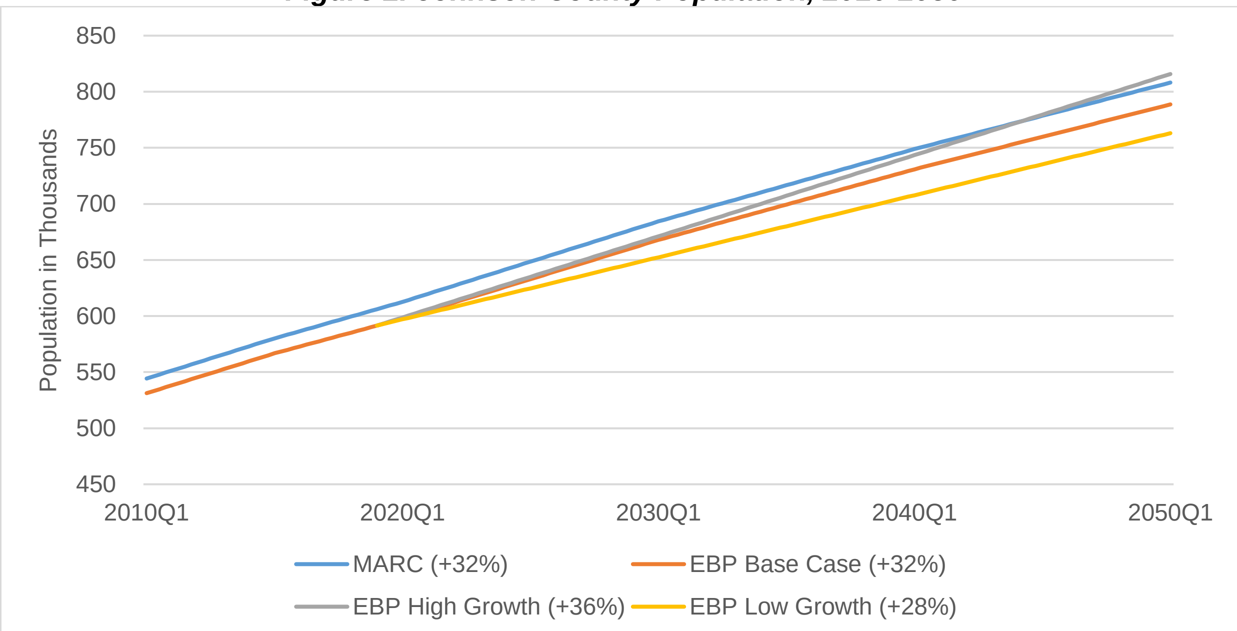
[1] Moody's Analytics, "U.S. Macroeconomic Outlook Baseline and Alternative Scenarios," October 2020.

[2] MARC's baseline forecast is what the agency uses for travel modeling purposes. MARC uses the economic modeling software REMI to generate the forecast (https://www.marc.org/Data-Economy/Forecast/Forecast-Process/Overview).

The base case growth rate is 32 percent, which is the same as MARC's. However, because of MARC's 2015 overestimation described previously, its population forecast is greater than the base case through 2050. In 2050, there is a difference of about 53,000 people between the high growth and low growth scenarios.

Figure 2. Johnson County Population, 2010-2050

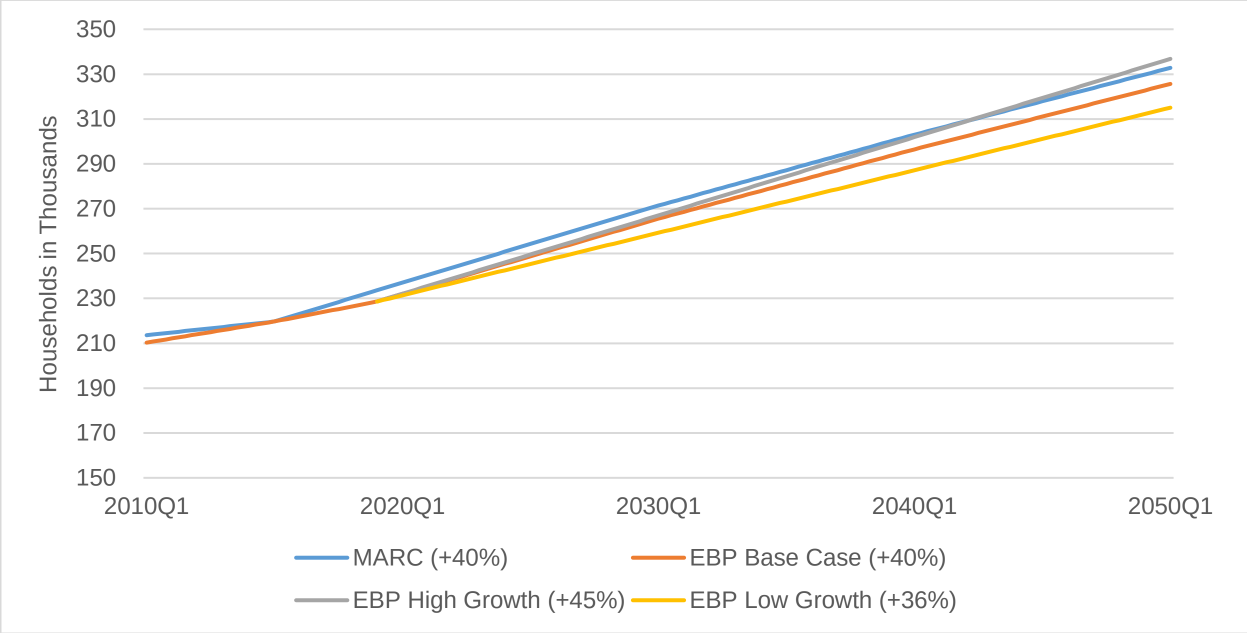


Source: MARC and EBP analysis of Moody's Analytics forecasts
Note: Growth rates for the 2010-2050 period are shown in the legend next to the name of each forecast series.

Figure 3 provides a comparison of MARC's baseline household forecast for Johnson County with EBP's base case (medium), high growth, and low growth forecasts. The figure legend shows growth rates between 2010-2050. Growth rates range from 36 percent under the low growth scenario to 45 percent under the high growth scenario.

The base case growth rate is 40 percent, which is the same as MARC's. MARC barely overestimated households in 2015, which is why the forecasts are essentially the same in that year. However, between 2015-2020, MARC's forecast accelerates at a greater rate than the base case forecast, meaning there is still a difference of about 11,000 households in 2050. The difference between the high and low growth scenarios is about 22,000 households in 2050.

Figure 3. Johnson County Households, 2010-2050



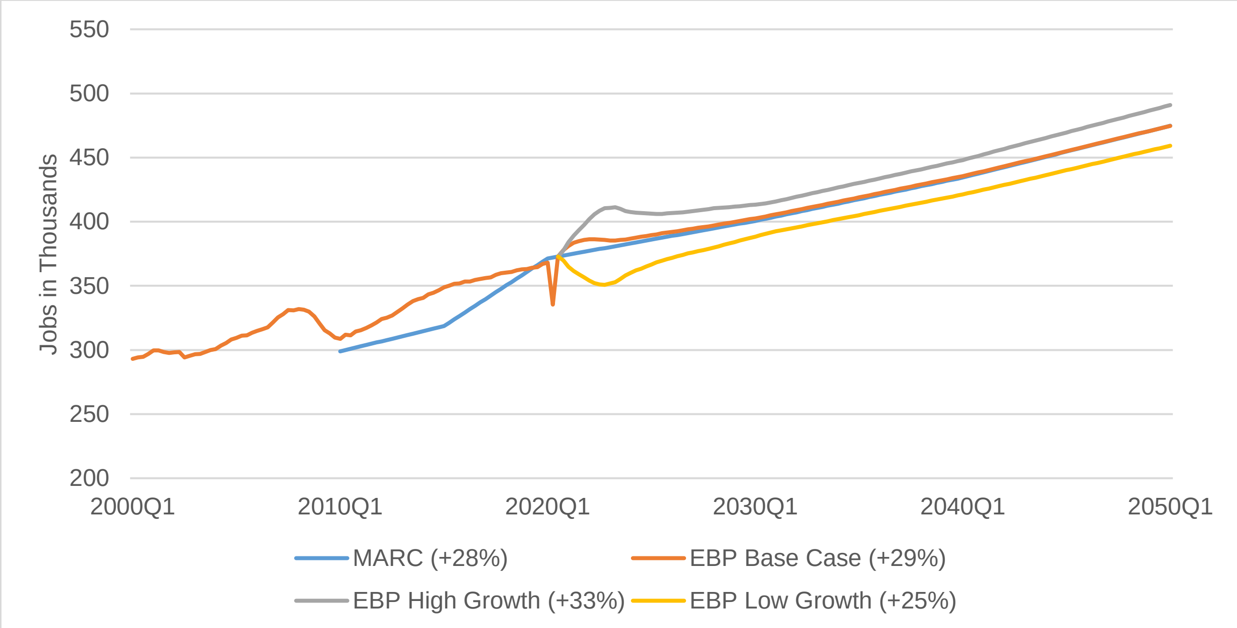
Source: MARC and EBP analysis of Moody's Analytics forecasts
Note: Growth rates for the 2010-2050 period are shown in the legend next to the name of each forecast series.

Figure 4 provides a comparison of MARC's baseline employment forecast for Johnson County with EBP's base case (medium), high growth, and low growth forecasts. The figure illustrates the impact of the COVID-19 pandemic and related business closures on Johnson County employment. In the first half of 2020, employment fell significantly as businesses throughout the county closed. MARC's baseline forecast does not show this impact because it was developed before 2020. (For comparison, Figure 4 also shows how Johnson County employment fell during the 2007-2009 Great Recession.)

After 2020, EBP's base case scenario assumes that employment will return to its pre-COVID trajectory by the mid-2020s, putting it in line with MARC's baseline. Under the high growth scenario, employment will jump considerably following waves of fiscal stimulus before reaching an equilibrium around 2030 at a higher sustained level through 2050. (Moderate job losses could occur between 2023-2024 because of a decrease in stimulus spending, which lowers demand and means some employers require fewer workers.) Under the low growth scenario, Johnson County will experience a short-term recession and not recover to MARC's baseline level by 2050.

The figure legend shows long-term growth rates between 2020-2050. They range from 25 percent under the low growth scenario to 33 percent under the high growth scenario. The base case growth rate is 29 percent, which is 1 percentage point higher than MARC's. The difference in 2050 between the high growth and low scenarios is about 32,000 jobs.

Figure 4. Johnson County Employment, 2000-2050



Source: MARC and EBP analysis of Moody's Analytics forecasts
Note: Growth rates for the 2000-2050 period are shown in the legend next to the name of each forecast series.

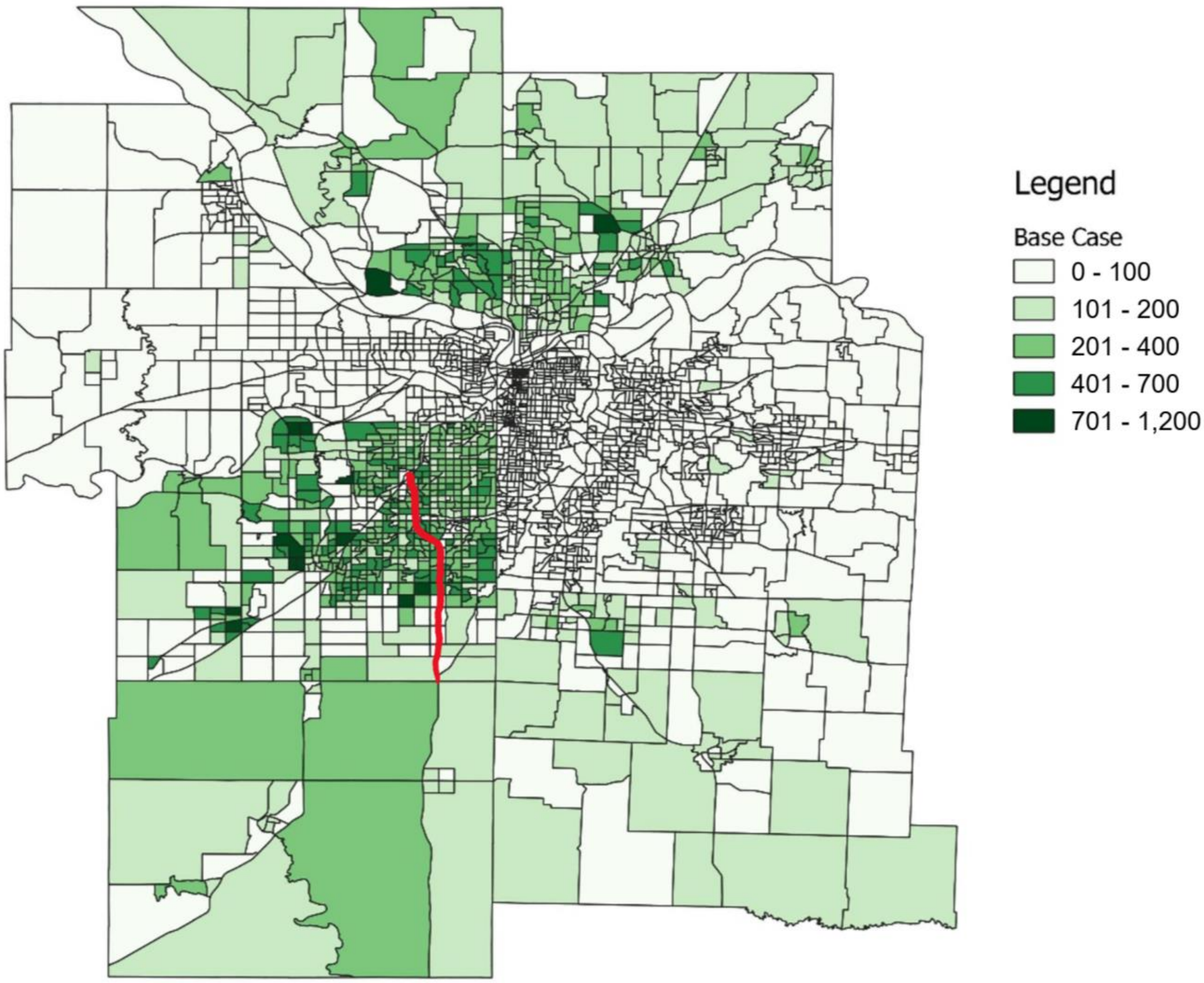
Zonal Allocation

EBP reviewed MARC's zone-level forecasts to determine how the agency expects spatial growth patterns to change in future years. We found that because of methodological changes, growth patterns were not comparable between MARC's interim forecast years (i.e., 2020, 2030, 2040, 2050). Our comparison showed significant declines in population, households, and employment for many zones in the study area and throughout Johnson County. These patterns were deemed unrealistic given Johnson County's historic growth in the zones showing declines.

For this reason, EBP allocated county control totals using zonal shares from MARC's 2019 baseline forecast. This means that while county-level forecasts are different from MARC's, sub-county growth patterns are held constant except for several zones EBP adjusted based on web research and stakeholder input, as described later.

Figure 5 shows the expected zone-level change in population between 2025-2050 under the EBP base case scenario. (The high and low growth scenarios show similar growth patterns but in greater and lesser magnitudes, respectively.) Zones with the greatest expected population growth are in northeast Johnson County and the southern portions of Clay County, Missouri, and Platte County, Kansas.

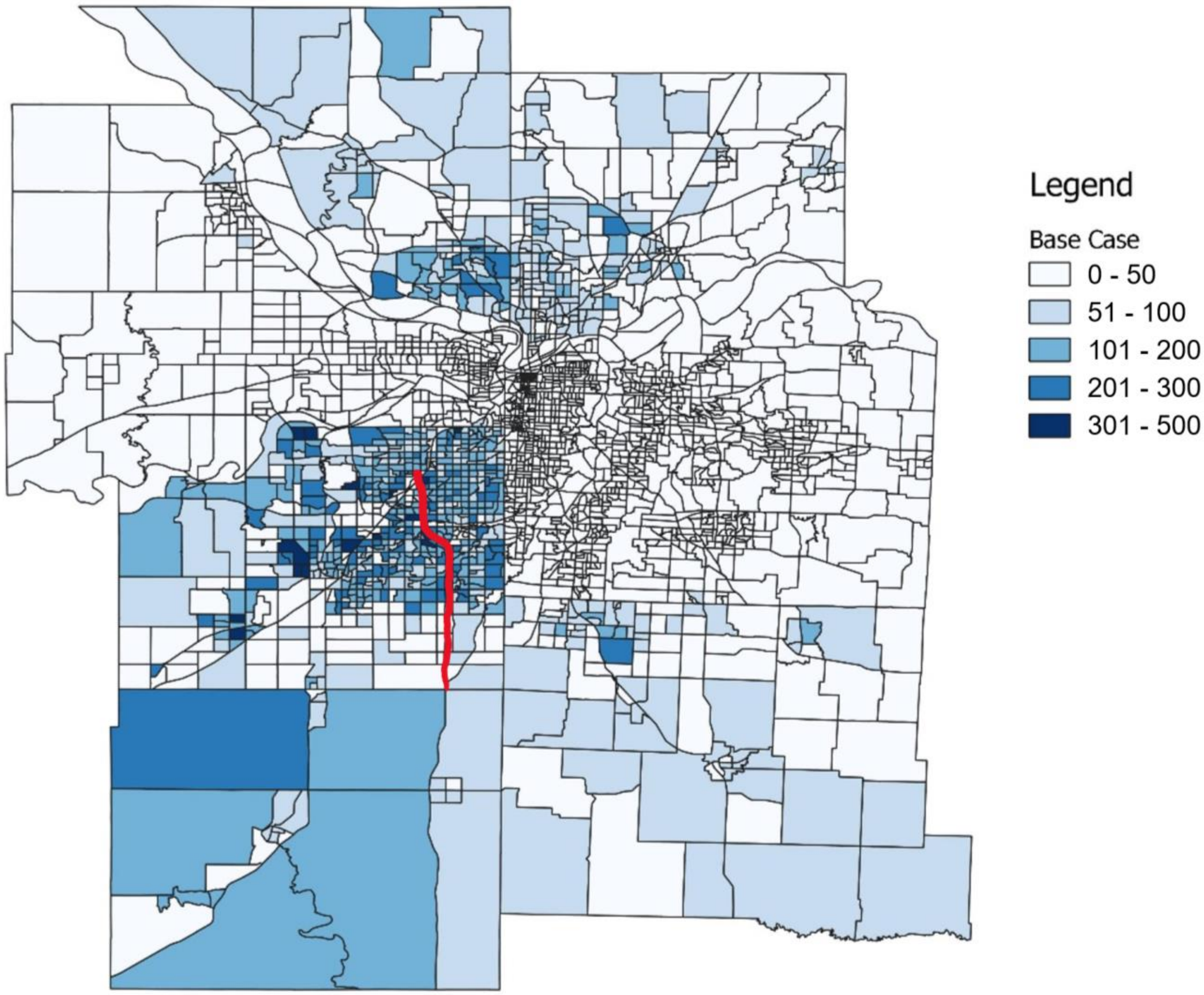
Figure 5. Change in Study Region Population, 2025-2050 (US 69 Corridor Shown in Red)



Source: MARC and EBP analysis of Moody's Analytics forecasts
Note: The portion of US 69 located in Johnson County is shown in red.

Figure 6 shows the expected zone-level change in households between 2025-2050 under the EBP base case scenario. Because households grow in proportion to population, zones with the greatest expected household growth are again in Johnson, Clay, and Platte counties.

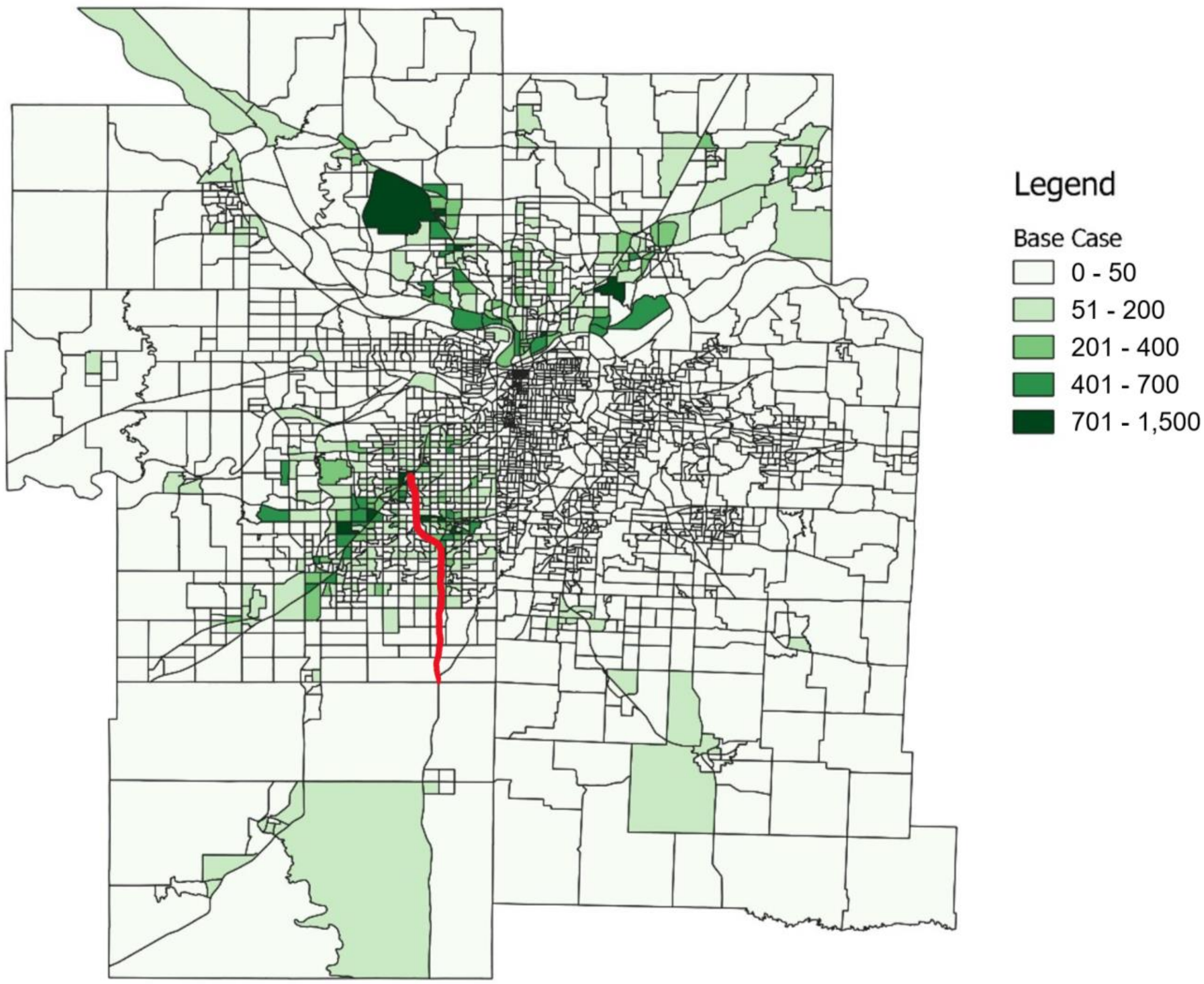
Figure 6. Change in Study Region Households, 2025-2050 (US 69 Corridor Shown in Red)



Source: MARC and EBP analysis of Moody's Analytics forecasts
Note: The portion of US 69 located in Johnson County is shown in red.

Figure 7 shows the expected zone-level change in employment between 2025-2050 under the EBP base case scenario. Zones with the greatest expected employment growth are in Johnson County, especially along I-35 and the northern portion of US 69.

Figure 7. Change in Study Region Employment, 2025-2050 (US 69 Corridor Shown in Red)



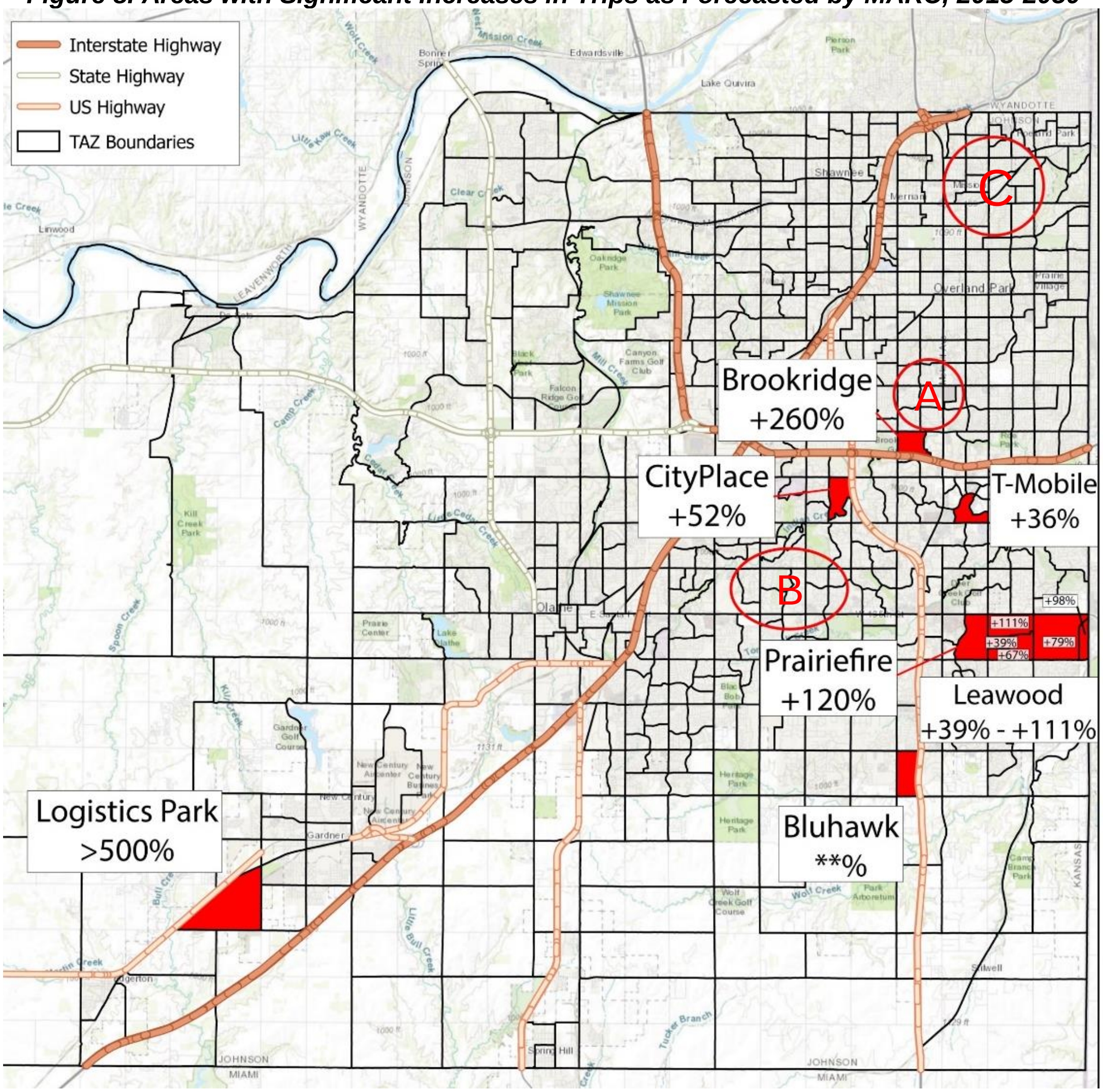
Source: MARC and EBP analysis of Moody's Analytics forecasts
Note: The portion of US 69 located in Johnson County is shown in red.

Stakeholder Input

EBP led a presentation on December 18, 2020, to several stakeholders in the study region. The purpose of the presentation was to solicit feedback on our regional forecasting process. Stakeholders included staff from the City of Overland Park, Johnson County, Mid-America Regional Council, and Kansas DOT, as well as members of the consulting team.

Our presentation included a discussion of MARC's baseline forecast, regional trip origins and destinations, our regional forecast, and several of the zone-level adjustments described above. Stakeholders were in general agreement with the forecasts we presented and the zones we proposed adjustments to. This includes zones with major developments planned or in progress, which are shaded in red in Figure 8. It also includes areas that are experiencing considerable growth without any known developments in the works (indicated with circles "A" and "B"). One exception is an area in the northeast corner of Johnson County where MARC's forecast indicated there would be a significant increase in trips in future years (indicated with circle "C"). The City of Overland Park disagreed with this assessment as the area consists primarily of single-family homes and there are no known plans for redevelopment or up-zoning.

Figure 8. Areas with Significant Increases in Trips as Forecasted by MARC, 2015-2050



Source: MARC and EBP analysis
Note: Red zones and circles represent areas where significant trip increases are forecast to occur. There is no percentage growth in the zone where Bluhawk is located because the travel model shows that there were zero trips in that zone in 2015. Leawood is comprised of multiple zones; trips in the slowest-growing zone are forecast to increase by 39 percent between 2015-2050 and trips in the fastest-growing zone are forecast to increase by 111 percent.

Individual Zone Adjustments

EBP manually adjusted several zones to reflect stakeholder input and the latest status of major activity centers and planned developments in Johnson County. This step was important because there has been significant real estate activity near the corridor since 2015, which is MARC's most recent historical year. Even though MARC's forecast takes local land use plans into account, EBP determined that several zones warranted significant adjustments to better reflect commercial and residential development projections. Table 4 shows the zone IDs and associated developments that EBP adjusted. All adjusted zones are in Johnson County.

Table 4. Commercial and Residential Developments Receiving Population, Household, and Employment Adjustments

Development	Location	Description	TAZ IDs	Adjustment
Cyan Southcreek Apartments	East of US 69 between W 132nd St and W 135th St	Completed in 2020; 380 units	3248	Increase in population and households
Leawood	Undeveloped parcels along W 135th St between Nall Ave and State Line Rd	Undeveloped parcels on W 135th St totaling 250 acres	3298, 3299, 3300, 3301, 3302	Increase in retail, service, residential and other employment
Edgerton Intermodal Area and Logistics Park	North of US 50 in Edgerton	17M SQFT available in industrial buildings, 14M in distribution facilities	3593, 3595, 3596, 3597	Decrease in retail and service employment; increase in industrial employment
Brookridge Golf Course Redevelopment	North of I-435 between Antioch Rd and Metcalf Ave	Schedule shows 279K SQFT office by 2023, 613K by 2026	3159	Increase in population and households; increase in service employment
Bluhawk Shopping Center	159th St between Antioch Rd and US 69	First phase completed Jan. 2020; 667K SQFT retail, 206K hotel, 309K sports complex, 120K community center	3327	Increase in retail employment and residential
CityPlace Mixed Use Community	College Blvd between Nieman Rd and US 69	346K SQFT office (partially built/occupied), 30K retail planned, 1,100 res units partially built	3175	Increase in population and households; increase in retail, service, and other employment
Prariefire Shopping Center	W 135th St between Lamar Ave and Nall Ave	Planned completion in Dec. 2023; 90K SQFT retail, 60K office, 90 hotel rooms	3297	Increase in retail, service, and other employment
Residential Development Near Blue Valley School Complex	Between W 175th St, W 179th St, and Quivira Rd	Single-family home permits adjacent to Aubry Bend Middle School and Blue Valley Southwest High School	3644	Increase in population and households
T-Mobile Campus Expansion (Aspiria)	At 119th St and Nall Ave	First office bldg. complete in 2023; 1.4M SQFT office, 383K retail, 120 hotel rooms, 600 MF units	3190, 3191, 3192, 3193, 3194, 3195, 3196, 3197, 3198	Increase in population and households; increase in retail, service, and other employment

Source: EBP web research (as of April 2021)

Except for the area surrounding the Blue Valley School Complex, EBP assumed that most new development will happen north of W 167th St, with relatively less happening along the southern portion of the US 69 corridor in Johnson County. This is because recent development patterns indicate that already-developed parts of Johnson County will continue to densify given increased demand for mixed use developments with clustered retail and multifamily housing. EBP also spoke with officials in Miami County and determined that while the county is expected to grow overall in the coming decades, there are no known plans for large developments that justify upward adjustments to MARC's existing zone-level forecasts in that county.

Conclusion

In summary, between today and 2050, EBP expects less population and household growth but slightly more employment growth than what MARC forecasts for Johnson County and the surrounding region. This is due to changes in historical Census data and the use of a different employment forecast source than what MARC uses for its travel demand model.

By 2050, EBP's high growth scenario exceeds MARC's baseline for population, households, and employment. At a subcounty level, EBP expects already-developed areas in Johnson County to receive most of the growth in the coming decades. This assessment is based on research of planned and in-progress development projects; input from regional stakeholders; and a review of MARC and Johnson County's own growth assumptions.

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Appendix B

Stated Preference Survey Report

This appendix contains the documentation of the stated preference survey conducted by CDM Smith in early 2021.

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U.S. 69 Travel Patterns and Stated Preference Survey Report

CDM Smith conducted a travel pattern and stated preference (SP) survey of U.S. 69 travelers in support of the U.S. 69 Express Lanes Level-2 Traffic and Toll Revenue Study. The survey objectives included:

- Collecting information about the origin-destination (OD) patterns and trip characteristics of travelers within the study area
- Estimating the willingness to pay for travel time savings, or value of time (VOT), and travel time reliability, or value of reliability (VOR), for travelers within the study area

The report begins with a discussion of survey administration, followed by the presentation of trip characteristics and travel pattern data. Demographic data and a summary of survey comments are provided next. The report concludes with a summary of the stated choice experiment results, and a discussion of modeling methodology used to produce VOT and VOR estimates for the region. The estimated VOTs were incorporated into the travel demand model to support the traffic and toll revenue estimates.

A full set of screen-captures from the online survey are included in the **Appendix**.

1. Survey Administration

CDM Smith employed an online survey instrument which was open to respondents from January 22, 2021 through February 14, 2021. Approximately 10,000 postcard invitations were directly mailed to addresses with ZIP Codes within a 15-mile buffer of the U.S. 69 corridor study area inviting recipients to participate in the survey. Additionally, the survey link was posted on the Kansas Department of Transportation (KDOT) website, the 69 Express project website, the Overland Park Chamber of Commerce website, and the 69 Express group on the Nextdoor social media app. CDM Smith also conducted a social media marketing campaign using Facebook Business Manager to target ads to Facebook and Instagram account holders with home ZIP Codes within the corridor study area.

1.1 Survey Completion Statistics

A total of 2,513 respondents visited the survey website to attempt the survey. **Figure 1** illustrates that 1,677 (67 percent) completed the full survey, including SP tradeoff questions and demographic questions. An additional 775 respondents (31 percent) completed some portion of the survey, but did not complete all questions in the survey questionnaire. Using the 2019 Census estimate of the adult population of Johnson county (approximately 450,000[1]) as a proxy for the total population of the survey area, the 1,677 completed surveys are sufficient to provide a confidence level of 95 percent and a margin of error of 2.5 percent.

[1] U.S. Census 2019 American Community Survey (ACS) 1-Year Estimates. TableID: S0101. data.census.gov.

The remaining survey respondents (2 percent) were disqualified based on the initial screening question. Respondents were disqualified if they indicated that they had not made a recent trip in the U.S. 69 corridor between 103rd Street and 179th Street, as highlighted in **Figure 2**.

Figure 1 Survey Completion Statistics

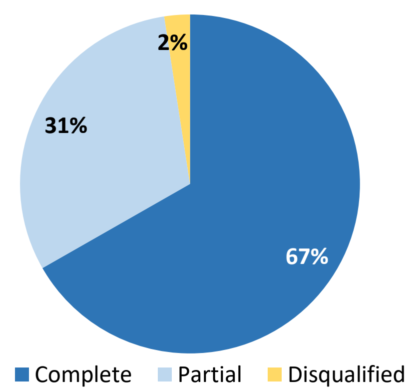
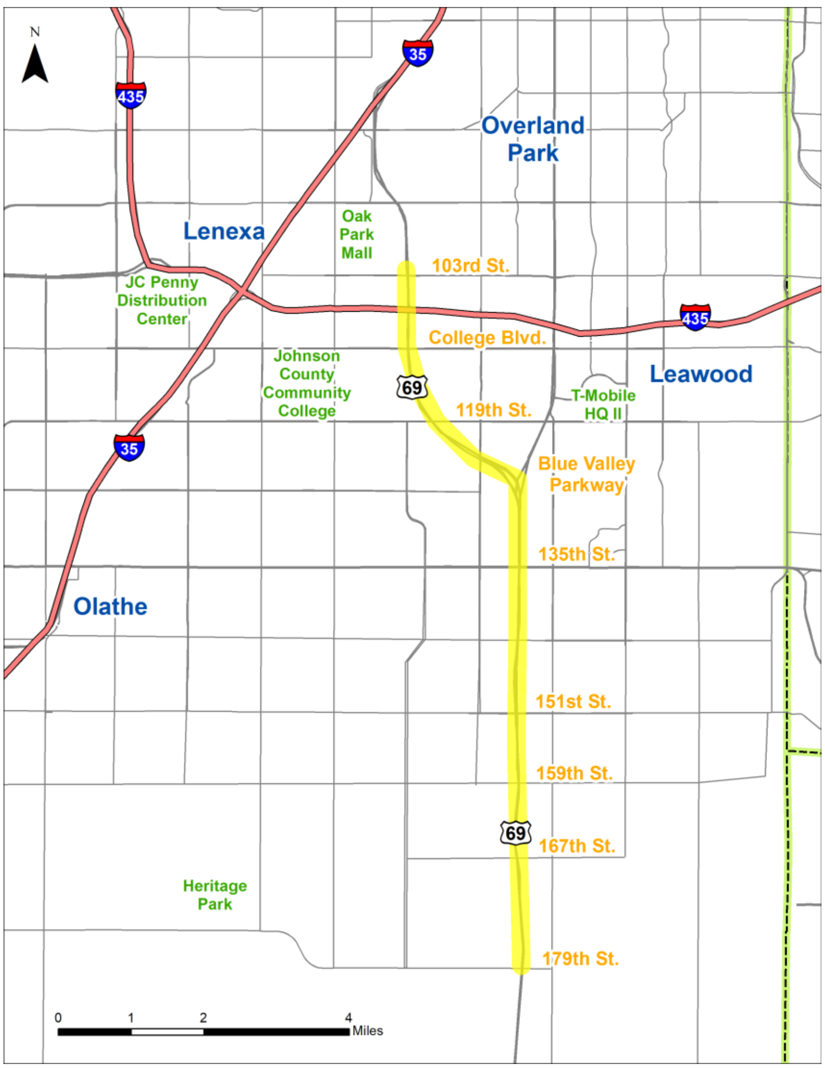


Figure 2 Survey Qualification Study Area Map



1.2 Survey Sample Weighting

The completed survey responses were compared with Johnson County Census demographic data to confirm that a representative sample of the population had been surveyed. It was observed that older age groups and higher income households were oversampled relative to American Community Survey (ACS) 2019 estimates, so the survey dataset was weighted to reflect ACS-suggested age and household income distributions. **Figures 3** and **4** show the final weighted survey distribution of age and household income for Johnson County compared with data from the ACS. The statistics presented in this report are all derived from the weighted survey dataset.

Figure 3 Age Distribution of Weighted Survey

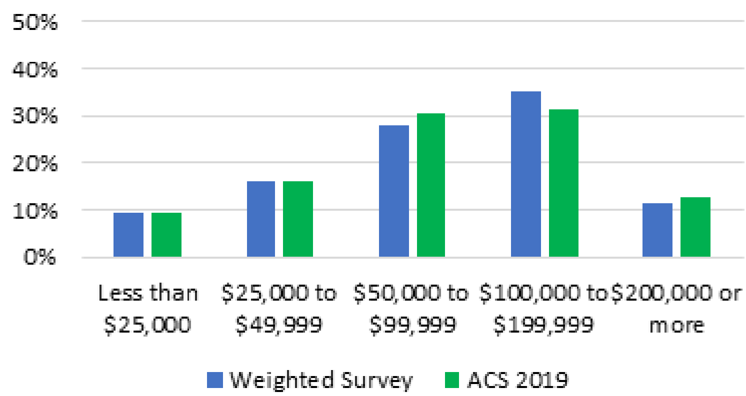
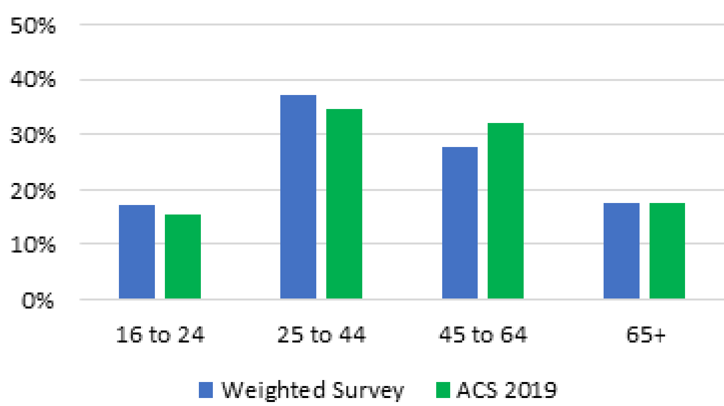


Figure 4 Household Income Distribution of Weighted Survey



2. Trip Characteristics

Respondents who met the required qualifications were asked to focus on their most recent, qualifying one-way trip on U.S. 69, also known as their "reference trip." Respondents were instructed to think of their most recent trip, and not a typical or average trip that they might make, in an attempt to capture as diverse a range of trip types and travel characteristics made by users of U.S. 69 as possible. This data was used to better inform the travel demand modeling process and to provide a clearer picture of the potential market for the facility.

2.1 COVID-19 Pandemic

Respondents were asked to give the date of their reference trip as being made on or before Friday, March 13, 2020, when the President of the United States declared a national emergency in response to the COVID-19 outbreak. In this report, trips made on or before March 13, 2020 are classified as "pre-COVID," while those made on or after March 14 are referred to as "post-COVID." To illustrate the degree to which traffic patterns were affected by COVID-19 mitigation efforts, such as the "stay-at-home" order issued by the governor of Kansas on March 28, 2020 (which went into effect on March 30, 2020), and the subsequent transition to remote work and schooling in the summer and fall of 2020, the pre-COVID and post-COVID trip characteristics data are presented separately and contrasted.

Additionally, it should be noted that while the survey was being conducted in January and February of 2021, the COVID vaccination was in the initial phase of public availability. The "post-COVID" period therefore should not be taken to mean "post-vaccination" conditions.

Figure 5 shows the distribution of reference trips in both the periods. 68 percent of total trips were described as post-COVID trips, and the remaining 32 percent were made before the COVID-19 pandemic.

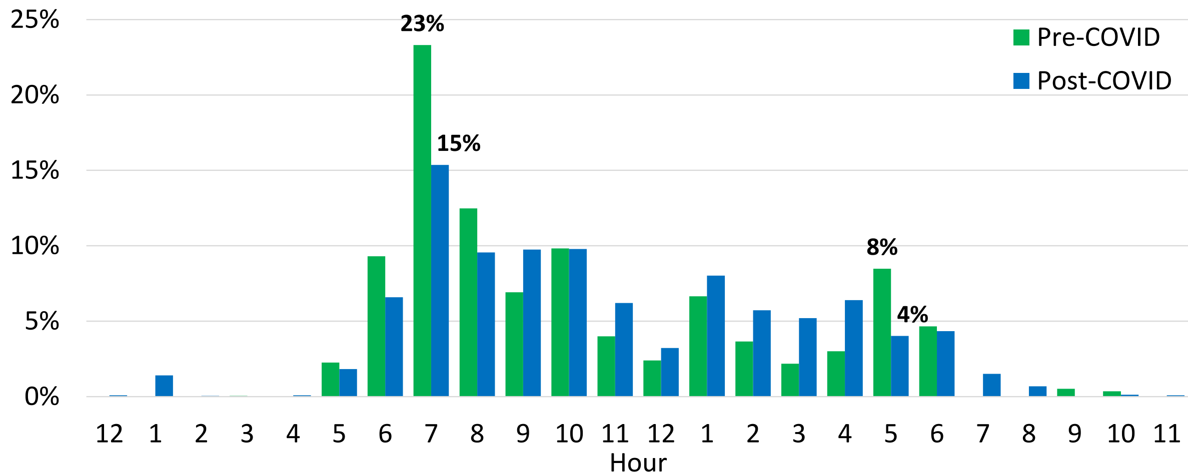
Figure 5 Pre-COVID and Post-COVID Trip Share

2.2 Time of Day of Travel

Respondents were first asked to select the time of day that they began their trip. The full distribution of trip start times is shown in **Figure 6.** For the study corridor, the morning peak is defined as being between 7:00 a.m. and 7:59 a.m., and the evening peak is between 5:00 p.m. and 5:59 p.m. In the pre-COVID period, 23 percent of respondents described a morning peak trip, and 8 percent described an evening peak trip.

As congestion on the corridor reduced due to the impacts of the pandemic, the distribution of trip times flattened out over the course of the day, and peaks became less well-defined. The morning peak share of total trips fell to 15 percent in the post-COVID period, and evening trips fell to 4 percent.

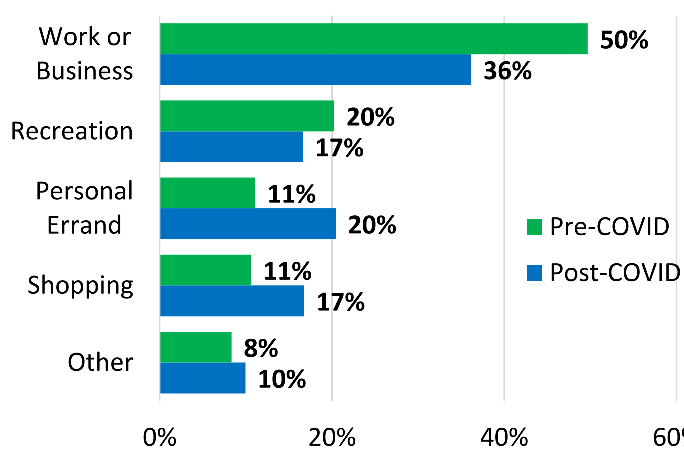
Figure 6 Time of Day of Travel



2.3 Trip Purpose

Survey takers were next asked to choose one of the following trip types that would best describe the purpose of their trip: work commute trip, work-related business trip, recreation trip, shopping trip, personal errand, or some other kind of trip. **Figure 7** provides a summary of respondents' trip purposes for the weighted survey sample of weekday travelers. The combined category of work commute trips and work-related business trips accounted for half of all trips in the pre-COVID period and was reduced to 36 percent of trips in the post-COVID period as many employees transitioned to remote work arrangements. Recreation trips also declined slightly as a share of total trips, from 20 percent to 17 percent, as recreational opportunities were reduced due to COVID-related economic closures.

Figure 7: Trip Purpose



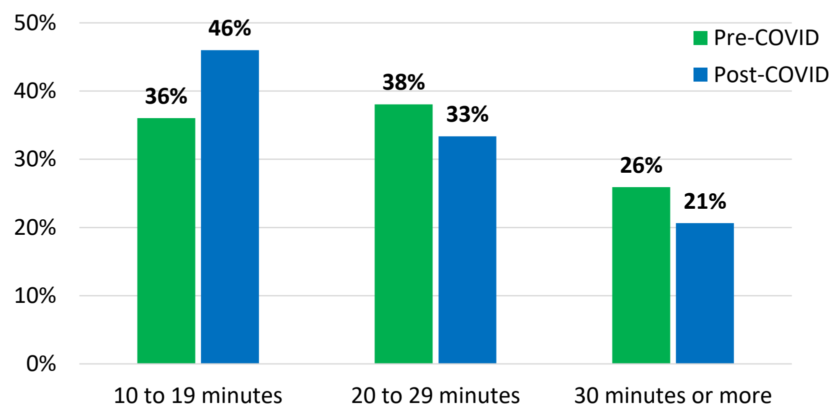
As work commutes and recreational trips decreased, personal errands and shopping trips, such as essential grocery shopping trips, correspondingly increased. Each had contributed 11 percent of total trips in the pre-COVID period, and in the post-COVID period, their shares increased to 20 percent and 17 percent, respectively.

2.4 Trip Travel Time

Survey takers were asked to estimate the time that it took to complete their trip. **Figure 8** shows user-estimated travel times by pre-COVID and post-COVID period.

Prior to the COVID-19 pandemic, U.S. 69 was used for longer trips, with the most common trip duration being 20 to 29 minutes (38 percent of all trips). Additionally, over one-quarter of pre-COVID trips were 30 minutes or more. Short trips were more common in the post-COVID period, with 46 percent of all trips taking less than 20 minutes. This finding again reflects the decrease in the share of longer work commute trips, with the share of shorter duration errands and shopping trips increasing as a percentage of all trips.

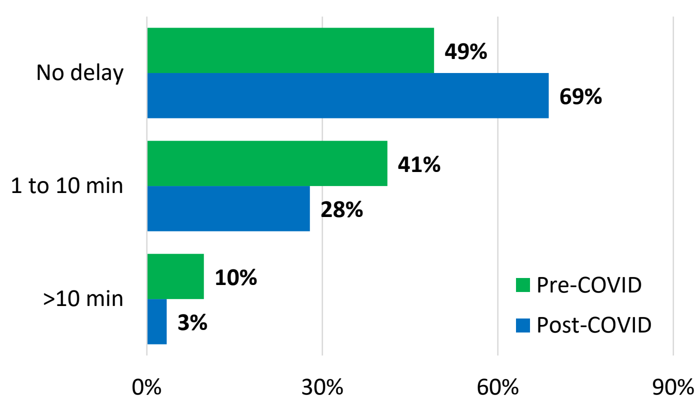
Figure 8: Trip Travel Time



2.5 Peak Hour Delay Time

Users' perceptions of peak hour delay time on U.S. 69 due to congestion, before and after the COVID pandemic, are given in **Figure 9**. Prior to the pandemic, more than half of peak hour travelers described at least some delay on U.S. 69, with most describing a delay of between 1 and 10 minutes (41 percent of the total population). Among those describing a post-COVID trip, the share who said they experienced no delay rose to 69 percent from 49 percent. The share describing delays of more than 10 minutes fell sharply, from 10 percent in pre-COVID times to 3 percent post-COVID.

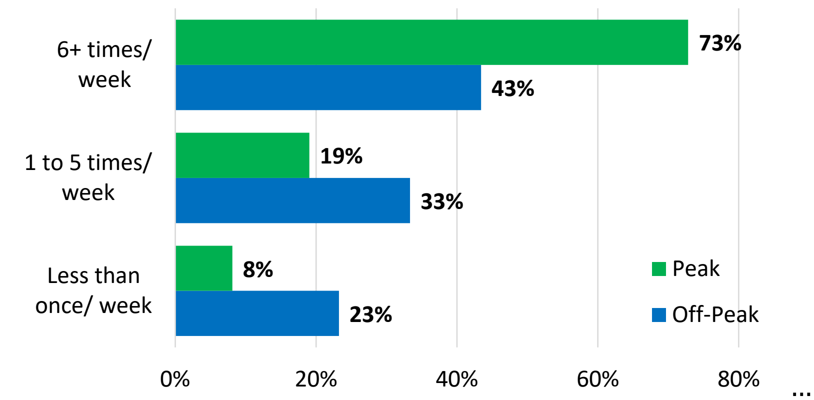
Figure 9: Peak Hour Delay Time Due to Congestion



2.6 Trip Frequency

U.S. 69 trip frequency statistics are given in **Figures 10** and **11**. **Figure 10** segments the data by peak (7:00 a.m. to 7:59 a.m. and 5:00 p.m. to 5:59 p.m.) and off-peak travel, and **Figure 11** contrasts pre-COVID and post-COVID travel.

Figure 10: Trip Frequency in Peak and Off-Peak



As expected, the data suggest that peak hour travelers—most often work commuters—use U.S. 69 more frequently than off-peak travelers. Seventy-three percent of peak travelers reported using the corridor six or more times per week, compared to 43 percent of off-peak travelers.

Figure 11: Trip Frequency Pre-COVID and Post-COVID

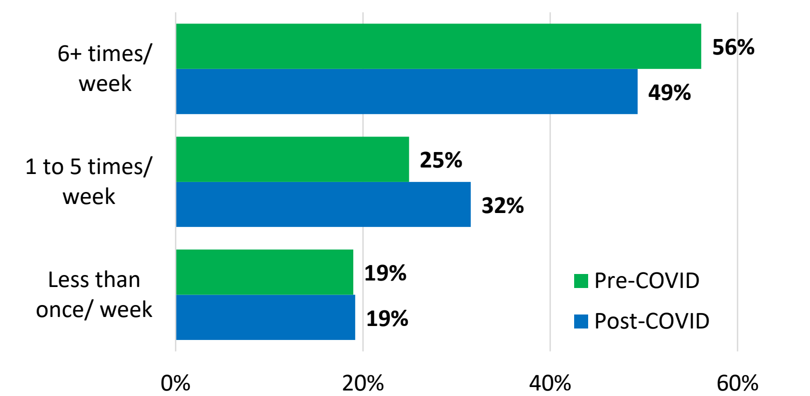


Figure 11 illustrates the impact of the COVID pandemic on frequency of use. The share of highest frequency travelers decreased from 56 percent to 49 percent after the beginning of the pandemic. These travelers shifted into the middle frequency category (1 to 5 times per week), which increased from 25 percent to 32 percent, as residents were encouraged to self-quarantine and avoid unessential travel.

2.7 Alternative Routes and Perceived Travel Time Savings

Possible alternative routes for respondents' reference trips on U.S. 69 are given in the map in **Figure 12**. The most frequently selected alternative route was Metcalf Avenue, which was selected by just under half of all respondents (**Figure 13**). The next most frequently given response was Quivira Road at 31 percent, followed by Nall Avenue at 23 percent. All other alternative routes were chosen by less than 20 percent of respondents.

Figure 12: Alternative Routes Maps

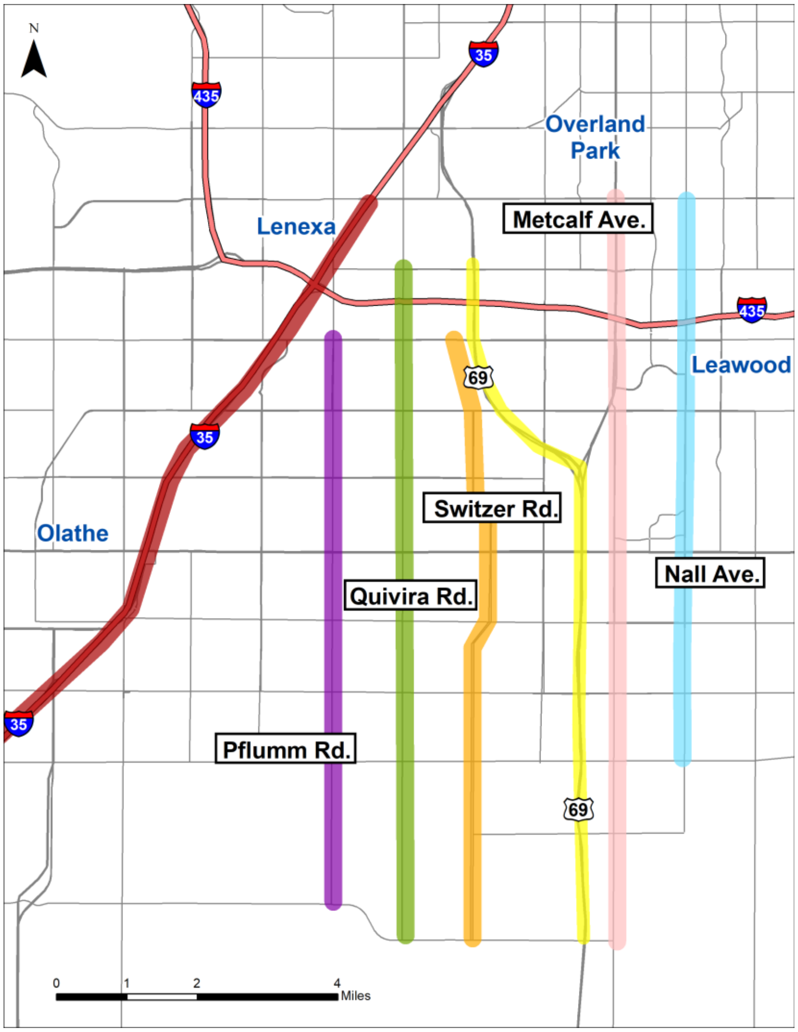
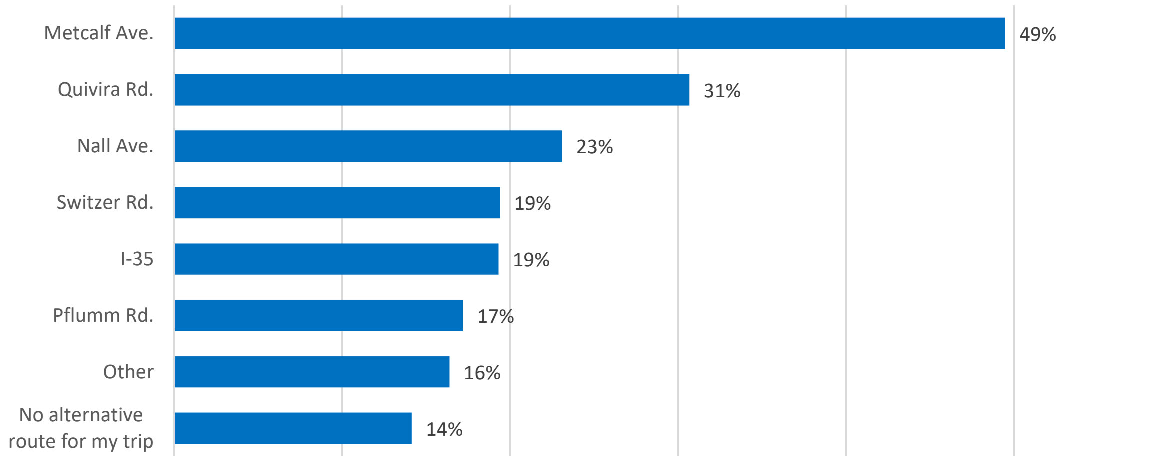


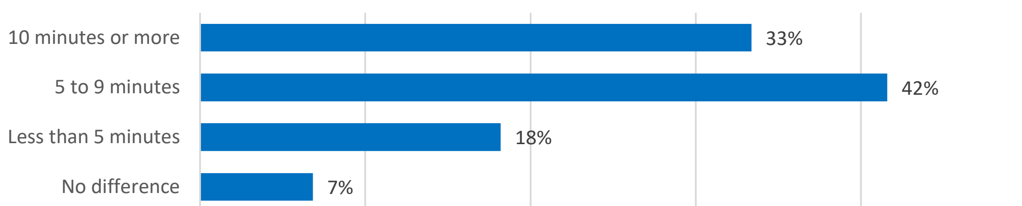
Figure 13: Alternate Routes Preference



Note: Due to multiple possible selections per respondent, total percentage sums to greater than 100%.

Survey takers were next asked to estimate the time savings of using U.S. 69 instead of the alternate routes available to them. Three-quarters of respondents said that U.S. 69 saved at least 5 minutes on their trip compared to an alternate route (**Figure 14**), with 33 percent stating that U.S. 69 provided 10 or more minutes of time savings.

Figure 14: U.S. 69 Time Savings over Alternative Route



3. Travel Patterns

Respondents were asked to identify where they began and ended their overall trip, and which interchanges they used to access and exit the U.S. 69 study corridor.

3.1 Trip Origins and Destinations

Respondents identified the specific location of their origin and destination using an interactive map (**Figure 15**). The origin and destination locations were then geocoded using a Google Maps application programming interface (API).

Figure 15 Trip Origin and Destination Survey Screen Sample

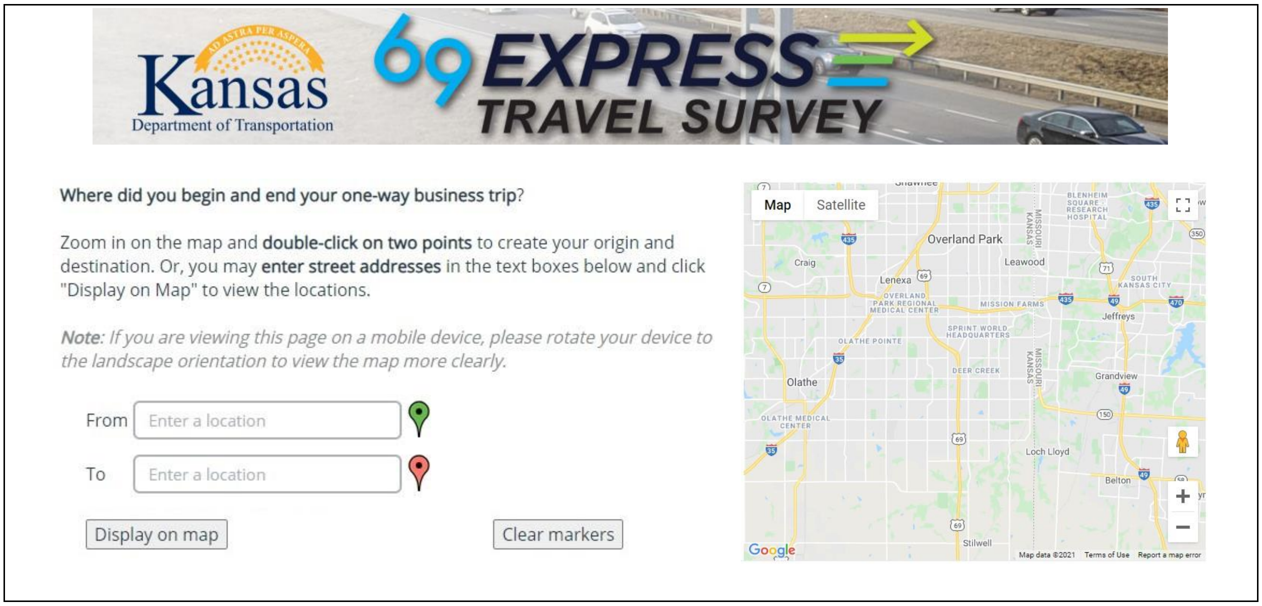


Table 1 shows survey respondents' top eight trip origins and destinations by total trip ends (the sum of trips originating from and ending at each location). These locations were determined by geocoding the geographic coordinates of each user's origin and destination from the Google Maps API, and then spatially joining those points with U.S. Census tracts.

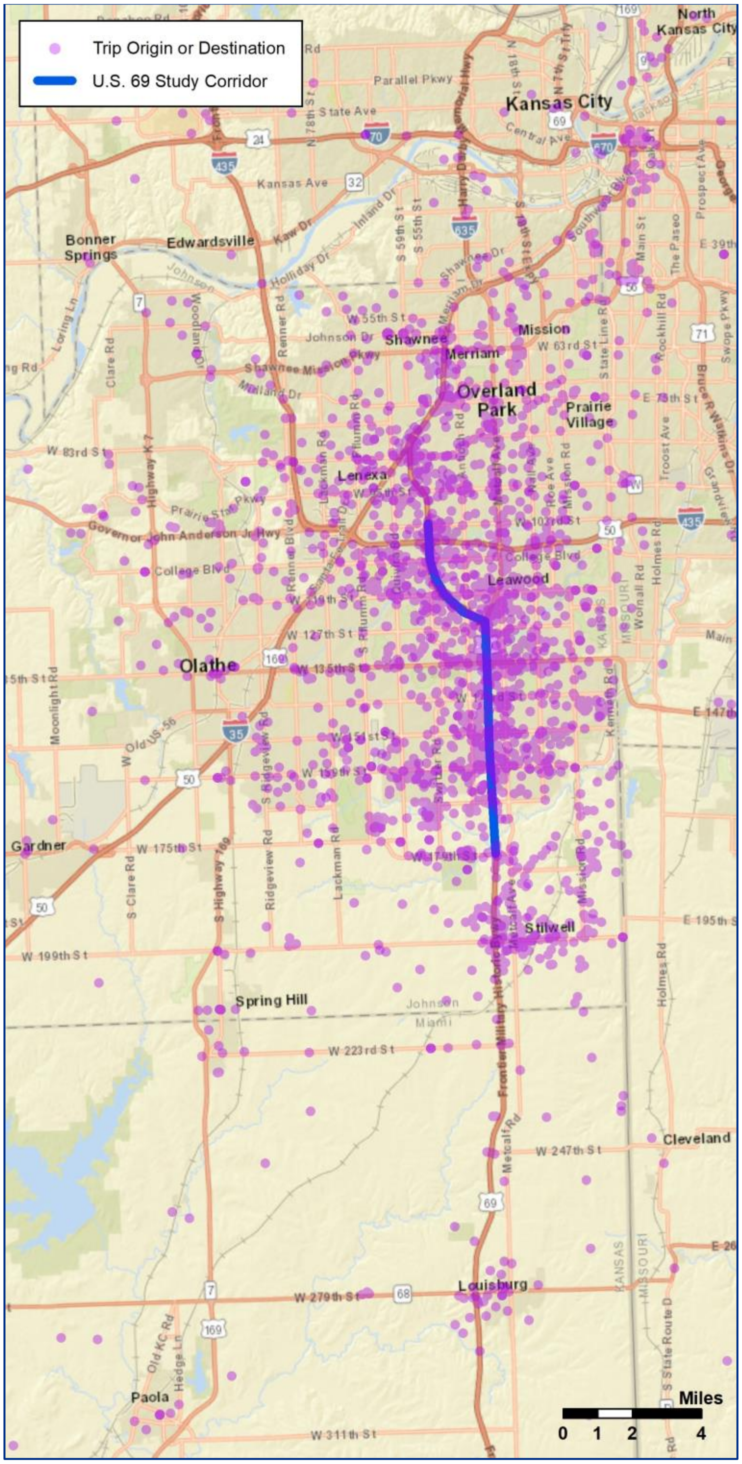
Table 1: Top Origins and Destinations by Community by Respondents

Name	County	Origins	Destinations	Total Trip Ends
Overland Park	Johnson	51%	52%	52%
Olathe	Johnson	13%	7%	10%
Stillwell/Aubry	Johnson	8%	4%	6%
Lenexa	Johnson	5%	6%	5%
Leawood	Johnson	4%	5%	5%
Shawnee	Johnson	3%	2%	3%
Bucyrus	Miami	4%	2%	3%
Louisburg	Miami	2%	2%	2%
All other Johnson County	Johnson	3%	4%	4%
All other Miami County	Miami	2%	1%	2%
All other locations	--	5%	15%	10%
Total	--	100%	100%	100%

The top eight trip origins and destinations collectively represent 85 percent of total trip ends. The top six trip end locations are all located in Johnson County, with the top overall location being Overland Park at 52 percent. In total, Johnson County accounts for 84 percent of total trip ends, followed by Miami County at 7 percent.

The trip ends in Johnson County were all located within an approximate 10-mile radius of the U.S. 69 study corridor, suggesting that the market for the express lanes on the facility will predominately serve local travelers. **Figure 16** displays trip ends from the survey in map form, illustrating the high concentration of trip ends in the communities immediately surrounding the U.S. 69 corridor.

Figure 16: Trip Origins and Destinations

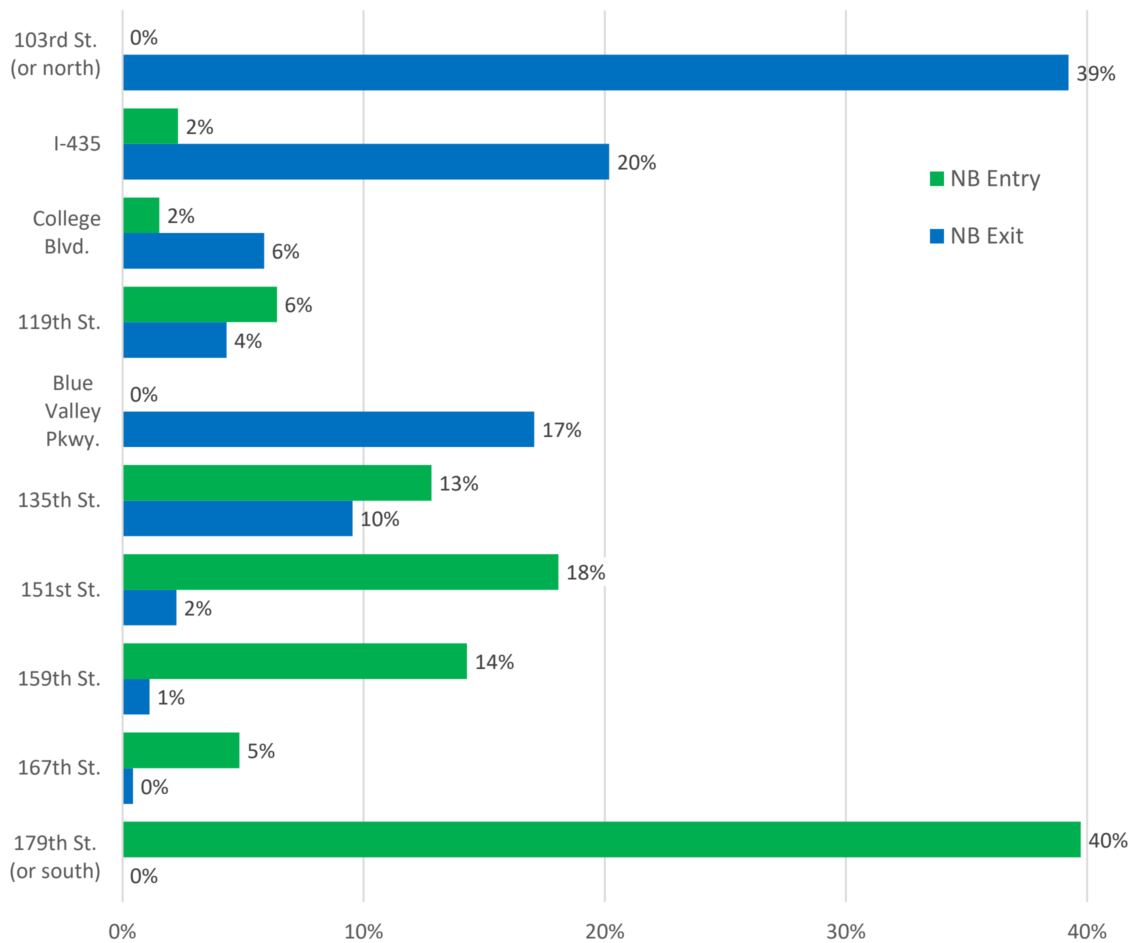


3.2 Interchange Usage

The overall directional split of survey respondents was 56 percent northbound to 44 percent southbound. The distribution of the most frequently used entrance and exit ramps is presented in **Figure 17** for northbound travelers, and in **Figure 18** for those traveling southbound.

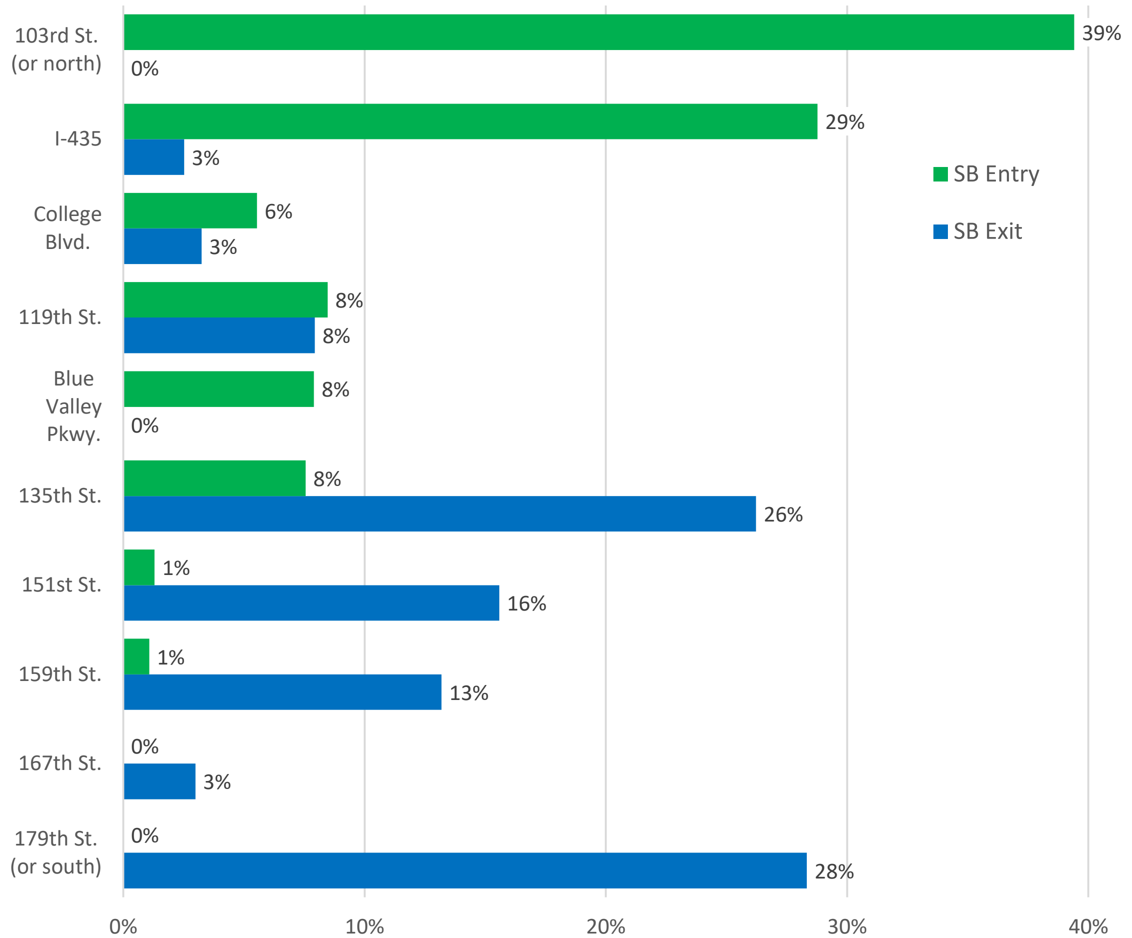
The most frequently cited entry point for northbound trips was 179th Street (or points south) at 40 percent of all northbound trips. In total, nearly 90 percent of northbound respondents entered the U.S. 69 corridor at or south of 135th Street. Most northbound travelers exited either at Blue Valley Parkway (17 percent), I-435 (20 percent), or at 103rd Street (or points north) (39 percent).

Figure 17 – Northbound Entrance Ramp and Exit Ramp Usage



DRAFT

Figure 18 – Southbound Entrance Ramp and Exit Ramp Usage



Among southbound travelers, the two most common entry points were 103rd Street (or points north) (39 percent) and I-435 (29 percent). Like the reciprocal northbound trips, the most common exit points were at or south of 135th Street, with these five locations accounting for nearly 90 percent of southbound exits. The most common exit point was 179th Street (or points south), at 28 percent of total southbound trips.

The complete breakdown of interchange-to-interchange movements is provided in **Tables 2** and **3**. In the northbound direction, the single most commonly reported trip, at 11 percent of all trips, used the full U.S. 69 corridor from 179th Street to 103rd Street. Other common trips, which together accounted for 28 percent of all northbound trips, included 179th to 135th, 179th to Blue Valley Parkway, 151st to 103rd, and 135th to 103rd. The two most common southbound movements were I-435 to 135th Street and 103rd Street to 135th Street at 11 percent and 9 percent, respectively.

DRAFT

Table 2 – Southbound Interchange to Interchange Movements

		Exit										
	Entrance	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**Total**
1	103rd Street (or north of 103rd)	--	3%	2%	4%	0%	9%	7%	5%	1%	7%	**39%**
2	I-435		--	1%	4%	0%	11%	3%	3%	1%	7%	**29%**
3	College Blvd.			--	0%	0%	2%	2%	1%	0%	1%	**6%**
4	119th Street				--	0%	2%	2%	1%	0%	3%	**8%**
5	Blue Valley Parkway					--	2%	1%	1%	0%	3%	**8%**
6	135th Street						--	1%	2%	0%	5%	**8%**
7	151st Street							--	0%	0%	1%	**1%**
8	159th Street								--	0%	1%	**1%**
9	167th Street									--	0%	**0%**
10	179th Street (or south of 179th)										--	**--**
	Total	**0%**	**3%**	**3%**	**8%**	**0%**	**26%**	**16%**	**13%**	**3%**	**28%**	**100%**

Table 3 – Northbound Interchange to Interchange Movements

		Exit										
	Entrance	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**Total**
10	179th Street (or south of 179th)	--	0%	1%	2%	7%	7%	2%	3%	5%	11%	**40%**
9	167th Street		--	0%	0%	1%	1%	0%	0%	1%	1%	**5%**
8	159th Street			--	0%	1%	3%	0%	1%	3%	6%	**14%**
7	151st Street				--	0%	5%	1%	1%	4%	7%	**18%**
6	135th Street					--	1%	0%	1%	4%	7%	**13%**
5	Blue Valley Parkway						--	0%	0%	0%	0%	**0%**
4	119th Street							--	0%	3%	3%	**6%**
3	College Blvd.								--	0%	1%	**2%**
2	I-435									--	2%	**2%**
1	103rd Street (or north of 103rd)										--	**--**
	Total	**0%**	**0%**	**1%**	**2%**	**10%**	**17%**	**4%**	**6%**	**20%**	**39%**	**100%**

4. Demographic Questions

To conclude the survey, respondents were asked to provide details about their home ZIP Code, annual household income, age, employment status, and ability to work from home. The information was requested to confirm that a representative sample of travelers was selected from the study area and also to assess how use of U.S. 69 was affected by the transition to remote work during the COVID-19 pandemic. U.S. Census data on household income and age from users' home ZIP Codes were compared with user-reported incomes and ages from the survey to look for agreement between the two datasets.

4.1 Home ZIP Code

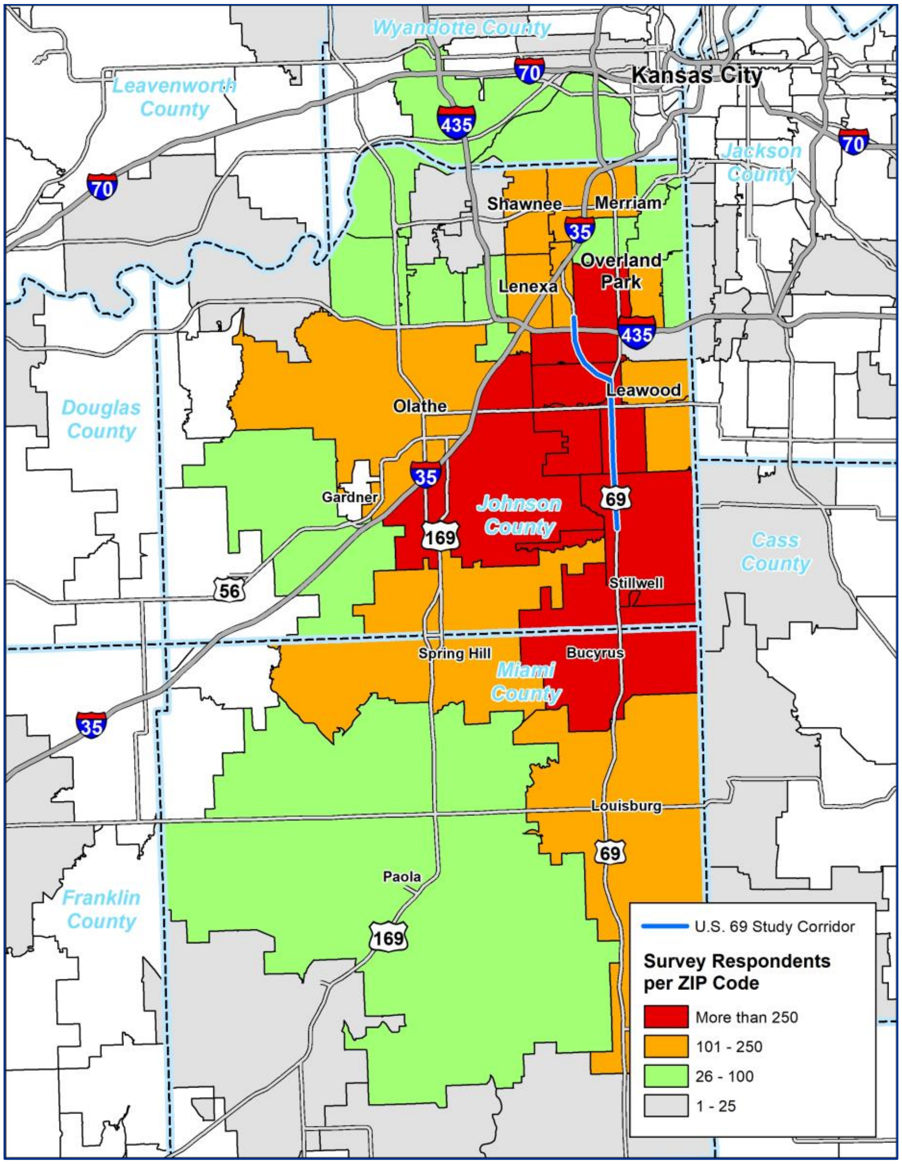
Table 4 provides the top ten communities and their associated ZIP Codes, which together represent 89 percent of all respondents. All the residences are repeated from the list of top eight trip end locations, with Overland Park at the top of the list.

Overall, Johnson County is home to the largest share of respondents, at 85 percent, followed by Miami County at 10 percent. Wyandotte County, Kansas and Jackson County, Missouri represented 2 percent and 1 percent of respondents, respectively. These home communities are mapped in **Figure 19**.

Table 4: Resident ZIP Codes

Community	County	Total (%)
Overland Park (66085, 66221, 66223, 66210, etc.)	Johnson	49%
Olathe (66061, 66062)	Johnson	9%
Stillwell, Aubry (66085)	Johnson	7%
Lenexa (66214, 66215, 66219, 66227)	Johnson	5%
Shawnee (66203, 66216, 66217, 66218, etc.)	Johnson	5%
Bucyrus (66013)	Miami	4%
Leawood (66224, 66209, 66206)	Johnson	3%
Spring Hill (66083)	Miami	3%
Merriam (66202, 66203)	Johnson	2%
Louisburg (66053)	Miami	2%
All other Johnson County	Johnson	4%
All other Miami County	Miami	1%
All others	--	6%
Total Responses		100.0%

Figure 19: Survey Respondents by Resident ZIP Codes



4.2 Household Income

User-reported household incomes from the survey are given in **Table 5**, alongside the expected household income for Johnson County based on 2019 U.S. Census ACS estimates. This ACS distribution of annual household income was then compared with the distribution of user-reported incomes from the survey to determine the representativeness of the survey.

Table 5: Household Income

Household Income	Unweighted Survey	ACS 2019	Weighted Survey
Less than $25,000	3%	9%	9%
$25,000 to $49,999	7%	16%	16%
$50,000 to $99,999	25%	30%	28%
$100,000 to $199,999	40%	31%	35%
$200,000 or more	25%	13%	11%
Total Responses	100%	100%	100%

The results of the comparison show that the survey sampled a higher share of high income households than would be expected, and a corresponding lower share of low income households. To correct for this, the dataset was weighted to match the distribution suggested by the Census. The results of the weighting are also given in **Table 5** and show much closer agreement between the two sources.

The median household incomes for Johnson County and Miami County, the two most common home counties of survey respondents, are $89,000 and $72,000, respectively, according to the ACS. The median household income from the weighted survey dataset was $87,500.

4.3 Age

User-reported ages are giving in **Table 6**. Older populations were overrepresented in the original sample compared to 2019 ACS estimates, with the survey capturing nearly half of its respondents from the 45 to 64 year old age group (46 percent). To correct for this, in addition to weighting to household income, the final survey dataset was weighted by age.

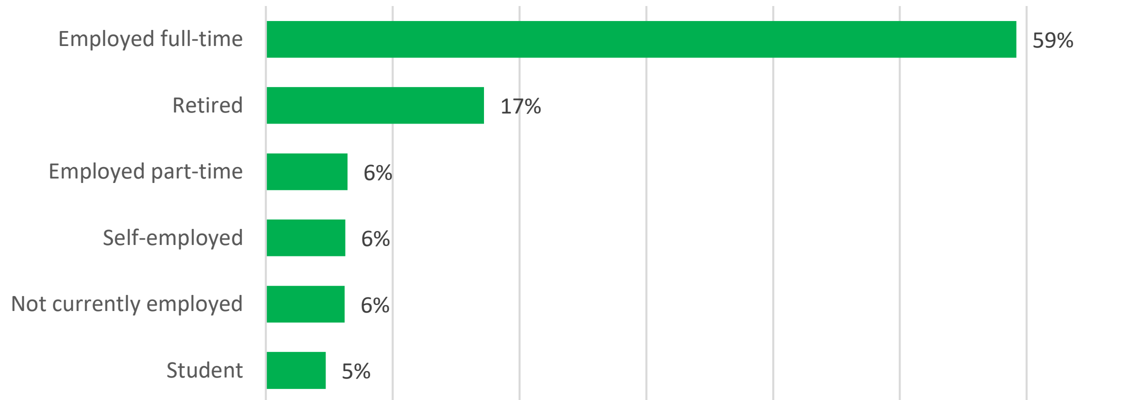
Table 6: Age

Age	Unweighted Survey	ACS 2019	Weighted Survey
16 to 24 years	2%	15%	17%
25 to 44 years	29%	35%	37%
45 to 64 years	46%	32%	28%
65 years or older	22%	18%	18%
Total Responses	100%	100%	100%

4.4 Employment

Employment statistics are given in **Figure 20**. Full-time employees constituted 59 percent of the sample, followed by retirees (17 percent), part-time workers, the self-employed and the unemployed at 6 percent each.

Figure 20: Employment Statistics

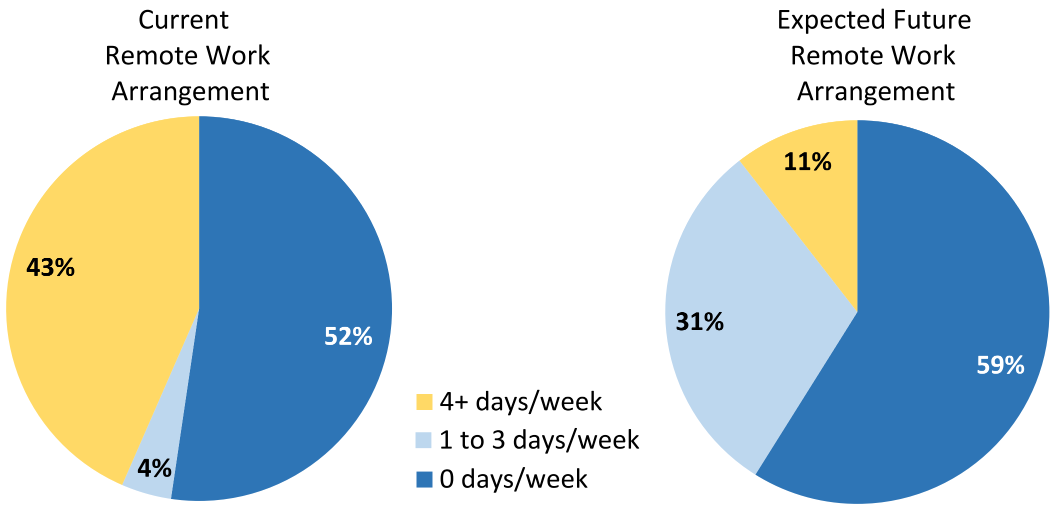


4.5 Remote Work

Following the employment status question, full-time employees (those working four or more days per week) were asked about their current and future remote work status. These questions sought to explain changes in post-pandemic travel patterns observed on U.S. 69 and provide a basis for assumptions about what work commutes might look like in the study corridor in the future.

Figure 21 shows full-time workers' current remote work arrangements on the left and expected future remote work arrangements on the right. Nearly half of respondents (48 percent) reported working remotely at least one day per week currently, with the vast majority of that group (43 percent of the total) reportedly working from home 4 or more days per week. Once the COVID-19 pandemic has been contained, most of the full-time remote workers stated that they expect to begin shifting back to working in the office part-time. The share of full-time remote workers is expected to decrease from 43 percent to 11 percent in the future, while the share of part-time remote workers (1 to 3 days per week) is expected to increase from the current 4 percent to 31 percent. Full-time office workers are expected to increase slightly from 52 percent of all workers to 59 percent.

Figure 21: Remote Work Statistics



5. Survey Comments

Respondents were given the opportunity to leave comments about the survey or the U.S. 69 corridor itself. Over 600 respondents (37 percent of the 1,677 who completed the survey) elected to provide comments. A word frequency analysis was conducted on the comments, the results of which are summarized in **Table 7**. Overall, an estimated 67 percent of comments were categorized as criticisms, and included users' opposition to tolls in general, and the view of the 69 Express project as wasteful spending. The remaining one-third of comments were split evenly between comments that were categorized as positive, and those that were categorized as suggestions or observations. The positive comments noted the need for expansion of U.S. 69 in this corridor to mitigate congestion, and said that they believed adding an express lane (EXL) would be a good way to pay for it. Suggestions included expanding to more than one additional lane, adding a northbound interchange to 167th Street, and keeping the toll as low as possible.

Table 7 – Survey Comments

Classification	Percent
Negative comment	67%
Positive comment	17%
Observation or suggestion for improvement	17%
Total	**100%**

6. Stated Preference Experiments

The stated preference question portion of the survey involved a quantitative experiment designed to estimate respondents' travel preferences and behavioral responses under hypothetical conditions. The details of each respondent's reference trip were used in an orthogonal matrix experimental design to build a customized set of six stated preference scenarios presented to each user. Respondents were asked to select their preferred travel alternative under the conditions presented by selecting either the tolled express lane alternative with a faster travel time (U.S. 69), or the slower, toll-free route. **Figure 22** shows an example trade-off scenario.

Figure 22 Stated Preference Choice Survey Screen Sample

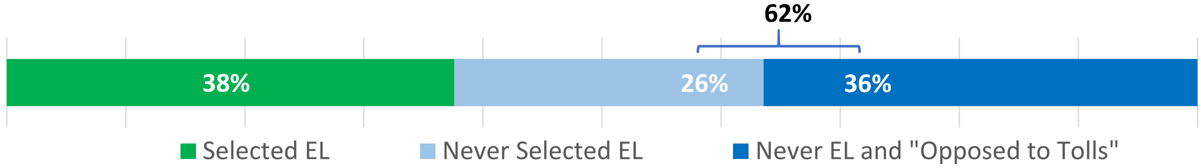
6.1 Stated Preference Statistics

Overall, the express lanes option was selected 15 percent of the time during the SP tradeoff exercises, as shown in **Figure 23**.

Figure 23 – Overall Share of Express Lane and Existing Lane Stated Preference Tradeoff Selections

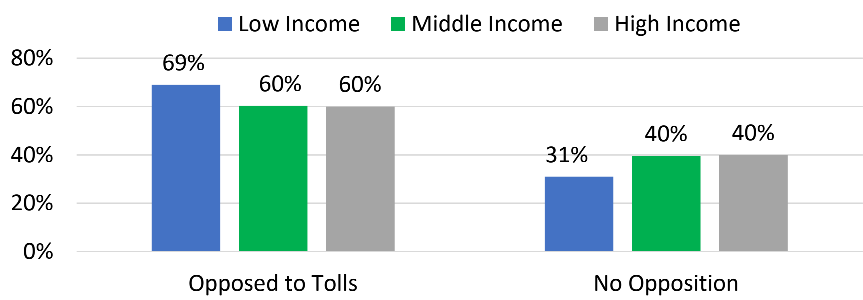
Sixty-two percent of users did not select the express lanes option at all in any of the six tradeoff exercises (**Figure 24**). Selecting the same option all six times, whether it be the express lane or existing lanes option, potentially reflects some level of bias either for or against toll roads on the part of the survey taker. Of the 62 percent who did not choose an express lane, over half (36 percent of all users) gave as their reason for doing so that they are "opposed to tolls." As a result, it is reasonable to conclude that these users may have been exhibiting some bias against tolls while answering the tradeoff questions.

Figure 24 – Share of Survey Takers Never Selecting the Express Lane (EL) Option



The population opposed to tolling (62 percent of the total population) was analyzed by household income level – low (less than $50,000 per year), middle ($50,000 to $99,000 per year), and high (more than $100,000 per year) – to determine the degree to which opposition to tolling was linked with household income. No major connection between income and opposition to tolling was found, as shown in **Figure 25**, though the lower income respondents did tend to oppose tolling at a slightly higher rate than the middle and high income cohorts (69 percent opposition versus 60 percent opposition).

Figure 25 – Opposition to Tolling by Income Level



Additional reasons for never choosing the express lanes option are given in **Figure 26**. Users were permitted to select more than one option, and aside from opposition to tolling at 58 percent, the most common answers given were that the time savings shown was not worth the toll cost (70 percent) and that the express lane did not offer large enough time savings over the free alternative route (39 percent).

Figure 26 – Reasons for Never Selecting the Express Lanes Option

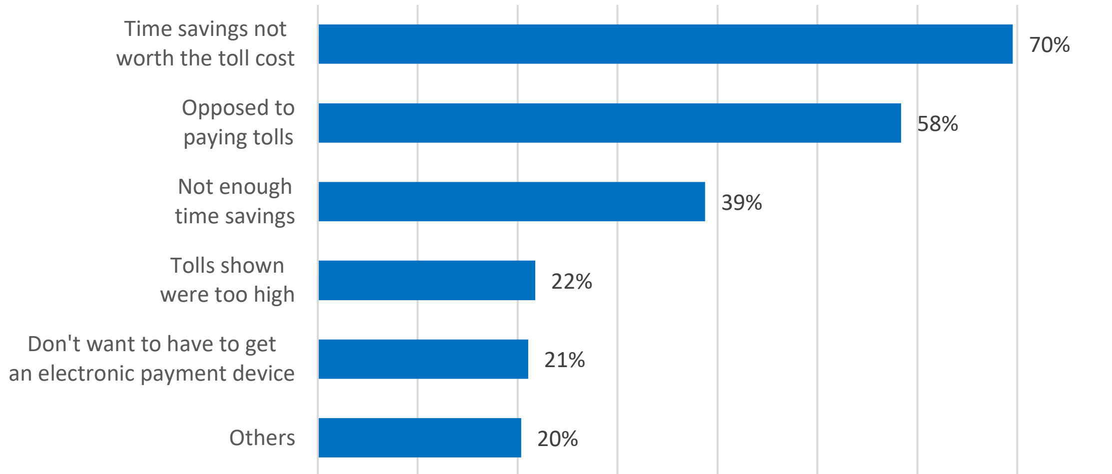
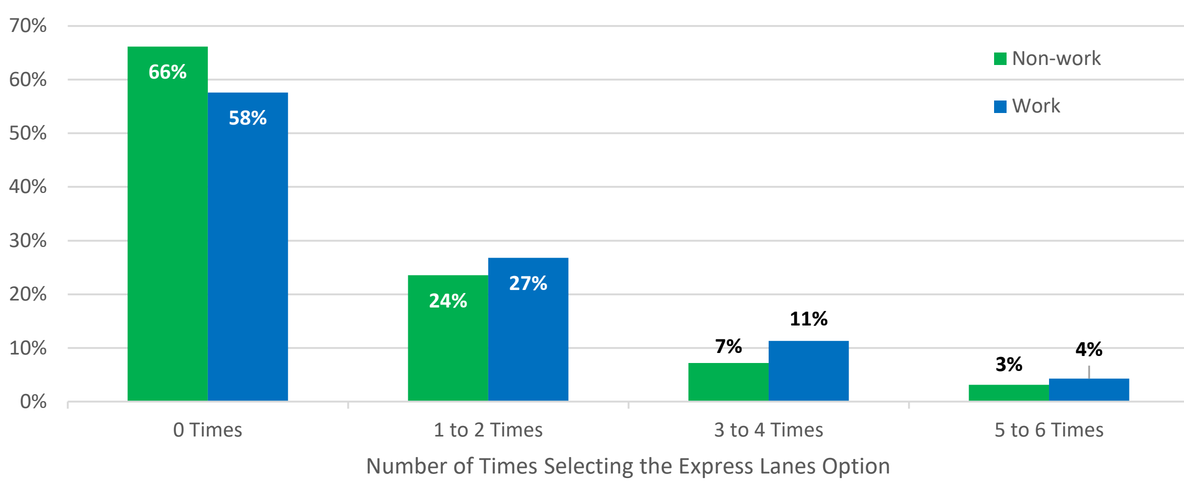


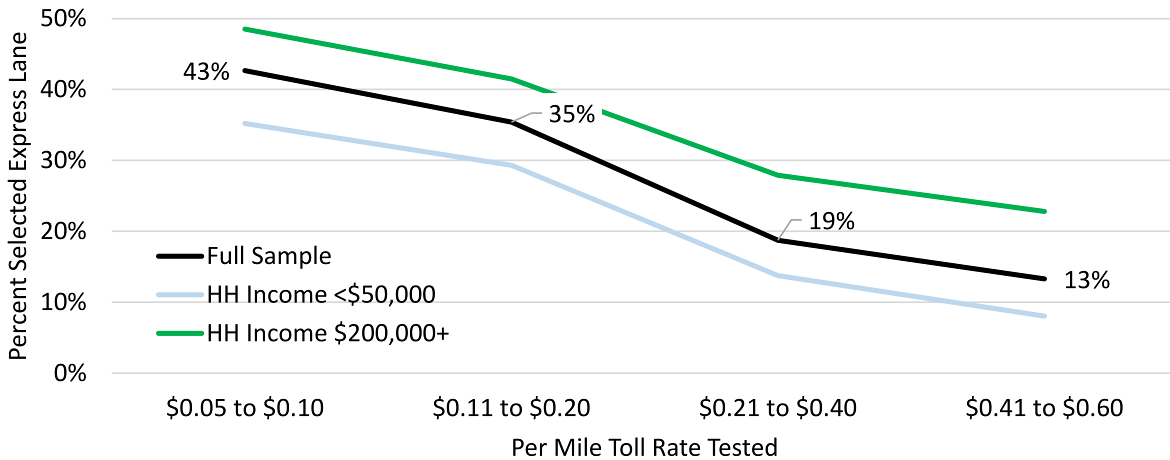
Figure 27 shows the distribution of users choosing the express lanes option between zero and six times during the six tradeoff questions. The data is segmented by trip purpose, with non-work trips shown in light blue and work trips shown in dark blue. The difference between the two groups is slight, but there appears to be a higher propensity to choose the express lanes among the work travelers. For instance, work travelers chose the express lane one or more times 42 percent of the time compared to 34 percent for non-work travelers.

Figure 27 – Number of Times Selecting the Express Lane Option by Frequency of Use of U.S. 69



The toll cost shown in the SP tradeoff questions also affected users' willingness to choose the express lane. The relationship between increasing per mile toll cost shown and the propensity of survey takers to select the express lanes option is shown in **Figure 28**.

Figure 28 – Express Lanes Preference and Increasing Per Mile Toll Cost in Tradeoff Scenarios



Overall, when toll costs were $0.10 per mile or less, respondents chose the express lanes option 43 percent of the time. Only 13 percent of respondents chose the express lanes option when the toll cost presented was greater than $0.40 per mile. **Figure 28** additionally shows that preference for the express lane rose with increasing household income, as expected. Households making $200,000 per year or more selected the express lane option 49 percent of the time at the lowest toll costs, compared to 35 percent of households earning less than $50,000 per year. At the highest toll rates, the highest income households chose the express lane option 23 percent of the time, compared to 8 percent for the lowest income households.

7. Multinomial Logit Model Estimation

Choice modeling is often the only tool available to estimate willingness to pay for hypothetical alternatives. When preparing choice models, it is important to attempt to address their potential limitations so that the greatest possible confidence is given to the results produced. For this exercise, to account for potential toll bias, the model dataset excluded respondents who indicated that opposition to tolling was their reason for never selecting an express lanes option during the SP tradeoff experiments. Additionally, to ensure that sufficient consideration was given to each tradeoff question before users selected their travel preference, the dataset was filtered to include only responses from individuals who had taken at least five minutes to complete the survey. The resulting final dataset contained 6,552 total records from 1,092 individuals.

After data preparation, conventional maximum likelihood procedures were used to estimate coefficients for a set of multinomial logit (MNL) models and calculate VOT for the travel demand model region. The model results are summarized in the following sections.

7.1 Model Segmentation

In addition to the aggregate models for the full sample, the following U.S. 69 express lane market segments were tested:

- Trip purpose (Work or Non-work)

- Time-of-day of travel (Peak or Off-peak)
- COVID-19 conditions (Pre-COVID or Post-COVID)

The coefficients of the MNL models were used to estimate travelers' VOT for the aggregate sample and for each of the above market segments.

7.2 Willingness to Pay for Travel Time Savings

The expression for calculating willingness-to-pay for travel time savings, or VOT, is shown below:

Figure 29 – Value of Time Calculation

$$VOT = 60 * {}^{\beta Time}\Big/\left(\frac{\beta Cost}{LN(income/1{,}000)}\right)$$

VOT is calculated by dividing the travel time coefficient from the model ($\beta Time$) by the toll cost coefficient ($\beta Cost$) and then multiplying by 60 to convert from dollars per minute to dollars per hour. Because an income-based log transformation was applied to the toll cost attribute prior to model specification, the same transformation was applied to the toll cost coefficient when calculating VOT. In this case, toll cost was transformed by the natural log of household income, in thousands.

Coefficients as well as robust standard error and robust t-statistics from the model for the full sample are given in **Table 8**. VOTs for a full distribution of incomes for the full survey sample and the various market segment models are shown in **Table 9**.

Table 8 – Multinomial Logit Model Full Sample Coefficients

Coefficients	Units	Coefficient Values		
		Value	Robust Std Error	Robust t-stat
Travel Time	Minutes	-0.236	0.0146	-16.24
Toll Cost	Dollars	-2.73	0.169	-16.13
Express Lane Constant	(0,1)	0 (fixed)		
Existing Lane Constant	(0,1)	1.46	0.0743	19.67

Table 9 – Market Segment VOTs ($/Hour) at the Median Household Income Level

Median Household Income	Full Sample VOT	Trip Purpose		Time of Day		COVID-19 Conditions	
		Non-work VOT	Work VOT	Off-peak VOT	Peak VOT	Post-COVID VOT	Pre-COVID VOT
$20,000	$15.55	$ 12.40	$ 18.35	$ 14.55	$ 17.65	$ 13.65	$ 19.10
$50,000	$20.30	$ 16.15	$ 23.95	$ 19.00	$ 23.05	$ 17.85	$ 24.95
$75,000	$22.40	$ 17.85	$ 26.40	$ 20.95	$ 25.45	$ 19.70	$ 27.55
$89,000*	**$23.25**	**$ 18.55**	**$ 27.45**	**$ 21.80**	**$ 26.45**	**$ 20.50**	**$ 28.65**
$100,000	$23.90	$ 19.05	$ 28.20	$ 22.35	$ 27.15	$ 21.00	$ 29.40
$150,000	$26.00	$ 20.70	$ 30.65	$ 24.30	$ 29.50	$ 22.85	$ 32.00
$200,000	$27.50	$ 21.90	$ 32.40	$ 25.70	$ 31.20	$ 24.20	$ 33.80
$250,000	$28.65	$ 22.80	$ 33.80	$ 26.80	$ 32.50	$ 25.20	$ 35.25

***Johnson County median household income**

At the Johnson County median household income of $89,000, the following observations can be drawn from the modeled VOTs:

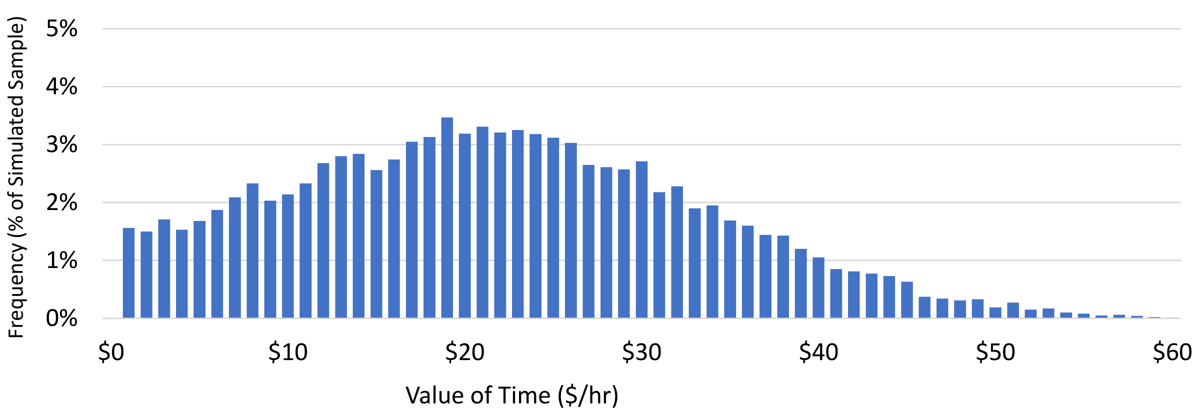
- The VOT for the full survey was calculated as $23.25 per hour.
- Work and business travelers in the survey had VOTs 48 percent higher than non-work travelers ($27.45 per hour compared to $18.55 per hour).
- Peak hour travelers (7 a.m. to 7:59 a.m., and 5 p.m. to 5:59 p.m.), at $26.45 per hour, had a VOT 21 percent higher than those traveling at other times of the day.
- Pre-COVID travelers had the highest VOT of any market segment ($28.65 per hour), with values that were 40 percent higher than those traveling during COVID-19 conditions ($20.50 per hour).

To corroborate the results of the MNL model, a separate estimate for VOT for the study area was also calculated for each census tract by dividing ACS household income by average hours worked. Using USDOT assumptions and recommendations[2], this method of estimation produced a range of VOTs from $16.75 to $26.40 per hour for the study area as a whole, which was consistent with the results of the modeling.

7.3 Mixed Multinomial Logit Model

A Mixed MNL (MMNL) model was estimated using the full unsegmented dataset, with normal distributions used to estimate the coefficients for travel time, toll cost, and travel time standard deviation. The simulation used ten thousand random draws to generate ten thousand estimates of individual VOTs, creating the VOT distribution curve given in **Figure 30**. The resulting mean VOT at the study area median income of $89,000 was $21.40 per hour.

Figure 30 – Mixed Multinomial Log Model Simulated VOT Distribution



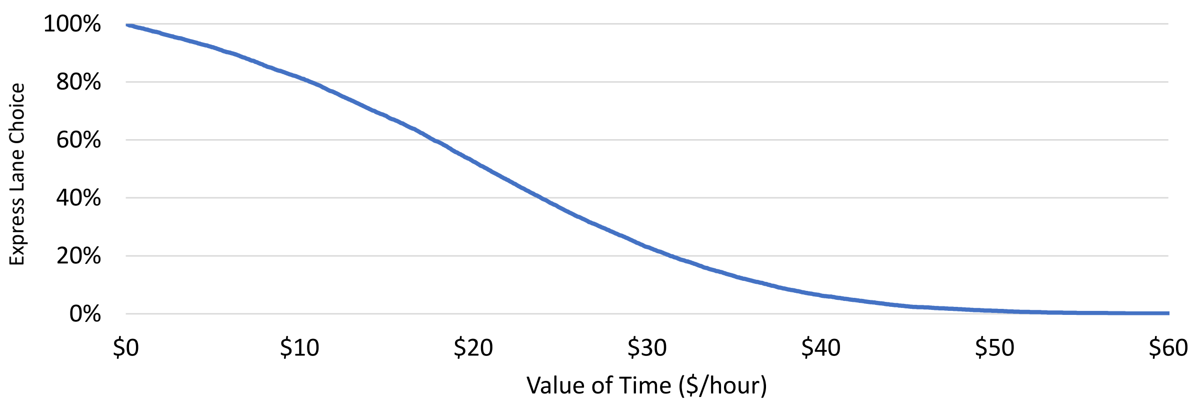
[2] U.S. Department of Transportation. 2016. *Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis*. https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-valuation-travel-time-economic.

Coefficients, robust standard error statistics, and robust t-statistics from the MMNL model are given in **Table 10**. The coefficients were used to generate the toll choice curve in **Figure 31**, which shows the relationship between VOT and the share of the sample that would choose the express lane. For instance, in terms of toll diversion, when presented with a choice to pay $10 to save one hour of travel time, 80 percent of the simulated population would elect to use the express lane. At the $30 per hour level, the percentage decreases to 23 percent. At $50 per hour, it is reduced to 1 percent.

Table 10 – Mixed Multinomial Logit Model Coefficients

Coefficients	Units	Coefficient Values		
		Value	Robust Std Error	Robust t-stat
Travel Time	Minutes	-0.232	0.0168	-13.78
Travel Time Standard Deviation	Minutes	0.137	0.0698	1.97
Toll Cost	Dollars	-2.98	0.28	-10.63
Express Lane Constant	(0,1)	0 (fixed)		
Existing Lane Constant	(0,1)	1.45	0.0791	18.38

Figure 31 – Mixed Multinomial Logit Model Toll Choice Curve



7.4 Willingness to Pay for Travel Time Reliability

An estimate of VOR for the sampled population was calculated using the coefficient for standard deviation of the travel time estimated by the MMNL model. VOR is calculated in a similar manner as VOT, with the coefficient for the standard deviation of travel time replacing the coefficient for travel time in the equation, as seen in **Figure 32**. Using the coefficient values in **Table 10**, VOR at the study area median income of $89,000 was estimated at $12.40 per hour.

Figure 32 Value of Reliability Calculation

$$VOR = 60 * \beta TimeStd \Big/ \left(\frac{\beta Cost}{LN(income/1{,}000)}\right)$$

The ratio of VOR to VOT, known as the reliability ratio (RR), is useful in understanding how travelers value travel time reliability relative to time savings. A reliability ratio of 1.0 would suggest that travelers consider the value of reducing the standard deviation of their travel time by one minute to be equal to the value of reducing the travel time of their current trip by one minute.

Dividing the VOR estimate ($12.40) by the VOT estimate from the MMNL model given in the previous section ($21.40) gives a RR of 0.59, which suggests that the sampled travelers value time savings slightly more than travel time reliability in this case.

8. Summary and Conclusion

A successfully developed and implemented OD and SP survey questionnaire gathered information from 2,513 U.S. 69 area travelers. The purpose of the survey was to measure the value of time and value of reliability of travelers within the U.S. 69 express lanes market area as well as identify local trip patterns and typical origins and destinations. The questionnaire collected data on current and pre-pandemic travel behavior and engaged the travelers in a series of stated preference experiments to measure their propensity to use the express lane under a variety of travel time and toll cost conditions.

Choice models were developed to produce estimates of VOT and VOR for travelers in the region. The estimates were reasonable, intuitive, and consistent with what would be expected given the demographic and trip characteristics of the sampled travelers.

From the full dataset of responses, respondent values of time were estimated to range from $15.55 to $28.65 per hour, depending on household income. VOR was estimated at $12.40 per hour at the Johnson County median income level of $89,000. These estimates of values of time, value of reliability, and likelihood to use the U.S. 69 express lanes have been incorporated into the travel demand model to support estimates of traffic and toll revenue.

Appendix – Survey Screenshots

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

Welcome to the 69 Express Travel Survey!

Welcome to the survey! **Please consider sharing this survey with your friends and family in the Kansas City area**!

Click the **Next** button below to begin.

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

Your input is extremely valuable to us!

KDOT is asking for just 10 minutes of your time to **help plan improvements on U.S. 69**.

The purpose of this survey is to help KDOT and their partners understand how drivers use US 69 and understand how likely users would be to use express toll lanes if they were added to U.S. 69. This information will be used to help plan improvements to U.S. 69.

69 EXPRESS

For more information on the **69 Express** project, please visit the project website at www.69express.org

Thank you for taking the time to share your thoughts!

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

This survey is divided into three sections. In this first section, you will be asked to describe the most recent trip that you made using U.S. 69. Please think of your trip as a **one-way trip only**, and **not as a complete round-trip**.

Below is an **example of a one-way trip** that would qualify for this survey:

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

Were you the driver for a trip on **U.S. 69** in Overland Park that meets all the following criteria?

1. Used any part of **U.S. 69 between 179th Street and 103rd Street** (highlighted in yellow in the map below).
2. Traveled within the **past year** (12 months) on this section of U.S. 69.
3. Traveled on a **weekday** (Monday through Friday).
4. Drove a **passenger vehicle** such as a car, van, or pickup truck (not pulling a trailer, and not driving a multi-axle commercial truck).

○ Yes

○ No

Did you make this trip before or after quarantine procedures for the COVID-19 pandemic began to take effect around mid-March 2020?

- ○ I made my trip **BEFORE** Saturday, March 14, 2020.
- ○ I made my trip **AFTER** Sunday, March 15, 2020.

You have indicated that you have not made a trip meeting the qualifications on the previous screen. If you have not used U.S. 69 recently, please let us know your reasons why. Select all that apply.

- ☐ I no longer live in the area
- ☐ I rarely make trips that could use U.S. 69
- ☐ There is too much congestion on U.S. 69
- ☐ U.S. 69 does not offer enough time savings (or any time savings at all) for my trip
- ☐ Other [ ]

Thank you for taking the time to participate in 69 Express Travel Survey. Based on your previous responses there are no more questions for you to answer on this survey.

Thank you again for your time!

What was the primary purpose of your recent one-way trip?

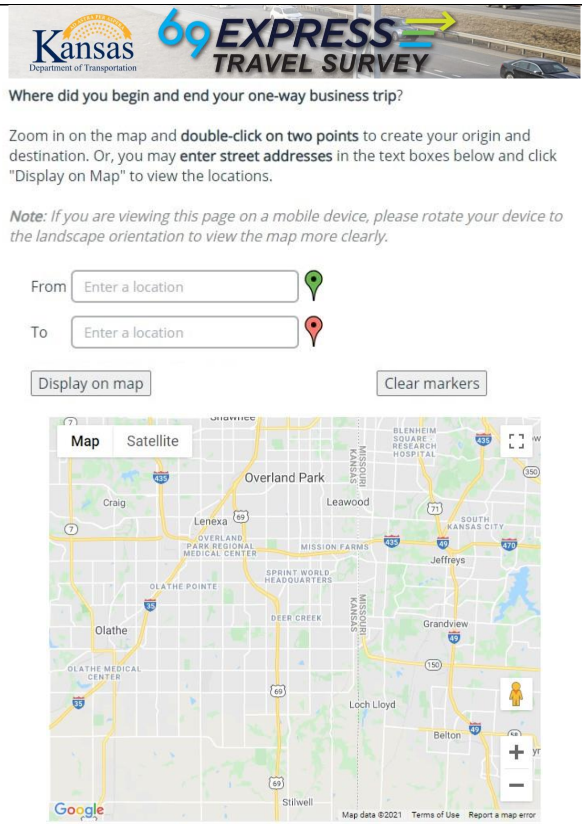
- ○ Commute to or from work
- ○ Work-related business
- ○ Driving yourself to or from school or university
- ○ Picking up or dropping off a child at school or daycare
- ○ Shopping
- ○ Social/recreational (e.g., visiting a friend, going to a park)
- ○ Personal errand (e.g., medical appointment)
- ○ Airport trip
- ○ Other [ ]

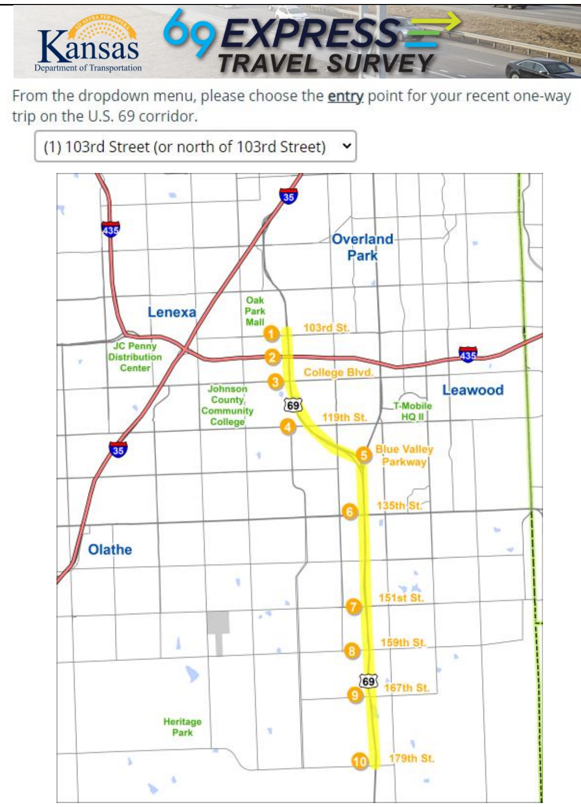
How many people were in the vehicle on this one-way business trip, including yourself?

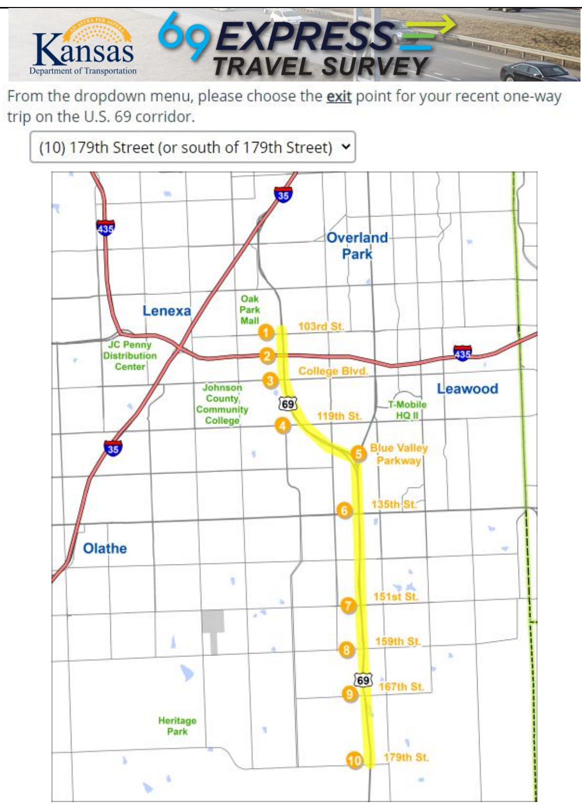
- ◉ 1 (I drove alone)
- ○ 2
- ○ 3
- ○ 4 or more

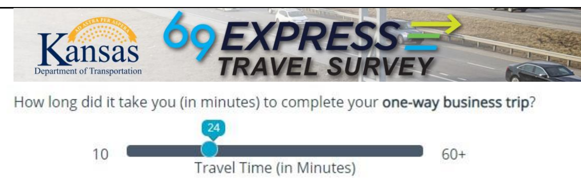
What time did you begin your business trip?

8 ⌄ 00 ⌄ AM ⌄


Kansas Department of Transportation
69 EXPRESS TRAVEL SURVEY
Where did you begin and end your one-way business trip?
Zoom in on the map and double-click on two points to create your origin and destination. Or, you may enter street addresses in the text boxes below and click "Display on Map" to view the locations.
Note: If you are viewing this page on a mobile device, please rotate your device to the landscape orientation to view the map more clearly.
From Enter a location
To Enter a location
Display on map
Clear markers
Map
Satellite
Overland Park
Leawood
Lenexa
Olathe
Grandview
Belton
Loch Lloyd
Stilwell
Jeffreys
Google
Map data ©2021 Terms of Use Report a map error


Kansas Department of Transportation
69 EXPRESS TRAVEL SURVEY
From the dropdown menu, please choose the entry point for your recent one-way trip on the U.S. 69 corridor.
(1) 103rd Street (or north of 103rd Street)
Overland Park
Lenexa
Oak Park Mall
103rd St.
JC Penny Distribution Center
College Blvd.
Leawood
Johnson County Community College
119th St.
T-Mobile HQ II
Blue Valley Parkway
135th St.
Olathe
151st St.
159th St.
167th St.
Heritage Park
179th St.


Kansas Department of Transportation
69 EXPRESS TRAVEL SURVEY
From the dropdown menu, please choose the exit point for your recent one-way trip on the U.S. 69 corridor.
(10) 179th Street (or south of 179th Street)
Overland Park
Lenexa
Oak Park Mall
103rd St.
JC Penny Distribution Center
College Blvd.
Leawood
Johnson County Community College
119th St.
T-Mobile HQ II
Blue Valley Parkway
135th St.
Olathe
151st St.
159th St.
167th St.
Heritage Park
179th St.


Kansas Department of Transportation
69 EXPRESS TRAVEL SURVEY
How long did it take you (in minutes) to complete your one-way business trip?
24
10
60+
Travel Time (in Minutes)

Kansas Department of Transportation — 69 EXPRESS TRAVEL SURVEY

Did you experience any delay due to traffic congestion on U.S. 69 during your one-way business trip?

- ○ No, I did not
- ◉ Yes, I did

You reported that your trip took 24 minutes to complete, with some delay, due to congestion on U.S. 69.

How many minutes would you estimate were added to your business trip because of congestion?

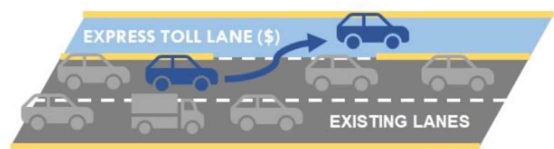
- ○ Congestion added 5 minutes or less
- ○ Congestion added 6 to 10 minutes
- ○ Congestion added 11 to 20 minutes
- ○ Congestion added more than 20 minutes

Kansas Department of Transportation — 69 EXPRESS TRAVEL SURVEY

You are now halfway through the survey!

In this section, you will be presented with a series of possible options for making another one-way business trip ***at some point in the future***.

Imagine that U.S. 69 has become **more congested**, and **Express Toll Lanes** have been **added to the roadway to relieve congestion**. Drivers can pay a toll to use the Express Lanes to save time. The tolls will be automatically charged via an electronic toll transponder, such as a K-TAG, so that there is no need to stop and pay the toll in cash at a toll booth.



Express Toll Lane Diagram

For each question, consider if you would prefer to **pay a toll on the new Express Toll Lane** to save time, or **use the non-tolled Existing Lanes for free**.

As a reminder, you have so far described a one-way **business trip** that began at **8:00 AM** and lasted **24 minutes**.

Kansas Department of Transportation — 69 EXPRESS TRAVEL SURVEY

Keeping in mind your **business trip** that you previously described in this survey, please choose your preferred option for making that trip again in the future from the following two travel time and toll cost pairings:

○ Express Toll Lane	○ Existing Lanes
Travel Time: **19 minutes** Toll Cost: **$3.00** Save **9 minute(s)**	Travel Time: **28 minutes** Toll Cost: **$0.00**

Kansas Department of Transportation — 69 EXPRESS TRAVEL SURVEY

Keeping in mind your **business trip** that you previously described in this survey, please choose your preferred option for making that trip again in the future from the following two travel time and toll cost pairings:

○ Express Toll Lane	○ Existing Lanes
Travel Time: 22 minutes Toll Cost: $3.00 Save 4 minute(s)	Travel Time: 26 minutes Toll Cost: **$0.00**

Kansas Department of Transportation — 69 EXPRESS TRAVEL SURVEY

Keeping in mind your **business trip** that you previously described in this survey, please choose your preferred option for making that trip again in the future from the following two travel time and toll cost pairings:

○ Express Toll Lane	○ Existing Lanes
Travel Time: 24 minutes Toll Cost: $4.00 Save 2 minute(s)	Travel Time: 26 minutes Toll Cost: **$0.00**

Kansas Department of Transportation — 69 EXPRESS TRAVEL SURVEY

Keeping in mind your **business trip** that you previously described in this survey, please choose your preferred option for making that trip again in the future from the following two travel time and toll cost pairings:

○ Existing Lanes	○ Express Toll Lane
Travel Time: 30 minutes Toll Cost: **$0.00**	Travel Time: 22 minutes Toll Cost: $0.50 Save 8 minute(s)

Keeping in mind your **business trip** that you previously described in this survey, please choose your preferred option for making that trip again in the future from the following two travel time and toll cost pairings:

○ Express Toll Lane

Travel Time: 23 minutes
Toll Cost: $1.00

Save 5 minute(s)

○ Existing Lanes

Travel Time: 28 minutes
Toll Cost: **$0.00**

Keeping in mind your **business trip** that you previously described in this survey, please choose your preferred option for making that trip again in the future from the following two travel time and toll cost pairings:

○ Express Toll Lane

Travel Time: 22 minutes
Toll Cost: $4.00

Save 9 minute(s)

○ Existing Lanes

Travel Time: 31 minutes
Toll Cost: **$0.00**

Why did you not choose the Express Toll Lane option in the previous tradeoff questions? Please select all that apply.

- ☐ Tolls shown were too high
- ☐ Don't want to have to get an electronic payment device
- ☐ Time savings not worth the toll cost
- ☐ Other (please specify) ______
- ☐ Opposed to paying tolls
- ☐ Not enough time savings

You are almost done!

In this final section of the survey, we will ask you for some general information to assist in analyzing the data we have gathered. All information submitted is strictly confidential and will only be used to confirm that we have received a representative sample of the region's population.

What is the 5-digit ZIP code of your home address?

Note: All information submitted is strictly confidential and will only be used to confirm that we have received a representative sample of the region's population.

Please estimate your household income from the previous year, before taxes:

- ○ Less than $15,000
- ○ $15,000 to $24,999
- ○ $25,000 to $34,999
- ○ $35,000 to $49,999
- ○ $50,000 to $74,999
- ○ $75,000 to $99,999
- ○ $100,000 to $124,999
- ○ $125,000 to $149,999
- ○ $150,000 to $199,999
- ○ $200,000 to $249,999
- ○ $250,000 or more

Note: All information submitted is strictly confidential and will only be used to confirm that we have received a representative sample of the region's population.

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

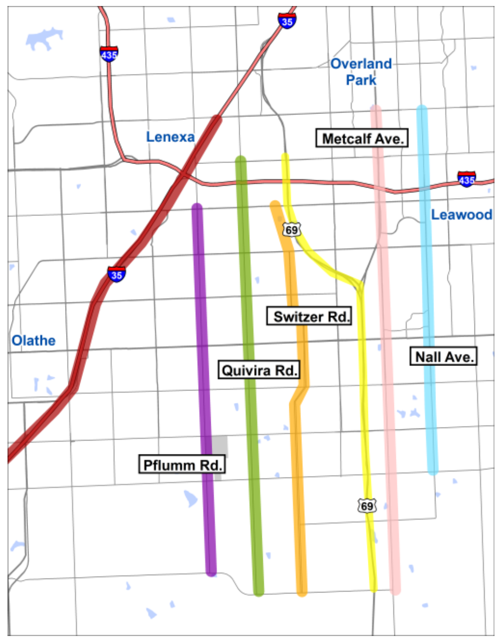
How often do you make ***any kind of trip*** on this section of U.S. 69? Keep in mind that a **round-trip** (for example, to the store and then back home again) would **count as two trips** for this question.

- ○ 10 or more times per week
- ○ 6 to 9 times per week
- ○ 2 to 5 times per week
- ○ 1 time per week
- ○ 1 to 3 times per month
- ○ Less than 1 time per month

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

Which of the following alternative routes have you used in the past to make a trip like your business trip.

- ☐ I-35
- ☐ Pflumm Rd.
- ☐ Quivira Rd.
- ☐ Switzer Rd.
- ☐ Metcalf Ave.
- ☐ Nall Ave.
- ☐ Other (please specify)
- ☐ No alternative route for my trip.



Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

How much time would you estimate that you saved by using U.S. 69 rather than an alternative route to make your trip?

- ○ 10 minutes or more
- ○ 5 to 9 minutes
- ○ Less than 5 minutes
- ◉ No time savings

Kansas Department of Transportation 69 EXPRESS TRAVEL SURVEY

What is your employment status?

- ○ Employed full-time
- ○ Employed part-time
- ○ Self-employed
- ○ Student
- ○ Student and employed
- ○ Homemaker
- ○ Retired
- ○ Not currently employed

How many days per week do you currently work?

- Once per week
- Twice per week
- Three times per week
- Four times per week
- Five or more times per week

How many days per week do you currently work remotely from your home?

- Zero days (I work in person at my job every day)
- Once per week
- Twice per week
- Three times per week
- Four times per week
- Five or more times per week

Do you believe that your employer will give you the option to work from home, at least part-time, after the COVID-19 pandemic is contained?

- Yes
- No
- Don't know/it depends

Would you take advantage of the option to work from home at least part-time if your employer gives it to you?

- Yes
- No
- Don't know/it depends

How many days per week do you think you will work remotely from your home after the COVID-19 pandemic is contained?

- Zero days (I will work in person at my job every day)
- Once per week
- Twice per week
- Three times per week
- Four times per week
- Five or more times per week
- Don't know/it depends

How old are you?

- 16 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 65
- 65 to 74
- 75 years old or older

What is your gender?

- Male
- Female
- Prefer not to answer

If you have any comments about this survey or about the 69 Express Lanes, please enter them in the box below. We value your feedback and will review all of the comments received.

The survey is now complete.

Thank you very much for your participation!

You may now exit the survey.

If you have any questions, please send inquiries to US69TravelSurvey@gmail.com.

cdmsmith.com

Appendix 6

U.S. 69 Express Toll Lanes Funding & Feasibility Report

69 EXPRESS

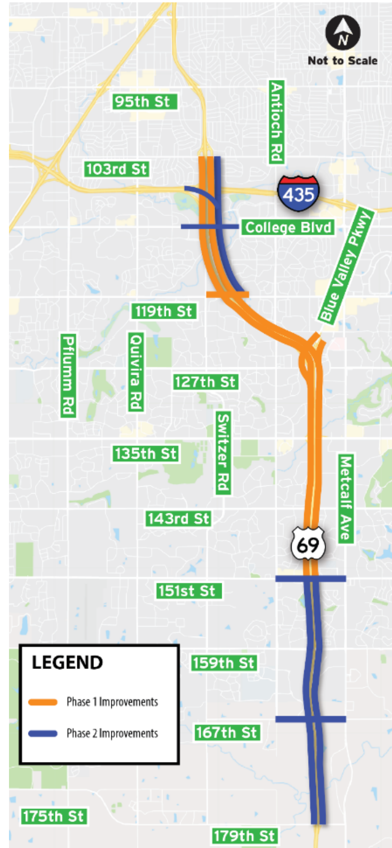
U.S. 69 Modernization & Expansion Project

U.S. 69 Express Toll Lanes Funding & Feasibility Report

DRAFT

June 2021

Project Overview



The U.S. 69 Modernization and Expansion Project is determining how best to address growing safety and congestion issues along the U.S. 69 Corridor.

One option being considered would widen U.S. 69 to six lanes from near 103rd Street to 179th Street with the third lane in each direction added as an Express Toll Lane (ETL). This option could provide additional long-term safety, traffic flow and trip time reliability benefits. This report forecasts gross and net revenue, analyzes the potential of a toll revenue financing and evaluates funding contributions.

ETLs have proven to be effective at reducing congestion and improving travel time reliability. ETLs enable drivers to choose if they want to pay a toll to drive in the express lanes to achieve more reliable travel times. To do this, a variable toll rate system will be used where the toll rate changes with traffic volumes to keep the toll lanes flowing smoothly while also improving traffic flow in the toll-free, General Purpose Lanes.

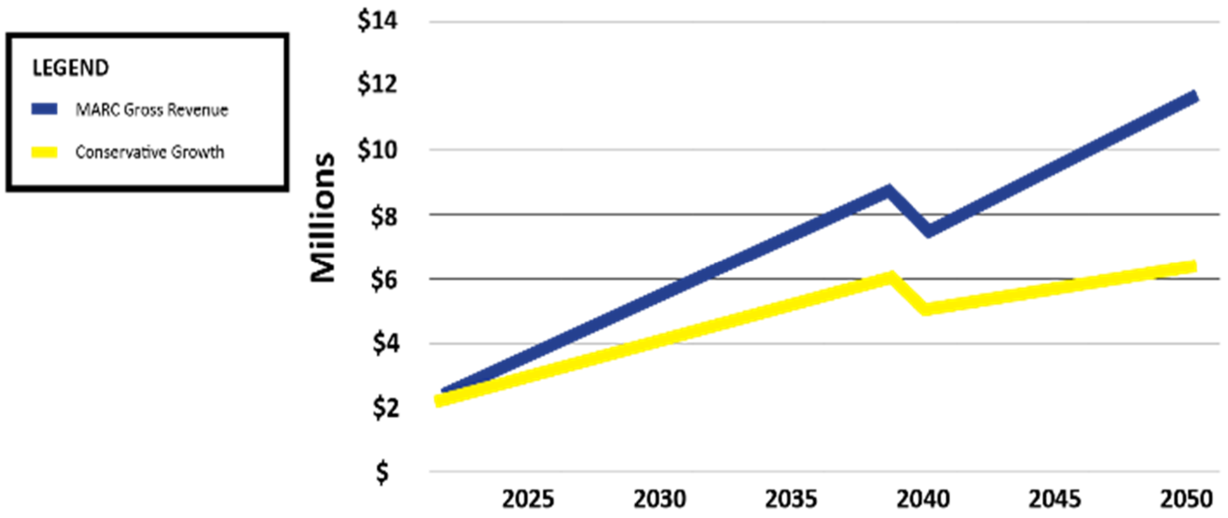
Traffic and Revenue Summary

Traffic and revenue analysis was performed for the corridor to model traffic and forecast the gross revenue potential of the express lanes. The Level-2 study analyzed Phase 1 and 2 with input from the Mid America Region Council (MARC) travel demand model, local surveys and updated demographic data.

Annual gross revenue forecasts (*see Figure 1*) were developed based on the MARC forecast and also included an independent forecast with a lower growth rate. The forecasts project positive gross revenue in every year, with $2 million in the opening year, and show steady annual growth as usage and congestion build over time.

For the Phase 1 forecast (north of 151st Street to just north of 103rd Street), revenue is projected to decrease in 2040 as expansion of complementary routes are assumed to be improved and opened on Metcalf Avenue and Antioch Road. For the Phase 2 forecast, the toll revenue reflects both segments operating together beginning in 2040. The following figure presents the gross revenue forecast from the two revenue forecasts of Phase 1.

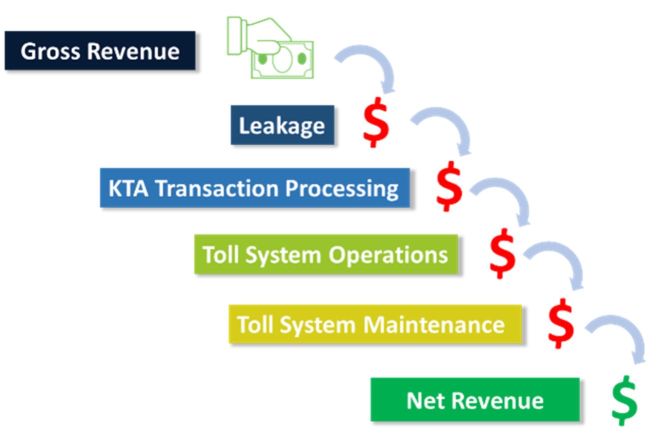
Figure 1: Annual Gross Revenue



Net Revenue Analysis

Net revenue is an important metric to evaluate a toll facility's ability to pay select operations, maintenance and lifecycle costs. For this project, KDOT will maintain all roadway elements of the general-purpose lanes and the express lanes while toll revenue will be used to pay for operations and maintenance (O&M) and lifecycle costs associated with toll collection.

Figure 2: Cash Flow Waterfall



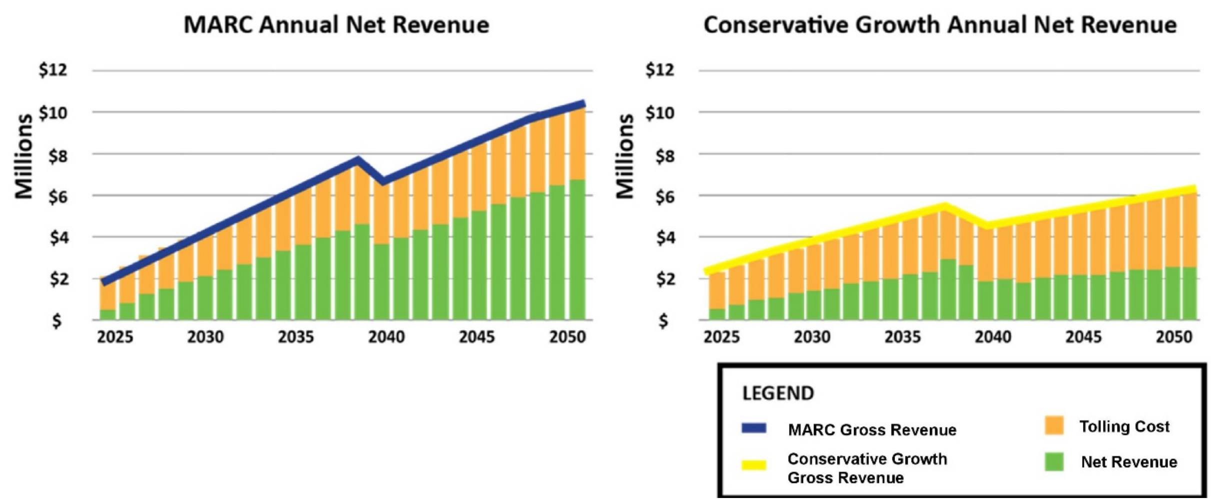
As the "cash flow waterfall" figure illustrates (*see Figure 2*), net revenue for 69 Express is defined by subtracting the toll-related costs of the ETL lanes from the gross revenue. Descriptions of each of the cost components for the net revenue analysis are as follows:

- <u>Leakage</u>: estimates of the amount of the two types of uncollectable toll revenue. Technical leakage is typically in the 1-3% range and accounts for instances where the vehicle cannot be accurately identified (i.e. poor image quality or obscured license plate). Uncollectable revenue can be in the 10-15% range dependent upon toll policies and transponder penetration rates (i.e. inaccurate address data for invoices, refusal to pay invoices or infrequent out-of-state trips).

- KTA Transaction Processing: estimates of the pass-through cost of the Kansas Turnpike Authority (KTA) to process toll transactions and collect toll revenue on KDOT's behalf. A Roadside Toll Collection System (RTCS) will be installed in the toll lanes to identify and bundle vehicle trips. This information will be transmitted to KTA to leverage their existing back office's ability to collect revenue from transponder and video (post-pay based on license plate recognition) customers. KDOT will use toll revenue to reimburse KTA for providing this service (at no expense or risk to KTA's existing revenues or operations).
- Toll System Operations and Maintenance (O&M): estimates of the costs of operating the RTCS and preparing toll transactions. RTCS O&M expenditures are primarily maintenance related services including preventative, predictive and emergency repairs to the toll equipment. Annual O&M costs are allocated for these services based on the actual number of toll zones and toll lanes.
- Net Revenue: the amount of revenue remaining after satisfying all toll-related cost obligations. Net revenue can be used for any authorized and legal purpose (legislation currently requires all toll revenue to remain on the corridor). Note: the lifecycle replacement costs of the RTCS every 7-10 years was evaluated to be repaid with net revenue (after O&M) as the base case but was also separately evaluated as part of the O&M cost component (before net revenue calculations).

Net revenue for the ETL lanes is positive every year for both growth forecast scenarios (*see Figure 3*), meaning gross revenue can pay for all toll-related leakage, processing and O&M costs (RTCS replacement would be reimbursed with net revenue).

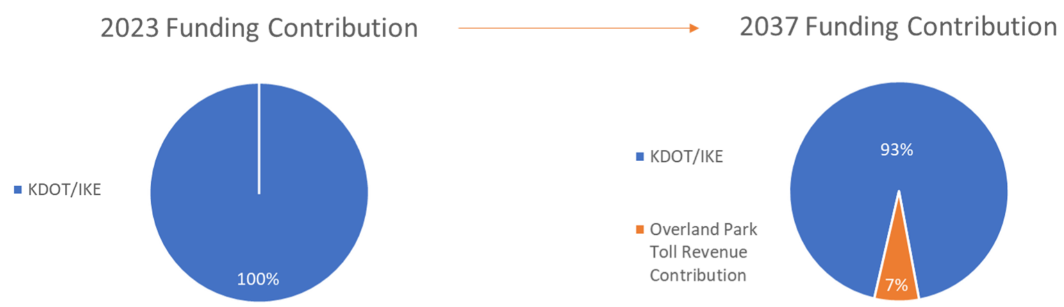
Figure 3: Phase 1 Net Revenue Summary (No RTCS Lifecycle Costs



Funding Plan

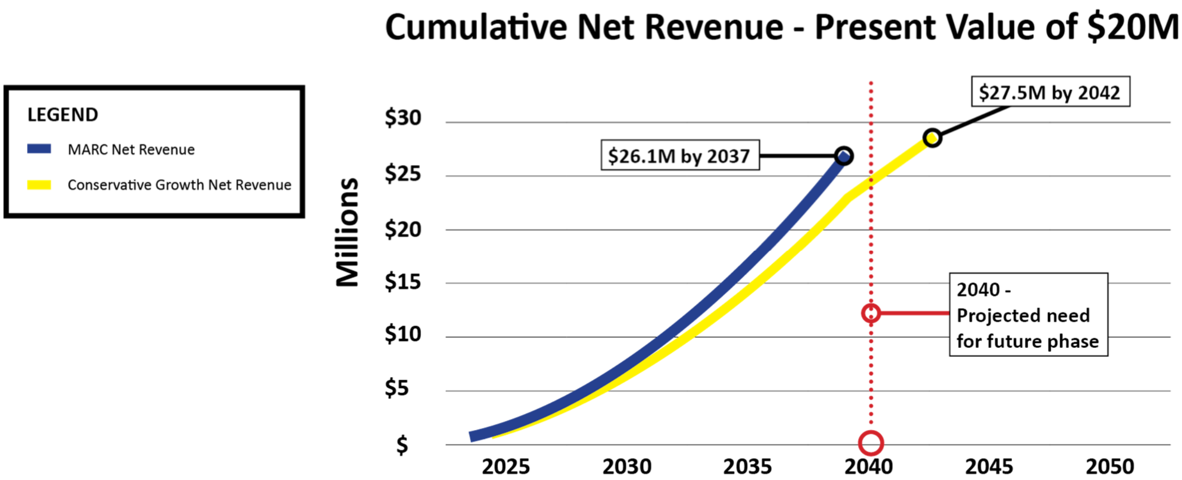
KDOT's State Highway Fund and the IKE Program are the primary funding sources for 69 Express. If a local contribution is provided by Overland Park, 69 Express could be prioritized for early implementation in the IKE Program. KDOT has offered the City of Overland Park upfront and annual contribution options. A third option allows Overland Park to utilize net toll revenue to provide the local contribution until the commitment is repaid. Under this option, KDOT will fund 100% of initial project costs and will be repaid from Overland Park's $20 million local contribution by approximately 2037 based on actual toll revenue receipts (*see Figure 5*).

Figure 5: Funding Sources



Since KDOT is initially covering Overland Park's upfront contribution and is accepting toll revenue risk, inflation of 2.5% is applied to arrive at an equivalent present value of $20 million. Based on the current revenue forecast, toll revenues will repay KDOT $26.1 million through 2037 based on the MARC model growth assumptions or $27.5 million through 2042 based on the conservative growth forecast (*see Figure 6*). Using toll revenues as the source of repayment is a viable option for generating Overland Park's local contribution and would forego the need for Overland Park to make the contribution using general fund or tax revenues.

Figure 6: Toll Revenue Repayment of Local Contribution



Appendix 7

U.S. 69 Stakeholder Engagement Summary

69 EXPRESS

U.S. 69 Modernization & Expansion Project

Stakeholder Engagement Summary

DRAFT

June 2021

Overview

The goal of stakeholder engagement for 69Express was to inform the public on the project and updates; receive feedback; and collect and review comments about concerns and improvements about U.S. 69. To accomplish the stakeholder engagement goals of the Project, the Project team:

- Developed and implemented a project website, project specific Facebook and Twitter pages as well as utilized KDOT's Next Door page.
- Conducted Advisory Group meeting.
- Provided engagement opportunities and places to comment via a Project email and comment submission form on the Project's website.
- Held two rounds of Virtual Public Meetings and Virtual Public Open Houses.
- Sent out bi-weekly newsletters.
- Gave community presentations to organizations around Overland Park and nearby communities.

Surveys were also conducted to understand how people see the future of U.S. 69 and how they would use the roadway if Express Toll Lanes (ETLs) were implemented.

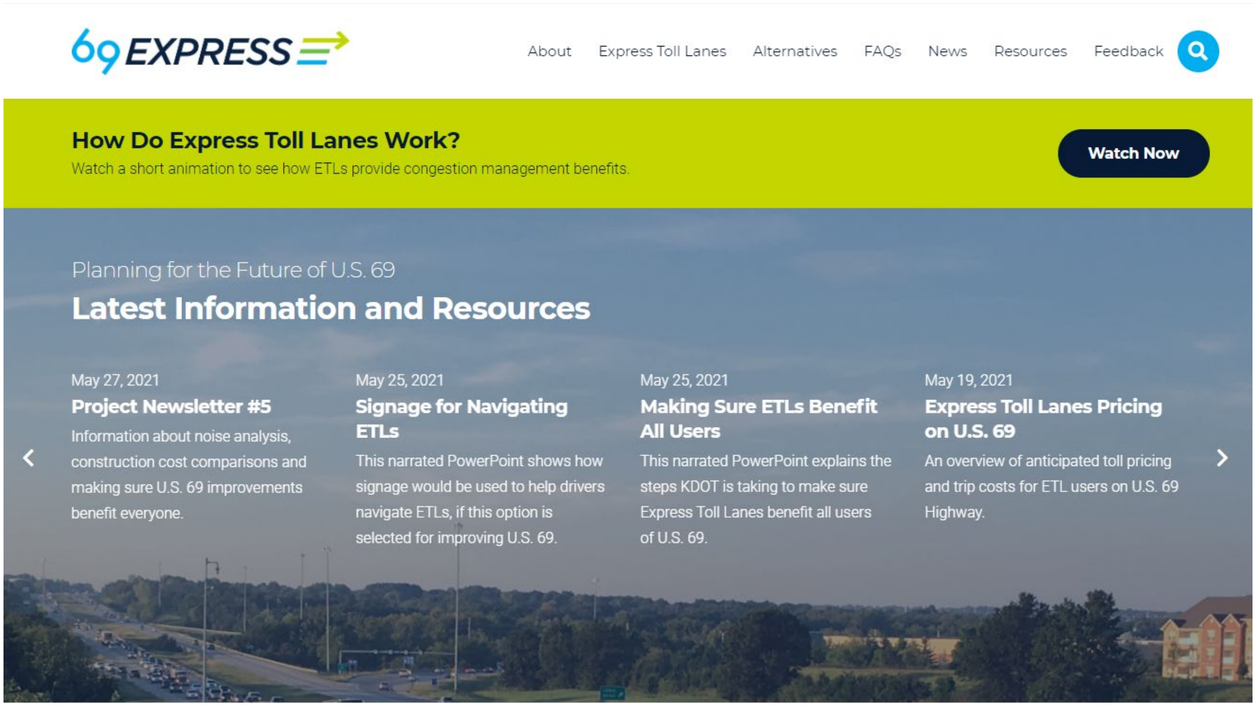
Website

The 69Express project website (69express.org/) (*see Figure 1*) was established in Dec. 2020 with information pertaining to the project. The Project website is also available in multiple languages (Chinese, English, French, German, Korean, Spanish, and Vietnamese). The website is organized into different web pages:

- **About -** This section describes the background of the Project, Project partners, and a timeline to come to a decision on the Project.
- **Express Toll Lanes -** This page details how ETLs work, the Kansas legislation that discusses ETLs, and ETL pricing.
- **Alternatives -** This page discusses the alternatives that are being considered for the corridor: No Build, Improve Alternate Routes, Manage Existing Capacity, Improve Multimodal Options, Add General Purpose Lanes and Add ETLs.
- **FAQs –** The Frequently Asked Questions (FAQs) portion of the website included questions commonly asked about the Project to the Project team.
- **News –** This page includes articles and press releases of 69Express in the news and official 69Express news releases.
- **Resources –** The resources tab includes meeting documentation, Project fact sheets, Project background, and community outreach.

- **Feedback –** This page lists all public engagement opportunities and a feedback form to provide comments, questions, and input to the Project team.

Figure 1: The 69Express Website Serves as the Project Information Hub



More than 1,450 new users have visited the website, which continues to show strong growth user recruitment and reliance for credible, timely information about the project.

Media Relations

Since Jan. 1, 2021, there have been 21 media articles or broadcasts about the Project reaching approximately 882,701 people:

- Positive themes have been that ETLs relieve congestion, how KDOT seeking public input, the use of ETLs is a choice, and the Project website. Neutral themes include traffic safety, funding sources, and general-purpose lane.
- Negative themes include ETLs favoring wealthier drivers and driver perceptions of ETLs.

Media articles and broadcasts have been covered in the Kansas City Business Journal, Kansas City Magazine, Kansas City Star, Kansas Reflector, KBIA – NPR mid-Missouri, KCUR – NPR Kansas City, KMBZ – Midday with Jayme and Grayson, KSHB – NBC Kansas City, Shawnee Mission Post, and WDAF – FOX Kansas City.

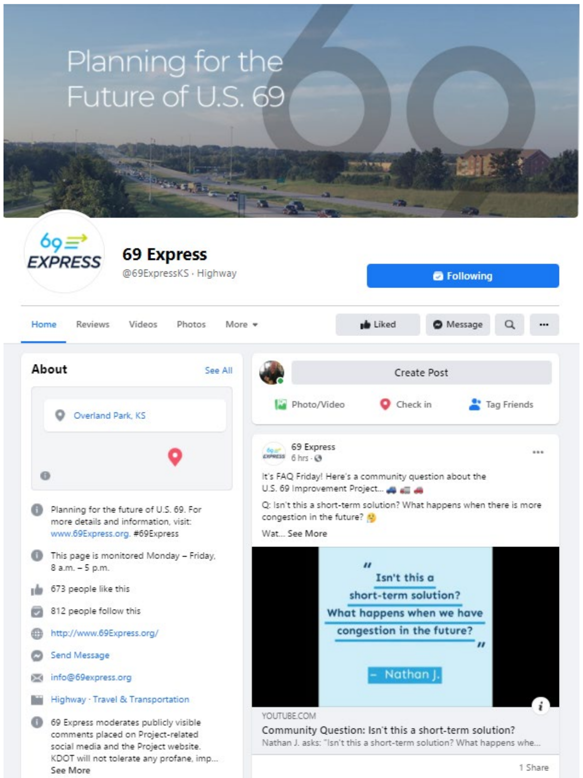
Electronic Newsletters

Electronic project newsletters are emailed bi-weekly to 1,771 individuals, with more than half of the recipients reviewing contents each issue based on open rates. People who receive the newsletter are in KDOTs public involvement management application (PIMA) for the U.S. 69 project or have signed up to receive the newsletter on the 69Express website. Newsletters cover topics that have been brought up by the public in the preceding two weeks. Some newsletters also contain columns discussing the corridor from members of the Project's Advisory Group.

Social Media

The Project's social media pages were established in Jan. 2021. 69Express has social media pages on Facebook (*see Figure 2*) and Twitter, and it utilizes KDOT's Next Door page. The Project's Facebook page has roughly 672 followers and the Twitter page has roughly 133 followers. Social media posts are posted almost daily during weekdays and cover topics and questions brought up by the public.

Figure 2: Social Media Provides Quick Updates



Virtual Public Meetings

Nearly 1,400 people have attended two rounds of virtual public meeting opportunities held in connection with the Project:

- The first round of Virtual Public Meetings in January 2021 overviewed the purpose and need of the Project.
- The second round of Virtual Public Meetings in April 2021 and overviewed alternatives for the corridor. Both rounds of meetings included a two-hour Live Virtual Public Meeting and a two-week Virtual Open House. Over 120 comments were submitted during the Live Virtual Meetings and over 70 were submitted during the Virtual Open Houses.

Advisory Group

The 69Express Advisory Group consists of 38 business and community leaders in Overland Park that represent the community. The goal of the Advisory Group is to gain insight and feedback on the project. The Advisory Group was established in Fall 2020. Each of the six meetings were held virtually. The first meeting was held in Dec. 2020 and overviewed the Project. Subsequent meetings were held January 2021 through May 2021 and covered all topics from the public meetings. Meeting summaries and recordings for all Advisory Group meetings (Meeting 1, Meeting 2, Meeting 3, Meeting 4, Meeting 5, and Meeting 6) are located under the 'Resources' tab on the Project's website (69express.org/).

Community Presentations

Community presentations were given by members of the project team to organizations around the Overland Park community. Members of the public could request to be given a community presentation by sending an email to the project email, submitting a comment on the project website, or by filling out the 'Request a Presentation' form at the bottom of the website. Eleven one-hour community presentations were given to the community. Reminders that presentations could be requested were given at all public and advisory group meetings.

Project presentations were made to a broad range of community organizations:

- Advent Health in Overland Park
- Block Real Estate
- Lenexa Rotary
- Lion's Club of Overland Park
- Northeast Johnson County Chamber
- Nottingham Forest Homes Association
- Overland Park Chamber Board of Directors
- Overland Park Chamber of Commerce
- Overland Park Chamber Public Policy & Advocacy Committee
- Overland Park Chamber's Economic Development Council
- Overland Park Rotary
- Tallgrass Sr. Living Center

Additionally, 11 briefings were held with city, state and federal elected officials.

Virtual Public Information Opportunities Overview

The Kansas Department of Transportation (KDOT), the Kansas Turnpike Authority (KTA) and the City of Overland Park recently hosted a Live Virtual Public Informational Meeting and a Virtual Informational Open House for the U.S. 69 Modernization and Expansion Project (69Express). The Project is an in-depth study of how best to improve public safety, reduce congestion and increase travel time reliability along U.S. 69, including evaluating if an express toll lane option is a solution for this corridor.

With health and safety in mind, the Live Public Information Meeting and the Informational Open House were held virtually. The purpose of the virtual meetings was to inform participants about the Project and gather stakeholder feedback. The Live Virtual Public Meeting included a presentation followed by the opportunity for questions and answers. Members of the public also attended the Virtual Open House at their convenience to view meeting materials and provide questions and comments through an online form that went directly to the Project team.

Both opportunities provided the same content including the Project background, the Project Purpose and Need, the study process, the concept of express toll lanes (ETLs), public engagement opportunities and schedule. An overarching goal for the Live Public Meeting and Open House was to have dialogue with participants and gain public insight about evaluating potential options to enhance the safety, congestion, and travel time along U.S. 69 from 103rd to 179th Streets in Overland Park, Kansas. Understanding what concerns and questions meeting participants have will help the Project team make project related decisions moving forward.
The Public Meeting opportunities were promoted to the public through media releases and social media posts from KDOT and the City of Overland Park and our Advisory Group.

The summary below captures common themes or concerns noted by the public during both the Live Public Information Meeting and the Virtual Public Open House:

- *Express Toll Lanes.* A significant number of participants submitted comments inquiring about the price of using the tolled lane and how the toll lanes will work.
- *Access.* Many of the participants questions and comments centered around access to U.S. 69 during construction and if any access points would be added to the corridor as part of reconstructing the highway.
- *Noise.* Noise added from additional traffic on the corridor was a concern. The Project team expressed how noise generated from additional traffic

along the highway will be studied in the Environmental Assessment (EA) for the Project.

- *Schedule.* Questions also centered around how long the Project could take to construct and if/when ramps would be closed to merge onto U.S. 69.
- *Traffic and congestion.* Many of the participants expressed concern about increased congestion on U.S. 69 if the tolled lane was not utilized.

Public Input at Live Virtual Public Information Meeting

The Virtual Public Meeting was on Wednesday, January 20, 2021 from 4:30 p.m. to 6:30 p.m. via KDOT's Public Information Management Application (PIMA) website. The meeting started with a presentation from the Project Team. The background of the project was discussed as well as the new tolling legislation, the U.S. 69 pre-planning analysis, purpose and need of the Project, the environmental process, and the engagement process.

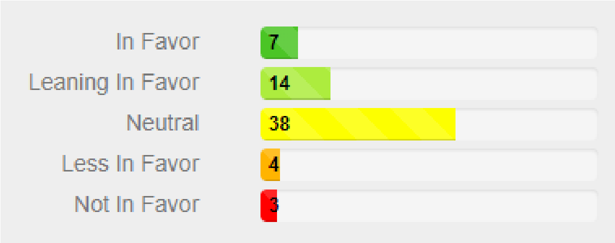
Two-hundred nine (209) people signed into the virtual public meeting using the PIMA site. Meeting participants were then able to ask questions and provide input to the Project team via submitting a question or comment on the meeting website platform. These questions were read aloud answered by the Project team. Additional questions will be responded to and followed up on with the individuals who inquired.

Questions and Comments from Participants

There were 62 questions and comments submitted during the virtual public information meeting by participants. When submitting a question or comment, participants were able to choose the category that best fit overarching topic of their submission and to select their level of favorability for the proposed project.

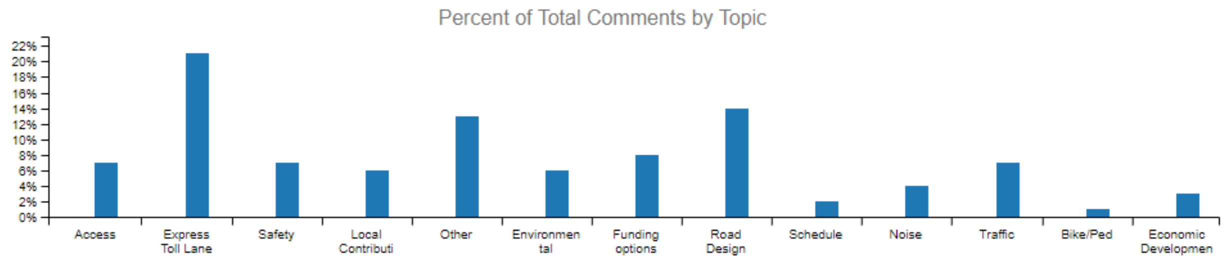
The level of favorability of participants who submitted questions or comments during the Live Public Meeting can be seen in *Figure 1*. Out of the sixty-six participants who indicated their level of favorability for the project, twenty-one were 'In Favor' or 'Leaning in Favor' while thirty-eight participants were 'Neutral' and seven were 'Less in Favor' or 'Not in Favor' of the project.

Figure 1 – Participant Favorability of the Proposed U.S. 69 Tolled Project (Live Public Meeting)



Participants were also given the opportunity to select category that best fit overarching topic of their question or comment. Categories included access, bike/ped, economic development, economic concerns, express toll lanes, funding options, local contributions, noise, road design, schedule, traffic and other. These categories with corresponding submissions are labeled below in *Figure 2*. The most common category submission during the Live Public Meeting was 'Express Toll Lane'. Questions and comments from the participants can be seen in **Attachment 1** of this document.

Figure 2 - Categories of Questions and Comments submitted during the Live Public Meeting



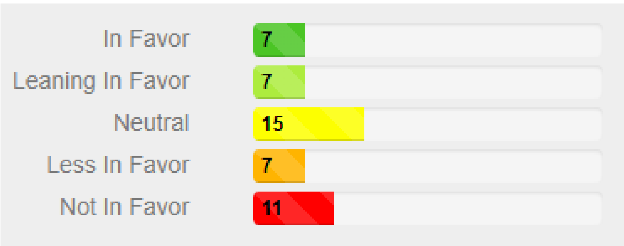
Public Input at Virtual Informational Open House

The Virtual Informational Open House was from January 18, 2021 – February 1, 2021 also through PIMA and posted to the Project website. The Virtual Open House used a story map to tell the story of U.S. 69 Modernization and Expansion Project. The meeting was interactive and allowed participants to leave comments about the Project thought a comment form.   In the comment form, participants could place markers on a map to indicate where they have specific concerns, such as congestion or safety issues, along the corridor.

Questions and Comments from Participants

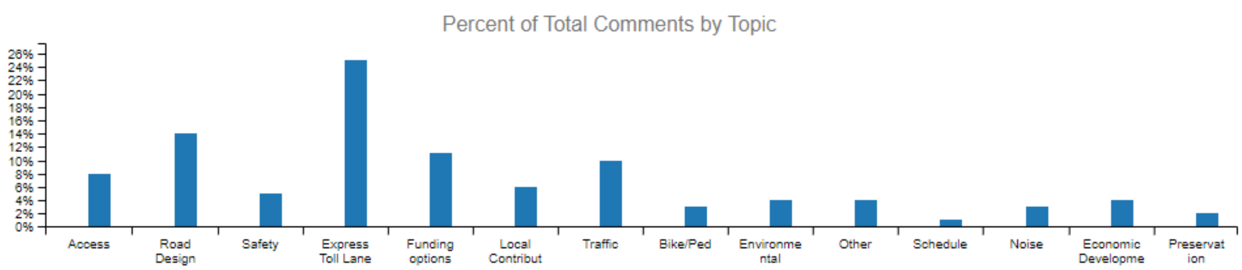
The Virtual Open House had 443 participants sign in over the course of two weeks. Participants submitted 49 questions or comments for the Project team. The level of favorability of participants who submitted questions or comments during the Virtual Open House can be seen in *Figure 3*. Out of the forty-seven participants who indicated their level of favorability for the project, fourteen were 'In Favor' or 'Leaning in Favor' while fifteen participants were 'Neutral' and eighteen were 'Less in Favor' or 'Not in Favor' of the project.

Figure 3 - Participant Favorability of the Proposed U.S. 69 Tolled Project (Virtual Open House)



As in the Live Public Meeting, participants were given the opportunity to indicate which category best fit their submitted question or comment. These categories with corresponding submissions are labeled below in *Figure 4*. Forty-nine (49) questions and comments were submitted to the Project team from the Virtual Open House. The most common category of questions submitted during the Virtual Open House was 'Express Toll Lanes'. Questions and comments from the participants can be seen in **Attachment 2** of this document.

Figure 4 - Categories of Questions and Comments submitted during the Virtual Open House



In addition to those that attended and signed into the Public Meetings, over 1,100 people are signed up to receive newsletters and updates about the Project.

For more information on the virtual public information opportunities to learn about improvement plans for U.S. 69, please visit: https://www.69express.org/public-information-meetings/.

Attachment 1

Questions and Comments Submitted During the Live Virtual Public Information Meeting

Participants were able to choose the categories that went along with the submissions. The questions and comments are organized in the corresponding categories of access, bike/ped, economic development, environmental concerns, express toll lanes, funding options, local contributions, noise, road design, schedule, traffic and other. Participants were able to select multiple categories per question or comment submitted. Questions and comments submitted during the Live Virtual Public Meeting are verbatim as follows:

Access

- Thanks for the answers. I am in favor of the expansion.
- Living in Louisburg we currently drive 82 miles per hour only to slow usually around 179th how fast would you expect the traffic to go when people dodge in at 179th 151st and again 135th only to slow again at 435 thank you Chris.
- Thank you for this opportunity and for the information presented today. We're happy to survey our employees on express toll interest who work at our Advent Health campus off US 69 and 159th Street.
- I would like to see ramp access from SB 69 to Blue Valley Pkwy, and from Blue Valley Parkway to NB 69. Is that increased access going to be included?
- In other cities where express toll lanes have been implemented there have been concerns about equitable access for people with low incomes to the travel time reliability benefits these lanes provide. How will this study assess these equity impacts and what solutions may be considered to mitigate them?
- Do you anticipate public busses will be allowed in the Express Lane?
- Once construction begins, how long do you guesstimate 69 highway entrance/exits will be closed?
- At this time can you provide an idea of what the range of toll prices might be? I understand it depends on the length of trip and congestion level.

Bike/Ped

- Many of the interchanges in the study area do not currently provide safe accommodations for people crossing US 69 by walking or biking. How will this study consider impacts to and improve non-motorized and multi-modal transportation in the study area?

Economic Development

- In the event there is a major federal infrastructure project, how important would it be for Kansas to be ready to use these on U.S. 69 Highway? I recall that in the 2009-2010 period Overland Park was well-positioned to utilize federal funding because it had shovel-ready and designed projects. Doesn't that apply here and so the further along we are in the process the more likely we could take advantage of potential new federal funding?
- How do you feel the expansion of 69 will affect real estate prices/values for homes that are close (or back to) the highway?
- These are many high-value environmental assets in the study area as you've identified in the online meeting materials. Additional highway capacity in the study area may impact future development patterns which may create secondary environmental impacts to the watersheds in the study area. How will these potential secondary impacts be assessed, minimized and/or mitigated?

Environmental Concerns

- Autonomous vehicles will eliminate congestive traffic and accidents, let's use the $300,000,000.00 ++++ to look at building a solar farm/solar power-wall so all Kansas residents can benefit.
- Currently Highway 69, like many Johnson County highways, are not maintained insofar as litter and debris on the roadways and right of ways are concerned. Will anything be done about this in your planning?
- Electric Vehicles would eliminate the environmental impact. We are just a few years away from that.
- There is a pond on the west corner of 69 and south of 167th Street. Do you know at this time what would happen to that pond?
- The Biden administration has indicated that climate resilience will play a large role in their priorities for federal infrastructure investment. How will this study assess the potential climate impacts of expanding US 69 and position any recommended improvements to compete for federal funding with these considerations in mind?

Express Toll Lanes

- If an express toll lane is implemented, once the lanes are paid for, is there an opportunity to remove the toll?
- In other states, what % of construction/maintenance costs can be recovered from tolls?
- In the CO video, the express lanes appeared to be underutilized. People avoiding the express lanes on US 69 will lead to more congestion on the main lanes and/or an increase in traffic on adjacent arterials. Why not increase the personal property taxes on vehicles to improve this roadway and others throughout the county?
- Realizing that the toll cost to the consumer may be different, what is the average cost of the toll that is being paid where this is currently is effect, i.e.: in Colorado that was referenced in the video?
- If the Toll proposal falls through. Have left lane HOV lanes been considered as a secondary option?
- Will the tolls eventually be eliminated in the future after sufficient funds have been collected to pay for the project? If so, when is this guessed to be?
- What about Smart Traffic Lights up for example Quivira, Switzer, Antioch, Metcalf, Nall, Roe to I-435? That would decrease traffic on 69. If I know I can get to 435 going up for instance Quivira and not wait at stoplights, I would do that rather than get on 69. Autonomous Vehicles are right around the corner, in 10 years we will all have an autonomous vehicle so virtually no accidents and reduced traffic congestion. If you need to do one thing, you need to make the 135th to BV Pkwy merge lane go all the way to BV Pkwy so there are 2 exits to BV Pkwy. Why it isn't that way right now, is a mistake.
- Could there be toll lane discounts for zero or low emission vehicles and who would decide that?
- If I exit the Express Lane at the wrong point (say my child forgot his schoolbooks) will I face a larger toll, a fine, or both?
- Could Park and Ride buses us the toll lane without charge?
- Will traffic remain open on the non-express lanes during construction?
- What is the total time it will take to construct?
- Could you explain more how adding a toll lane helps reduce the need for additional widening in the future? I would think that over time more traffic will need more lanes regardless. Thanks
- How will out of state cars be charged for using the toll?
- How will autonomous vehicular traffic be accommodated in this design?

- When construction begins, what impact will it have on the existing lanes and will traffic slow down during the construction phases?
- You said the pandemic didn't affect the need. Really? What study indicated that? Several post pandemic changes to the workforce in highly educated communities, such as along 69 hwy, indicate a likely permanent increase in remote working (working from home). Thus, a likely reduction in traffic over pre-pandemic numbers will occur. Some estimate range in a 25% to a whopping 50% reduction in traffic to and from urban and suburban cores during peak "rush hours". I estimate 40% of my staff will not be using 69 hwy any longer during "rush hours". As such, traffic studies prior to the pandemic seem out of date. Will this change and reduction be considered prior to approval of scope? If so, how? And if not, why not?
- What are the benefits of an express lane to commuters and non-commuters?

Funding Options

- Who is the guarantor on the bonds issued to finance construction? In other words, who pays if it doesn't cash flow?
- Will the project proceed if it is not funded by tolls?
- How can we be certain the need will still be there with the current reduced traffic due to people not commuting to the office but rather working from home? Will the work environment be permanently changed, and commuting be out modeled?

Local Contributions

- Development will benefit development in Miami County in the decades ahead. The contribution expected from Overland Park appears to be beyond the city means with current revenue streams. Since the benefit of this expansion will eventually extend beyond Overland Park, could a case be made that the local contribution could be reduced, thus removing the need for a toll lane.

Noise

- Back to the noise walls. Does your estimate of $300 million dollars for the total project include any dollars for noise walls? It sounds like you anticipate NOT putting in any noise mitigation pending a yet-unstarted study to convince you to even consider noise walls.
- What plans are being made to incorporate noise walls (similar to those along US 69 north of 103rd street) in this project?

- Road generated noise is already a concern for neighborhoods; particularly between 103rd St to the Blue Valley Pkwy split. Will the project evaluation include consideration of new noise barriers (i.e. walls) in these areas?

Road Design

- How many bridges will need to be torn down and rebuilt to handle the extra 2 lanes, example 151st, 167th, and 179th?
- In the presentation, Cameron showed a graphic of US69 areas of higher accident rates. One area is at College and the I-435 interchange. Looks like that re-design is not part of this early phase. Is that correct?
- It was mentioned that the tolls can't be added so would the toll only apply up to 103rd Street? How many points of entry/exit would be expected for that stretch of highway? How long would those points of interchange be, and would the length of non-entry points change depending on the exits along the highway?
- How does the toll lane solve the problem of needing bridge replacement for all lanes if revenue call only be used on the express lane?
- Hi there - thank you for providing this informative public forum. Will lane changes / redesign be applied to BOTH northbound & southbound traffic flow lanes? Or focused more intently on northbound only? (I travel through most of the corridor in both directions each morning) Thank you!
- Will the existing road be updated?

Safety

- One question we have is related to safety and access. We feel strongly that a 167th Street exit ramp is needed to further strengthen the impact of investments to this area for decades and improve public safety. With our Emergency Room and medical offices already open on this campus, we know patients and ambulances have been forced to backtrack by taking the 159th Street exit when traveling from the south. Will exit ramps, including 167th Street, be part of the study?
- Will the source of your data be provided to the public for BI (business intelligence) forecasting and analysis.
- How many lanes will remain open during construction?

Schedule

- Can you share more details about schedule such as timeline for securing funding, necessary approvals and when construction would begin and how long it will take to complete? Also, can you comment if 69 will remain open during construction?

Traffic

- Does the design include space for an eventual US-69 corridor and hook up with I-35 all the way downtown?
- What is the source of the data that was used to determine the traffic conditions?

Other

- When Amy is talking, we hear her voice from other device in that same room. Can you mute that background speaker when she speaks? Thanks
- The slow moving JOCO busses be allowed to use the Express Lanes?What if I like to drive at 45 mph and text in the Express Lane, how can that be controlled? Traffic/congestion is not always the demand of peak use but the slowdowns due to too many exits/entrances in short distances onto 69 and I-35. these access points need to be further separated.
- Unfortunately, I joined late will a recording of the presentation be available on-line?
- How was the expansion of 69 alt funded from 1-35 to 119th Street?
- Will KDOT maintain proposed express toll lanes (potholes, repair, etc.)?...
- Can you post or send out a total State tax revenue by zip code from the most current data you have? Either a list or map. Something that compares state tax revenue from around this project to compare to other projects. Thank!
- If the free lanes are "full" and at a stand-still, and the toll lanes are still moving, how is the design to allow an egress by a car in the toll lanes and now approaching another exit (e.g. 119th) at which point all lanes on the free side are stopped?
- What traffic studies on the growth on US69 will be shared? what traffic studies do you have on each major intersection?
- Will this project be procured using design build?

Attachment 2

Questions and Comments Submitted During the Virtual Open House

Participants were able to choose the categories that went along with the submissions. The questions and comments are organized in the corresponding categories of access, bike/ped, economic development, environmental concerns, express toll lanes, funding options, local contributions, noise, road design, schedule, traffic and other. Participants were able to select multiple categories per question or comment submitted. Questions and comments submitted during the Virtual Open House are verbatim as follows:

Access

- My first concern about the addition of toll lanes is how you will ensure that, during peak periods, people won't use the lanes as overflow space rather than as express lanes? Will barriers be needed to separate the toll lanes from the free lanes? My second concern is how people in the toll lanes will enter and egress to exit ramps at interchanges? If traffic is backed up in the free lanes, how do drivers in the toll lanes cross over to reach the exits?
- I support.
- It seems that there are multiple issues with 69 highway between 135th street and 435. Entrance lane on 69 north from 119th street is absurdly short. Having to merge that quick is awful. Entrance lane on 69 north from college requires traffic to cross other traffic heading towards 435 East. Whoever designed that should be fired. Same issue with 69 South traffic having to merge with blue valley parkway drivers trying to cross all lanes of traffic at 135th street. Seems like the easiest and best solutions would be to extend blue valley parkway bridge to merge on right side of 69 south. Change interchange for 435 East and College, and most importantly, make it 3 lanes all the way to 159th street. Lastly, it needs to be said that an express toll lane should not be an option. We should not have to pay extra money to not sit in a traffic jam, that is not something the residents around here want, so please, please do not do that.
- I am new to the area and have been commuting on US-69 for the past two years. My family and I have lived most of our lives in Michigan. So, I'm giving these ideas as an outside observer. 1. you have a design problem with your combined on/off ramps at 151 and 159. This causes traffic that should be accelerating on to the expressway to intermix with the traffic slowing to exit. A redesign of the

ramp separating the two traffic flows would help greatly. 2. The exit ramp for 135 needs to be separated from the right lane. The sudden conversion of the right lane into an exit lane creates a major bottleneck for traffic. 3. You also need to look at the speed limits on this stretch of road. In general, I've noticed that the speed limits are set at least 5-10 MPH lower here than in Michigan. As a former Medical Examiner, I've had to work with the local and state police and have become familiar with the setting of speed limits. When they are set too low or too high it causes significant problems. I suggest you look at using the 85% rule to reset the speed limit and improve the traffic flow without compromising safety. Thank you.

- I do not believe an express lane would fix the issue. I do not believe that many people will use the express lane. I believe fixing the exits making longer exits and better signage would improve it currently.
- Have you considered including a public transportation corridor as part of the plan under consideration? I think a lot of commuters would make use of public transportation if it were available to them in this corridor.

Bike/ Ped

- It's important that climate mitigation and adaptation concerns be given top tier consideration in these early stages of planning. The transportation sector accounts for 1/3 of our regional greenhouse gas emissions and projects of this magnitude have an opportunity to be solutions for more than just moving cars as quickly as possible. Beyond the necessary environmental assessment, please study how this current need can be a catalyst to further our region's climate goals, not exacerbate the problem.
- --KDOT and local authorities should thoroughly explore how a portion of the toll could be used to help fund transit throughout our region and community -- including and beyond this corridor. --For our community's vibrancy and sustainability, promotion of transit and/or multi-occupant trips is essential to this plan. --Social equity, sustainability, and environmental stewardship should be at the forefront of this decision process. --Pedestrian and bike connections are important pieces to a systemic approach for this project. --Let's get the project to be Envision-certified (basically LEED for infrastructure)! https://www.asce.org/envision/ We must think systematically and holistically about this issue. Our goal is to get people in our community from point A to point B efficiently and safely. Though the "issue" is express lanes on U.S. 69, we need to think about the system, which includes public transit throughout the region.

Economic Development

- I do not support the addition of an express toll road. Johnson County residents already pay about 10% sales tax and pay a state income tax that should be able to fund this project. Overland Park, KS is a family suburban place to live and putting in a toll road here is not consistent with our way of living. Toll roads only serve to enrich the entities that put them in, not the residents that live here. The Kansas Turnpike was supposed to be returned to the people of Kansas when paid off. The KTPA knows this and issues so to get around it they just keep doing "enhancements" to the turnpike and issue new bonds so that it's never paid off and their shareholders are enriched. I don't want a toll road in my city! That's not why I moved here. Additionally, the added noise, air pollution, and environmental impacts from increasing traffic is not wanted either.
- I am not in favor of this 550 million dollar project. Fix 135th north to BV Parkway and that is all that is needed at this time. Autonomous vehicles are right around the corner. Focus your time on FIXING the Smart Traffic Signals on Quivira, Switzer, Antioch, Metcalf, Nall and Roe. The current system DOES NOT work. The person in charge of the Smart Traffic Signals needs to actually go somewhere where Smart Traffic Signals actually work then come back and fix ours. It's been a problem for many years. Actually do a study and TALK to people who use those thorough fares and you'll quickly find out they do not function properly. If I go a posted speed I should be able to go north and have to stop at a single traffic light. Clearly the person in charge of the Smart Traffic Lights lives somewhere other than south Overland Park. I would love to be a part of the committee to help fix the traffic lights. Use some of our 550 million and fix the roads that are already torn up from the increased number of tractor trailer trucks currently ruining our highway system.
- I am sure the cost would be more but why has there been no discussion of creating light rail going along 69 up to 35 and up through Kansas City? This could go up 169 to the northland. That is just my thought process.

Environmental Concerns

- The improvement area crosses the Blue River (just below its headwaters) and two of its tributaries, Tomahawk, and Indian Creek. These are vital waterways that carry waters from three significant wastewater treatment plants, support wildlife habitat and mitigate flooding and climate change through vegetated riparian corridors lining these waterways. Great care must be given to preserving the necessary ecological services provided by these valuable rivers. Existing trees must be preserved, and new trees planted to expand the corridors. Highway runoff must be channeled into vegetated wetlands prior to running into these streams, improving stream health, expanding the aesthetic beauty of the area, and providing an opportunity to educate the public about the benefits of putting nature to work for us.

Express Toll Lane

- Not in favor of a toll expressway.
- As a daily user of 69 highway there is no question that improvements are necessary due to traffic demands. I have concerns regarding the safety of the design of the express lanes where traffic is merging into and out of the left lane creating bottle necks and slowdowns (just like the ones created at most of the current interchanges). It seems that the design encourages more lane weaving than just adding an additional non toll lane would. I believe this proposed design is more about funding and less about safety. I understand user fees are a new way of keeping property taxes lower, however if we are going to start funding everything with user fees let's start with the school's systems.
- I am 1000% against putting in an express toll lane on 69 Hwy/I-35 exchange. This is not appropriate for our area and a greedy power/money grab by people who can't ever seem balance our budget and just want to spend more of hard working people's tax dollars.
- Residents do not want an express toll lane. We should not have to pay for not wanting to sit it traffic, and for roads to be less congested, especially by the use of an express toll lane.
- Not a toll road please!!
- NO toll lanes on 69.
- Has an analysis been performed to determine how many users of 69 highway would use alternate roads for travel if it became a toll road and how that would/could affect congestion on roads like Nall, Metcalf, Antioch, etc. that are seeing increased use and congestion.
- Why aren't gas tax funds being used for this? So there would be no toll?
- I'm writing to object to the use of an express toll lane are part of the improvements to US 69. My wife and I both use US 69 each day on our commute to work, between 199th street and College/119th. Neither of us are willing to pay for using an express lane and we fear the majority of other commuters would not either. As development out south continues, use of 69 is only going to increase. Reserving the new 3rd lane for express toll only is going to disproportionately drive more of the increased use to the "free" lanes. Increase congestion on the "free" lanes will have the unintended consequence of driving more short-route traffic (like going from 135th to 159th) to surface streets,

creating more congestion there. When reading over the marketing material that advocates for the toll road it's apparent that the authors are attempting to paint the toll road as fantastic solution ("making the 3rd lane a toll road will really improve congestion and 100% of the people surveyed want less congestion" nonsense) when all it really is going to do is kick all the local users in the wallet. Having traveled to numerous locations where toll roads are far more common (Chicago, Orlando, LA, etc.), I dread the idea of more toll roads coming to KC.

- 1. When will the toll express way be convert back to freeway? Provide a future date/ anticipated date/ or after total financial amount is collected from tolls. This looks like it will be a toll road forever without end. 2. Will rates vary depending up time of day or direction of travel only based upon traffic patterns? A varying rate will be difficult for the public to reliably use to determine when to use it or when to travel. This only works if you assume that people make their travel decisions when they are 200 feet from the sign and see the price along with the backed up traffic. Having a published rate will illicit less complains and bad will about the project. 3. There will be individuals who do not pay the bills or fees if it is not a prepaid device used to enter the toll road. How much expense/resources will be acceptable to recover unpaid fees? Will it be acceptable to put liens against unpaid bills, will police resources be used, will justice system resources be wasted? Or is there already a plan to hire private debt collectors to recover unpaid fees? Are the cost of fee collection being adequately represent in the income statements and estimates? 4. If prepaid devices are required to use the lanes, who pays for the initial base unit price (or is it assumed that the cost of the device is paid over time through fees), who pays for the fees charged by the financial institutions holding the money collected (prepaid amounts), who pays for the customer service and support of the devices and such when they fail, who pays for the auditors managing the money, ... Cell phone prices in the past had been subsidized by cell phone companies because they collected more in fees over time from their customers who used the services so the base phone cost was inconsequential compared to the fees and services charged by the cell phone company. Are the costs to the city/county/state and to the individual users properly represented or are they mixed around to hide all of the service fees being charged by the private companies? 5. There are already several awful toll systems that use devices/equipment to pay toll electronically. Which system are you considering or was your intent to photograph and charge license plates? I do not want to be charged for fees because someone else put a printout of my plate over their plate when they took the toll express way. 6. Do the heat travel maps in the simulations show how people driving north are impacting other areas of the metro such as Metcalf and 435? Packing traffic in faster will just mean a choke point somewhere else. Will there be a video created for public consumption showing simulated traffic patterns based upon a few different population settings and assumed traffic patterns? 7. Is there any money being set aside for educating the public via TV or websites about how their individual decisions impact and control the existing traffic patterns and congestion? I see information based upon simple guessing (probably made by a private for-profit firm) on how it might change. I do not see anything that helps form a larger scope of options to help now and going into the future. This project demonstrations are too small and narrow in scope to be adequate to inform the public. 8. Has there been any work done to work with traffic apps (google maps/MapQuest/Garmin/tom tom/Waze/INRIX) to artificially increase delays in the app rather than add lanes? They will impact actual traffic patterns and those will not typically be represented in any simulations. But people use them and those more likely to use them are those traveling through areas of congestion at the time of congestion. They can influence routing and travel decisions. 9. What is the reimbursement process you will have in place when I need reimbursement for the toll fees when, I get stuck in traffic in the express lane? People will not find it acceptable to get into the express lane and essentially agree to the toll only to get stuck in traffic at the other end. When traffic does back up in the express lane, will the fee go to zero or would there always be a fee? There will be lots of public apathy if the expectations of service are not met by this project. 10. I could not see any indication of what other projects in the US are implementing this strategy already, so we the public can better relate to how such a toll express way works and to compare how it appears to work. Many of us have been all over the United States, so we may have already experienced this type of failed attempt at a toll express way. 11. Is the intent to always have a toll fee for the express lane, in order to reduce wear and tear on the lane, i.e. make it last longer? If that is the case, please talk to a "real" engineer/contractor to get the real world reality. Any reduced wear will not be relevant when the section of highway needs repair. The maintenance will be done on all of the lanes at the same time, so there is no actual relevant savings occurring with such behavior. 12. Will it be clear to the public how the lane can be used in the case of emergency such as when traffic is diverted by local officials into the lane to avoid obstacles/obstructions? Will vehicles/people get charged when diverted into the lane by officials do to accidents? Will the system be turned off for such periods? Thanks to the advisory board reviewing and local officials for evaluating and looking for a solution. While we can raise objections and questions there has already be a lot of effort put forward to provide the public with information about the initial project and plans. This is necessary so that we the public can raise more questions and engage to become part of the solution. We the public will be harsh as we pick at the proposal, but decisions need to be made (note - doing nothing is still a decision). Thanks again for the work done by the civil servants of Overland Park and Kansas.

- I have two comments, one I do not support toll lanes. I think having a HOV lane in designated places is a better option. Secondly, I do not support the need for a new interchange at 167th St.
- Express Toll Lanes are a great option here, allowing users flexibility in determining what their time is worth and matching up those who bear the cost with those who will benefit most from the expansion.
- If an express toll lane is implemented to fund Overland Park's local contribution to get this project funded, will the cost to drive in the toll lane disappear once everything is paid for? If so, then this is something I could get behind. If not, then I strongly recommend other funding options be considered. Once the toll lane is there, I'm guessing it will be practically impossible to get it removed. In regards to access and road design, is there any thought to reworking the northbound on ramps at both 135th St and College Boulevard, the southbound on ramp from Blue Valley Parkway, and the southbound exit lane at 135th St? I would argue that quite of bit of congestion and accidents occur at those areas because people don't know how to merge properly. For example, changing the northbound on ramps at both 135th St and College Boulevard to only have one on ramp would greatly improve flow and reduce accidents. Or build a new southbound on ramp from Blue Valley Parkway that goes over U.S. 69 Highway and lands between the current 2 lanes and a new exit lane at 135th St that exits much sooner (like .5 miles after the 119th St exit). This new design would allow drivers heading south past 135th St unimpeded flow, and those getting on the highway from Blue Valley Parkway would have the option to merge left to get onto U.S. 69, or merge right to exit at 135th St. I'm sure reworking on ramps are expensive too, but these options might do more to helping with congestion than an express toll lane would.
- We strongly oppose the US 69 express toll road project for the following reasons. First, it is too short of a stretch of road for it to be worth paying a toll - people won't use it. Second, traffic on 69 is already noisy and adding new lanes will make it noisier causing harm to the surrounding neighborhoods. Third, adding new lanes to get on and off the tollway will increase lane changes over a short stretch of road increasing accidents. Fourth, traffic patterns have likely permanently changed due to COVID; new traffic studies should be obtained reflecting changes to the traffic patterns after the pandemic is over rather than

relying on pre-COVID studies -- the existing configuration of 69 may be sufficient to support the traffic demand after the pandemic without any expansion.

- I highly support adding ETL's (Express Toll Lanes) to the US 69 Corridor because adding Express Lanes will reduce congestion and will increase safety on US 69.
- I do not think it should fall to the people who now live in the area and drive on the highway should have to pay for the lack of foresight of the city council before us. It is penalizing those who will drive this highway. People who drive 435 do not have to pay to use the lanes, it should be the case for 69. Although there are more "wealthy" citizens that live in this southern area of the city, we should not be taken advantage of, because the organizations in charge of updating our highways did not budget correctly. This highway needs to be expanded, but by forcing our citizens to pay to drive on it is not the way. Also instead of charging more to ride in the lanes during rush hour, Overland Park/Johnson County should look to how other major metropolitan areas use their lanes (Boston, Washington D.C., Salt Lake City), they should allow the lanes to be free. This will help traffic more than giving the elite access to their own lanes.
- This is my second comment. It occurred to me that adding a toll lane(s) with so many entrances and exits can be a real tribulation. If you add the lane on the right, entrances and exits are compromised for all lanes. If ;you add the lane(s) on the left, you will have to work your way across the other lanes when exiting having to deal with the very traffic you were trying to avoid in order to exit on the right. 135th street southbound is the obviously heaviest traffic exit. Travelers going west on I-435 and exiting to southbound 69 will not actually enter 69 until they reach 119th street. Then if they want to exit at 135th, they would have to work their way across 69 to the left toll lane, go a short distance and then exit the toll lane, work their way across 69 to the right so they can exit at 135th. That is not going to be worth the trouble, so they will not use the toll lane and I suspect that is going to be the situation for most of this stretch of highway. I am not aware how the designers intend for this to happen, but the infrastructure costs have to be excessively high.
- One extra lane might be enough south of 135th street, but 2 or more extra lanes are needed between 103rd and 135th street. I well remember when I-435 across the southern metro area was built with 2 lanes and immediately began the process ever since of adding more lanes. It should have been built originally with 4 lanes. Also, you need to expand further south to 199th street. Beyond that 2 lanes are sufficient with the 75 MPH speed limit. Living south of Louisburg since

moving from OP, I drive this enough to see more traffic exiting at 199th than at 179th. Admittedly, I purposely do not drive this during rush hour. For that short distance south of 103rd street, I do not feel that a toll lane(s) would work. Yes, more lanes are needed, but I do not feel that very many people would utilize them for such a short distance. I wouldn't and I lived in the metro area for over 50 years. New toll lanes between KC and STL would be another story. Tulsa has some toll lanes at various places around the city and it was always a hassle to get around, not knowing when you would hit one of them and not have the correct change to throw in the automated toll booth. I am guilty of just driving on through as I had no other options at times. That was more than 20 years ago, but as best I can remember, these roads were not very busy and even I was there only by accident.

- If you are wanting to out a toll lane this should be in addition to another lane- 4 lanes one way. The reasoning is that one extra lane is not sufficient for the amount of traffic and congestion from on/off traffic. Merging traffic during rush hours cause the 30 mph traffic or slower. If there was an extra free lane this would help with the merging traffic trying to get on toa busy road. Then you would still be able to have the Express lane as well. I think 69 is headed toward being another extension of 435 and their multilanes. This would also help with stalled vehicle crashes to keep traffic moving. Do not make the traffic go down to one lane as this will cause lots of uses as I have seen when constructions was occurring near Shawnee mission and 35.
- Need third lane option at minimum both directions. The toll lane is overkill and disproportionately impacts those users who helped build the rest of 435/1-35 and 69 projects with tax based funds. Now when it is our turn and need we get a variable rate toll proposal? Build the lanes and find from highway finds, gas Tax in place and existing federal and state funding. Add tolls to previously completed stretches of improvements on 35, 69 and 435 to fund future projects. Totally against this being the only stretch in metro with toll funded option.

Funding Options

- Adding a lane would only help. With the high taxes we already pay I feel a toll is unnecessary.
- I purposely moved out of a state with tolls everywhere and high taxes. Why is this project going to cost so much when new roads are build/expanded all around the city without needing to put up a toll? The cost looks to be $250M short term, and another $300M long term. How about just paying for it the normal way with 20-30 year bonds, or the already high sales tax? Let's NOT be like all of the states that put tolls everywhere. I do not plan on paying the toll if

enacted. Additionally with Covid, there is much less traffic on the roads, and it's thought that the work from home trend will continue for many people after Covid is over. Many businesses are realizing a cost savings by having their employees work remotely. Is this being taken into consideration?

- Why can't all feasible funding options be explored from the onset rather than wait and see if the toll version is acceptable. I have traveled on toll lanes in other cities. They can be confusing to an out of town person. And the personnel and mailing cost to bill for $1 doesn't sound cost effective.
- This comment applies to the 69 Express project as well as future road projects. Electric vehicles will become more commonplace in the near future. Since e-Vehicles use the same roadway as fossil fuel they also contribute to the congestion and wear & tear. Seemingly, more toll roads in conjunction with a decreasing fuel tax would be a more equitable solution for all drivers. Is KDOT working with state and federal legislators in somehow addressing this unavoidable issue.

Local Contribution

- Are not taxpayers still going to be paying for construction up front? In driving in states like Colorado those Express Lanes are only used during rush hours and empty other times, which seems like a waste.
- US 69 is already noisy, concerned about property values
- I do not believe a toll road is the appropriate way to fund this. Roads are one of the things we should and do pay taxes for. This will turn into the Turnpike where unnecessary road improvements are funded to justify toll collection with money wasted. I do not agree to this approach.

Noise

- Much impressed with the candidness of the meeting. Thank you!! BTW, I'm the guy who kept asking about noise walls - I live a block SW of the US 69/135th intersection so it's important to me — and I think necessary but.... I'd be glad to help anyway I can.

Other

- I find it hard to believe that we can spend millions of dollars building highways in rural areas of the state that provide relatively little economic benefit, but we cannot spend what it takes to widen a highway that is vital to the economic growth of Kansas and its tax base. It is even harder to provide meaningful feedback on these toll lanes when you cannot even give a ballpark estimate of the toll. This is just a veiled tax increase on an affluent area of Kansas.

- Thank you! Much needed project and look forward to seeing this project move forward!

Preservation

- Consideration must be given to alternative transportation options along this corridor, to reduce greenhouse gas emissions. Can electric vehicles be given free access to the tollway, for example? Can carpool hubs be provided at the southern reaches? Can a corridor for future light rail be designed as part of the plan? Will bike trails be preserved along the rivers with a means to travel north and south? The regional KC Climate Action Plan will be released today. It calls for Net Zero emissions by 2050. The US 69 Express should be designed help us meet that goal.

Road Design

- Blue Valley parkway should merge onto the right side of the highway. Having traffic have to both merge (from right lane to center if they are continuing on 69 south, and from left lane thru center to right lane if they are exiting at 135th street) was a poor design from the beginning.
- Merge lane for 119th street onto 69 north is way too short. If that lane stayed a temporary lane until the college exit, that would give more time for cars to get up to speed.
- 3 lanes needs to be brought from 435 all the way south to 135th street.
- We NEED 3 lanes (or more!) both ways to ease congestion. There is plenty of space to do so.

Safety

- While an extra lane in each direction would be nice, the congestion issues really come about because people don't know how to merge quickly and properly. But that's really just blaming the driver rather than the root of the issue, poor road design. For example, people get on U.S. 69 going southbound from Blue Valley Parkway, then immediately try to merge through 2 lanes to exit at 135th St. This causes major backups to 435 at peak travel times. Adding an Express Toll Lane only makes it so people have to merge over 3 lanes, and wouldn't fix the congestion/backup issue. The same can be said for the northbound onramps at 135th St and College Boulevard. There's 2 entry points at each street, and therefore we get even more merging/congestion issues. Is there any thought at improving road design at several points on U.S. 69 from 435 to 179th St?

Schedule

- Construction should occur during off times to help alleviate delays during the project. There are no good alternative router … therefore causing congestion. On other nearby road. Major issues north bound are merging/leaving traffic to 135, blue valley, college. Issues south is merging from turn only lane on the right near 135 to 69. People come from blue valley have a hard time merging over crossing traffic to exotic off to 135. Maybe an alternate way to get from blue valley to 135 to help the crossover traffic. Again, I don't think one lane each way is enough and by make the only one additional road a toll then you are not helping with any congestion of the road. I am not a fan of the toll of you are only adding one lane each way. Tolls also seem to hurt those at a lower income level and entitle those that can afford additional costs to the road. There are no toll anywhere else like 435, 70, 635, or 35.

Traffic

- I have driven this route north and south for many years at peak times, and I would just like to say I do NOT think the traffic is an issue. Sure you have a slow down a little, for some of the highest peak times, but overall not bad at all. I do not think adding this lane or the entire project is needed.
- Increased use of public transportation along this corridor could help ease some of the congestion. Please consider using revenue produced as a result of the project to assist public transportation options. Also, please consider incorporating park and rides or other transit-oriented developments to assist with the transition to public transportation. Thank you.

Virtual Public Meeting and Informational Open House #2 Opportunities Overview

The Kansas Department of Transportation (KDOT), the Kansas Turnpike Authority (KTA) and the City of Overland Park hosted a Live Virtual Public Informational Meeting and a Virtual Informational Open House for the U.S. 69 Modernization and Expansion Project (69Express). Keeping health and safety in mind, the Live Virtual Public Information Meeting #2 and the Virtual Informational Open House #2 were both held virtually. This was the second series of Virtual Public Meetings for 69Express held. The Virtual Informational Open House was from April 16, 2021 – April 30, 2021 via KDOT's Public Information Management Application (PIMA) website and posted to the Project website. The Live Virtual Public Informational Meeting was held on Tuesday, April 20, 2021 from 5:00 p.m. to 7:00 p.m..

The Project is an in-depth study of how best to improve public safety, reduce congestion and increase travel time reliability along U.S. 69, including evaluating if an express toll lane option is a solution for the corridor. The purpose of the virtual meetings was to inform participants about the Project and gather stakeholder feedback. Both opportunities provided the same content. Two-hundred thirty (230) participants signed into the live virtual public meeting and two-hundred fourteen (214) signed into the virtual informational open house.

The Live Virtual Public meeting started with a presentation from the Project team and then followed up with a question and answer session. The content of the presentation included the alternatives being considered, the environmental screening process, a comparison between traditional widening (toll-free) and express toll lane alternatives, express toll lane (ETL) pricing, and the engagement process. Here is a link to the recorded presentation.

Members of the public also attended the Virtual Informational Open House at their convenience to view meeting materials and provide questions and/or comments through an online form that went directly to the Project team.

Understanding participants' concerns and questions will help the Project team make decisions moving forward. The Live Virtual Public Meeting and Virtual Informational Open House were promoted to the public through media releases and social media posts from KDOT, the City of Overland Park and Advisory Group members.

The summary below captures common themes noted by the public during both the Live Virtual Public Meeting and Virtual Informational Open House:

- *Express Toll Lanes.* A significant number of participants submitted comments inquiring about how tolls would be collected on U.S. 69 and why Overland Park could be the first in the state to have a toll system added to a highway.
- *Environmental Justice & Equity.* Participants asked questions about how the price of a tolled lane would affect underserved, or low-income populations and what would be done to mitigate impacts.
- *Road Design.* Many of the participant's questions and comments centered around the traditional-widening scenario impacting businesses and the logistics of using the ETLs.
- *Funding Options.* Questions and comments regarding funding focused on what the generated toll revenue would be used for and why a tolled option is being considered when Johnson County residents pay taxes.
- *Traffic.* Questions came up about how the proposed alternative would help lessen bottlenecks along the corridor.
- *Access.* Many of the participants expressed concern about entrance and exits to and from the express toll lanes from various points along the corridor.

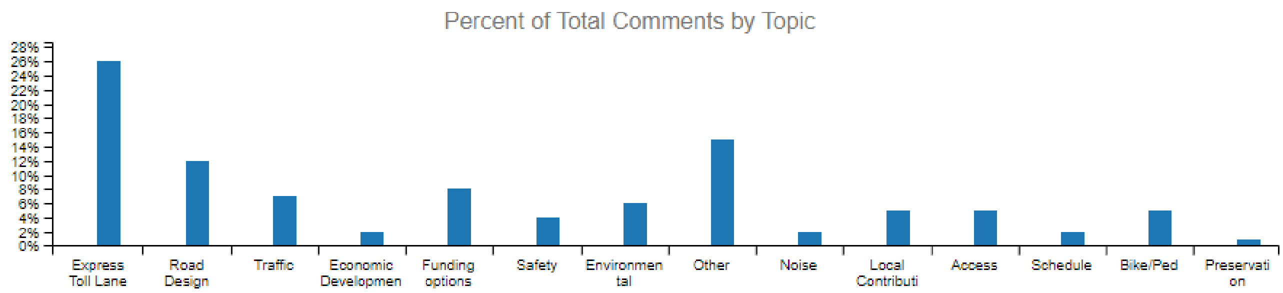
Public Input Statistics from Live Virtual Public Meeting and Virtual Informational Open House

There were a total of 81 questions and comments submitted during the Live Virtual Public meeting and Virtual Informational Open House. When submitting a question or comment, participants were able to choose the category that best fit an overarching topic of their submission and to select their level of favorability for the proposed project.

Participants were also given the opportunity to select a category that best fit overarching topic of their question or comment. Categories included access, bike/ped, economic development, economic concerns, express toll lanes, funding options, local contributions, noise, preservation, road design, schedule, traffic and other. These categories with corresponding submissions are labeled below in ***Figure 1***. The most common category submission during the meetings was 'Express Toll Lane'. Questions and comments from the participants can be seen in Attachment 1 of this document.

Live Virtual Public Meeting #2 and Virtual Open House #2 Summary
April 2021

Figure 1 - Categories of Questions and Comments Submitted



In addition to those that attended and signed into the Live Virtual Public Meetings and Virtual Informational Open House, over 1,100 people are also signed up to receive newsletters and updates about the Project.

Attachment 1

<u>Questions and Comments Submitted at the Live Virtual Public Meeting</u>

Participants were able to choose the categories that went along with the submissions. The primary topics are shown below. Questions and comments submitted during the Live Virtual Public Meeting are verbatim below. Topics are in alphabetical order.

Access

- Will I be able to access 69N from Blue Valley Pkwy, and access Blue Valley Pkwy from 69S?
- Does the toll express lane have access for entry/exit to all current access points? If not, how limited? Seems safety would be major concern in moving from Express Lane to many exits.
- Looking at larger highways, it's been demonstrated that adding lanes has regressive returns. Traffic generally is most affected when there is a flow interruption such as lane changes to avoid traffic, and merges causing following drivers to slow in a recursive cascade. Specifically, this is exaggerated on the blue valley parkway to 135th exit where 69 south's right lane ends and BV Pkwy require 2 merges. Why is a plan that omits a 3rd lane that focuses on correcting interchanges and creation of collector/feeder not submitted?

Bike/Ped

- Is a new bridge on 127th Street over the highway included in the project? Is the 132nd bridge to be rebuild and if so, how long will it be closed. Is the walking trail between 127th and 132nd on the west side of the highway going to be usable during and after construction?
- Since the opening of 159th Street exit/entrance to 69 the traffic has expanded a lot in a short amount of time south of 151st. Why is 151st the southern cut off? This seems short sighted.
- There exists a bike trail just south of 135th Street that passes under US 69. The bike trail runs alongside Tomahawk Creek that also passes under US 69 at the same location. Deer, coyotes, bob cats, turkeys, and other wildlife roam within this area. Will the bike path and a pathway for the wildlife be accommodated by the widening that is contemplated? If that has not yet been determined, are these considerations likely to be prioritized in the environmental impact study?

Environmental Concerns

- What measures, if any, will be taken to mitigate increased sound pollution in communities near the affected portions of Route 69?
- You keep mentioning that lower income people won't be at a disadvantage because they don't have to use an express lane every day. However, this is close-minded. First, if there's an emergency and they need to travel faster, it's unethical to make someone pay, especially if they can't afford it. Second, you're talking about theory, and theory never plays out as expected in practice. The express lane will undoubtedly cause more problems than it will solve, and it's a short-term solution at best.
- You give an example of the cost for a user that would make 5 one way trips a week. People who live south of this project and work north of it would be making two trips a day. Does that mean that such individuals using the express option would have an annual cost of over $700??
- Will locals be required to pay toll?
- I am not in favor of an expressway because it does not treat low-income people equally, allowing people who are willing to either pay more or who have higher income to take advantage of the benefits of an express lane more than someone who does not have that disposable income. What is the best way for me to express my opposition to this plan and preferring building general lanes for all forms of traffic to use?

Express Toll Lanes

- Marketing on social media is making it sound like the Express Toll Lanes option is the only way to reduce congestion. But as presented here, the Traditional

Widening option would reduce congestion as well. If cost isn't a reason as to why the Express Toll Lane option is being pushed, why not proceed with the Traditional Widening option first, and if congestion isn't good enough, then implement Express Toll Lanes?

- Mechanics of money collection? toll booths? credit card vs exact change? Same speed limit on express lane as regular lanes?
- HOV or bidirectional lanes considered? Speed limit on Exp Lane? How will tolls be collected? What method of separating Exp Lane from normal lane? How many Express lanes possible?
- I35 has never put in a toll lane, it has more traffic. Why does 69 need a toll?
- According to the speed of traffic slide you showed, with traditional widening all traffic goes at 40 MPH. Under the toll option, some (those paying) go 55 MPH while others (those not paying) go 35 MPH. So, if you have money, you'll get there faster. It seems all drivers benefit by traditional widening. Tolling seems to favor the wealthier that are price elastic.
- It sounds like a foregone conclusion that KDOT/OP Council is moving towards Express Lane instead of Traditional Widening. How can ALL citizens of Overland Park (instead of the limited subset selected for a survey) voice opinion on both options? Will results/surveys be made publicly available? (Personally, in favor of Traditional Widening)
- Who gets the toll money? What are the administration costs related to toll collection vs. collections?
- The only toll road I know of in the area / State is I-70. Area taxpayers pay a ton of money in taxes for roads. And now we'll have to pay more in tolls. We successfully used traditional widening to expand I-435 and could work for 69 as well. It seems we're charging tolls because the legislature said KDOT could and this wealthy area is ripe for charging tolls.
- Do you anticipate the toll revenue eventually completely paying off the costs for the infrastructure upgrades? Or, do you foresee the revenue chasing ongoing costs for the original projects plus future upgrades/repairs forever? I assume the latter is true, but what happens with the revenue if it outpaces the costs for the project?
- Express Toll Lanes and lane widening are short term solutions at best (there's plenty of research to back). My question is, why haven't you looked into actual solutions that will address the root cause and/or be long term solutions that will not need to be addressed in the next 2-5 years after completion such as the current proposed solution? Express toll lanes are already outdated ways of thinking, so more future looking solutions should be considered. They would be more expensive, but the potential gains in the future would be far greater.

- Will there be a place for the public to post questions/concerns and get a response after this meeting?
- What happens to the cost of the toll lane, when there is an accident, or disabled auto in one of the two standard lanes?
- Has the train left the station on express lanes? Under what conditions would express lanes not move forward?

Funding Options

- Aren't you fixing problems that KDOT designed? Example 435 exit and entrance ramps and Blue Valley Parkway merge to south 69? Why should we pay to fix your mistakes through express toll lanes?
- Do the tolls cover maintenance of the roads long-term?
- It's obvious the express toll lane is because of lack of funding, due to diverting of funds from KDOT to general fund. How do we stop the legislature and governor from stealing tax dollars from KDOT?
- Has the legislature weighed in on this project and the method of funding? KDOT funds have been raided over many, many years to balance the state budget, is this a reason Express Toll Lanes are being considered?
- It feels like Johnson County and the KC metro area is a source of a lot of the state's income/funding. Why should local residents pay all the same taxes as other Kansas residents and still not have our highways provided without additional tolls/taxes? We do more than our share already.

Local Contributions

- The public survey done by ETC at the end of last year revealed that only 24% of residents approved of tolling. The follow up survey which was done in January by Zoom with a moderator adding context only raised the approval percentage by 10 points or so. The website states that the tolling lane needs to have community approval. Approximately 2 of 3 residents do not approve of a toll lane. It appears that the only approval that counts is if the City Council approves. Why will the Council Members be forced to approve something the residents don't want? (KDOT knows Overland Park does not have tens of million dollars to fund a local contribution.) In light of these facts, shouldn't KDOT withdraw the tolling proposal and proceed without a local contribution?
- Most residents believe that the only source of revenue for KDOT is the gas tax. However, here is Kansas the Department of Transportation also receive revenue from the Kansas Sales Tax, which is charged on all purchases. KDOT receives approximately 1 percentage point of the 6.5% charged on purchases. That translates to 1 cent of every dollar that is spent in the State of Kansas. This

means that KDOT receives revenue of every dollar spent on groceries. Overland Park receives 1 percentage point of sales tax. This means that Overland Park and KDOT receive approximately the same amount. In 2019 Overland Park received approximately $49 Million Dollars for the general fund. KDOT also received this amount from purchases in Overland Park also. KDOT is asking for a local contribution. It would seem that the residents of Overland Park provide a very large contribution already. What can't Overland Park tax remittances be considered as the local contribution?

- Taxes are paid for roads. Patrons should not be charged to use this road. O.P. wanted to annex most of southern Johnson County and now there are traffic issues. Plans should have been made for congestion a long time ago. I agree with a previous comment. Just because a person can afford to pay extra or chooses to pay extra for a faster lane, doesn't make it right. Not everyone can afford it, but we all pay taxes for the roads. We all have a right to get somewhere in a timely manner, not just those who have more funds. Also, how can emergency vehicles access the toll road? I am against a toll road. Thank you.

Noise

- As you are aware, many thousands of residents live along or near the 69 corridors. North of 435, there exist sound barriers on each side of 69 Highway. What, if any plans exist for sound barriers for the 69 corridors?
- There are many homes between 129th Street and 159th Street which not only border US 69 but actually about the right of way. These homes are represented by HOAs that have been included in the Advisory Group are some distance away from US 69 and will not be as significantly impacted as many other homes. Will other HOAs that have a greater interest in the US 69 Corridor project be included in the Advisory Group? Our HOA, that is close to US 69 and I suspect other HOAs that will be similarly impacted, would like to be included in the Advisory Group, will this happen? We would like to provide input before the study is completed and reported in the fall.

Preservation

- What happens when the issue comes back in the near future? This is a short-term solution as collective human behavior adapts to changes and will very quickly go back to being an issue exactly like it is today. Atlanta is a perfect example of how Express toll lanes were a short-term solution. Places where they are "working" are only because they haven't seen the adaptation yet. They will eventually be back to where they were. Another improvement project will be needed in the near future. More long-term solutions should be considered.

Road Design

- Right now, to get into Missouri, you can take 199th Street to state line which is in horrible repair. If state line and 195th Street were improved to Holmes Road, some of the 69 congestion would go away.
- You showed one building impacted under the non-toll option. It appeared to be impacted because of parallel exterior lanes (like the Nall, Roe lanes). Why would those lanes be needed at that interchange?
- 1-Has there been any consideration for 2 lanes in the same direction? North in the am and South in the pm. St. Louis has this and seems to work well. 2-What if pay for the express lane and someone drives at slower speed. I'm stuck 3-You mentioned the Ks Turnpike Authority will oversee if a toll road. Will traffic enforcement be the same as today; City, County and State?
- On the original design that was shown in the first public house, the lines highlighted in orange represented what needed to be done now and blue represented what could be done in the future. Is there a chance that the improvements highlighted in blue (I-435, College Blvd, and 135th Street interchange improvements) could be included in the first phase of US-69 improvements?
- If you're trying to use Express Toll Lanes so you don't have to expand the corridor in the future, wouldn't it be more expensive now, but cheaper overall, to expand the highway by 2 lanes in each direction now?

Safety

- It looks like this may be considered for any plan? There are a significant number of accidents as a result of the following traffic flow of those attempting to enter 69 and exit @ 135th. (right lane) Southbound entry of Blue Valley Parkway into/on Southbound 69 (127th Block) enters into the innermost lane that merges with traffic approaching 132nd St. Bridge. Now that you've opened up the space (west end) under 132nd Bridge with recent lane extensions. If you would consider an overpass to enter S-69 to the outermost lane for traffic to merge in a (normal) right to left ingress. I truly feel this would cease the resistance of vehicles cutting across 2 lanes of traffic in such a short span of roadway and lessen the vehicular interaction friction and number of accidents as a result. *(keeping in mind this was first built to farmland and a sports complex @ 135th Street at the time of engineering)

Schedule

- Can you expand on what happens with regard to the [quote]construction pipeline announcement[quote] and what specifically needs to be done to launch the alternative delivery procurement? More specifically what is driving the start of the alternative delivery procurement and when do you see that starting? (i.e. environmental approvals, funding available, etc.)

Traffic

- The other extreme bottleneck (and accident prone) is the northbound clover leaf from I435 Eastbound to enter US 69 to go northbound, because the clover leaf brings cars into the right lane of US 69 but these want to move to the left lane in the very same lane where cars are trying to exit from US69 to go west on I435. This must be fixed no matter whether toll or no toll is done.

Other

- Should the project be pushed back in order to collect more data regarding traffic post-pandemic? Not only does the current data not support your projections (at best it's on par with pre-pandemic levels) your traffic projections are guesses at best considering no one knows how things will change after COVID-19. I would think waiting to collect more data would be wise.
- Why is there no option to control the overdevelopment of Southern Johnson County which is a significant cause of the increased congestion?
- Putting a fast lane on Highway 69 is a tollway, is that tied to house bill 2296?
- What is the thought on continuing it down through Miami County? 2 full lanes from Louisburg rush hour.
- Will you address the social class issue around charging people for using the "faster" lane? Society as a whole will change after COVID-19, and it's important to understand that social class issues will be more prevalent, especially if this project goes forward as planned. For example, the majority of people able to work from home after the pandemic will be higher earners that can more easily afford to pay. Obviously, they won't need to travel as they are working from home. The majority of people driving post-pandemic will be lower income blue collar workers that cannot as easily afford to pay toll. The people that will be paying toll will be higher earners that still need to drive, relegating the lower income earners to slower moving lanes. This project will exacerbate social class issues. Just because people are willing to pay doesn't mean they should. The solution being proposed is a short term one at best, but it will have lasting effects on exacerbating larger societal issues.
- On traditional widening, how many lanes?

Attachment 2

Questions and Comments Submitted During the Virtual Informational Open House #2 from April 16 through April 30.

Participants were able to choose the categories that went along with the submissions. The questions and comments are organized in the corresponding categories of access, bike/ped, economic development, environmental concerns, express toll lanes, funding options, local contributions, noise, road design, schedule, traffic and other. Questions and comments submitted during the Virtual Informational Open House are verbatim as follows:

Access

- No express toll lane on US 69.

Bike/ Ped

- I'm support the express toll option and frankly wouldn't mind seeing the entire facility be a toll road. (People who use the road should pay for the road.) I also think supporting multimodal options is important and KDOT could play an important role in bringing the various impacted communities and government entities to the table.

Economic Development

- I am in favor of the toll lane. Go big now or later. The tolls only affect those who use them and provides some ongoing revenue.
- Go ahead with the Express Toll Lane Alternative for U.S. 69 because adding an Express Lane will reduce congestion on U.S. 69 by giving drivers a choice.

Environmental Concerns

- I don't really understand the difference between this screen and the previous one.
- I prefer the ETL option (inside) with a bus lane (outside). I also prefer the interchange option with the smallest footprint. We don't need to waste money building out huge footprints with generous loops so we can drive without any reduction in speed.
- So, better roads for those that will pay the extra. Are you people nuts? Find the state and federal funds and make it happen. Trillions and trillions in federal funds in the past 12 years. Figure it out. But stop coming to the public with new and never-ending ways to tax people. And don't create federal luxury roads for some of the public. This is just wrong.

Express Toll Lane

- Traditional widening is preferable vs toll. Toll may relieve pressure on the road short term, but if traffic increases as indicated, widening is inevitable. I don't see any benefit from the toll option.
- Hi, KDOT! You and your partners/fellow stakeholders in the Project should also consider making the proposed US Route 69 Express Lanes free for HOV 2+ or HOV 3+. If you consider HOV 3+, you should consider half-price (or other reduced-price) tolls for double-occupant vehicles. Thank you, -Mike.
- Billing users according to tag number is a good idea as we have experienced on the Pennsylvania Turnpike. Seems like some people will not pay their bills. How will the authority insure payment?
- I support a toll lane but ONLY if it's dynamic pricing. So, it would be $0 in low traffic, up to $0.20/mile in the heaviest traffic, but always at a price that is intended to attract sufficient users at any given time. Please use a nationally universal system like EZ Pass.
- ETLs place higher speed traffic next to lower speed traffic and this seems more dangerous than traditional widening.
- ETLs do not have access to on and off ramps without crossing ALL lanes of traffic. This seems more dangerous and the terrible drivers in this region rarely let people in a lane, so it is going to be nearly impossible to cross all lanes of traffic to enter or leave ETLs.
- ETLs seem like an elitist, hate filled, democrat party idea. Where only those that can afford to travel in it can reach the higher speed. That is not fair. Something we have come to expect from the democrat party - lack of fairness.

Funding Options

- Recent studies found that toll roads/lanes are the least economical and are notorious for over charging commercial vehicles and siphoning off revenues for non-toll road and/or non-highway needs. This should never be an option, because higher cost for transportation to get goods and services to the consumer = higher cost to the consumer. Higher cost to the consumer and tolls, tend to impact the marginalized population, proportionally higher, then others.
- I find the comparison between traditional lane additions and express lanes to be highly disingenuous. Express toll lanes require more footprint and more development costs for separated ramps and lanes, not less. Further, Johnson County is the wealthiest in the state contributing far greater tax receipts than is being received, express tolls lane(s) are just another form of use taxation. The traffic does not magically disappear because a toll tax is being imposed, it is just penalizing those who cannot afford it. This will push those who cannot afford the

[quote]Lexus Lanes[quote] to sit in traffic or move to local roads. How about the state figure out how to give the county its fair share of roadway development dollars back and support the economic engine that contributes an outsized number of jobs and growth to the region and stop trying to spin toll lanes as a " benefit". Alternatively, the county should limit growth along the corridor to sustainable levels that can be supported by the current infrastructure growth and funding plans.

- I am against a toll road or toll lanes in Johnson County. As a former resident of Dallas, there are toll roads everywhere, and they do nothing to help. I am also curious as to why this particular stretch was suddenly ripe for consideration when 35 in Olathe, 435 in Overland Park, and the 435/35/10 interchange projects were both redone without tolls. I am concerned that this toll project is already going to move forward as you all have marketing and branding for it. If 69 needs to be widened, then widen it. But do so without tolls. The state should do a better job of managing its money to expand the roads as needed without further imposing costs on locals who travel the road.

Local Contribution

- It is unclear why the traditional widening requires more of a footprint than the toll alternative. In both cases, an additional lane is added (both directions). In both cases, if additional capacity is needed, it appears more lanes will be needed. what is the difference.

Noise

- Traditional widening means more traffic can pass by any given point at one time. This is the goal, to carry more volume. And to share the cost equally among those that use it.

Other

- The traditional widening approach seems fair and equitable for all tax payers.
- The traditional widening approach seems safer since you do not have higher speed traffic next to lower speed traffic. All drivers operate with the same speed limits.
- If the State needs more tax revenue, then tax the electric vehicles more since they avoid the fuel tax. Tax battery replacements in electric vehicles more. Tax the purchase or sale of electric vehicles more.

Preservation

- I am confused, I already commented previously on another screen. I prefer the ETL (inside protected lane) option with a bus lane on the outside. I don't think we need to expand the I-435 to US 69 interchange. It was just upgraded and should be sufficient for some time to come.

Road Design

- I enjoyed the virtual tour, thank you. My 2 cents are that the express toll lane option is best because it minimizes the impact to the surrounding environment while providing a solution with options for users. I like the idea of using the center of 69 for the majority of the expansion.

Safety

- Add non-toll lane.
- How is traffic flow to be maintained during high congestion if the (high-speed) inside lane wishes to use an exit ramp (slow to cross 2 lanes of slow bumper to bumper traffic as they near)? Can traffic exit the center toll lane at any point right up to the exit ramp or will there be restrictions (like 1/2 mile before all exit ramps). If departing the center toll lane is restricted will there be plenty of room to exit the center lane or will the cars that need to exit be required to use a small section that might tend to increase congestion). How to encourage out of area (I-29 & Missouri) drivers to stop to pick up a K-Tag upon entering US-69? (Will we be able to pick one up (visitors station / vending machine) along the road way?) I can see a lot of study has gone into the toll option and from the funding part of the presentation how it is being promoted. I could see this working on I-70 or I-35 where the goal was to keep traffic bypassing the city moving, but much of the traffic entering/exiting the highway appears to be local (actively using the exit ramps based on traffic counts and according to the study).

Schedule

- I'm a proponent of ETL. If I need to move more quickly, then I can pay. I know the arguments on both sides. However, you don't have to pay more if you stay in the free lanes. Each person has the opportunity to use the lane that works best for their budget and travel time. I assume the ETL will always remain ETL in order to assist with traffic flow. I'd like future information to explain what happens with the funds collected, who gets them and how they will be allocated. (Sorry if I missed this somewhere on the site, I'll look around a little more)
- In the analyses presented, don't think the functionality of the Express Lane is being adequately characterized in terms of
  - 1. limited access to current on/off ramps
  - 2. number and location of access points to the Express Lane
  - 3. how effectively Express Lane's users will be identified without physical barriers to access

- Furthermore, I don't see the following safety concerns of the Express Lane being fully recognized/addressed:
  - 1. Required Lane changes - limited locations and length available for lane changes will be challenging for drivers.
  - 2. With no physical barrier, attempted Express Lane entries/exits at unauthorized locations are a safety issue.
  - 3. Driver confusion over Express Lane access/ tolling/ and traffic flow are hazards to safe vehicle operation.
  - My perception is that the Project Team is promoting the Express Lane toll option. The team presentation says [quote]we are excited[quote] about this option, as if it is a new toy. The media has already adopted [quote]the US 69 toll road improvements[quote]. in its reporting.

Traffic

- I am all for expanding us 69 highways, I am NOT in favor of toll lanes, I live on 199th Street and travel is 69 at least twice a day to my business in. Lenexa and home after work. Sometimes multiple trips.

Appendix 8

U.S. 69 Highway Corridor Survey Findings Report (May2021)

2021

U.S. 69 Highway Corridor Survey

Findings Report

Presented to the
Kansas Department of
Transportation (KDOT)

June 2021

ETC INSTITUTE

Contents

Findings Report

Executive Summary

U.S. 69 Highway Corridor Survey Executive Summary

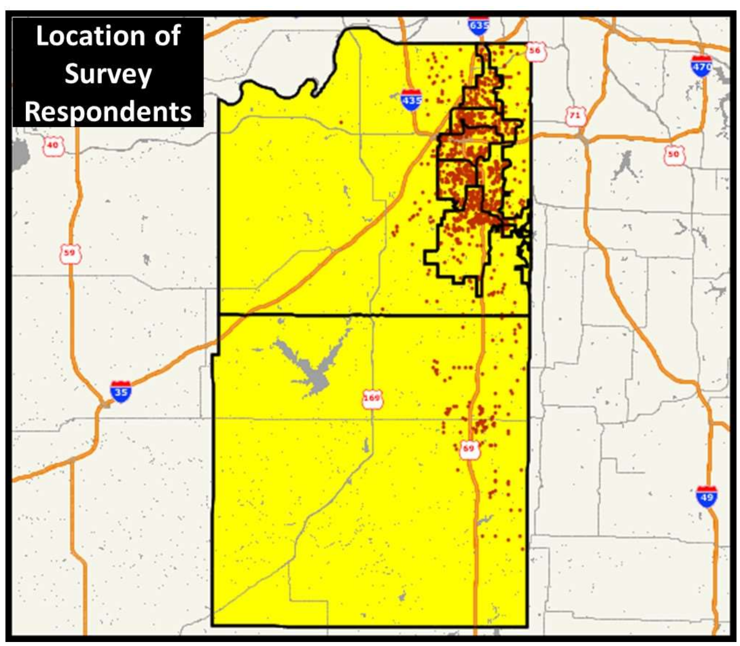
Overview

During May 2021, ETC Institute administered a survey for the Kansas Department of Transportation (KDOT). The purpose of the survey was to gather statistically valid input from residents in eastern Johnson and Miami counties about improvements that are being considered to U.S. 69 Highway between 103rd and 179th Streets in Johnson County. Data collected from this survey will be used to ensure that the needs and priorities of the community are incorporated into the decision-making process.

Methodology

ETC Institute mailed a survey packet to a random sample of 5,000 households in eastern Johnson and Miami counties. Each packet contained a cover letter, a copy of the survey, and a postage-paid return envelope. Residents who received the survey were given the option of returning the survey by mail or completing it online at www.KDOTUS69Survey.org.

A few days after the surveys were mailed, ETC Institute sent emails to the households that received the survey to encourage participation. The emails contained a link to the online version of the survey to make it easy for residents to complete the survey. To prevent people who were not residents of the study area from participating, everyone who completed the survey online was required to enter their home address prior to submitting the survey. ETC Institute then matched the addresses that were entered online with the addresses that were originally selected for the random sample. If the address from a survey completed online did not match one of the addresses selected for the sample, the online survey was not counted. The red dots on the map to the right show the location of respondents to the survey.



The goal was to obtain completed surveys from at least 800 residents. The goal was exceeded with a total of 1,257 residents completing the survey. Of these 1,002 were residents of Overland Park, 131 were residents of Johnson County who lived outside Overland Park, and 124 were from Miami County. The sample of 1,002 respondents from Overland Park included at least 100 respondents form each of the City's six wards. The overall results for the sample of 1,257 respondents have a precision of at least +/-2.8% at the 95% level of confidence.

This report contains the following:

- Section 1: Charts showing the overall results of the survey
- Section 2: GIS maps of selected results
- Section 3: Crosstabulations that show the results by location
- Section 4: Tabular data showing the overall results of all questions on the survey
- Section 5: A copy of the survey instrument

The major findings of the survey are summarized below and on the following pages.

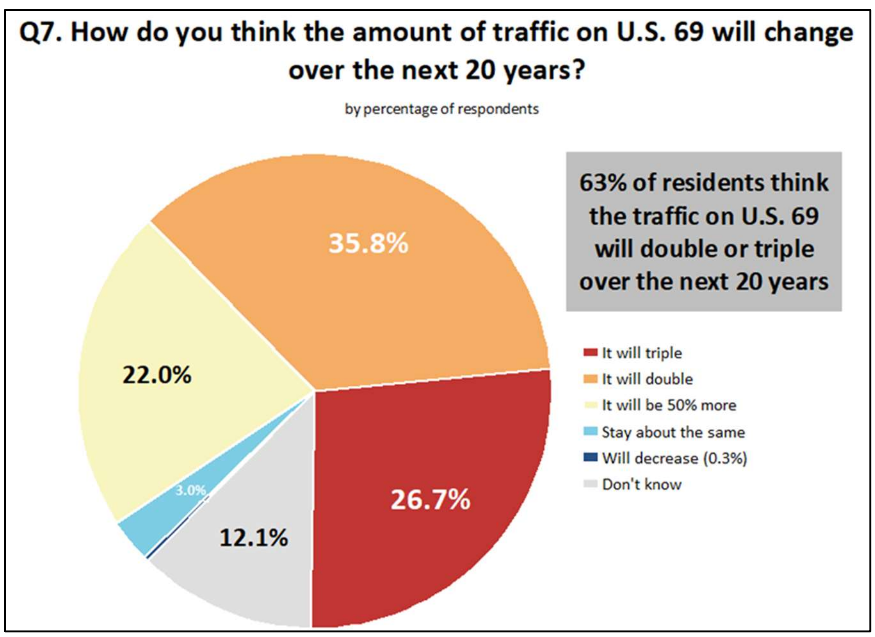
MAJOR FINDINGS

Awareness of Plans to Improve U.S. 69 Has Increased Significantly

- 61% of those surveyed indicated they knew KDOT was studying improvements to U.S. 69., which was an increase of 19% since November 2020 when 42% indicated they knew.
- The top two ways residents reported learning about KDOT's plans to improve U.S. 69 were from the local news media (38%) and the City of Overland Park (36%).

The Majority of Residents Think the Amount of Traffic on U.S. 69 Will Increase Significantly Over the Next 20 Years

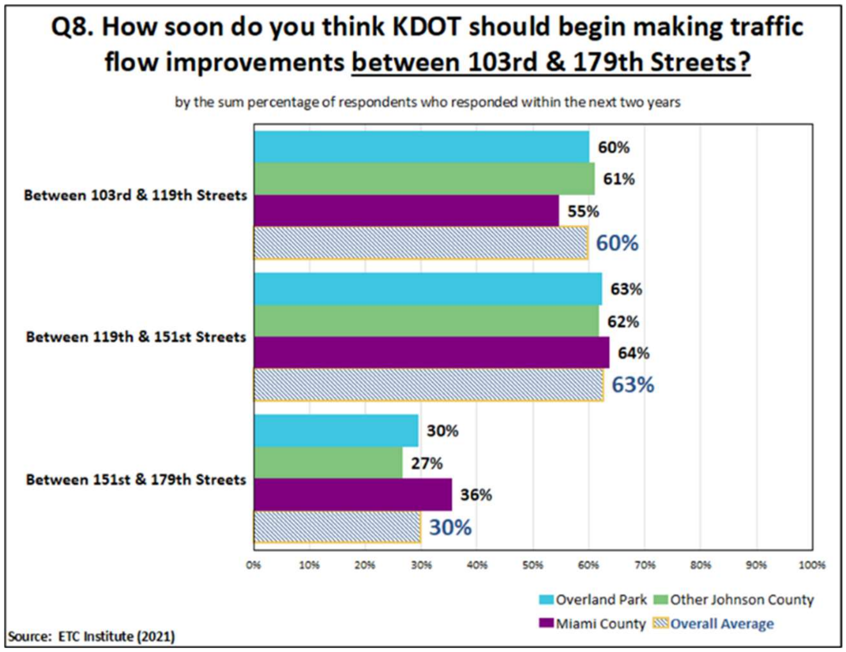
- 27% of those surveyed thought the amount of traffic on U.S. 69 will triple over the next 20 years.
- Nearly two-thirds (63%) of those surveyed thought the amount of traffic on U.S. 69 will at least double over the next 20 years.
- 85% thought traffic levels will be at least 50% greater than they are today.



Residents Think Traffic Flow Improvements Should Begin Soon

- More than half of the residents surveyed in Overland Park, other areas of Johnson County and Miami County thought improvements to traffic flow between 103rd and 151st Streets should begin within the next two years.

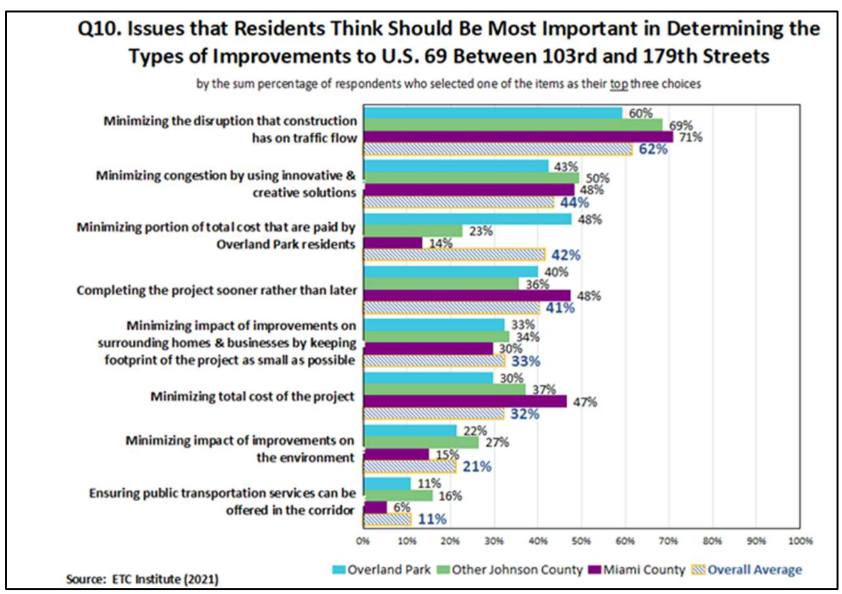
- About one-third (30%) of those surveyed thought traffic flow improvements between 151st and 179th Streets should begin within the next two years; nearly two thirds (63%) thought improvements between 151st and 179th streets should begin within 5 years.



Minimizing Disruptions that Construction Will Have on Traffic Flow Is a Top Priority for Residents

- 62% of residents indicated that minimizing the disruption that construction has on traffic flow should be the most important issue in determining the types of improvements to make to U.S. 69 between 103rd and 179th Streets. It was the most important issue in all areas surveyed.

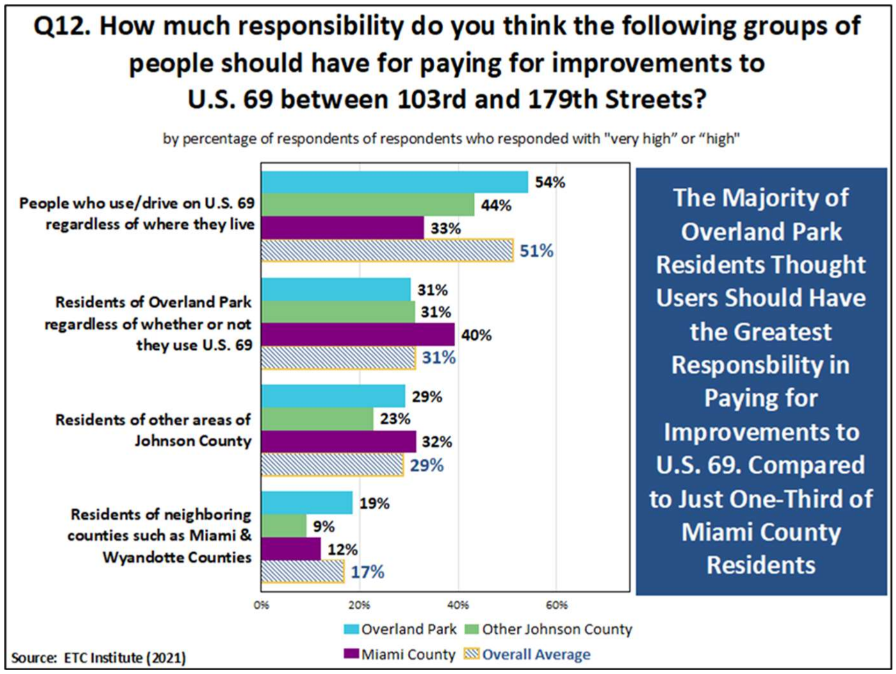
- Among all respondents, minimizing congestion by using innovative and creative solutions was the second most important issue. For Overland Park residents, minimizing the portion of the total cost to be paid by Overland Park residents was the second most important issue.



Overland Park Residents Think Users of U.S. 69 Should Have the Greatest Responsibility for Paying for Improvements to U.S. 69

- A majority (54%) of Overland Park residents thought people who use U.S. 69 should have the most responsibility for paying for improvements to U.S. 69 between 103rd and 179th streets.

- Residents who live in Miami County were more likely to think that Overland Park residents should pay for the improvements even if the residents do not use the highway.



OTHER FINDINGS

- **Importance of U.S. 69 to Businesses and Jobs in Overland Park.** Most (87%) residents surveyed thought U.S. 69 is either very important (65%) or important (22%) to businesses and jobs in Overland Park.

- **Awareness of the Local Contribution for Highway Projects.** Less than half (49%) of the residents surveyed were aware that cities like Overland Park, Topeka, and Wichita contribute local funds to help ensure major highway projects in their communities are constructed.

- **Experience with Express Toll Lanes.** More than three-fourths (78%) of the residents surveyed indicated that they have seen "express toll lanes" in urban areas of other states.

- **How Often Residents Would Pay to Use Express Toll Lanes.** Residents were asked the frequency they would pay to use an express lane to avoid congestion on U.S. 69 if the cost were between $0.65 and $1.75 or less to travel the complete distance between 103rd and 151st Streets. Nearly two-thirds (62%) indicated they would use it under certain conditions. One-third (32%) indicated they would never use it, and 6% did not have an opinion.

1 Charts and Graphs: Overall Results

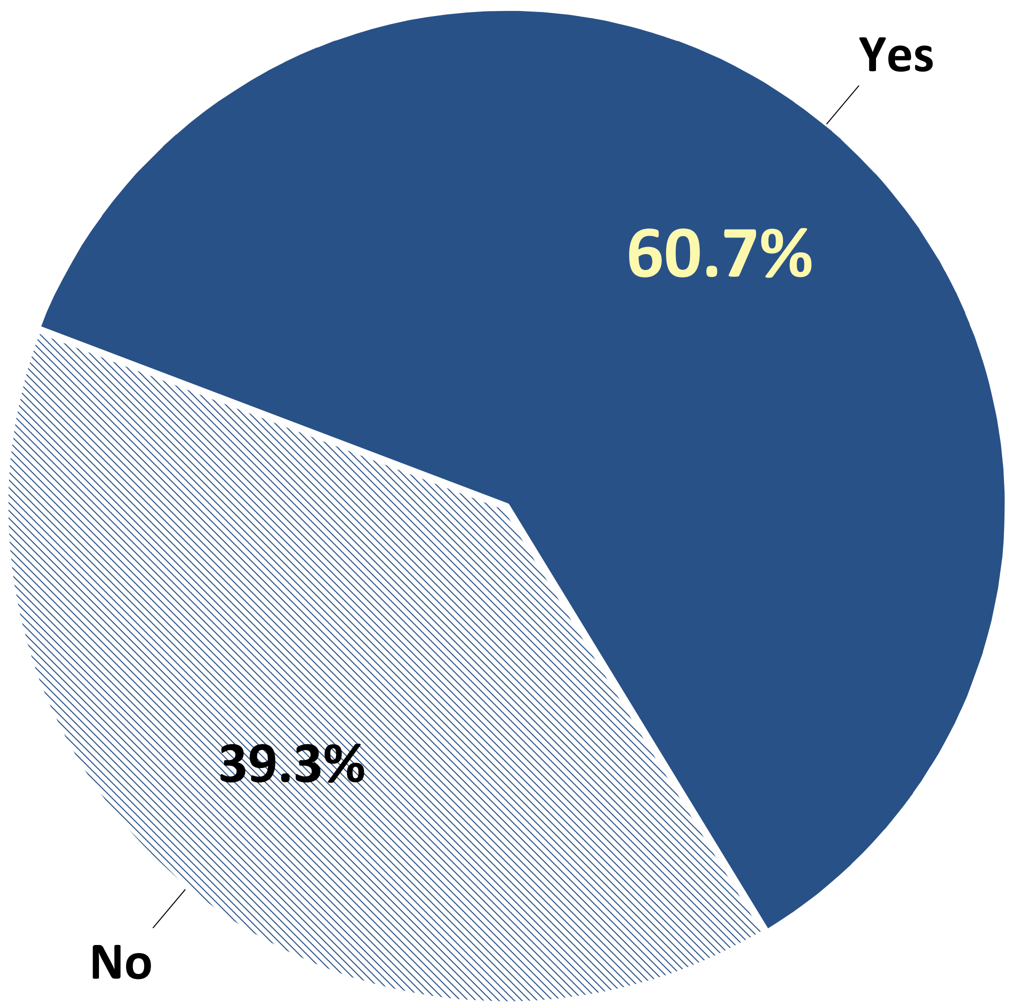
U.S. 69 Highway Follow-up Survey

May 2021

Part I: Awareness

Q1. Before receiving this survey, did you know that KDOT was studying improvements to U.S. 69 between 103rd and 179th Streets?

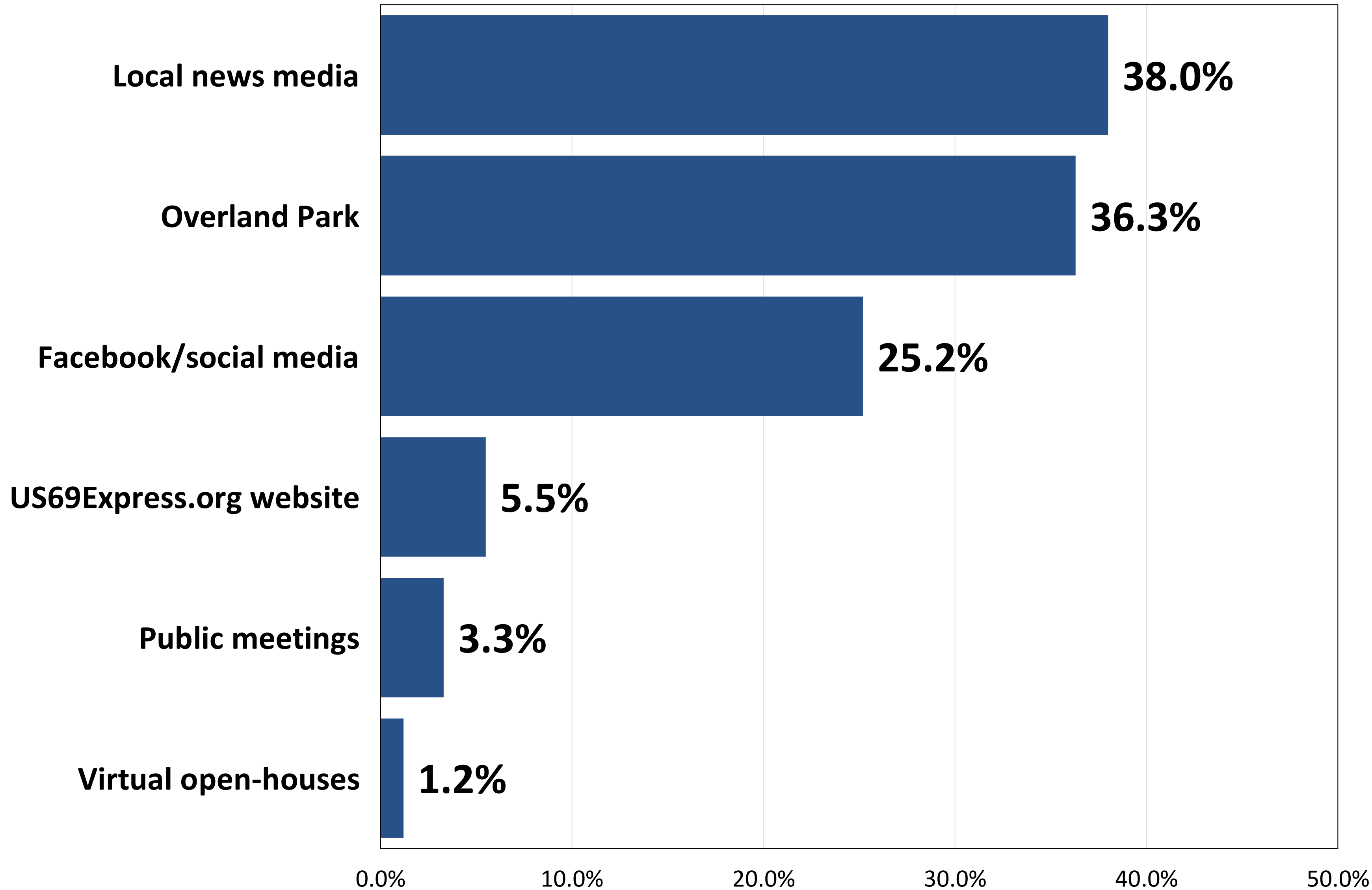
by percentage of respondents



% YES increased by 19%
(42% in November 2020 to 61% in May 2021)

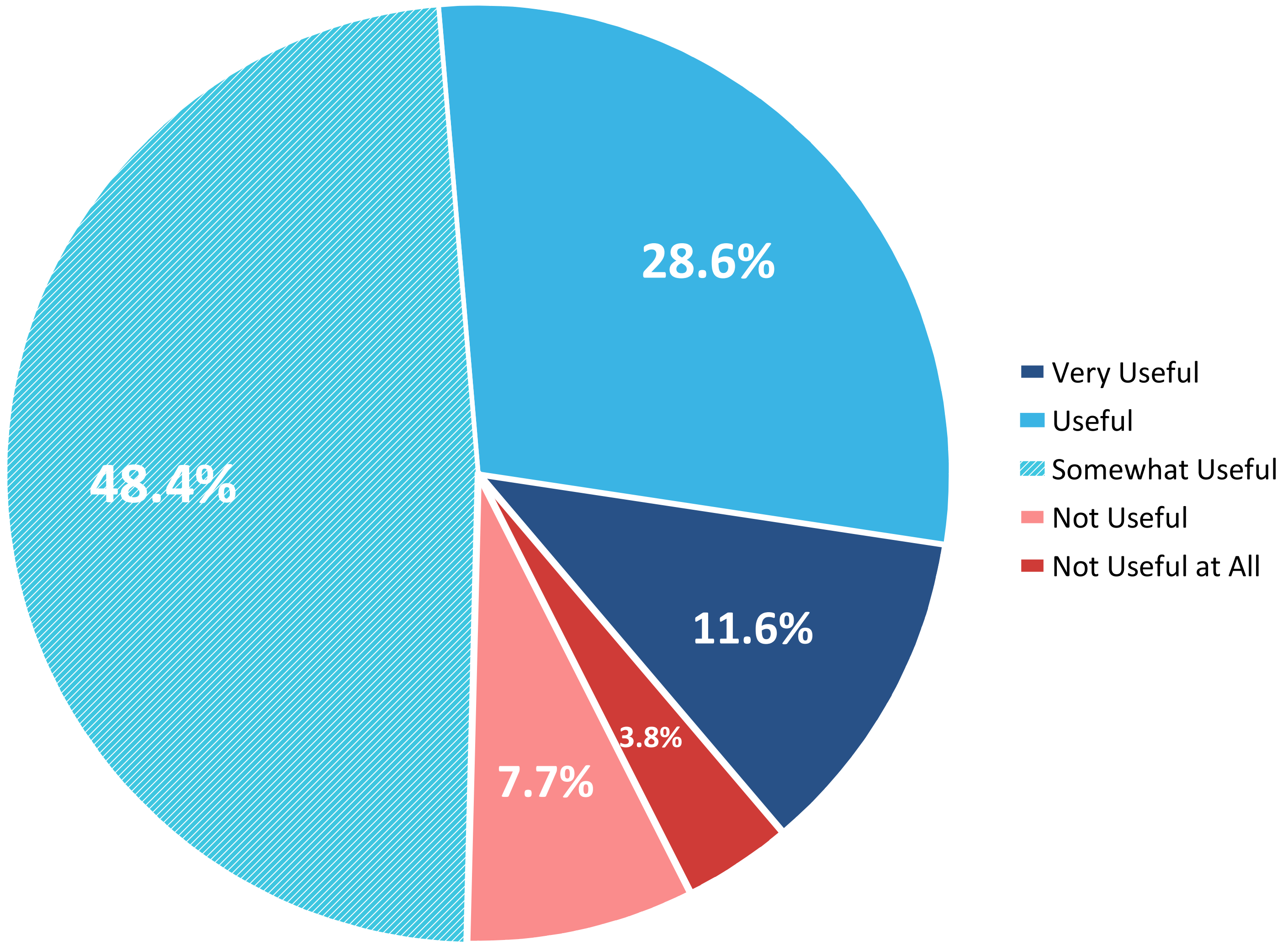
Q1a. How did you learn about KDOT's efforts to plan improvements to U.S. 69 between 103rd and 179th Streets?

by percentage of respondents who responded “yes" to Q1 (multiple choices were allowed)



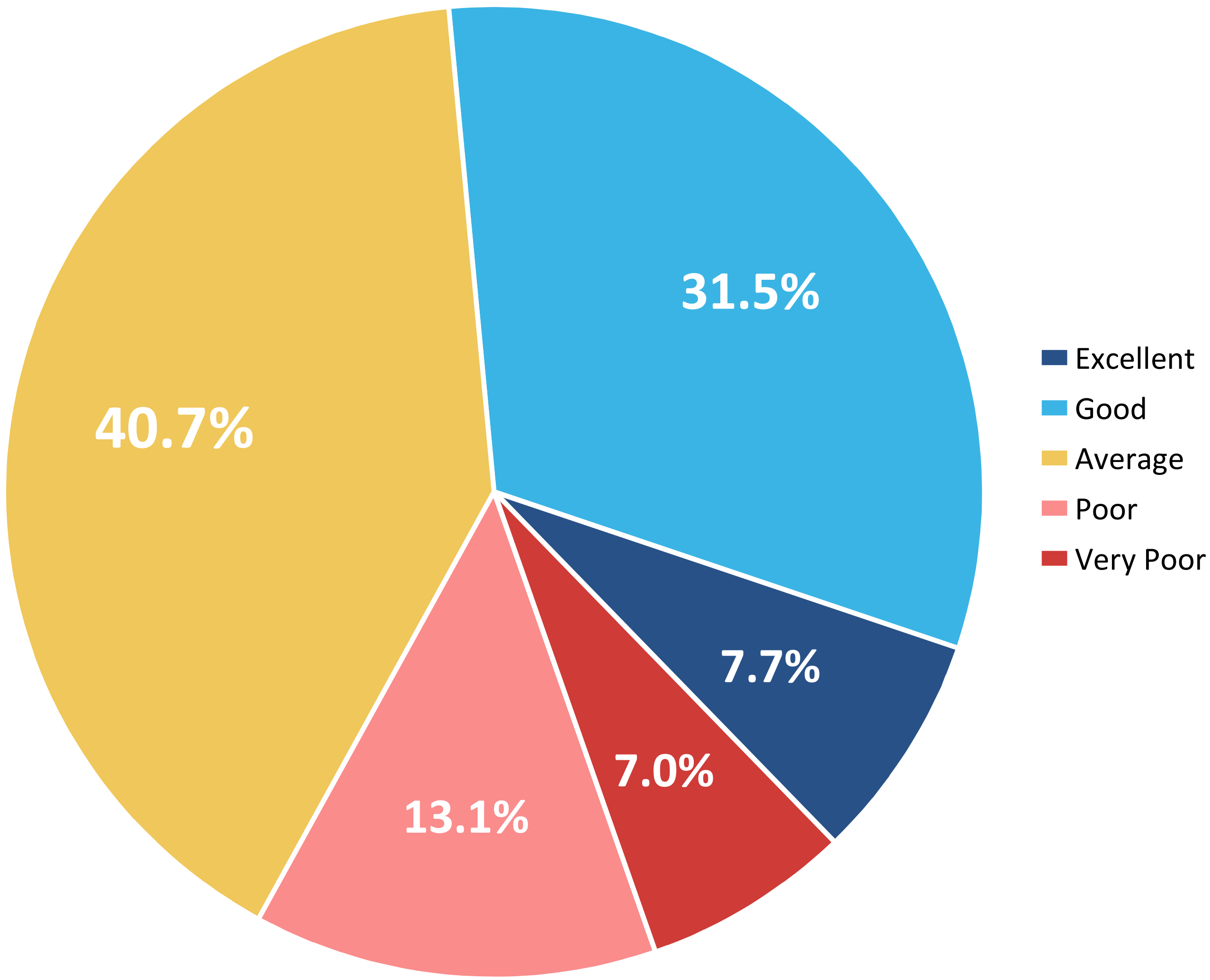
Q1b. How useful were these sources in helping you understand efforts to improve U.S. 69?

by percentage of respondents who responded “yes" to Q1 (excluding “don’t knows”)



Q1c. Overall, how well would you rate KDOT's efforts to keep residents informed of planned improvements to U.S. 69 between 103rd and 179th Streets?

by percentage of respondents who responded “yes" to Q1 (excluding “don’t knows”)



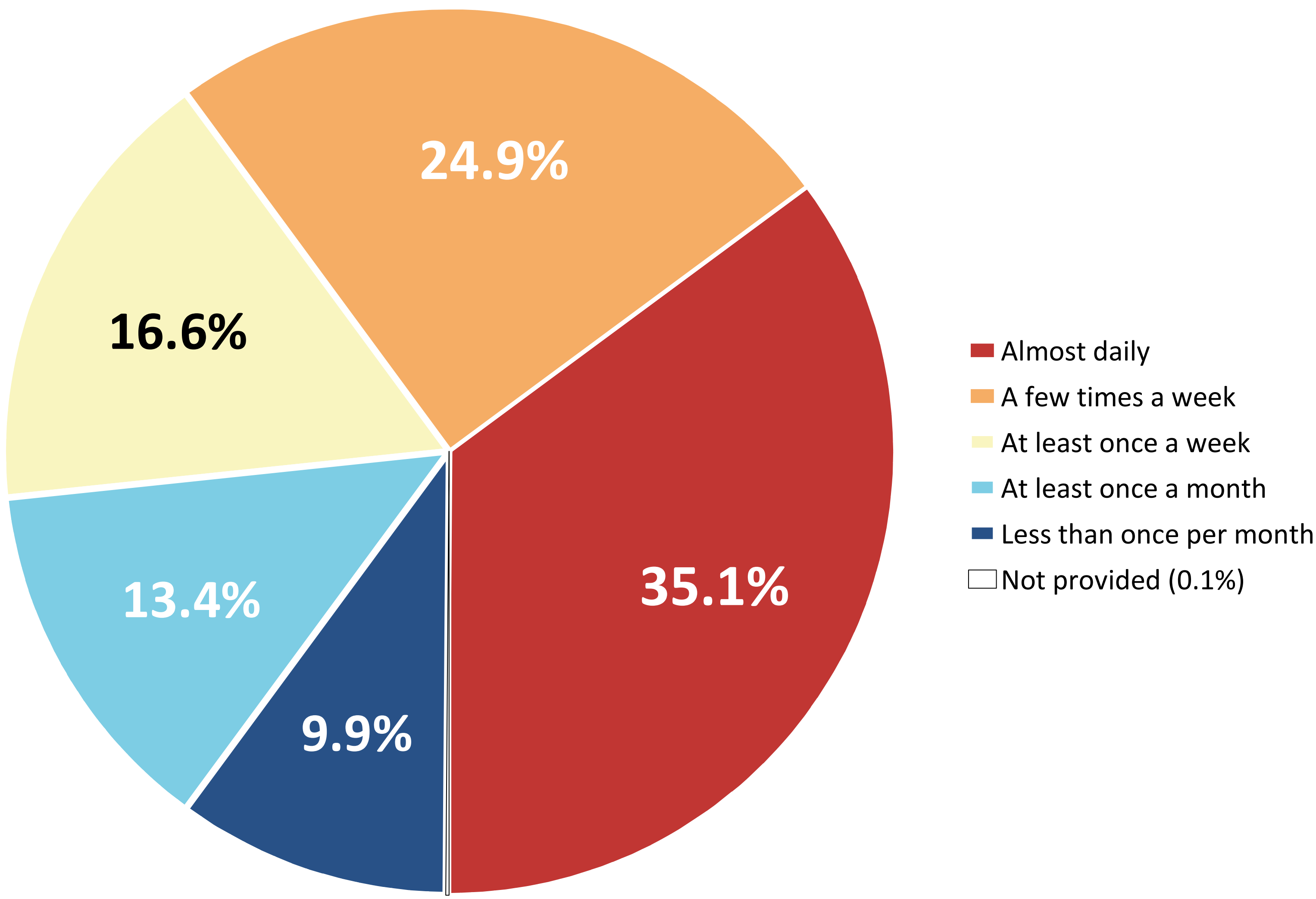
U.S. 69 Highway Follow-up Survey

May 2021

Part II: Usage of U.S. 69

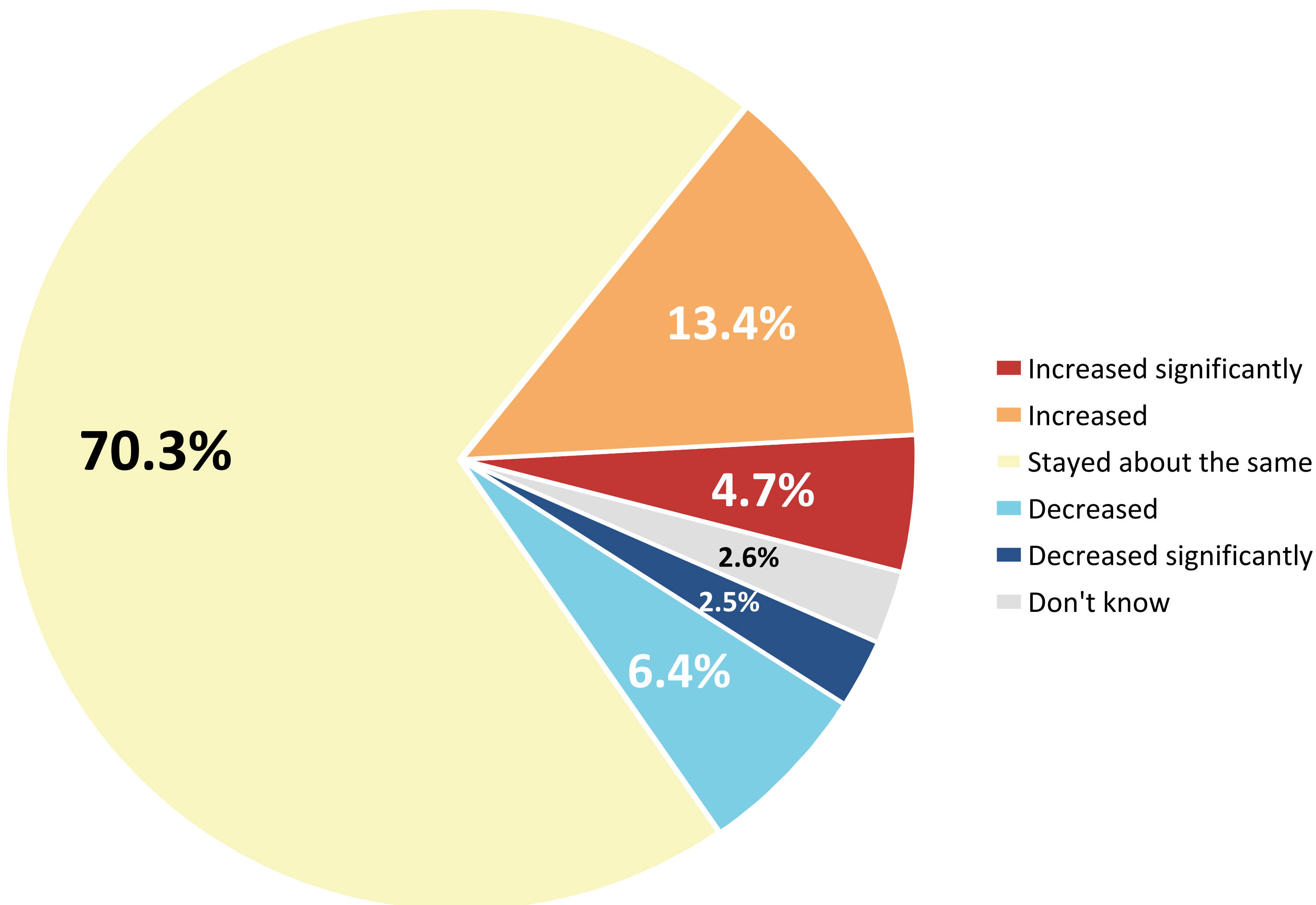
Q2. How frequently have you used any portion of U.S. 69 between 103rd and 151st Streets during the past month?

by percentage of respondents



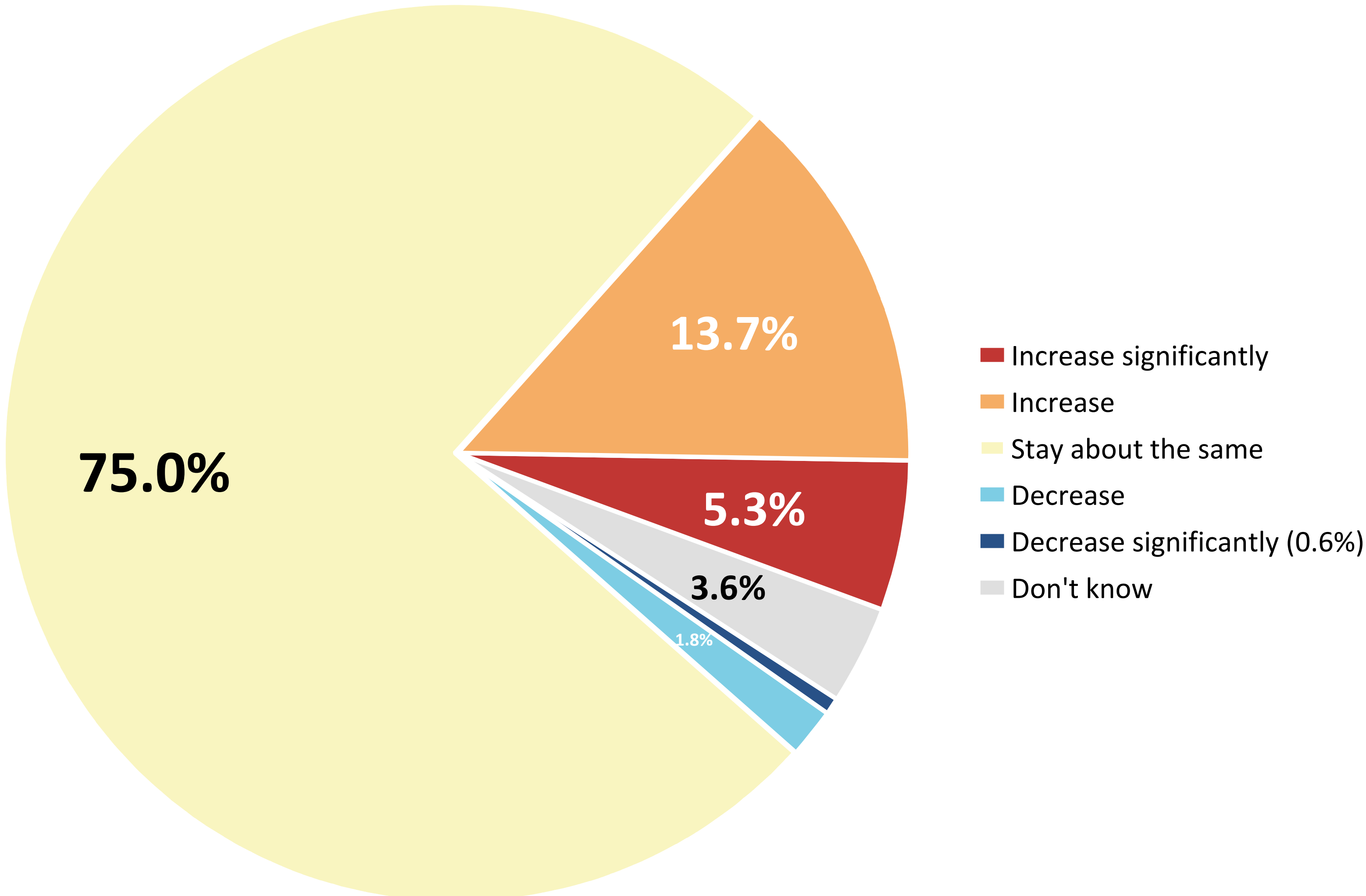
Q3. Compared to 6 months ago, how has the frequency that you use any portion of U.S. 69 between 103rd and 151st Streets changed?

by percentage of respondents



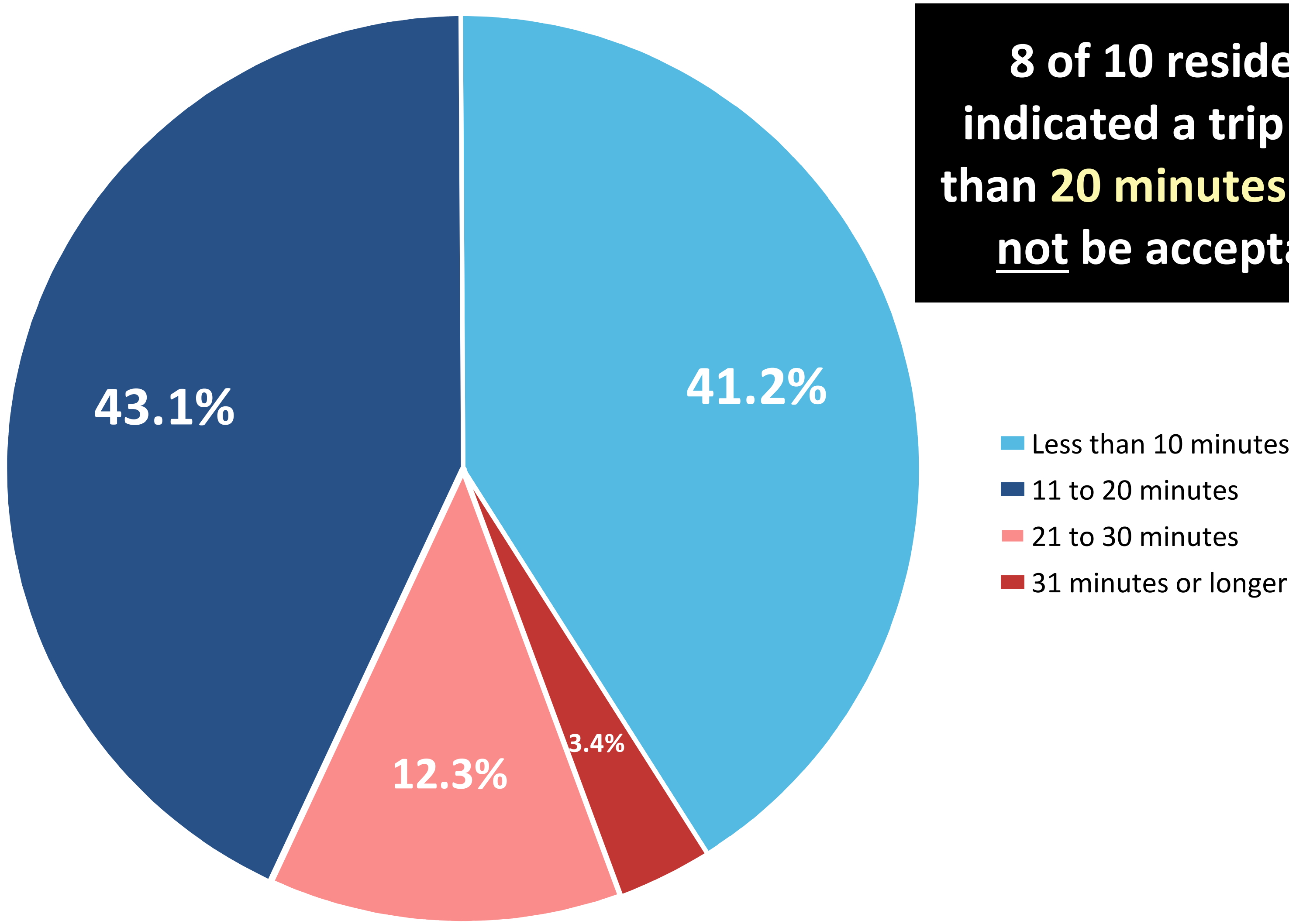
Q4. Over the next 6 months, how do you think the frequency that you use any portion of U.S. 69 between 103rd and 151st Streets will change?

by percentage of respondents



Q5. What is the maximum time a trip on U.S. 69, anywhere between 103rd and 151st Streets, could take before the length would *not* be acceptable?

by percentage of respondents (without "not provided" responses)



8 of 10 residents indicated a trip more than 20 minutes would not be acceptable

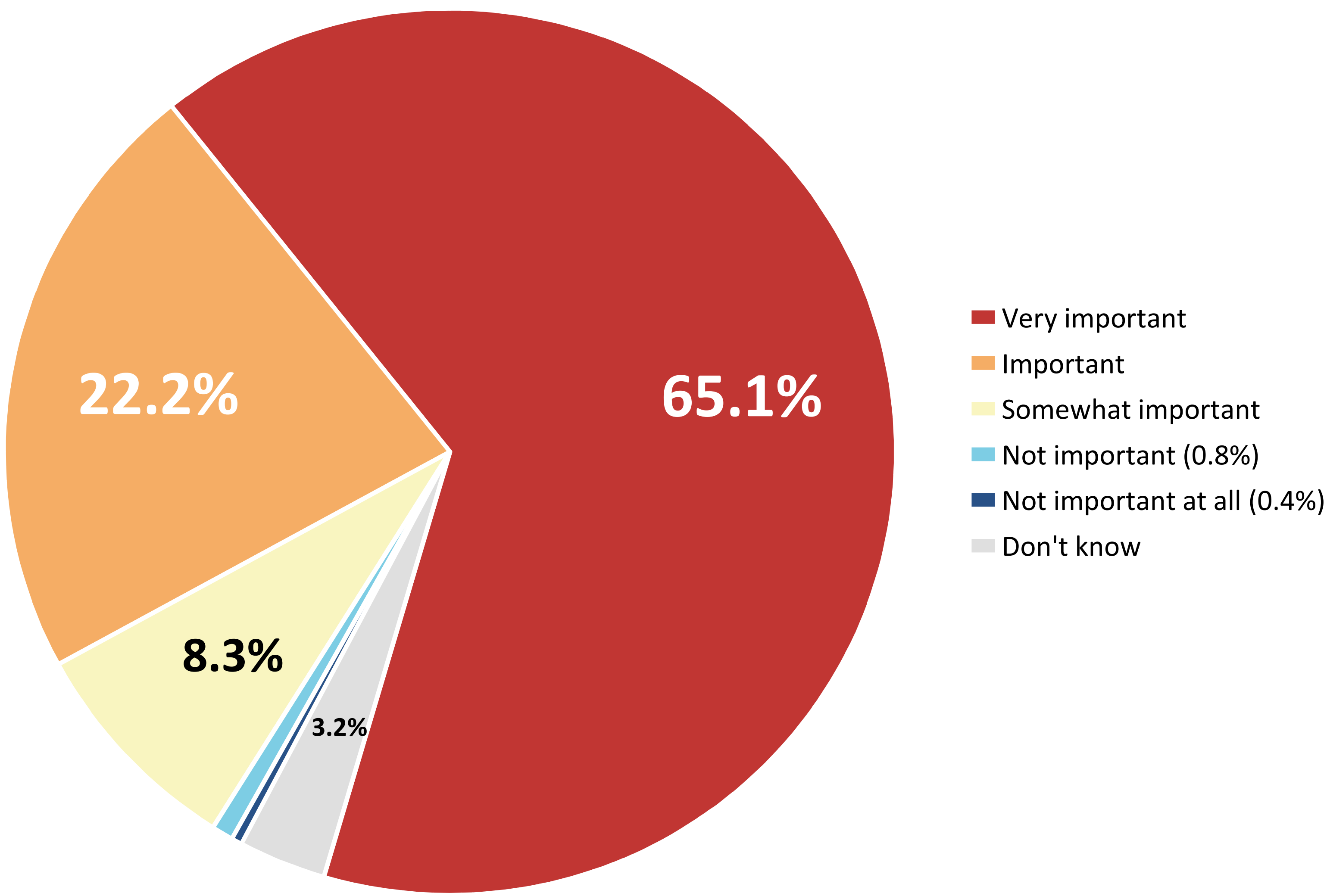
U.S. 69 Highway Follow-up Survey

May 2021

Part III: Perceptions of U.S. 69

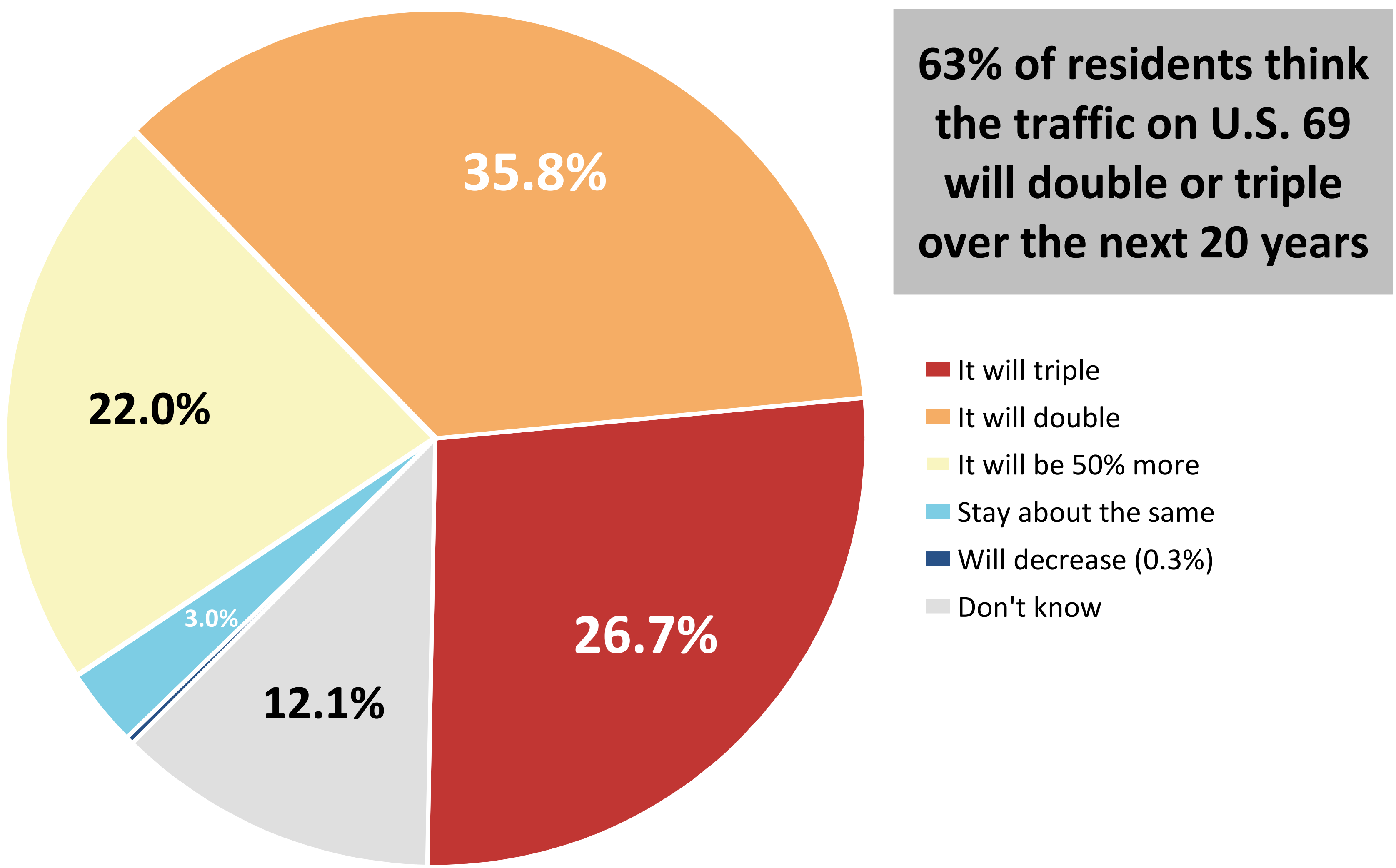
Q6. How important do you think U.S. 69 is to businesses and jobs in Overland Park?

by percentage of respondents

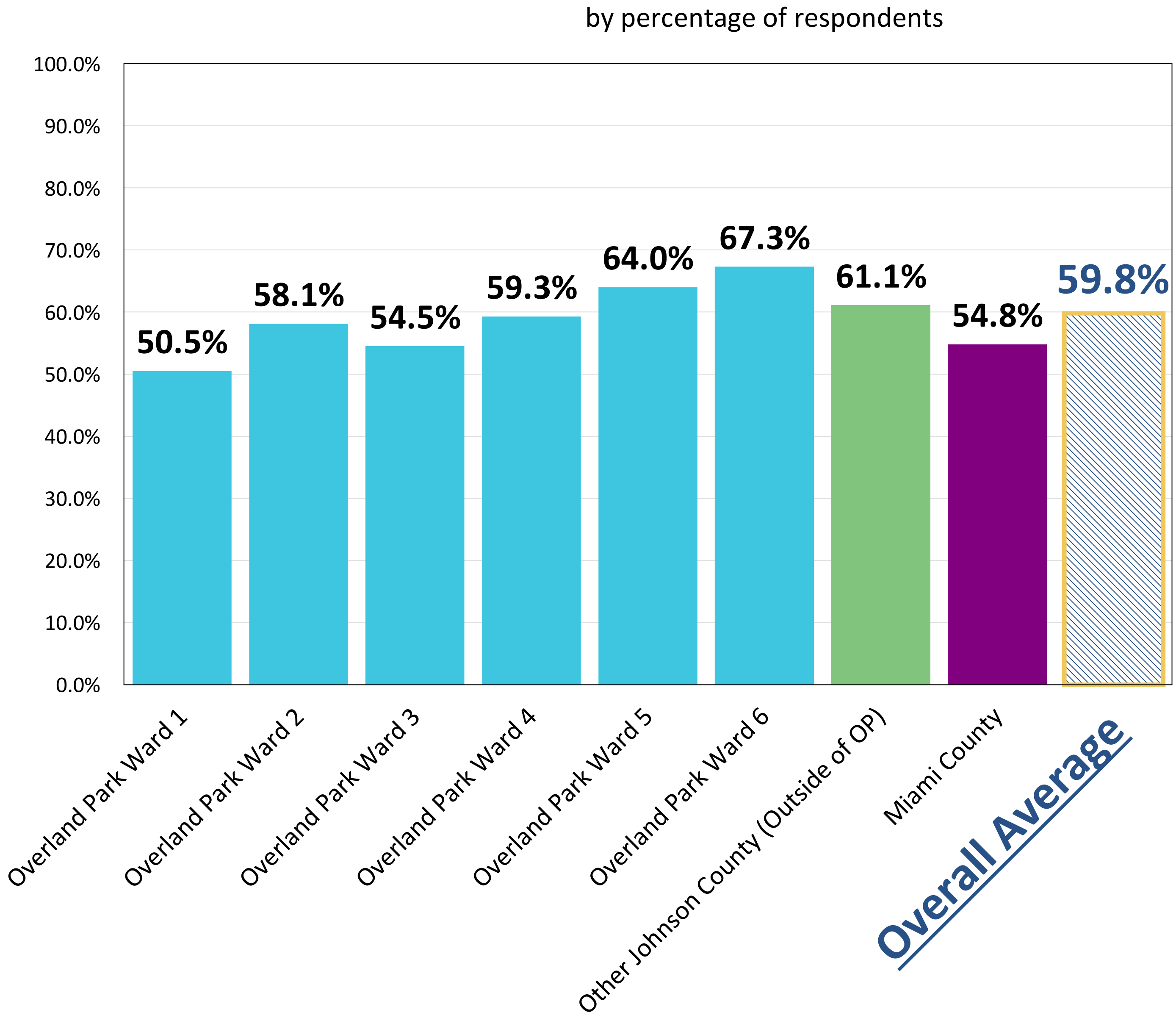


Q7. How do you think the amount of traffic on U.S. 69 will change over the next 20 years?

by percentage of respondents



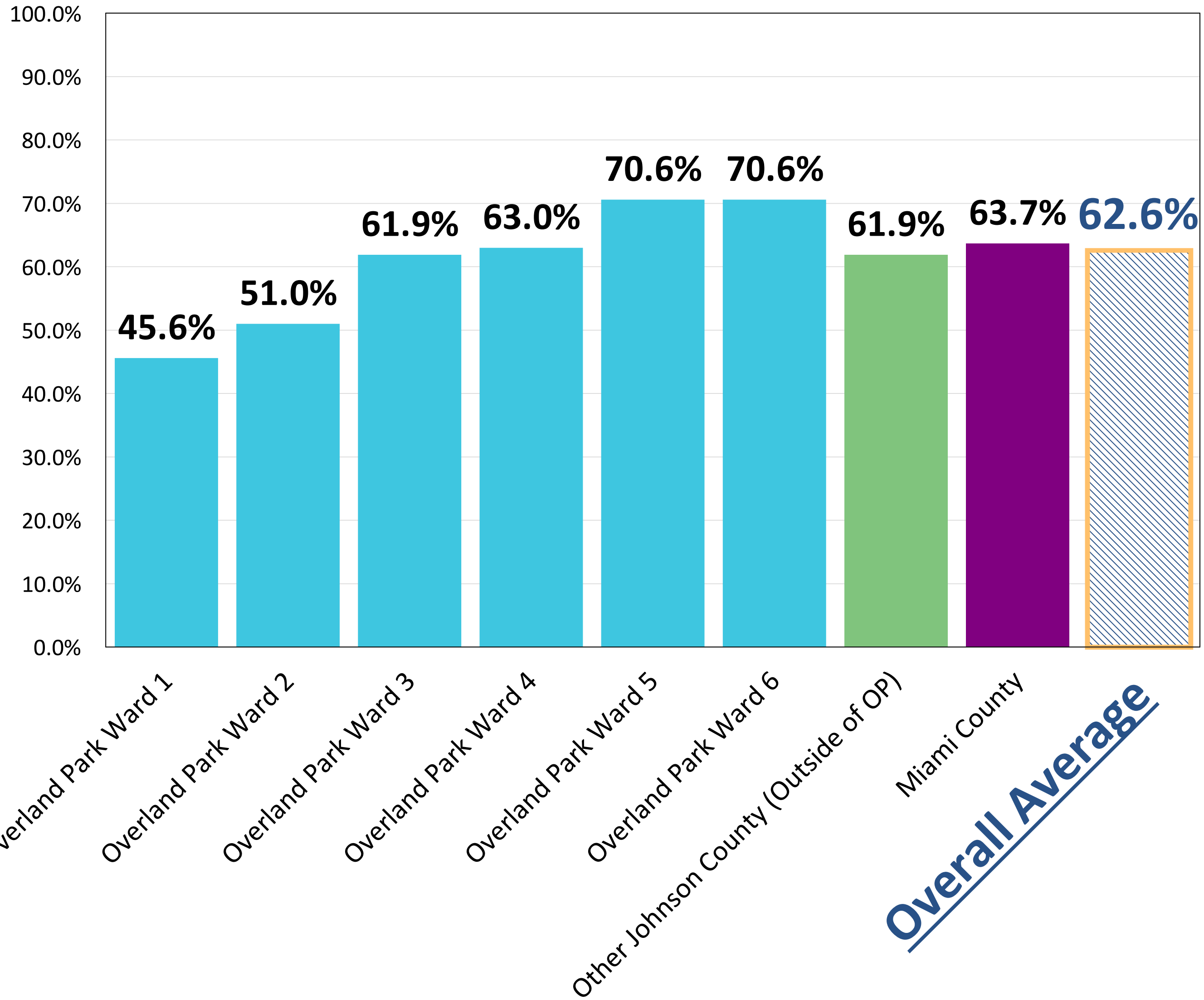
Q8-1. How soon do you think KDOT should begin making traffic flow improvements between 103rd & 119th Streets?



60% of residents think KDOT should begin making improvements between 103rd & 119th Streets within 2 years

Q8-2. How soon do you think KDOT should begin making traffic flow improvements between 119th & 151st Streets?

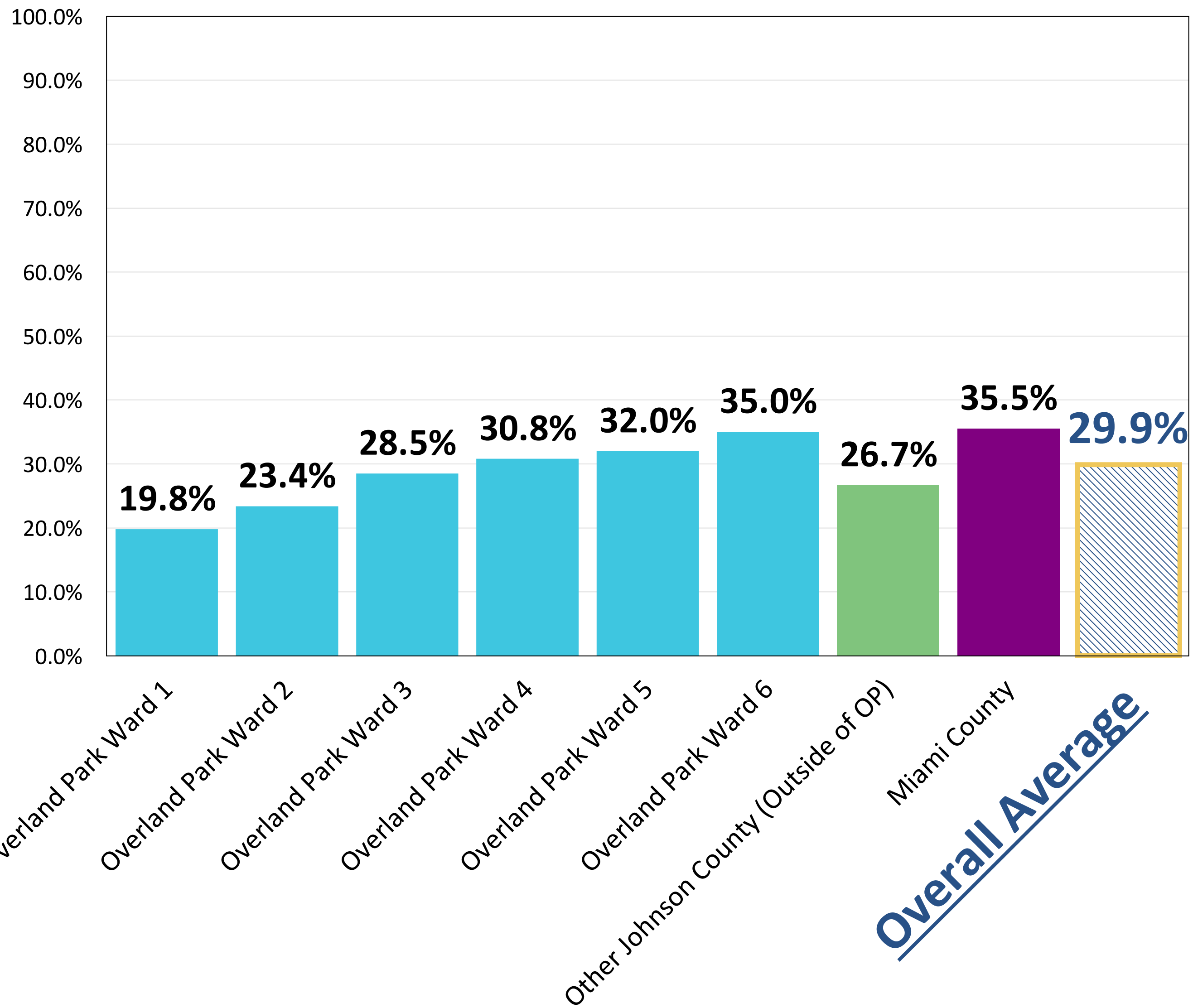
by percentage of respondents



63% of residents think KDOT should begin making improvements between 119th & 151st Streets within 2 years

Q8-3. How soon do you think KDOT should begin making traffic flow improvements between 151st and 179th Streets?

by percentage of respondents

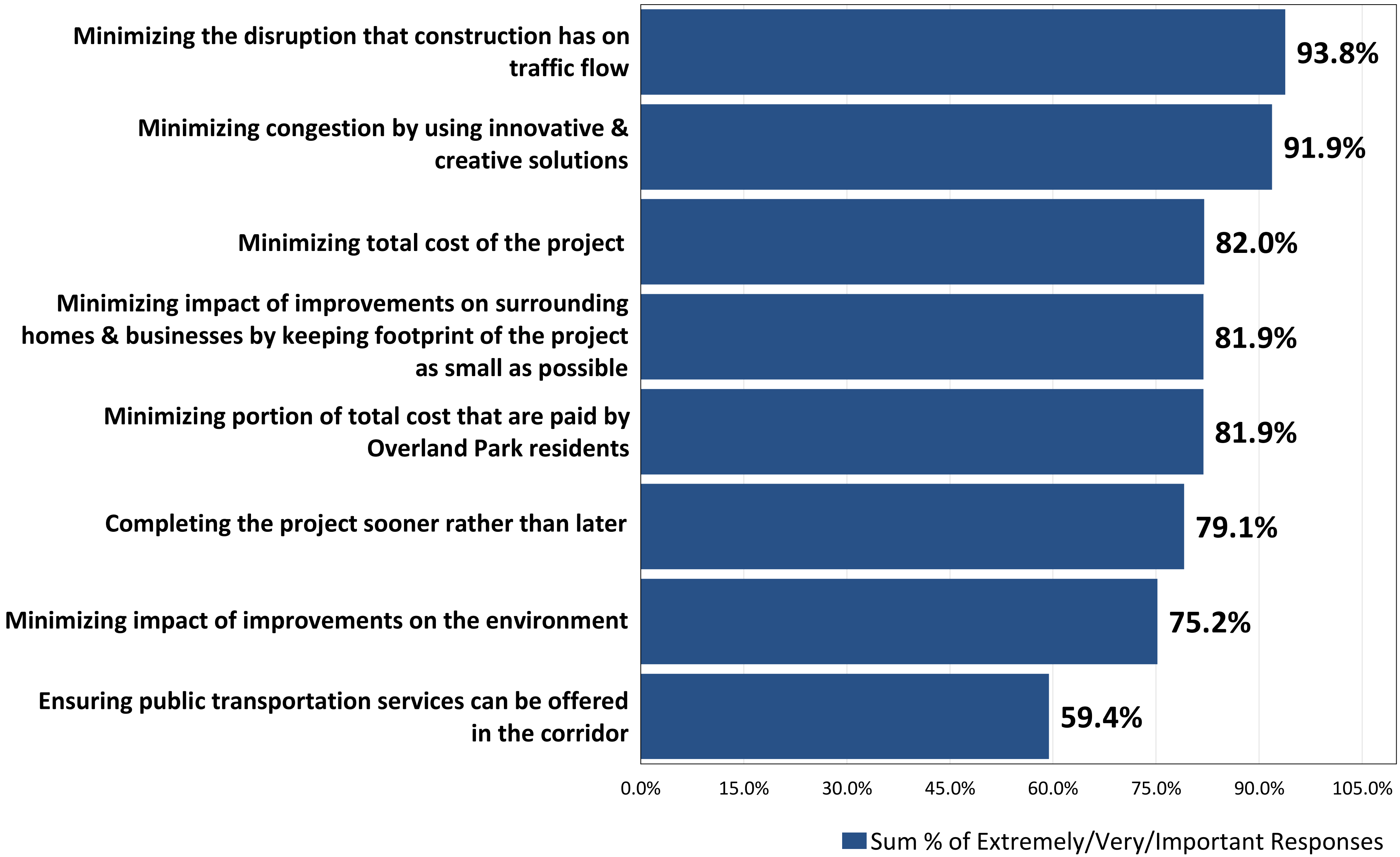


30% of residents think KDOT should begin making improvements between 151st and 179th within 2 years

U.S. 69 Highway
Follow-up Survey
May 2021
Part IV: Design Preferences

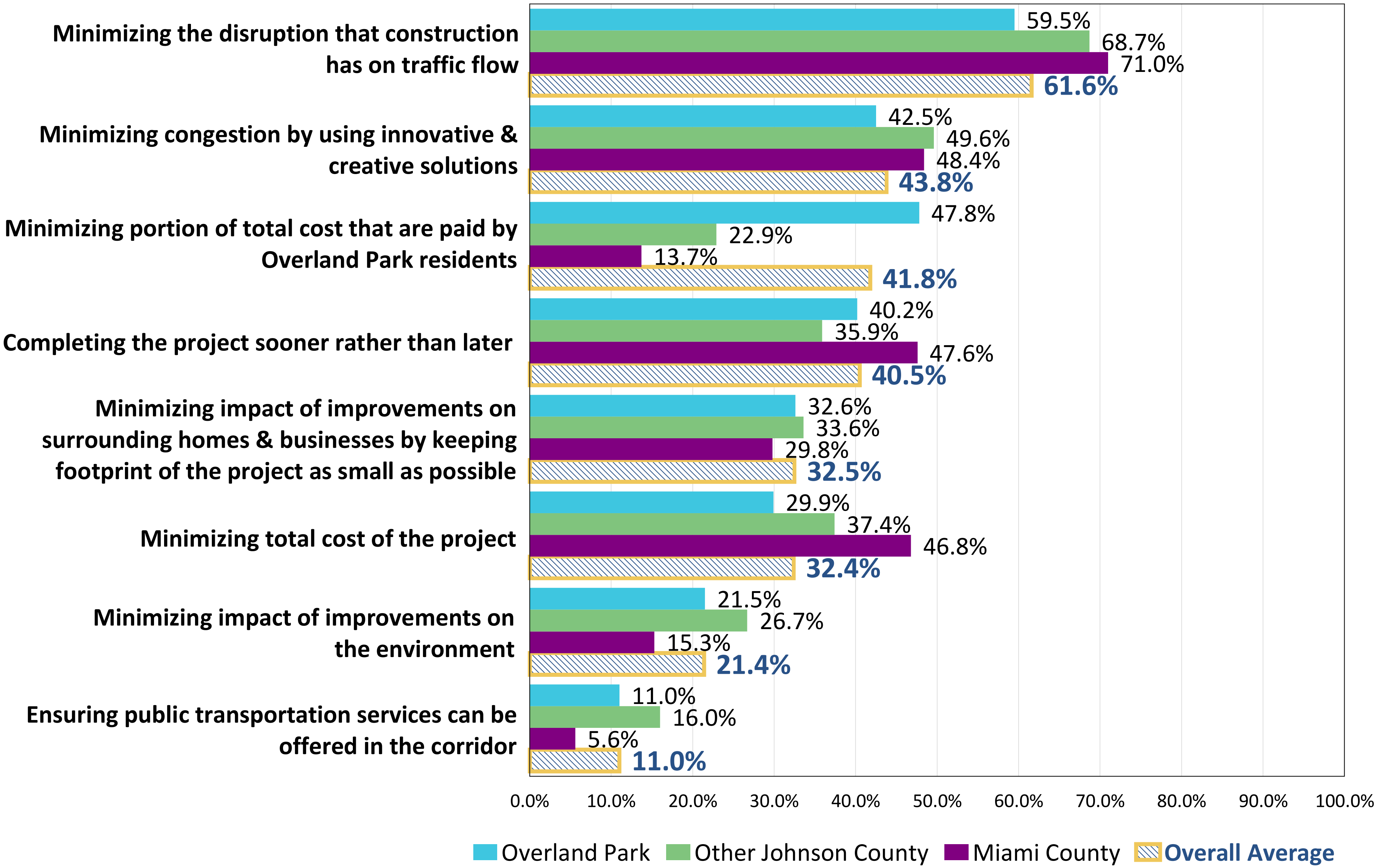
Q9. Importance of Various Issues that Could Impact the Types of Improvements to be Made to U.S. 69 Between 103rd and 179th Streets

by percentage of respondents who selected either extremely important, very important, or important
(excluding "don't knows")



Q10. Issues that Residents Think Should Be Most Important in Determining the Types of Improvements to U.S. 69 Between 103rd and 179th Streets

by the sum percentage of respondents who selected one of the items as their top three choices



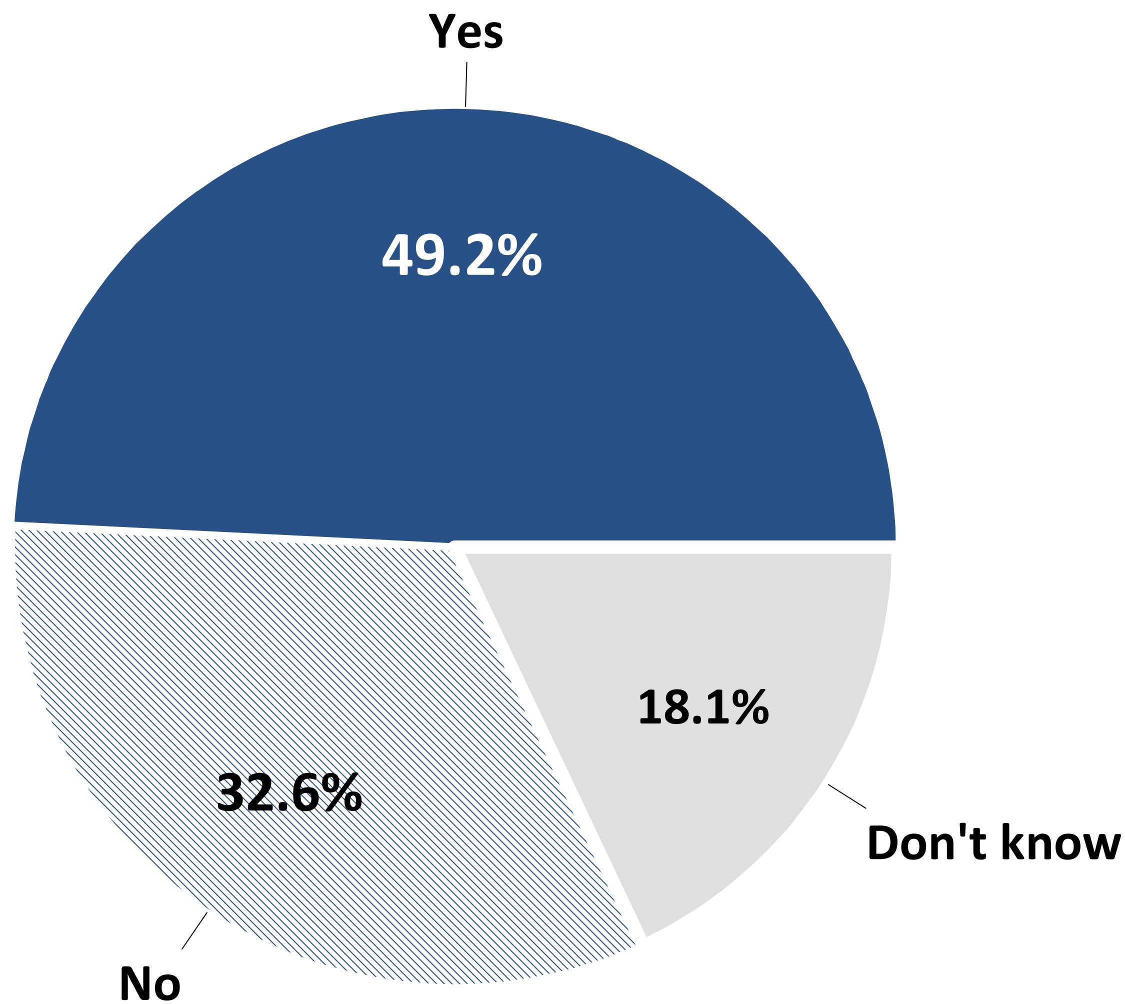
U.S. 69 Highway Follow-up Survey

May 2021

Part V: Funding

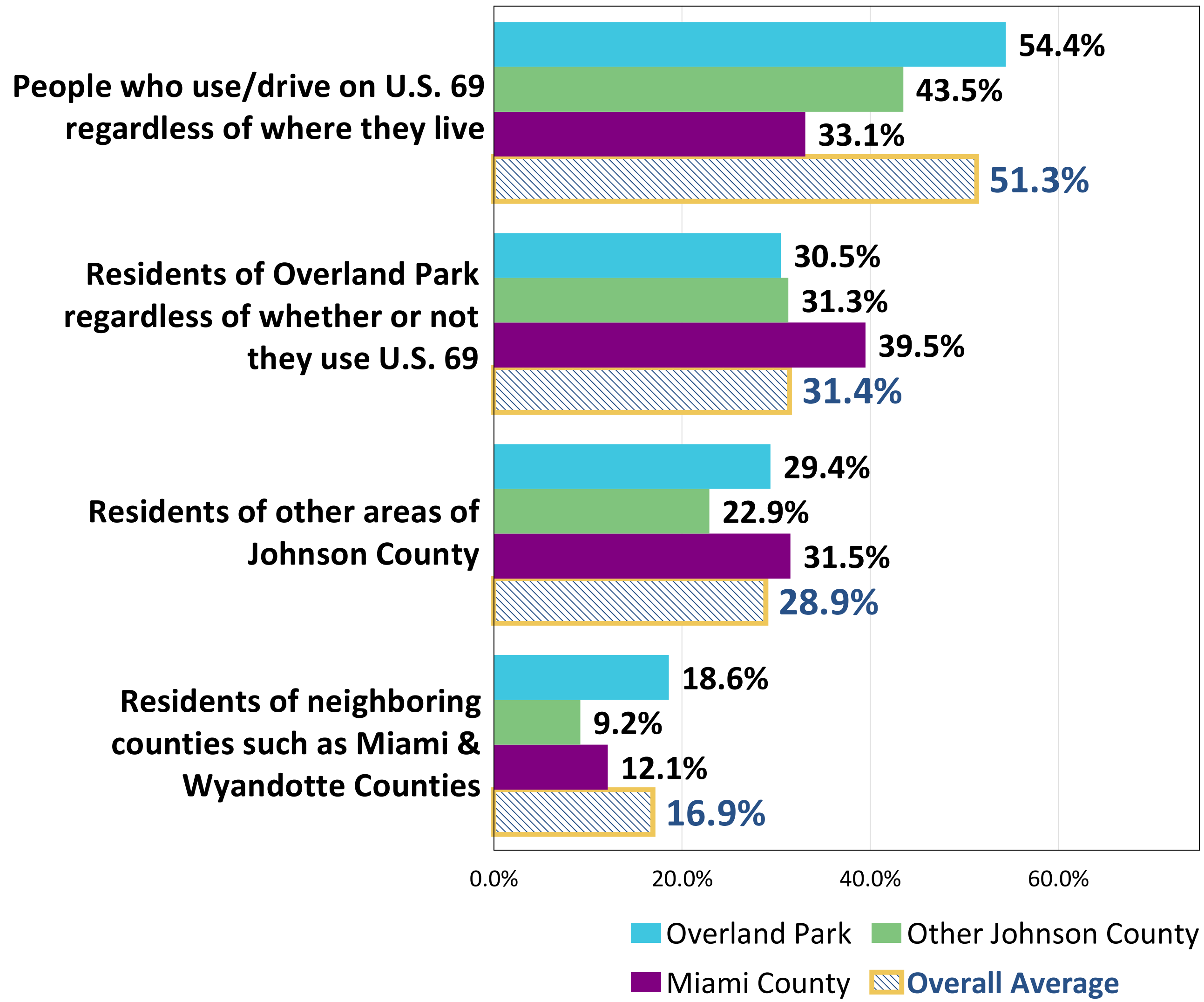
Q11. Are you aware that cities like Overland Park, Wichita, and Topeka contribute additional local funds to help ensure major highway projects important to them are constructed?

by percentage of respondents



Q12. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69 between 103rd and 179th Streets?

by percentage of respondents of respondents who responded with "very high” or “high"

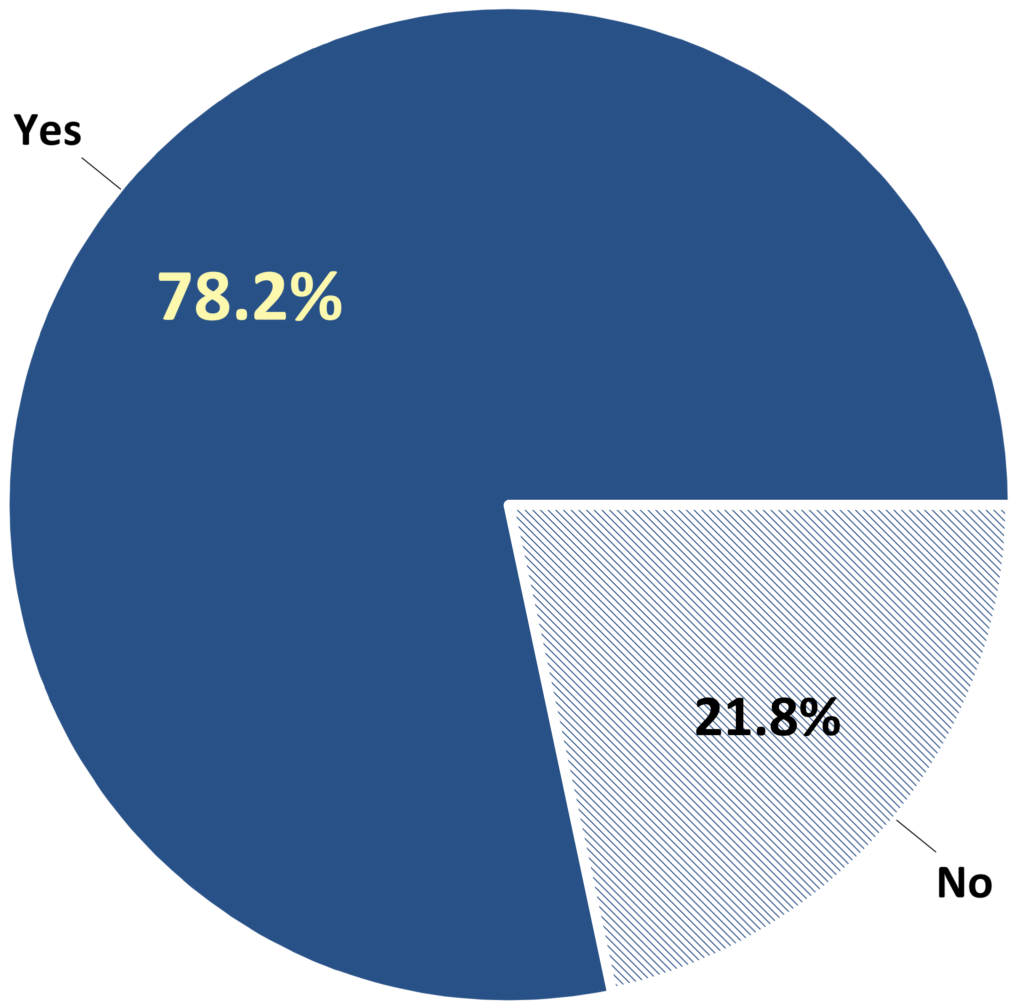


The Majority of Overland Park Residents Thought Users Should Have the Greatest Responsbility in Paying for Improvements to U.S. 69. Compared to Just One-Third of Miami County Residents

U.S. 69 Highway
Follow-up Survey
May 2021
Part VI: Express Toll Lanes

Q13. Have you seen "Express Toll Lanes" (ETLs) in urban areas of other states like Texas, Colorado, or Minnesota where drivers can choose to pay a toll to drive in an express lane that bypasses congestion in untolled lanes?

by percentage of respondents

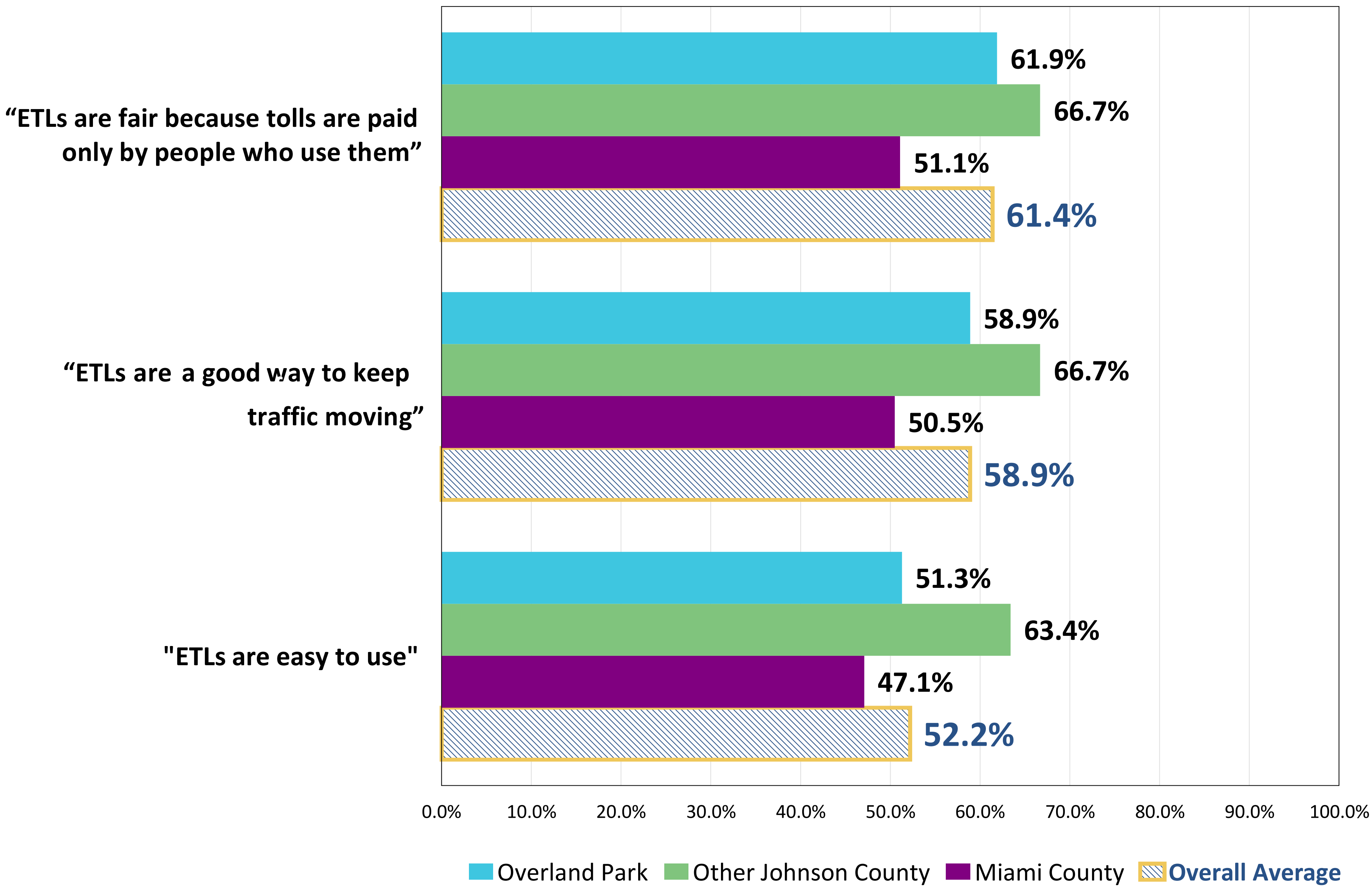


%YES in 2020
75%
+3%

3 of 4 residents have seen "express toll lanes" in other states

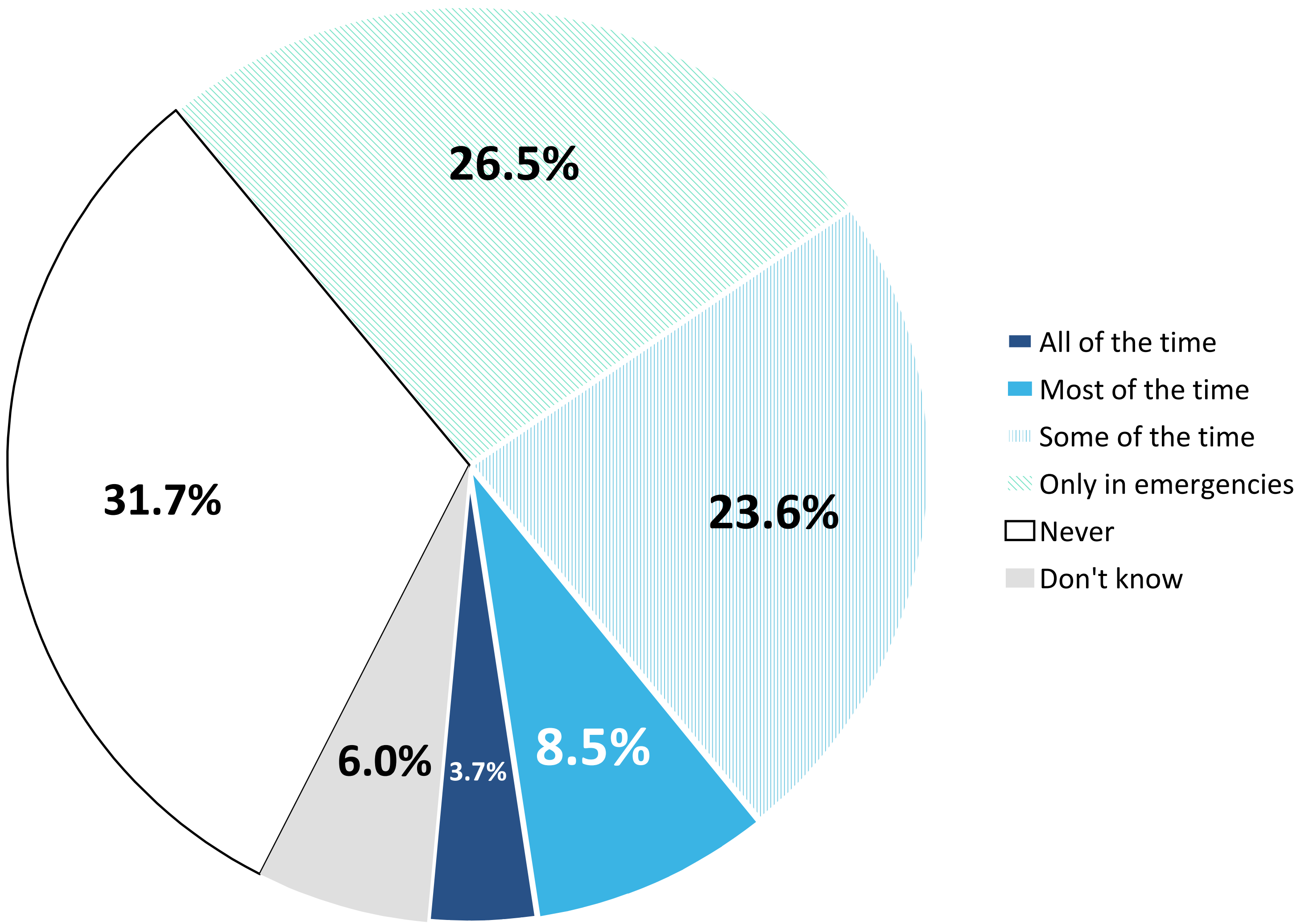
Q13a. Level of Agreement with Statements About Express Toll Lanes (ETLs)

by percentage of respondents, who have seen Express Toll Lanes, and who either “strongly agree” or “agree” with the statement (without "don’t know” responses)



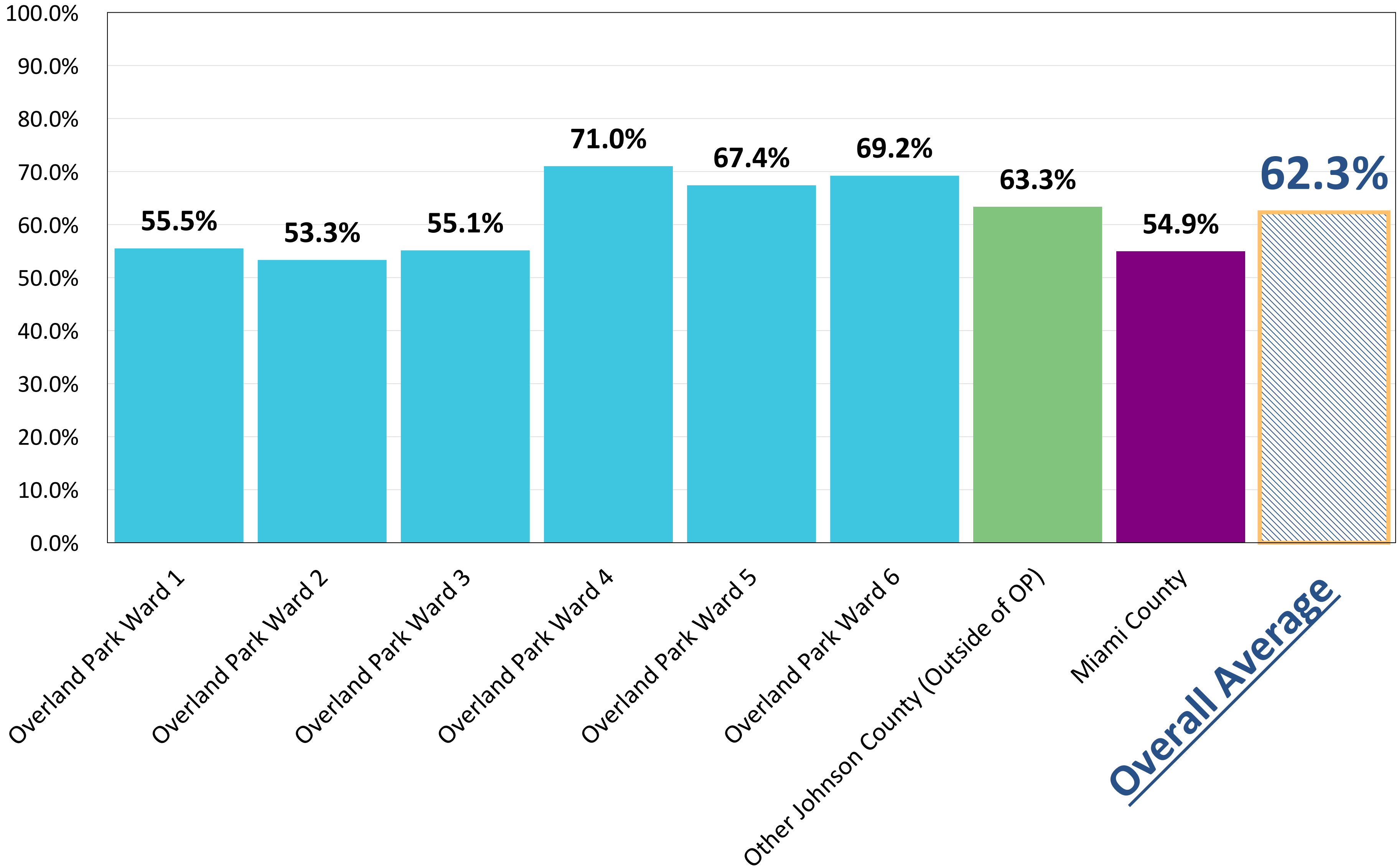
Q14. How often would you pay to use an express lane to avoid congestion on U.S. 69 if the cost were between $0.65 and $1.75 or less to travel the complete distance between 103rd and 151st Streets?

by percentage of respondents



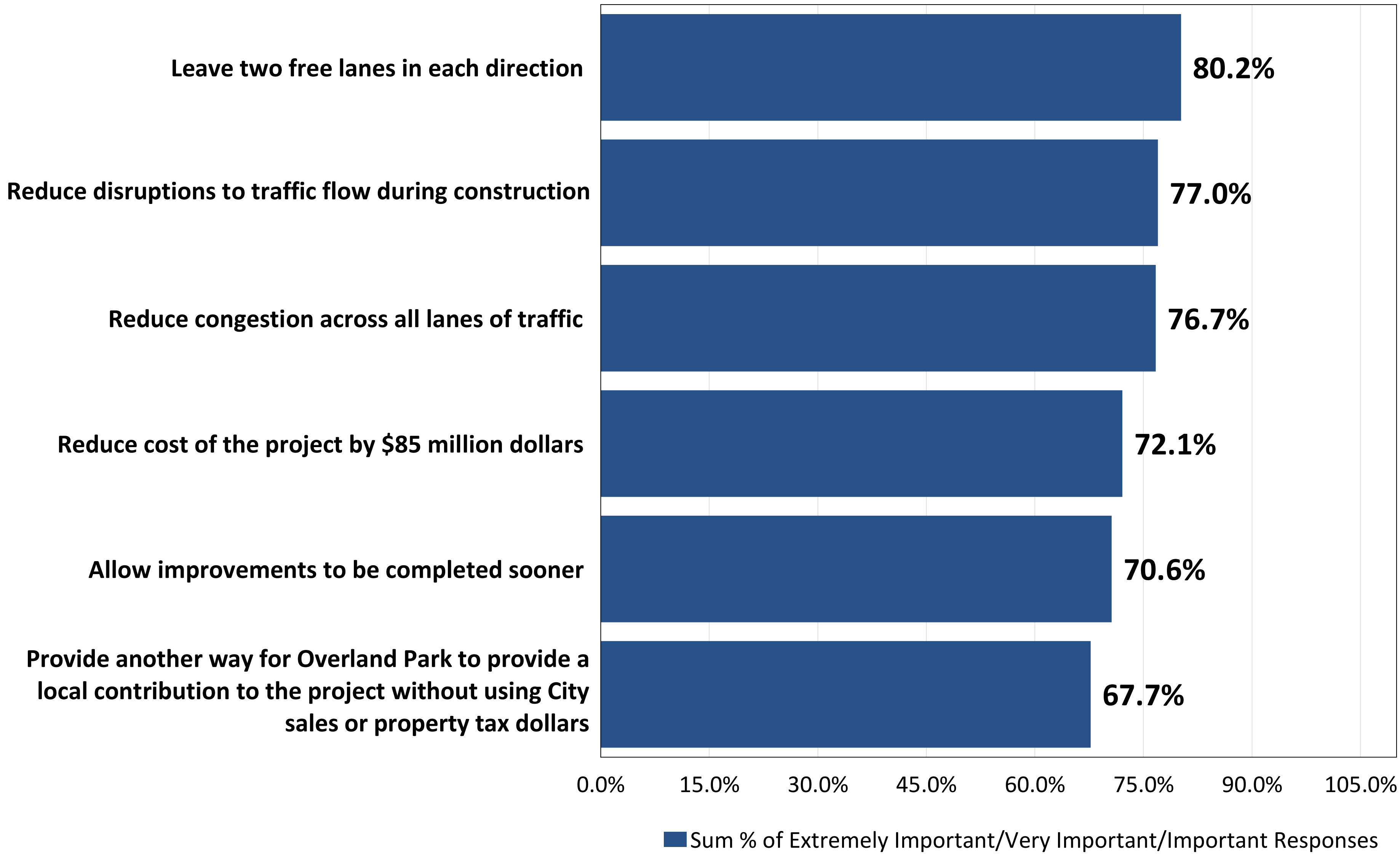
Percentage of Residents Who Would Use an Express Lane to Travel the Distance Between 103rd and 151st Streets to Avoid Congestion if it Cost Between $0.65 and $1.75 or Less

by percentage of respondents who indicated they would use express toll lanes under some conditions



Q15. Please rate the importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

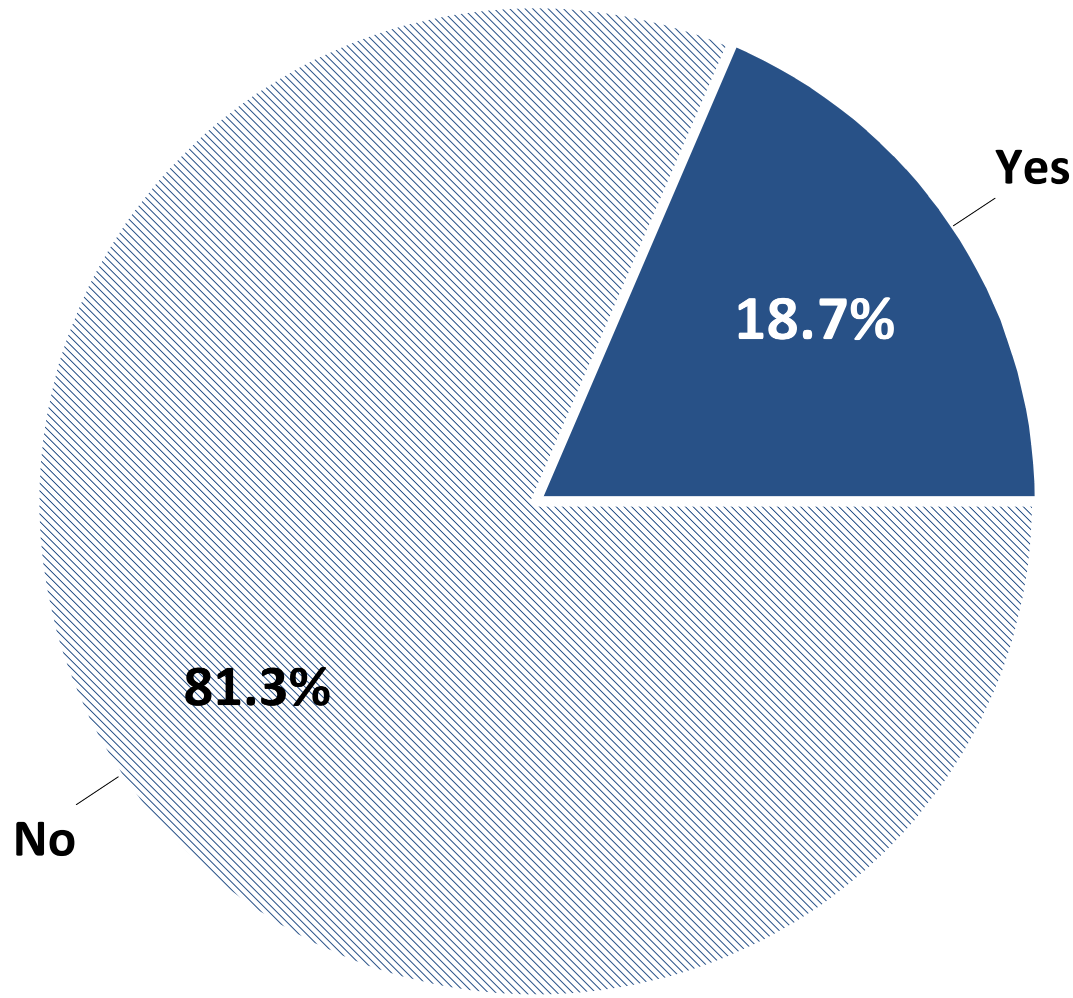
by the sum percentage of respondents who thought the benefit was important



U.S. 69 Highway
Follow-up Survey
May 2021
Part VII: Demographics

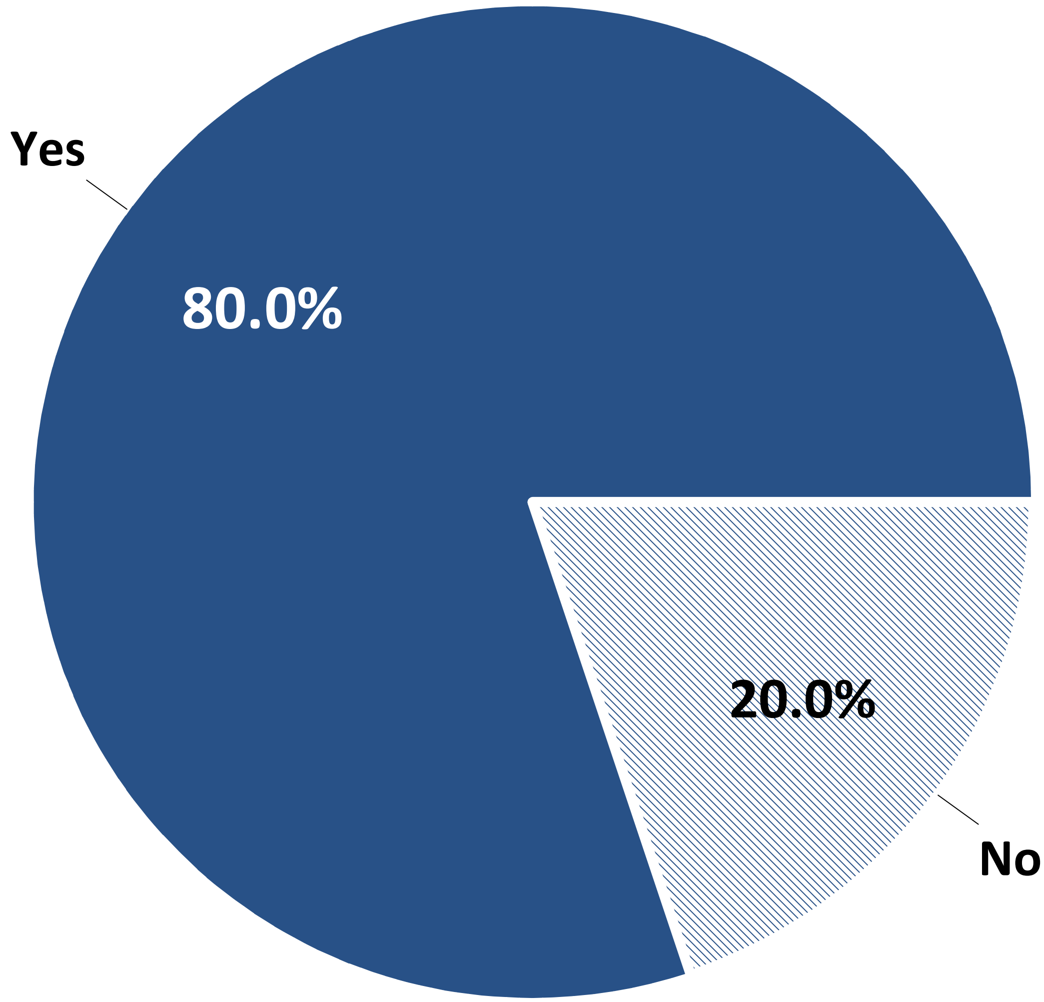
Q16. Would you be interested in participating in future meetings and/or focus groups about improvements to US 69 between 103rd and 179th Streets?

by percentage of respondents



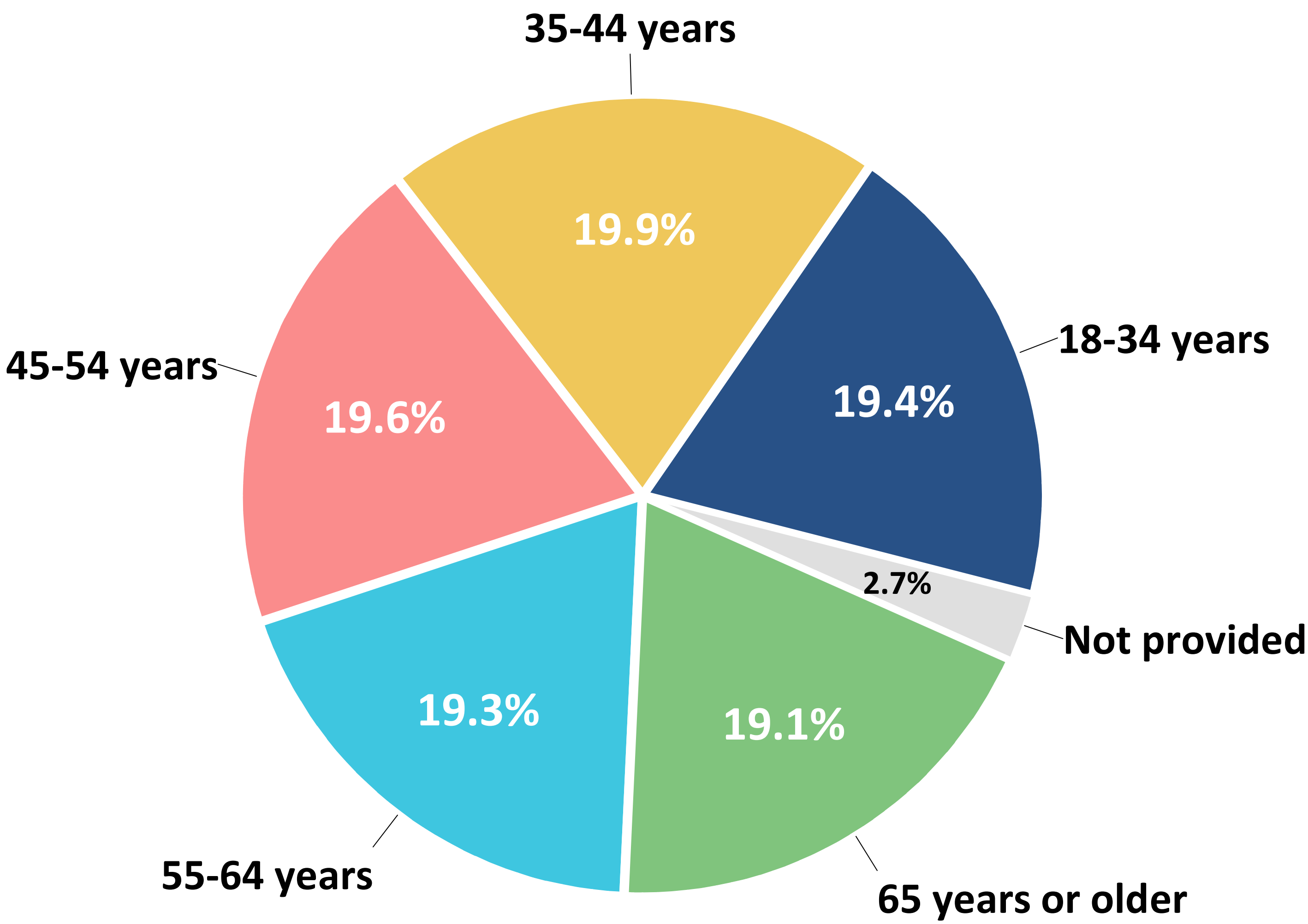
Q17. Do you live inside the City of Overland Park?

by percentage of respondents



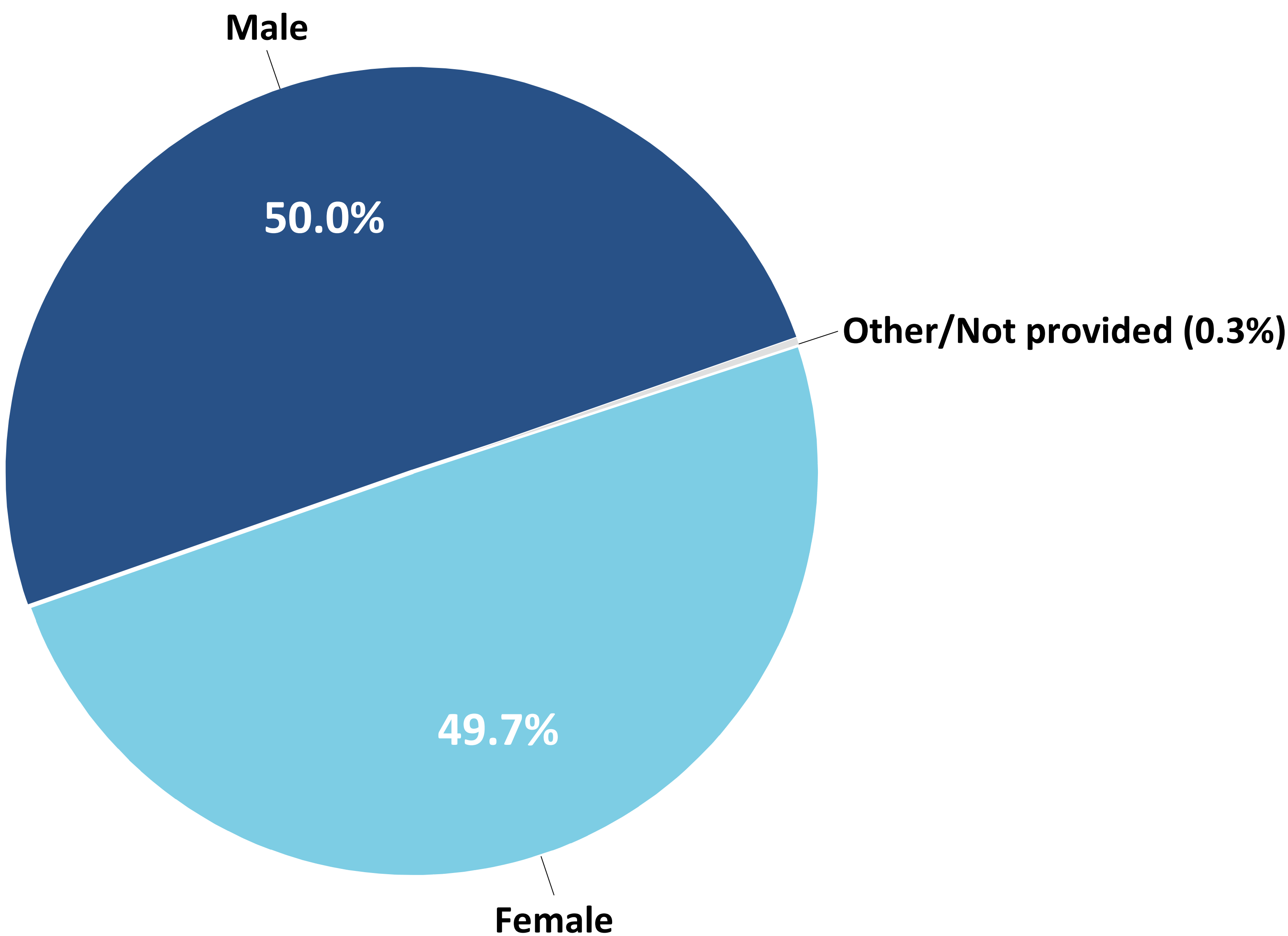
Q18. What is your age?

by percentage of respondents



Q19. What is your gender?

by percentage of respondents



2 GIS Mapping

GIS Mapping

Interpreting the GIS (Geographic Information System) Maps Provided

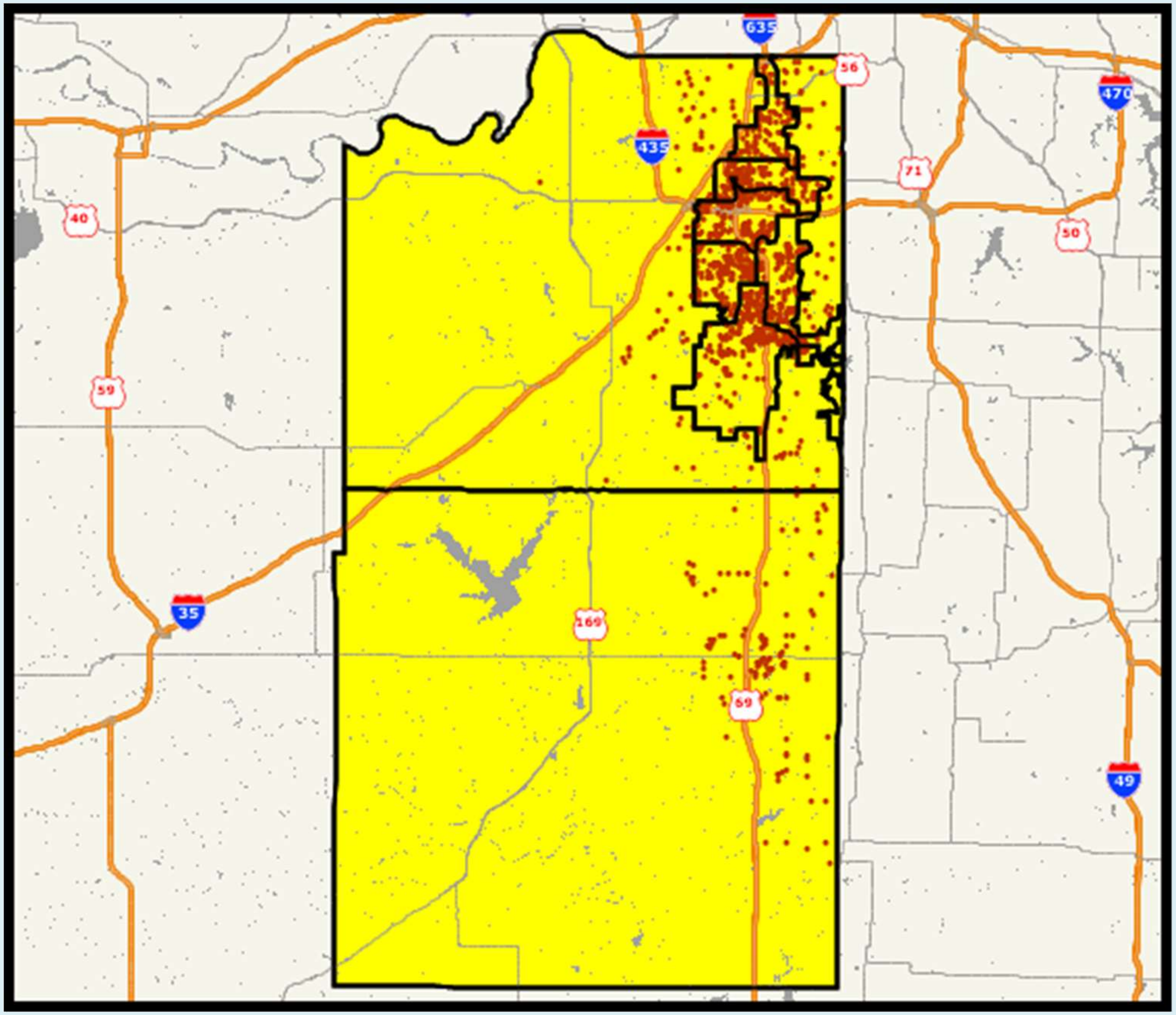
The maps on the following pages show the mean ratings for satisfaction and rating questions on the KDOT U.S. 69 Follow-up Survey. Boundaries are shown by Overland Park City Council Wards and County Boundaries.

When reading the maps, please use the following color scheme as a guide:

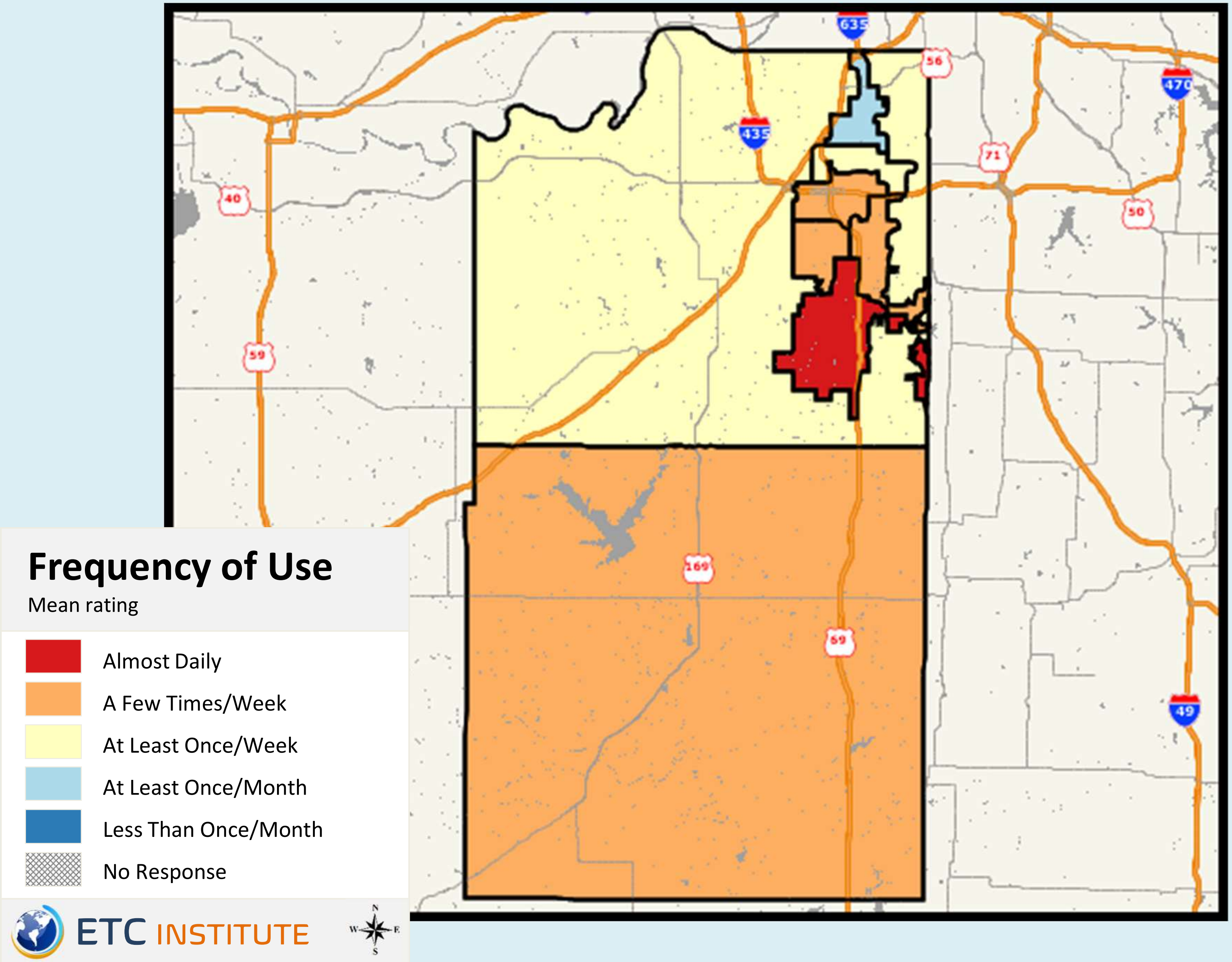
- Darker blue shades indicate POSITIVE ratings or positive responses to the respective question (e.g. extremely important, very high, strongly agree, etc.).
- Lighter blue shades indicate POSITIVE ratings or positive responses to the respective question (e.g. very important, high, agree, etc.).
- Off-white shades indicate NEUTRAL ratings. Where respondents' neither agree/ disagree, important response, medium, etc.).
- Orange shades indicate NEGATIVE ratings or negative responses to the respective question (e.g. disagree, low, less important, etc.).
- Red shades indicate NEGATIVE ratings or negative responses to the respective question (e.g. strongly disagree, none, not important, increase/d significantly, etc.).

Location of Survey Respondents

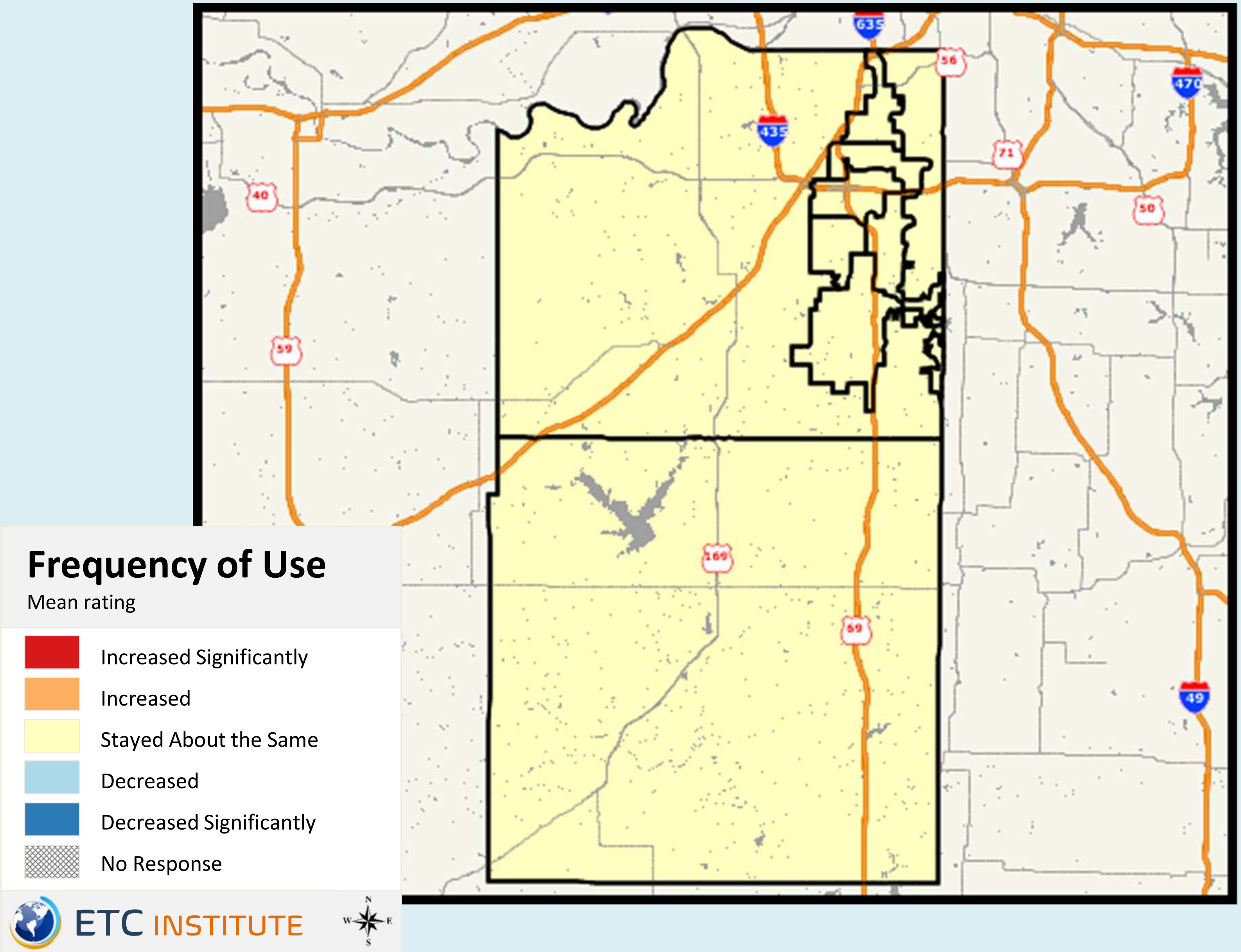
(Boundaries Show Overland Park City Council Wards and County Boundaries)



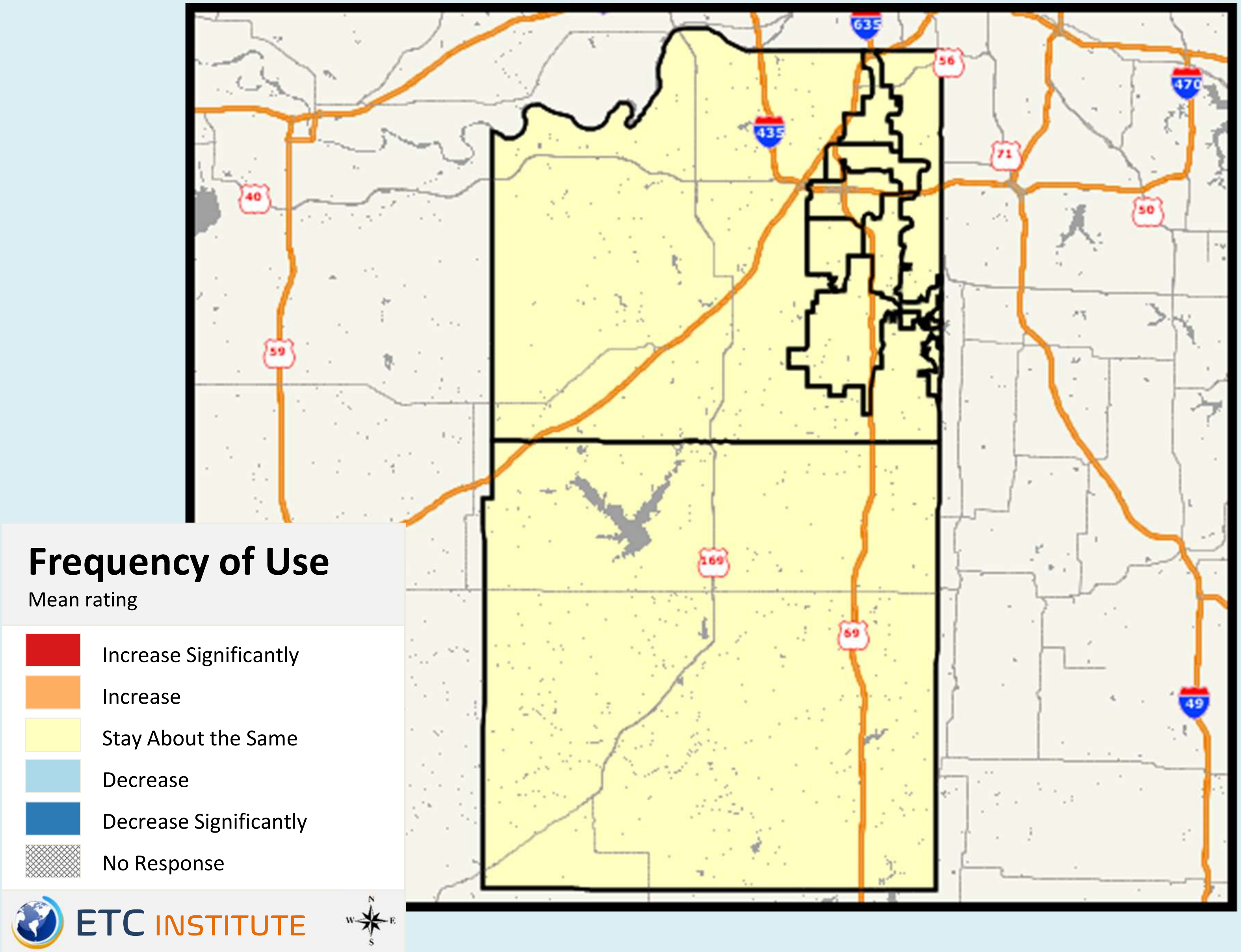
Q2. How frequently have you used any portion of U.S. 69 between 103rd and 151st Streets during the past month?



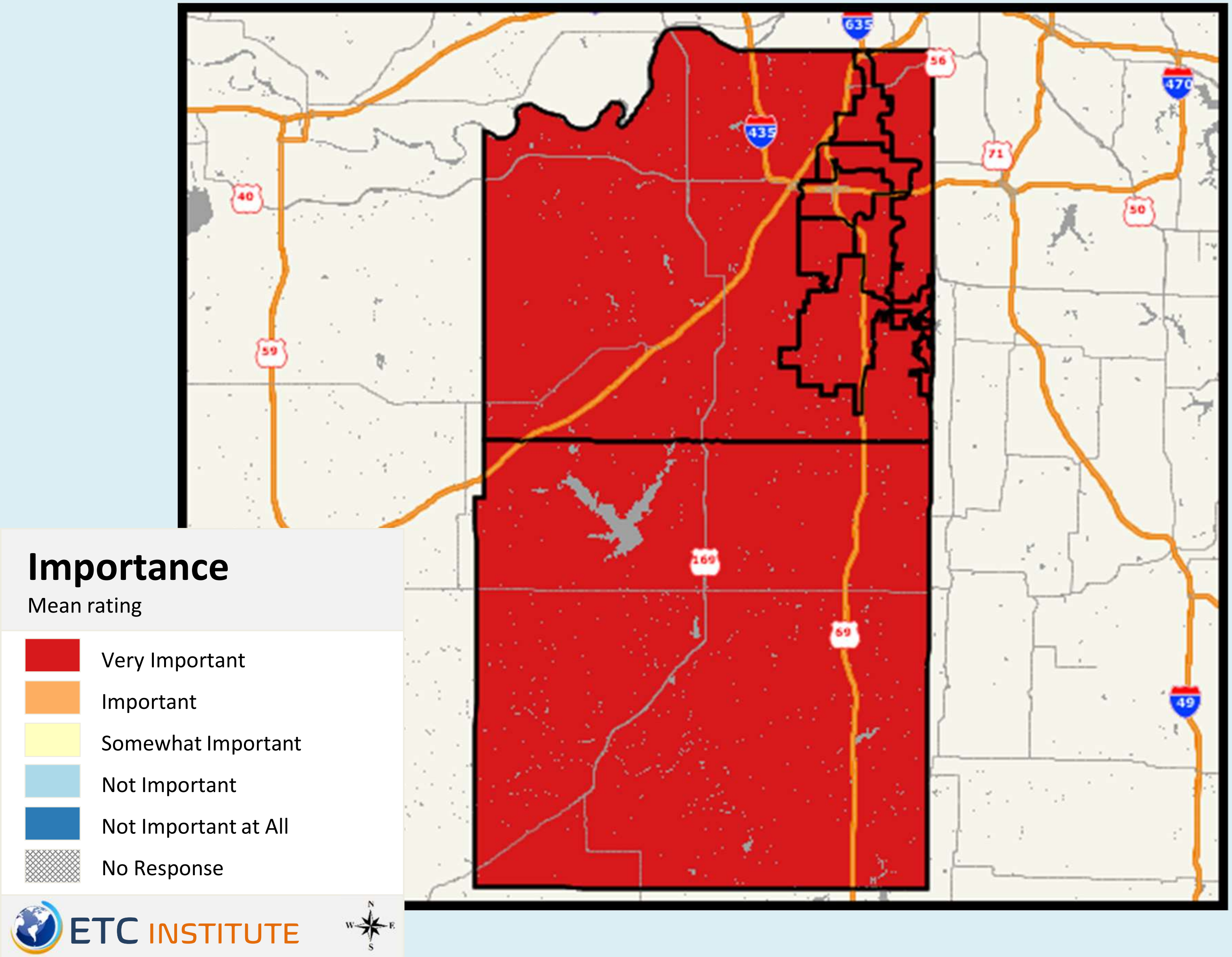
Q3. Compared to 6 months ago, how has the frequency that you use any portion of U.S. 69 between 103rd and 151st changed?



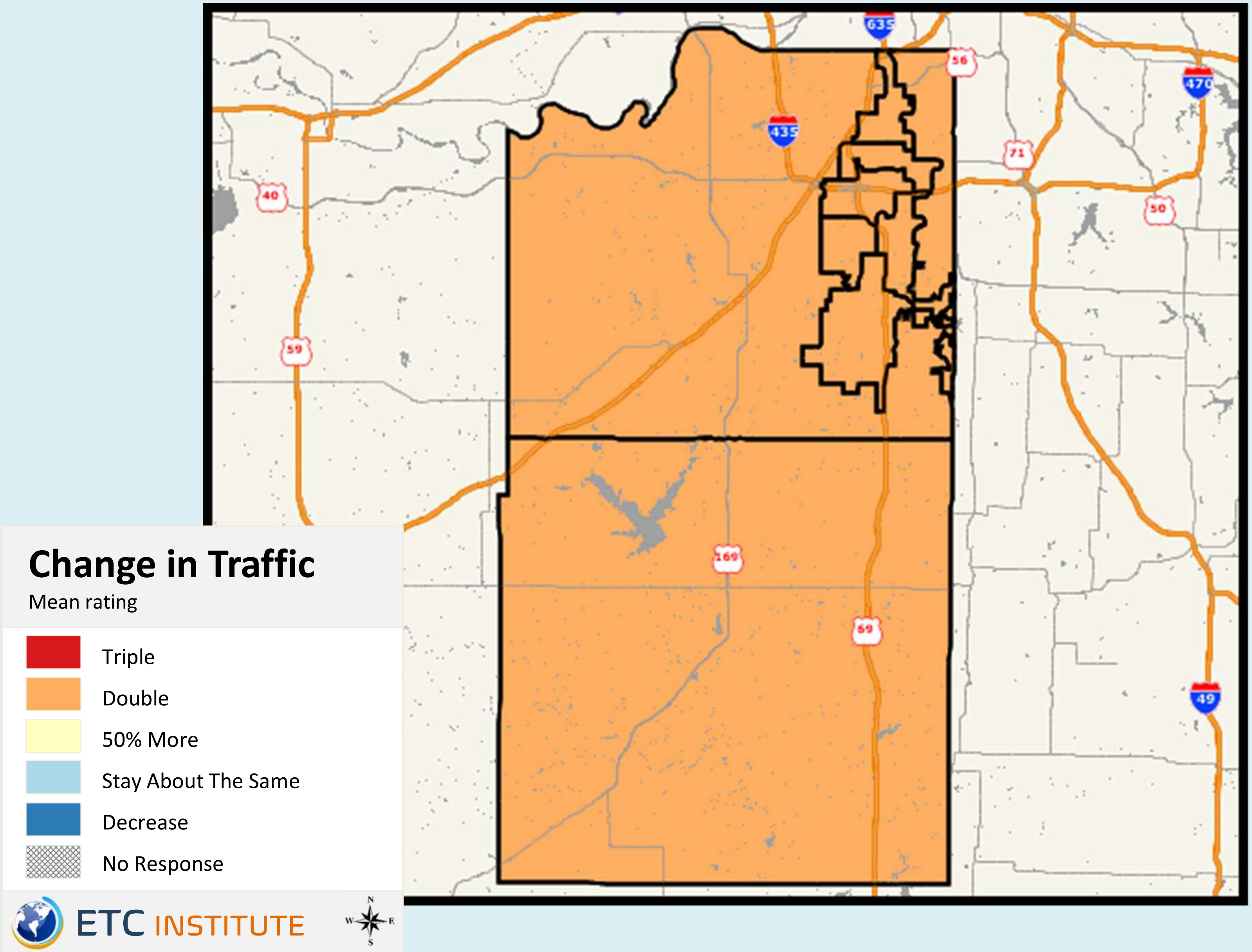
Q4. Over the next 6 months, how do you think the frequency that you use any portion of U.S. 69 between 103rd and 151st will change?



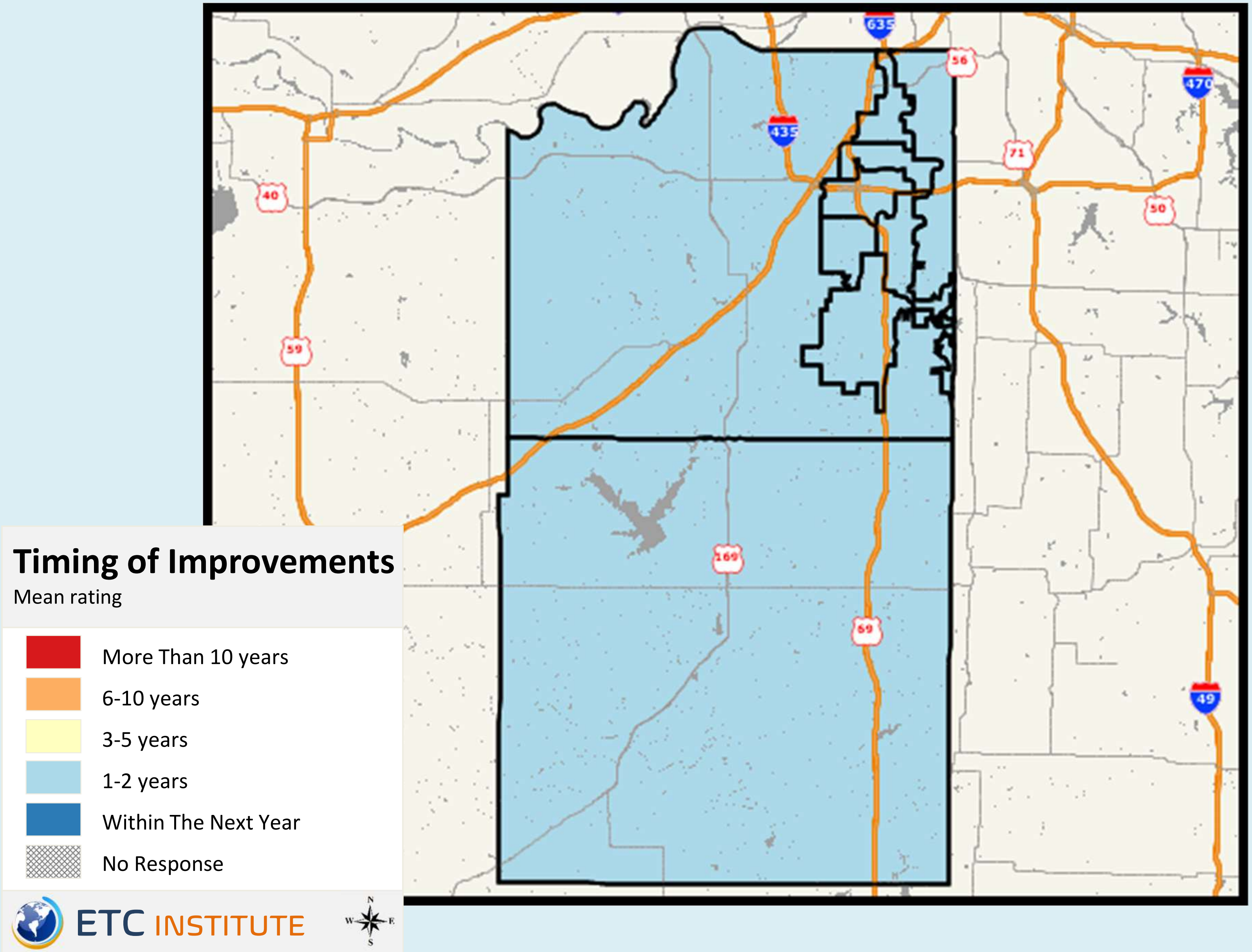
Q6. How important do you think U.S. 69 is to businesses and jobs in Overland Park?



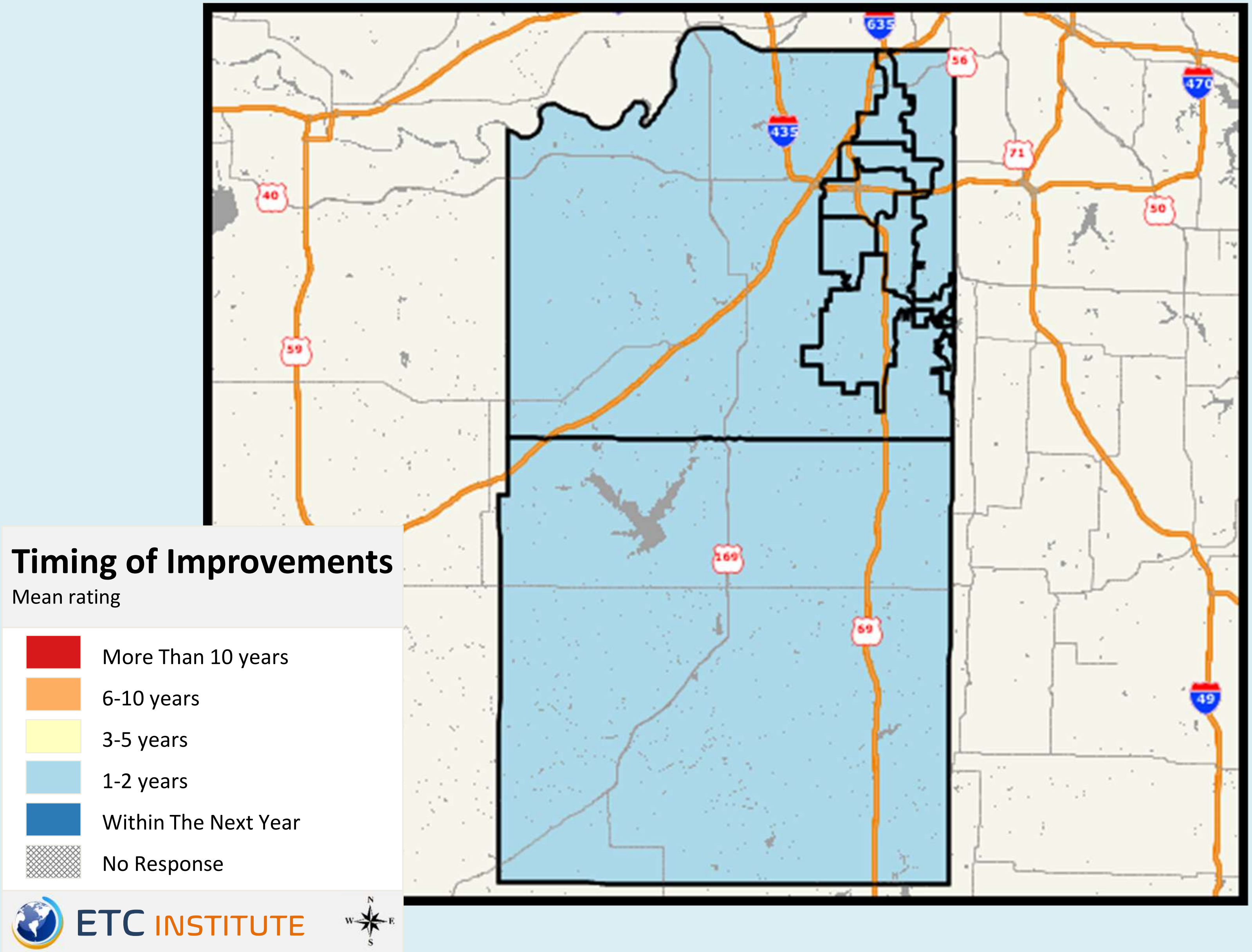
Q7. How do you think the amount of traffic on U.S. 69 will change over the next 20 years?



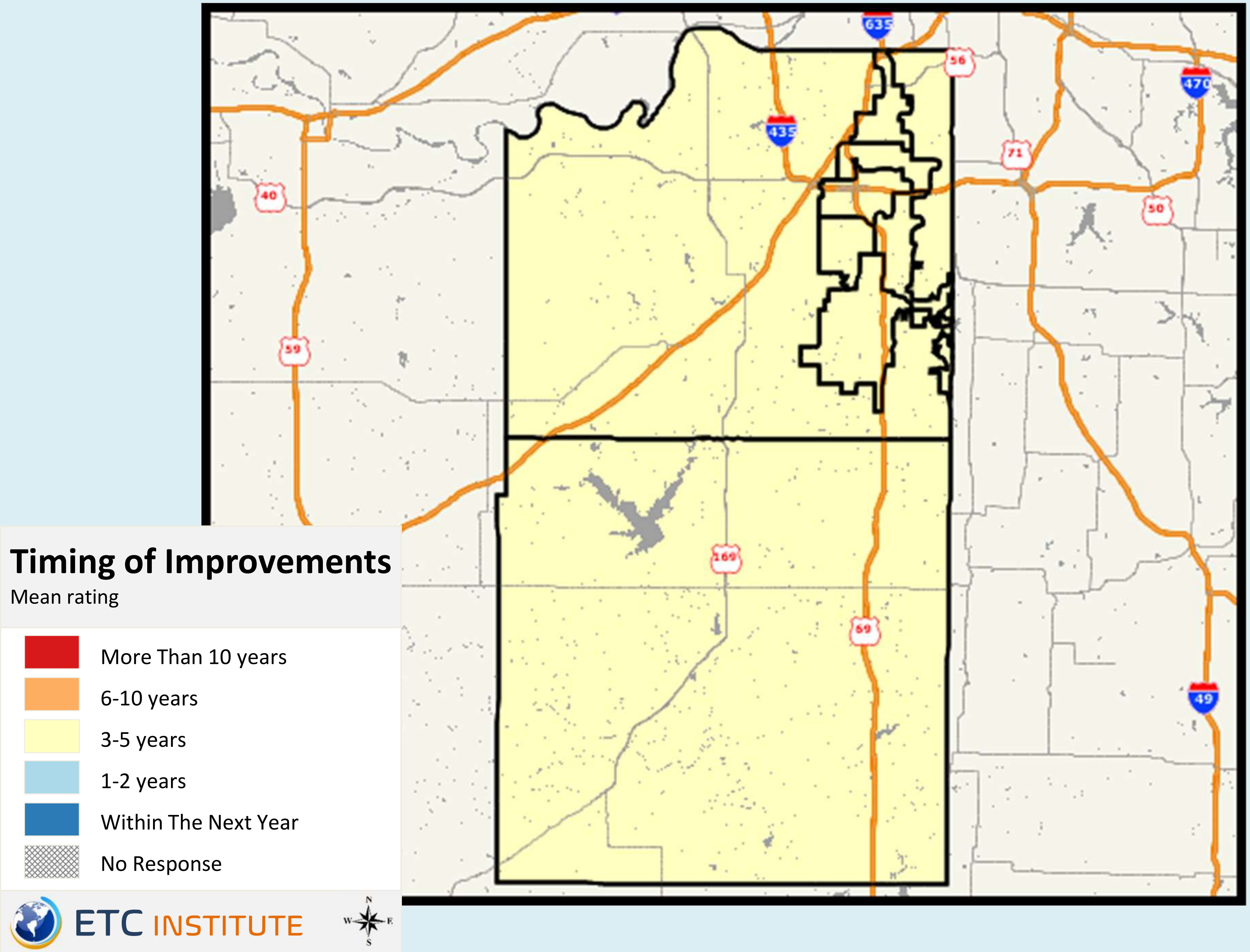
Q8-1. How soon you think KDOT should begin making traffic flow improvements to U.S. 69 between 103rd and 119th Streets?



Q8-2. How soon you think KDOT should begin making traffic flow improvements to U.S. 69 between 119th and 151st Streets

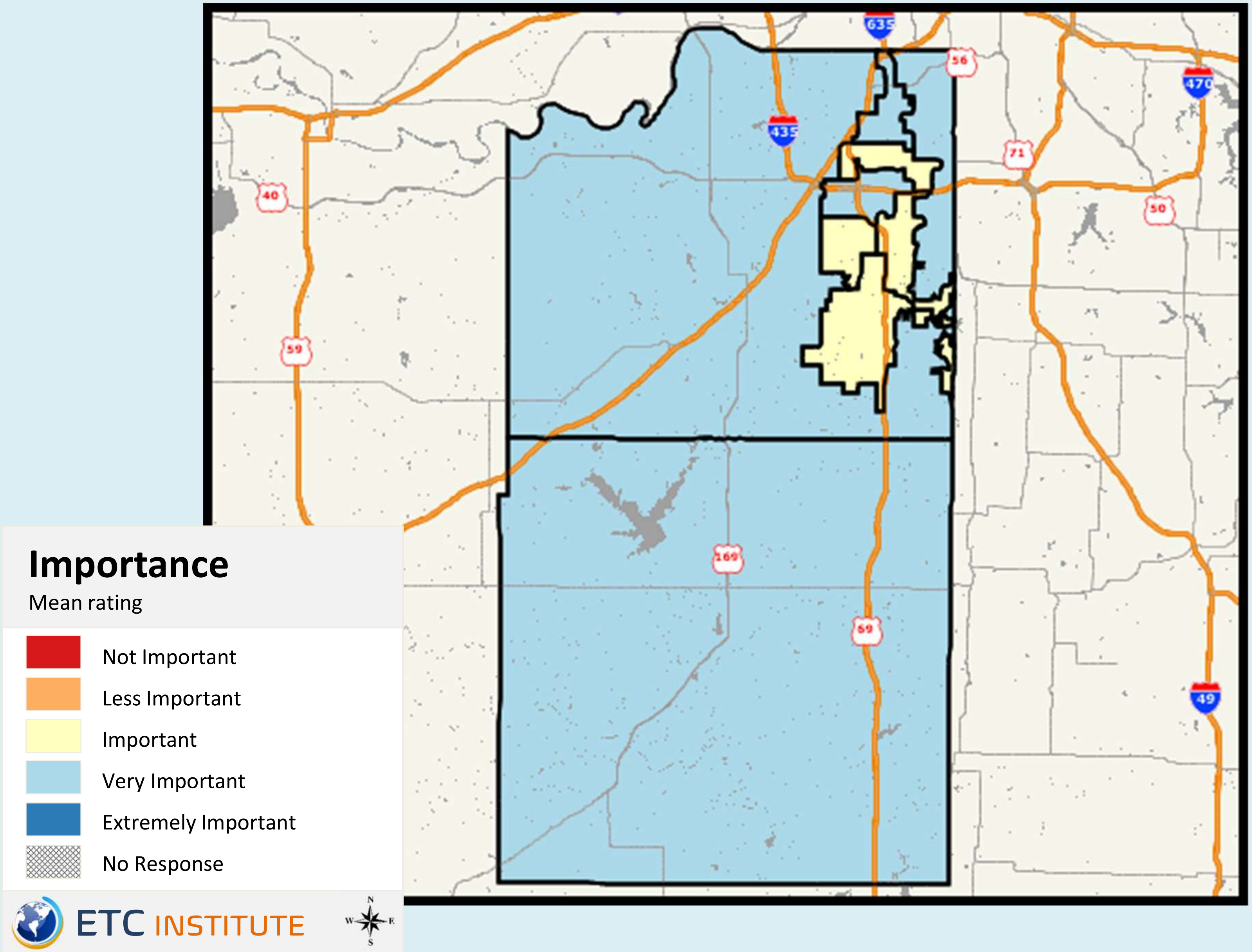


Q8-3. How soon you think KDOT should begin making traffic flow improvements to U.S. 69 between 151st and 179th Streets



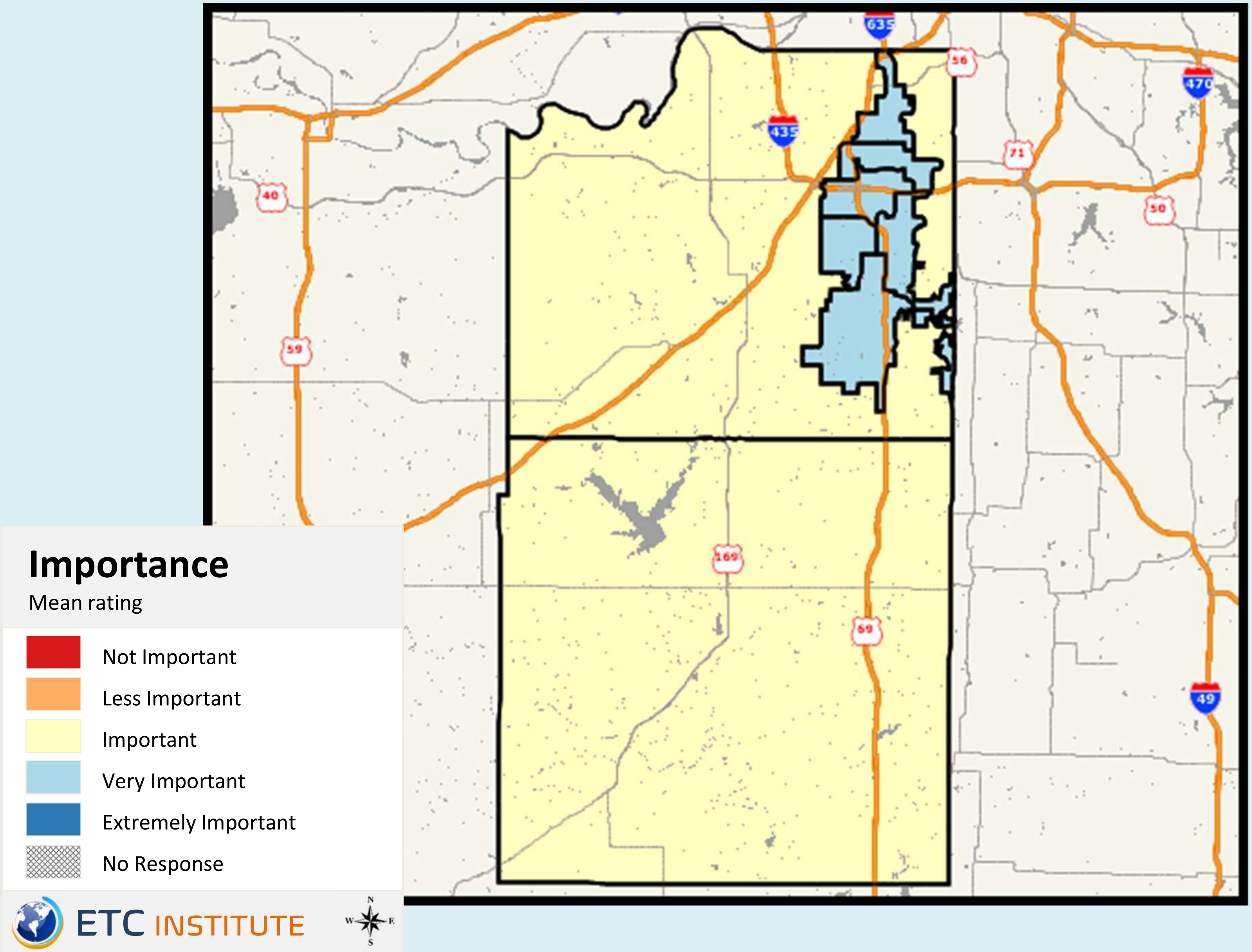
Q9-1. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Minimizing the total cost of the project



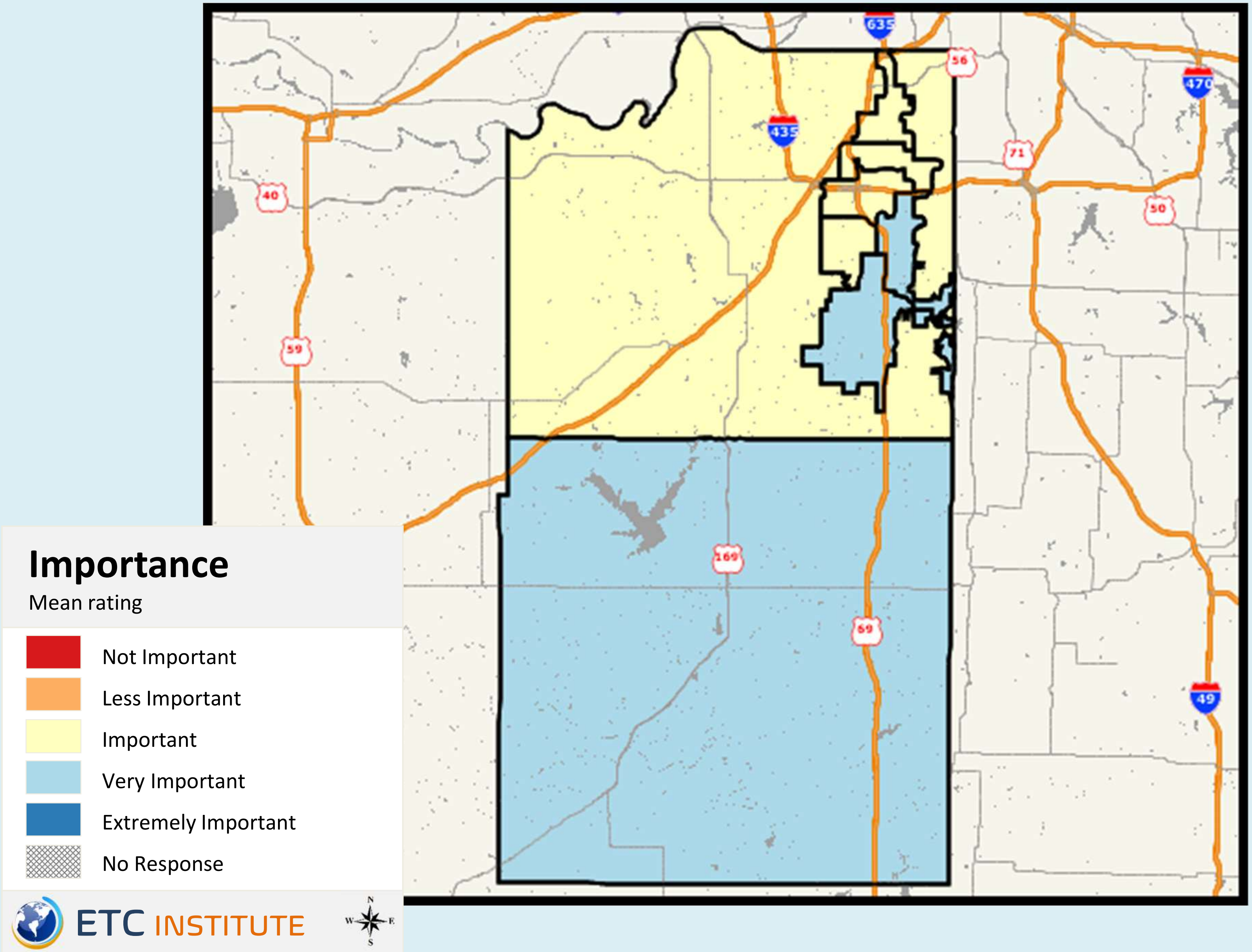
Q9-2. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Minimizing the portion of the total costs that are paid by Overland Park residents



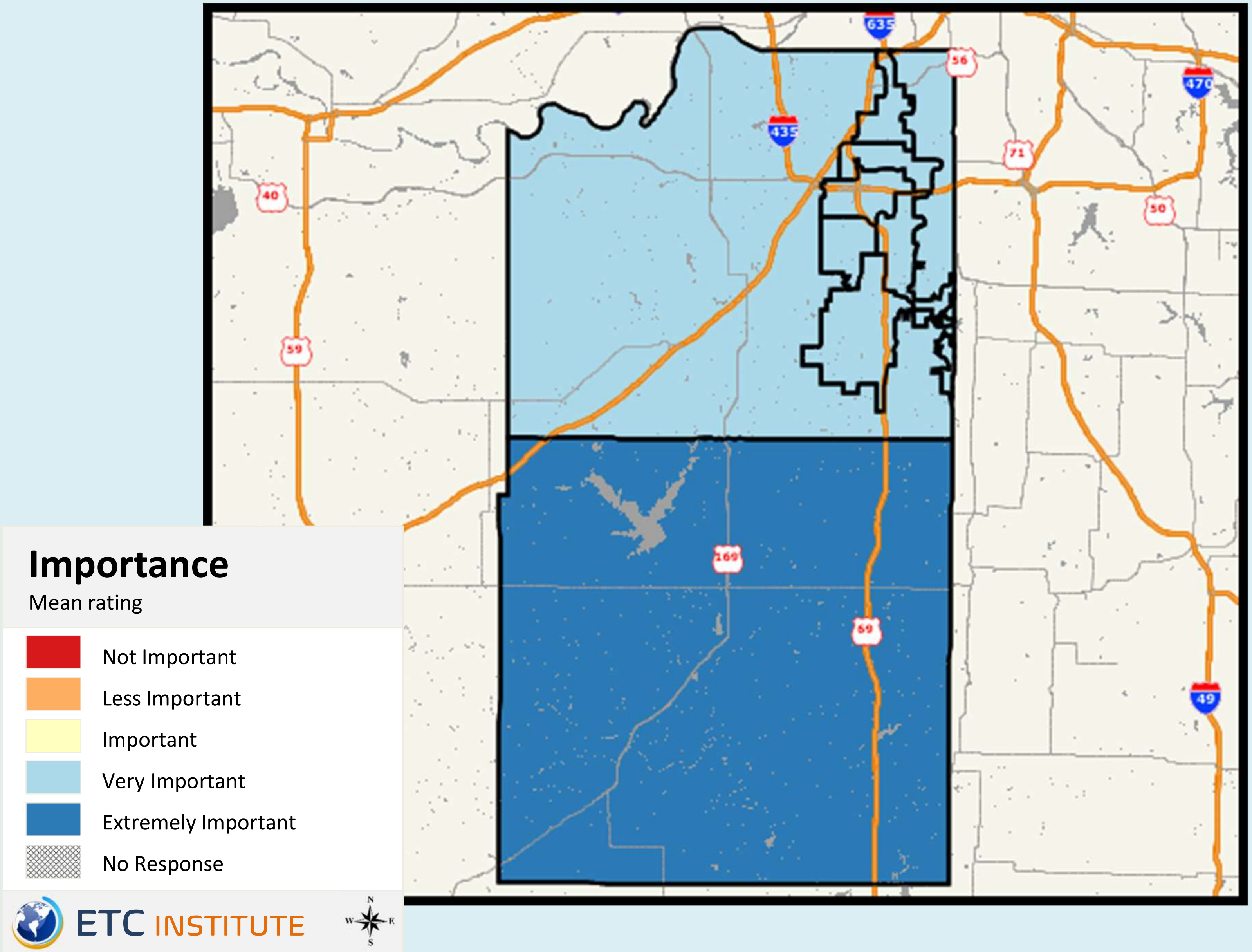
Q9-3. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Completing the project sooner rather than later



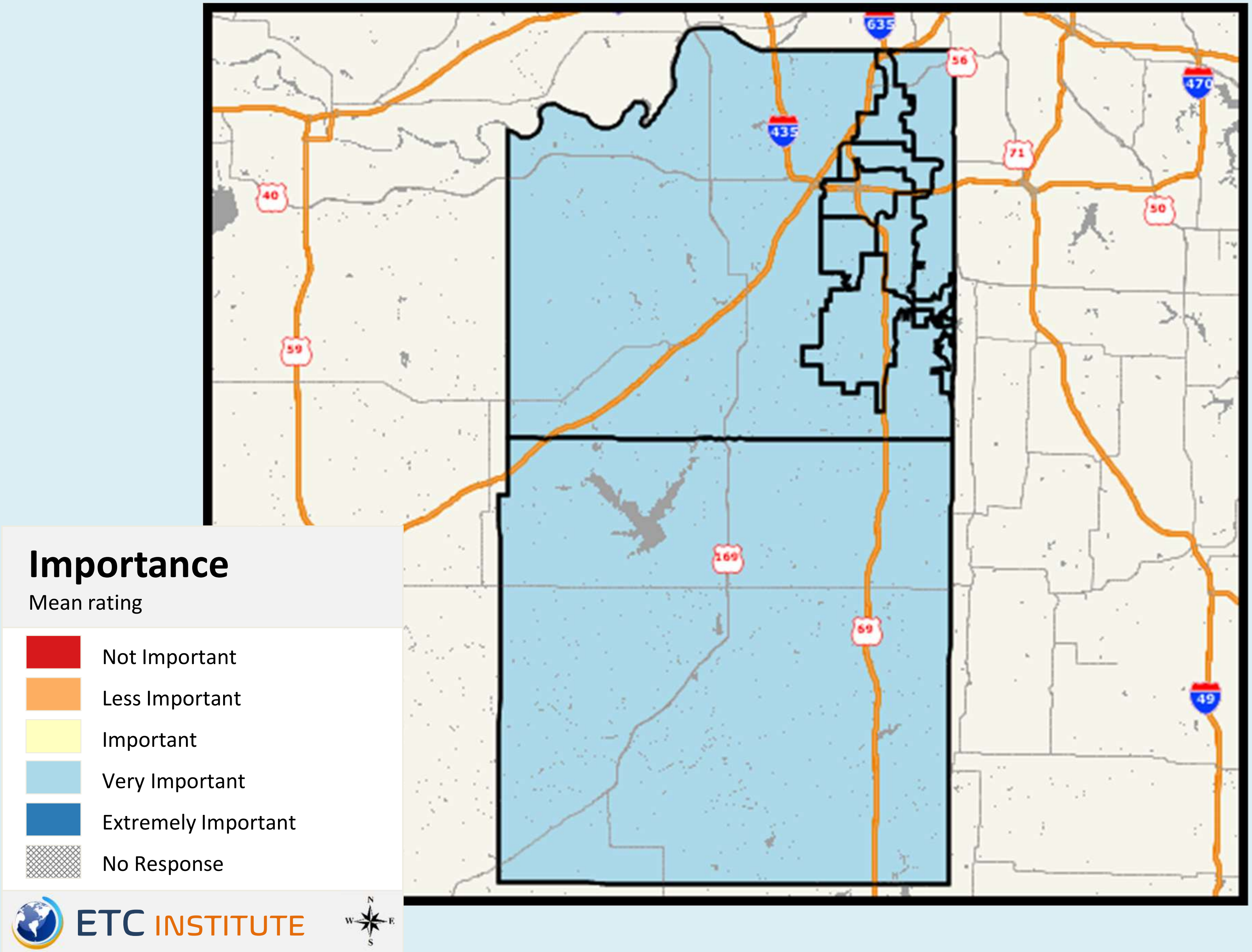
Q9-4. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Minimizing the disruption that construction has on traffic flow



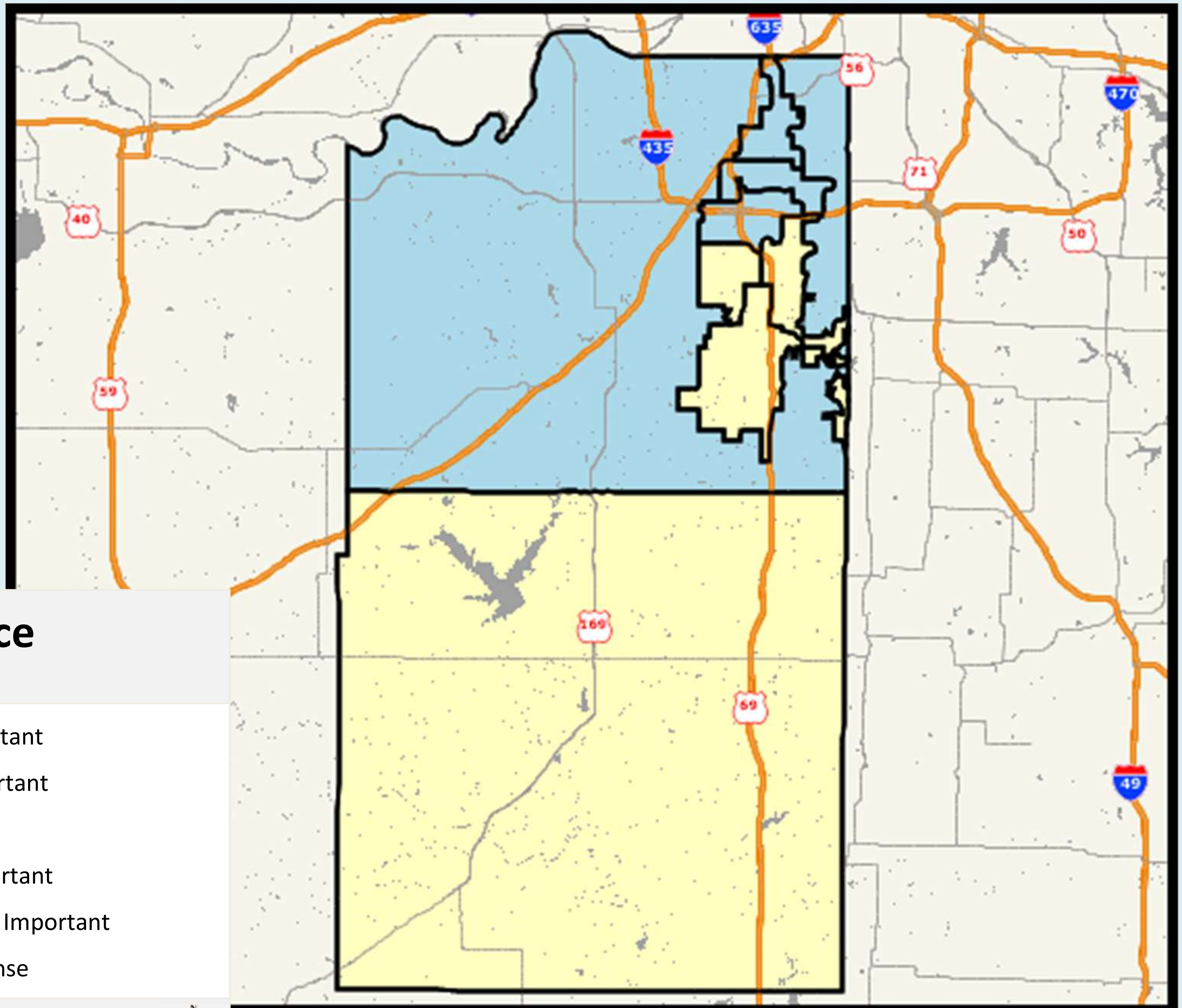
Q9-5. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Minimizing the impact of improvements on surrounding homes and businesses



Q9-6. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Minimizing the impact of improvements on the environment



Importance

Mean rating

- Not Important
- Less Important
- Important
- Very Important
- Extremely Important
- No Response

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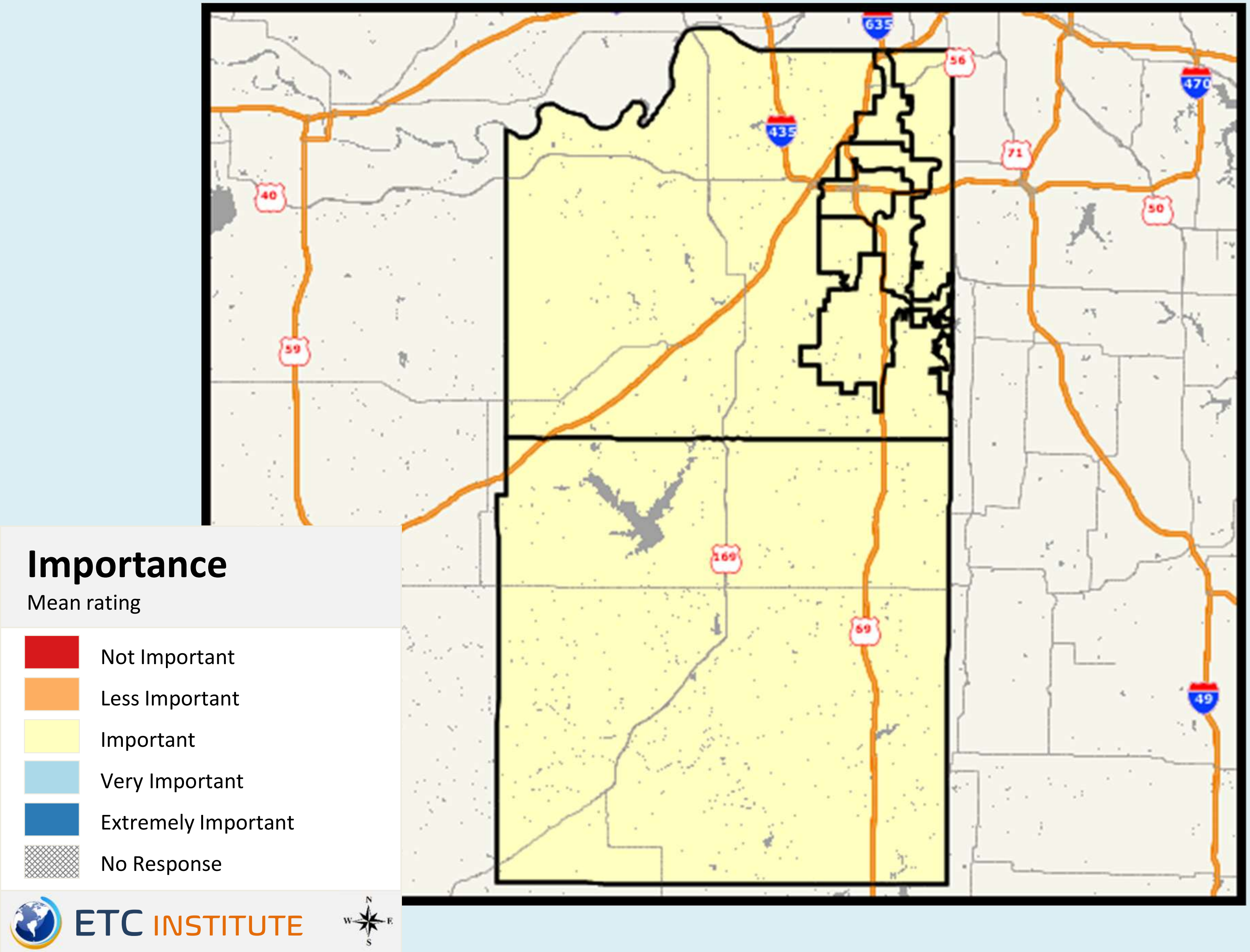
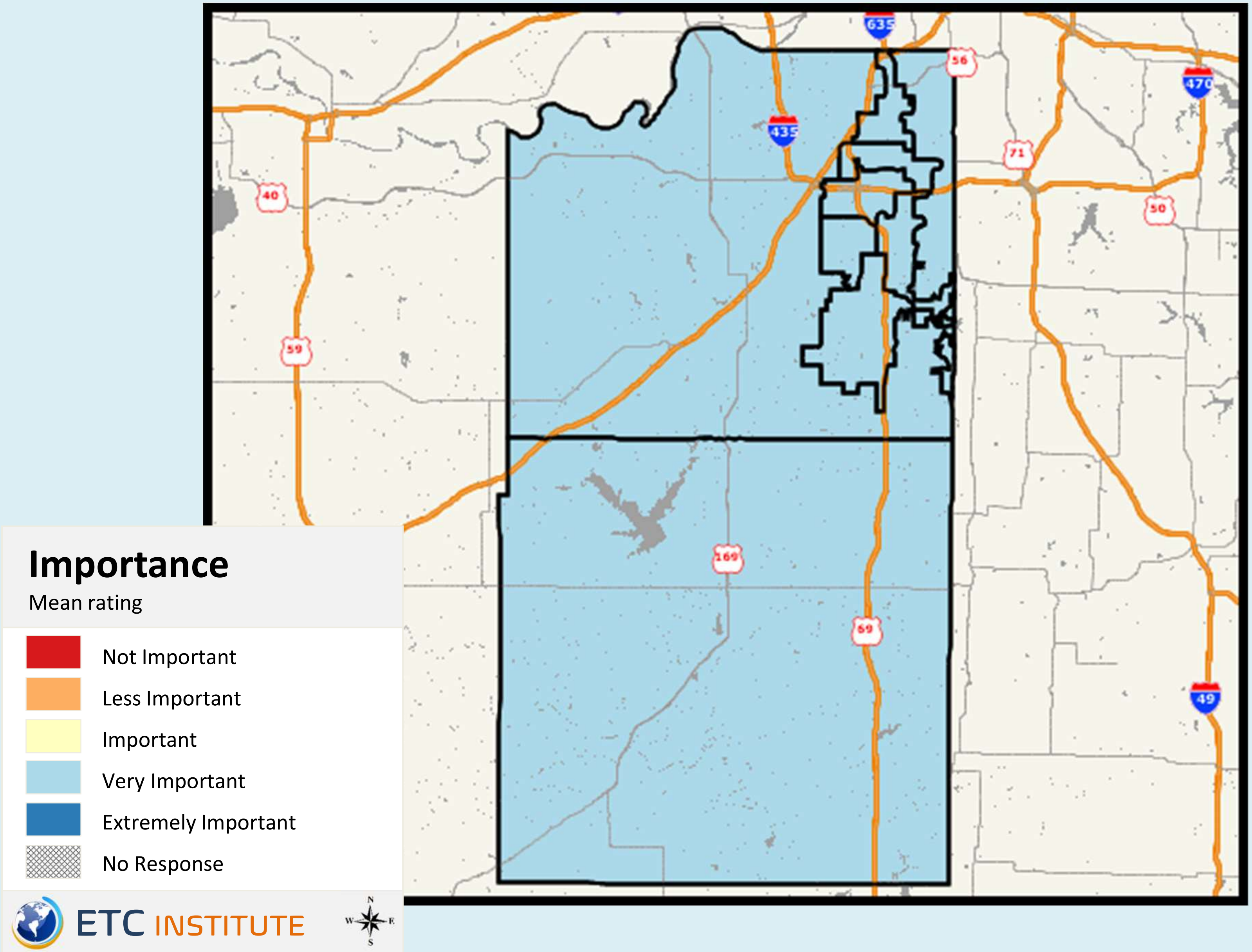
Q9-7. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Ensuring public transportation services can be offered in the corridor



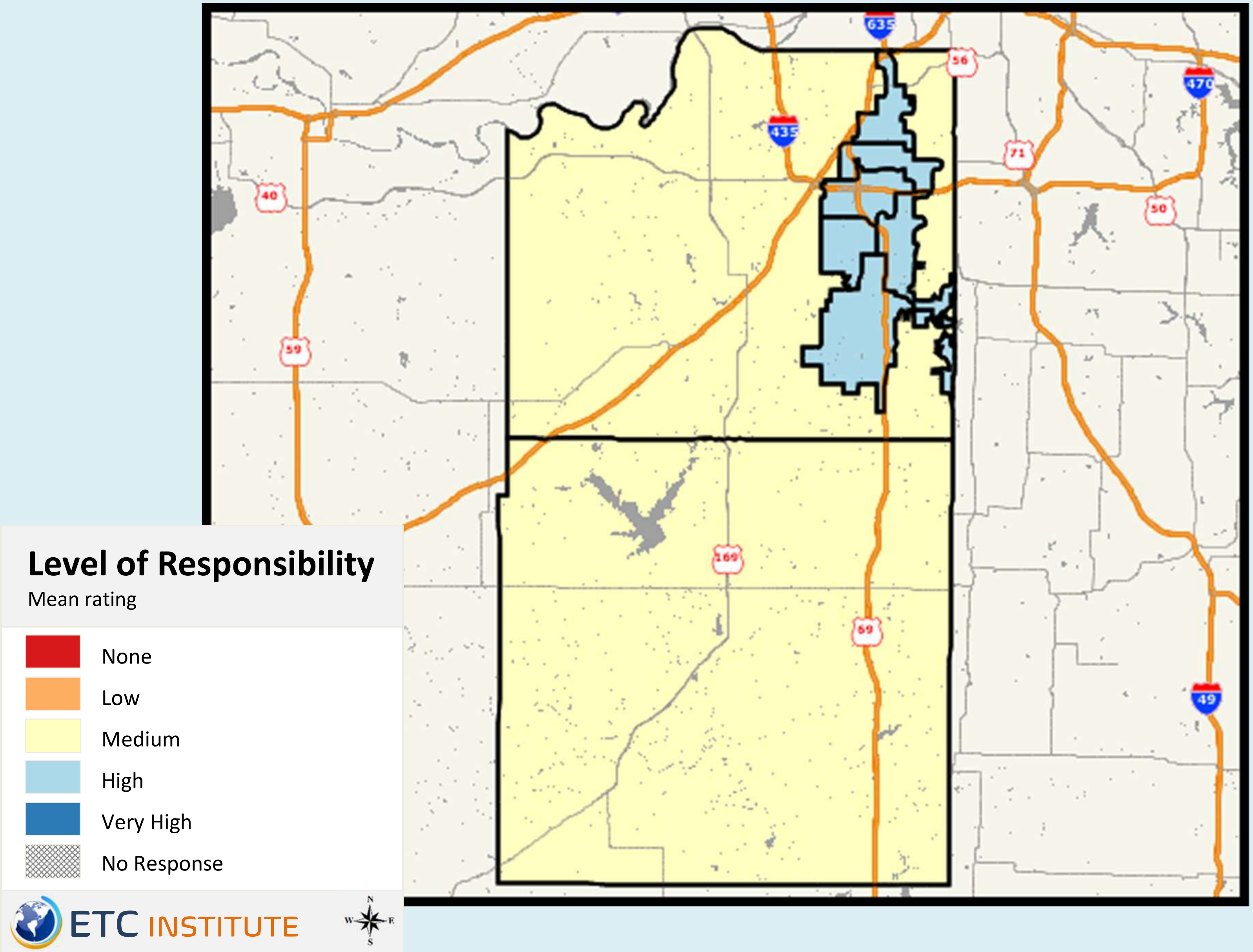
Q9-8. How important should the following be in determining the types of improvements (if any) that could be made to U.S. 69?

Minimizing congestion by using innovative and creative solutions



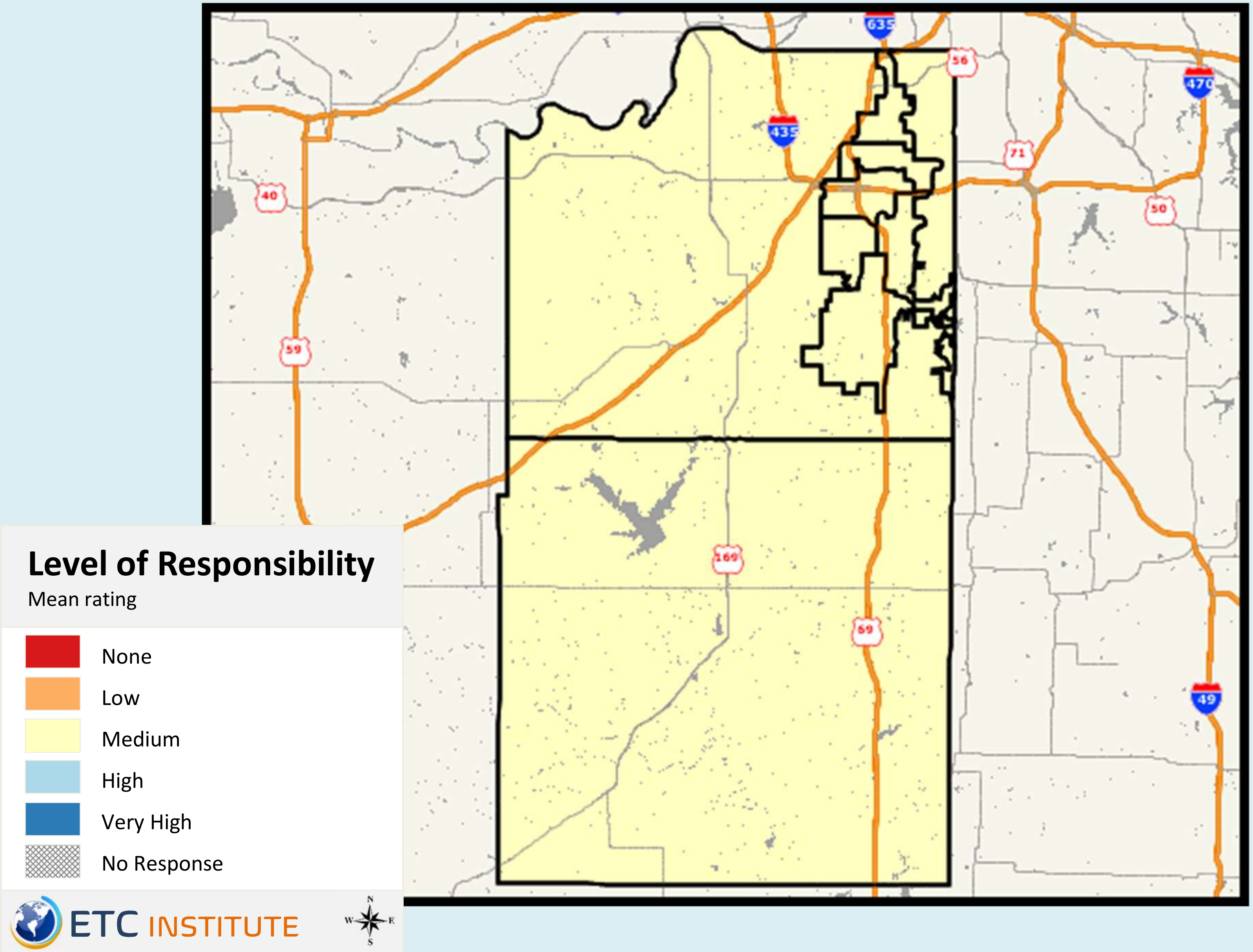
Q12-1. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69?

People who use/drive on U.S. 69 regardless of where they live



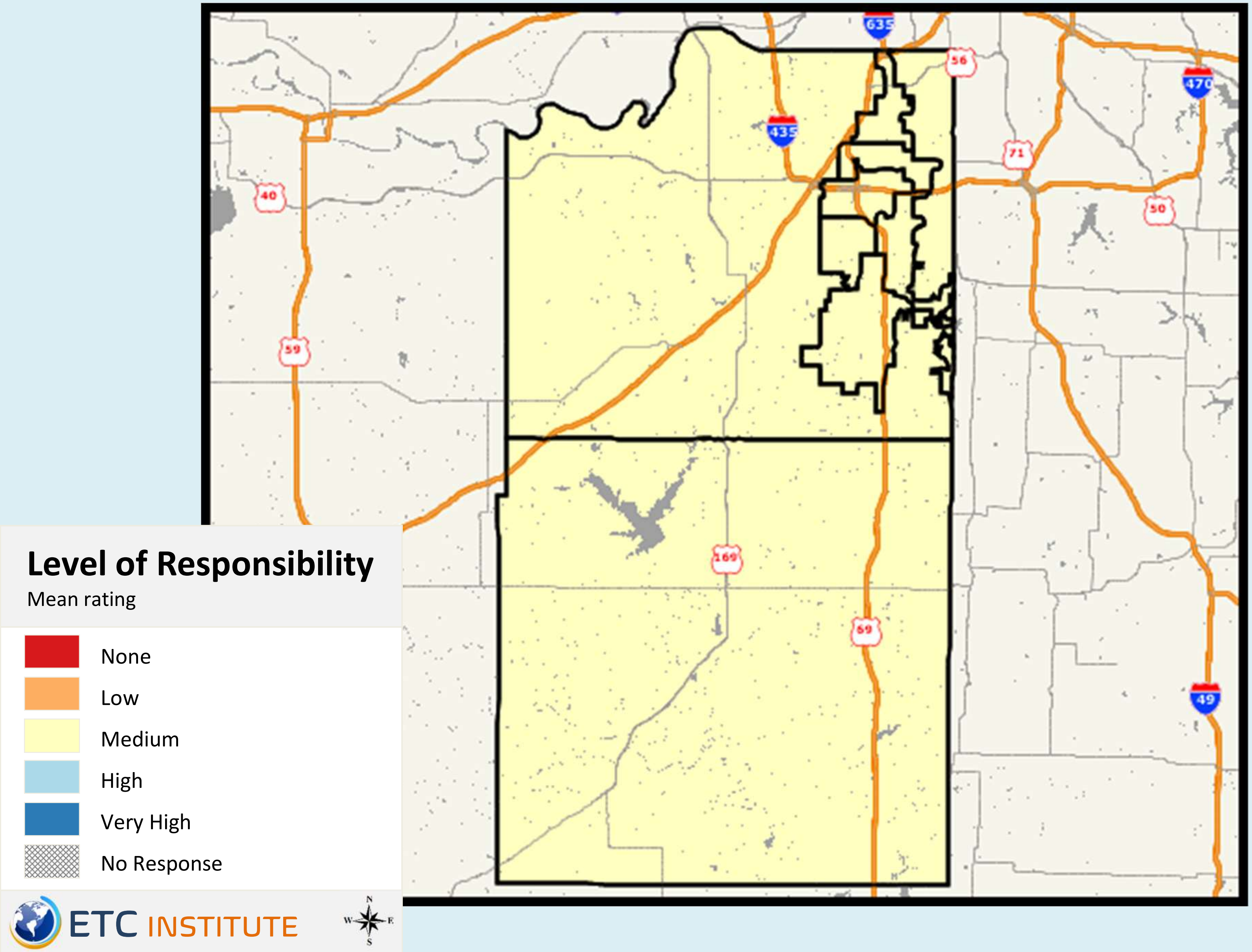
Q12-2. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69?

Residents of Overland Park regardless of whether or not they use U.S. 69



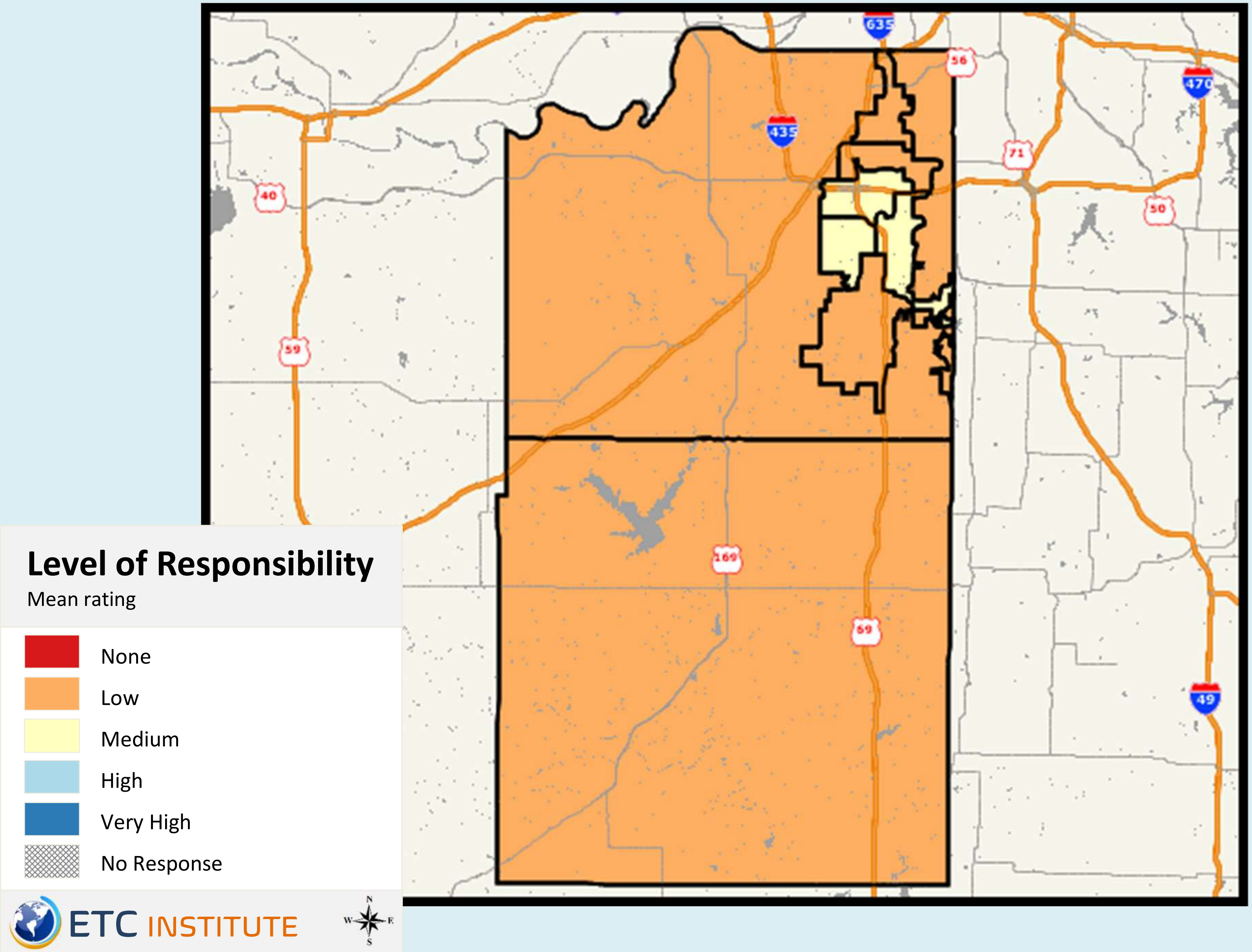
Q12-3. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69?

Residents of other areas of Johnson County



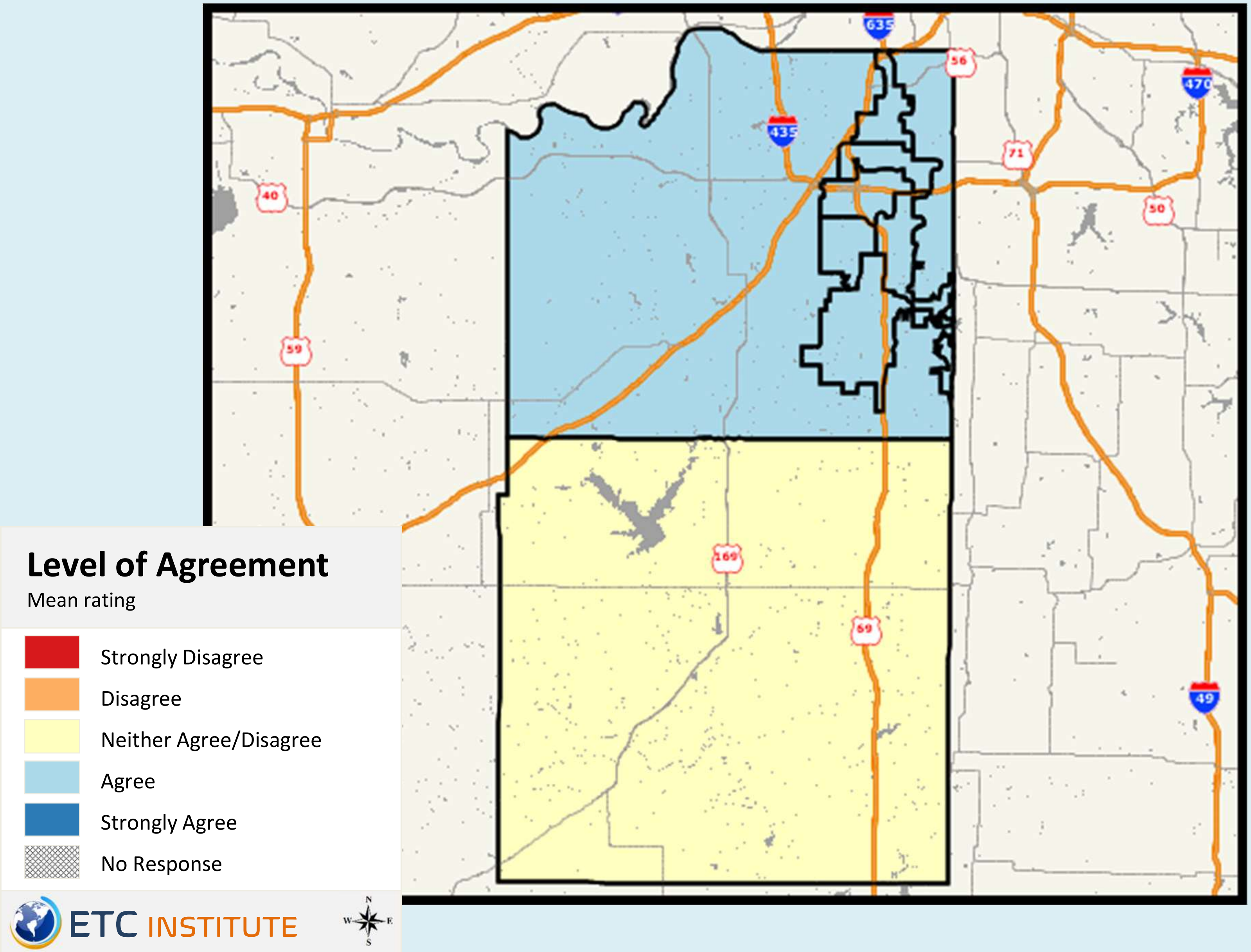
Q12-4. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69?

Residents of neighboring counties such as Miami and Wyandotte Counties



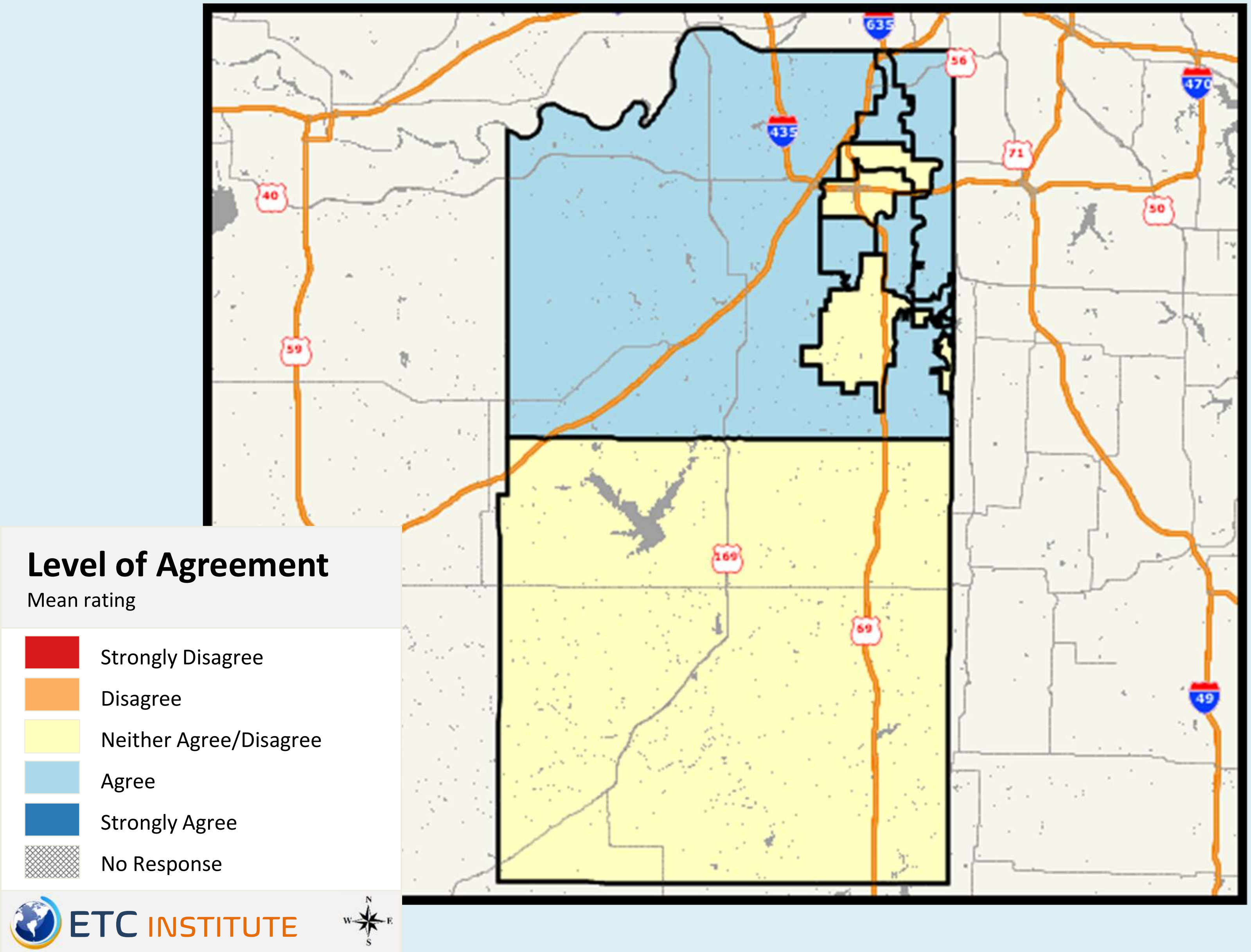
Perceptions of Express Toll Lanes (ELTs) Among People Who Have Used Them in Other Areas

Q13a-1. ELTs are a good way to keep traffic moving



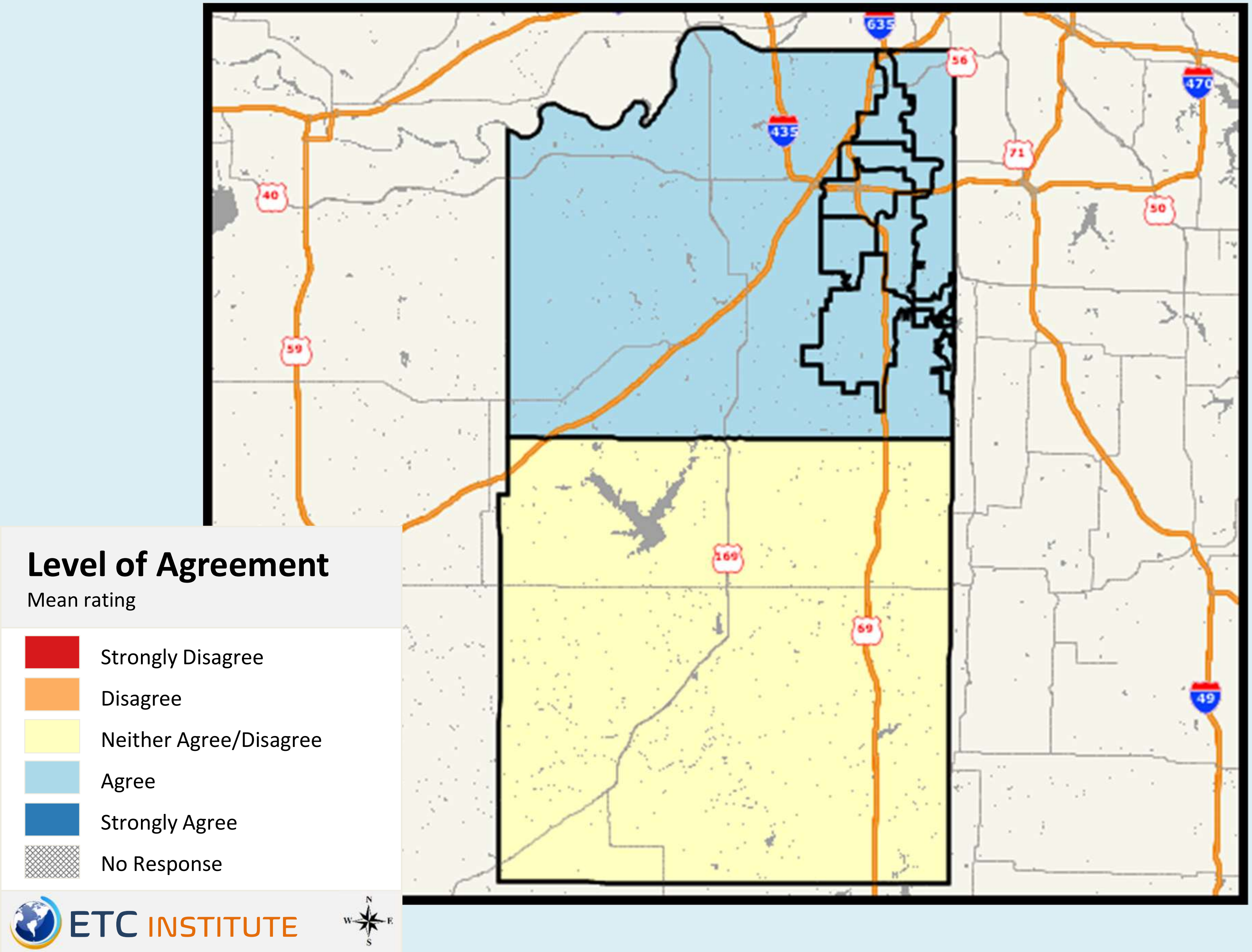
Perceptions of Express Toll Lanes (ELTs) Among People Who Have Used Them in Other Areas

Q13a-2. ELTs are easy to use



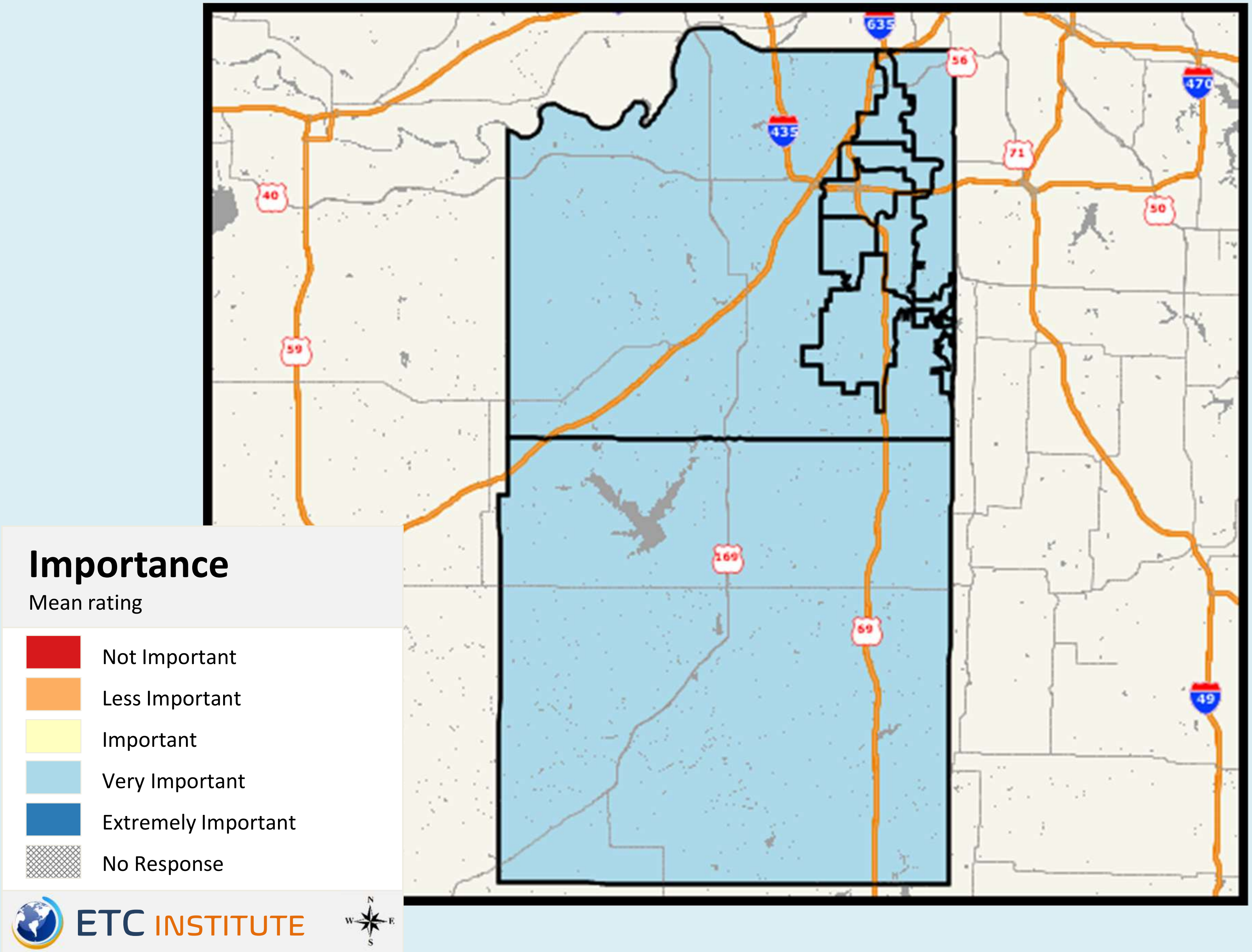
Perceptions of Express Toll Lanes (ELTs) Among People Who Have Used Them in Other Areas

Q13a-3. ELTs are fair because tolls are paid only by people who use them



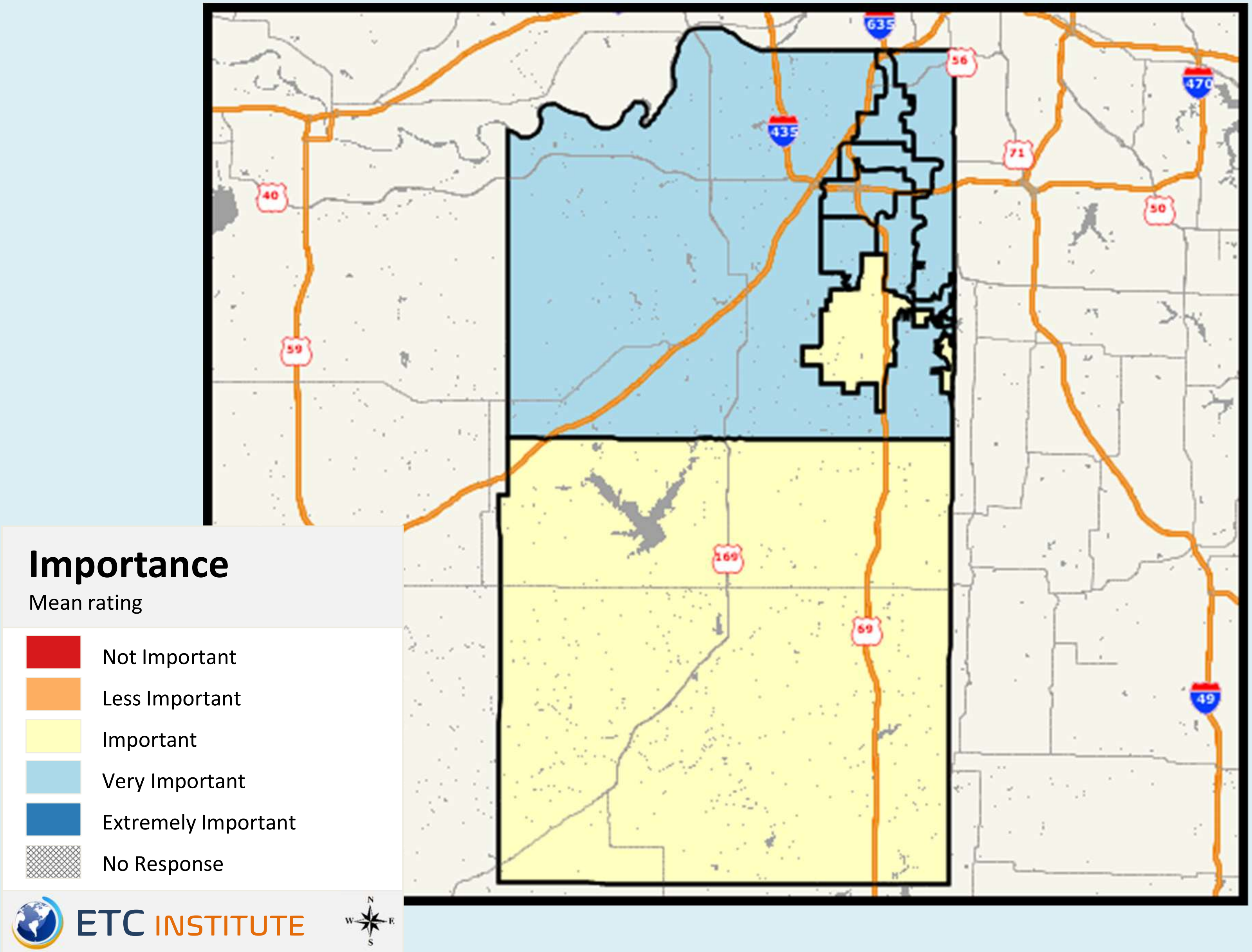
Importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

Q15-1. Reducing congestion across all lanes of traffic



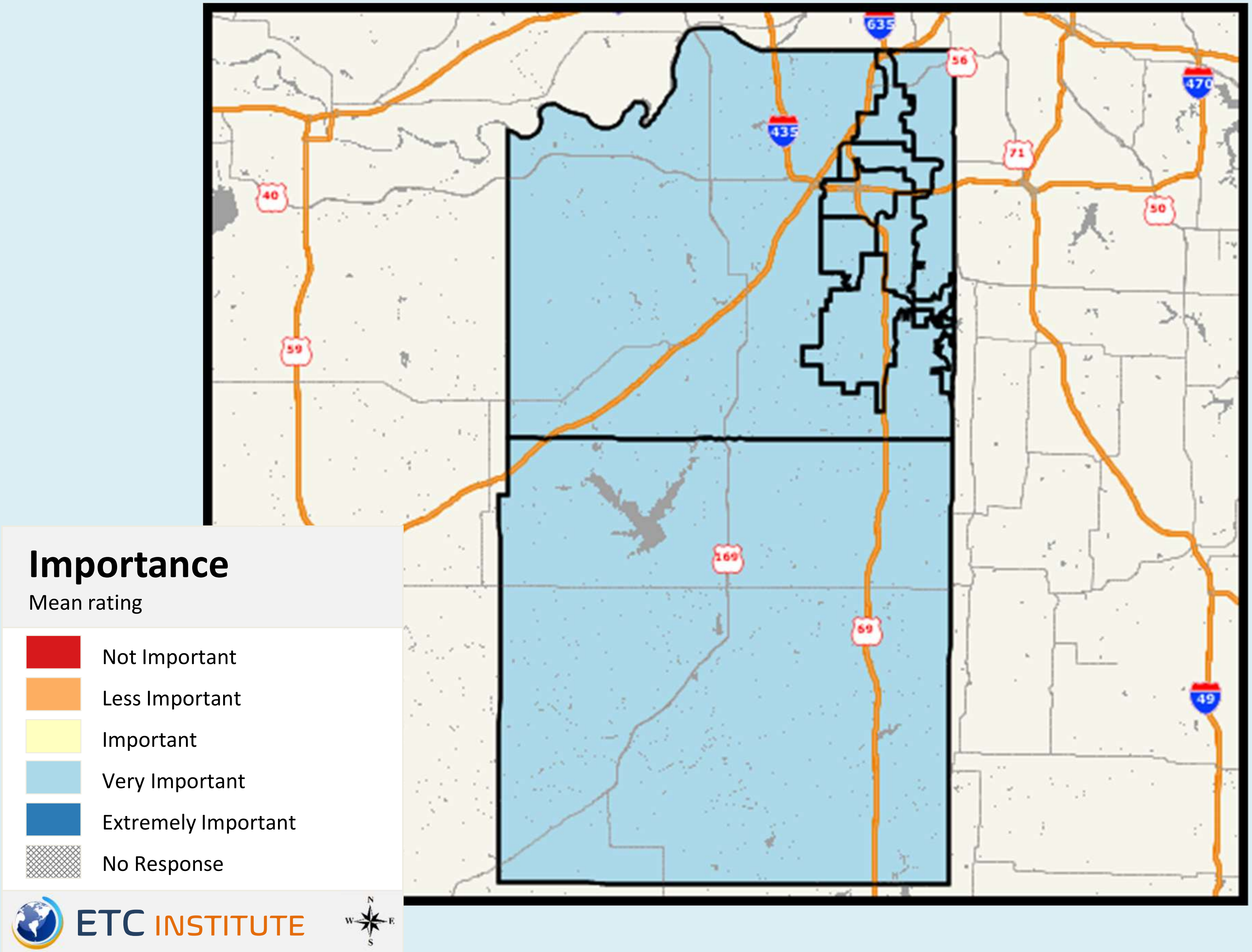
Importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

Q15-2. Reducing the cost of the project by $85 million dollars



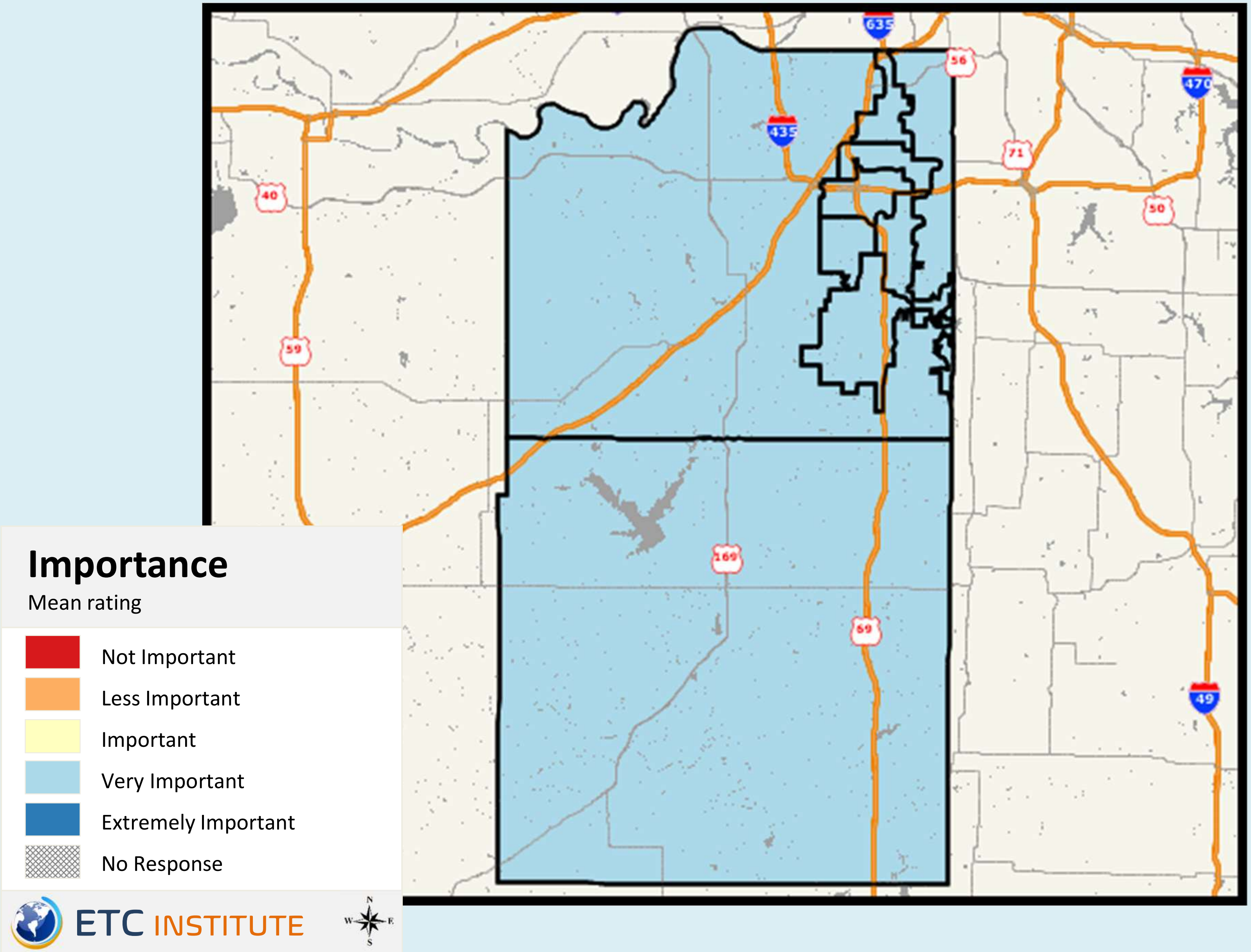
Importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

Q15-3. Reducing disruptions to traffic flow during construction



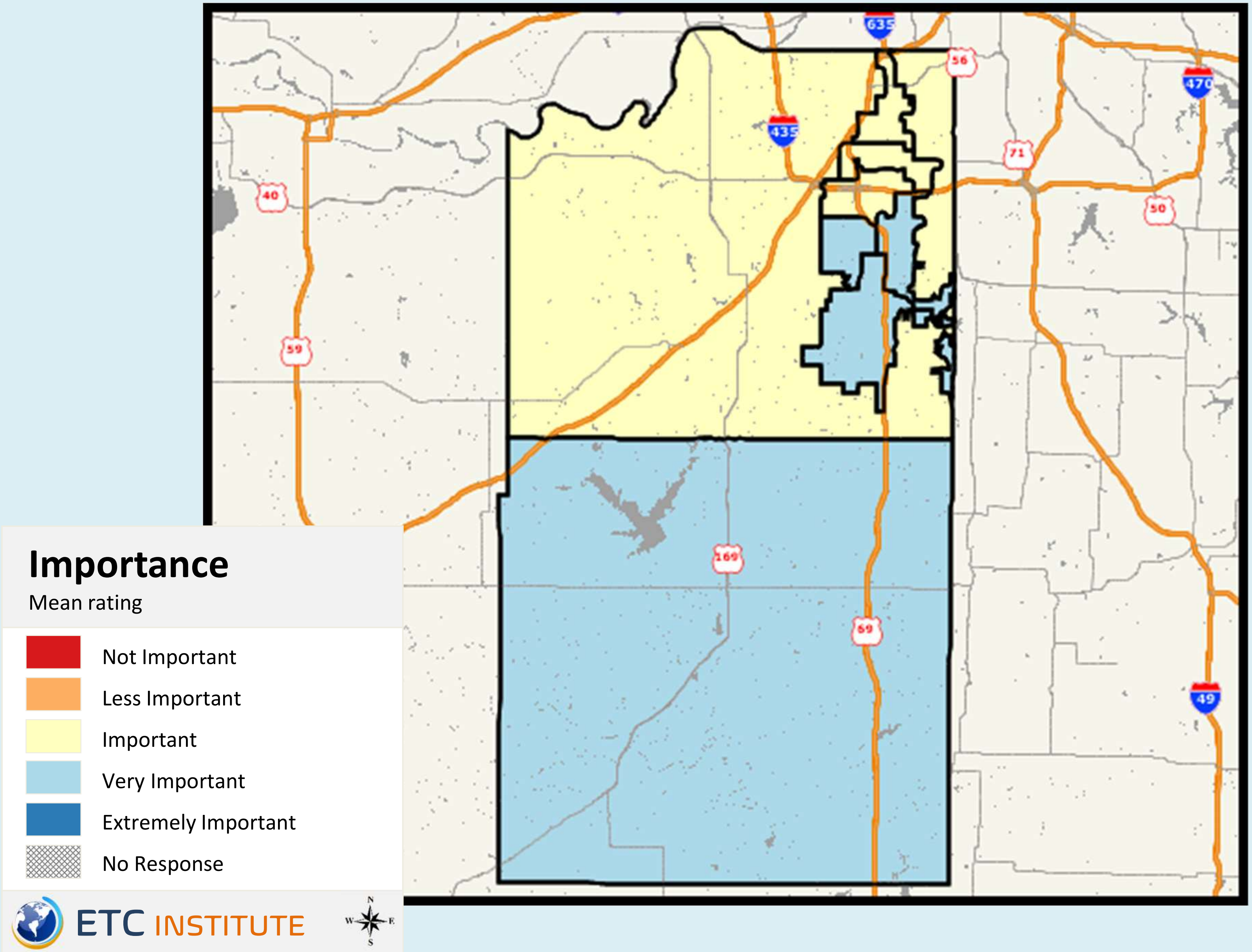
Importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

Q15-4. Leaving two free lanes in each direction



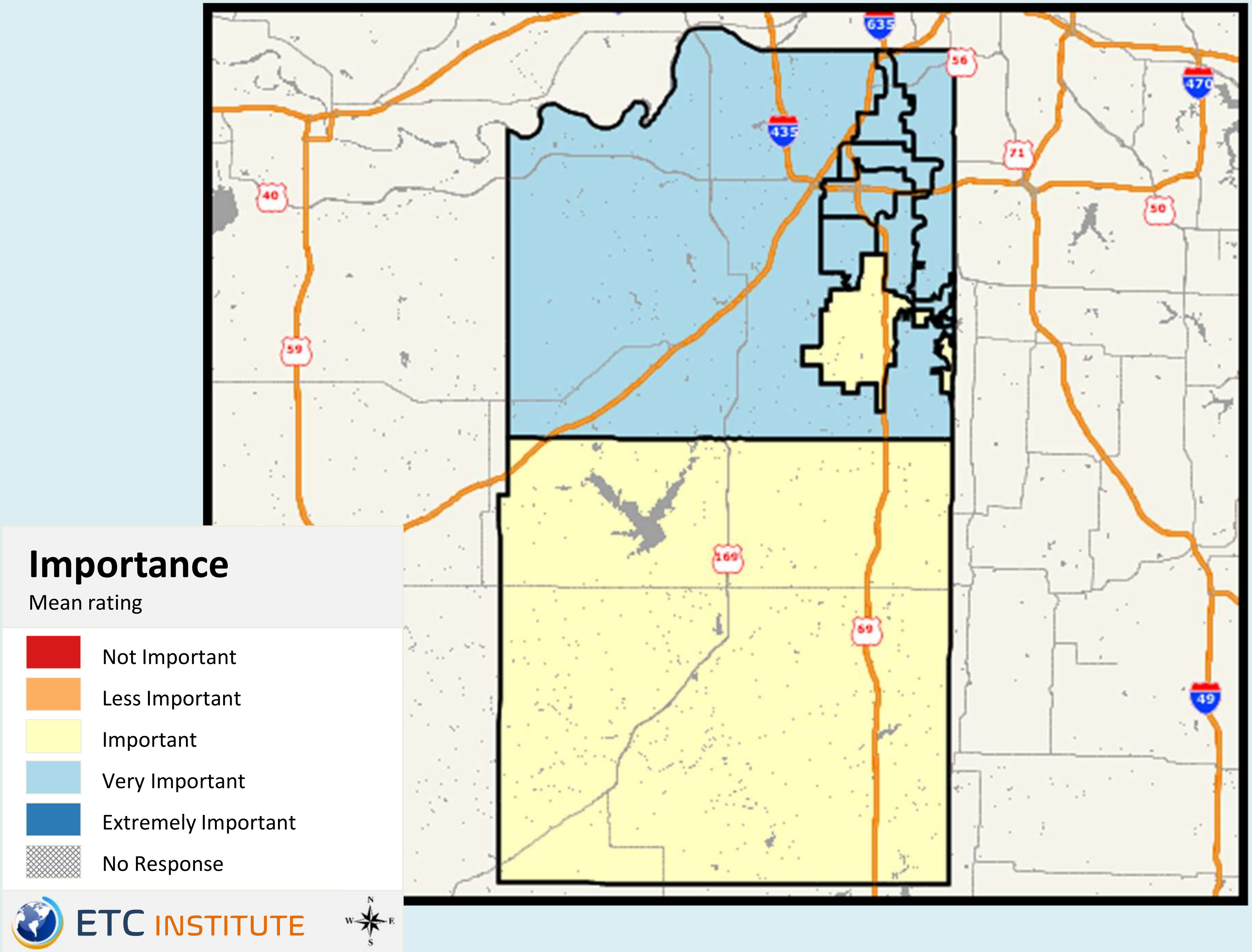
Importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

Q15-5. Allowing the improvements to be completed sooner



Importance of various benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

Q15-6. Providing another way for Overland Park to provide a local contribution



3 Crosstabulation Data: Results by Location

Respondents By Location

Area	Number	Percent
Overland Park Ward 1	101	8.0 %
Overland Park Ward 2	141	11.2 %
Overland Park Ward 3	176	14.0 %
Overland Park Ward 4	162	12.9 %
Overland Park Ward 5	150	11.9 %
Overland Park Ward 6	272	21.6 %
Other Johnson County	131	10.4 %
Miami County	124	9.9 %
Total	1257	100.0 %

Q1. Before receiving this survey, did you know that KDOT was studying improvements to U.S. 69 between 103rd and 179th Streets?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Yes	49.5%	52.5%	56.8%	59.9%	63.3%	75.4%	50.4%	61.3%	60.7%
No	50.5%	47.5%	43.2%	40.1%	36.7%	24.6%	49.6%	38.7%	39.3%

Q1a. How did you learn about KDOT's efforts to plan improvements to U.S. 69 between 103rd and 179th Streets?

N=763	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Facebook/social media	20.0%	24.3%	15.0%	24.7%	23.2%	25.9%	28.8%	40.8%	25.2%
Virtual open-houses	0.0%	0.0%	0.0%	3.1%	2.1%	1.0%	1.5%	1.3%	1.2%
Public meetings	0.0%	0.0%	3.0%	3.1%	5.3%	4.4%	3.0%	3.9%	3.3%
US69Express.org website	0.0%	6.8%	2.0%	5.2%	4.2%	7.8%	7.6%	6.6%	5.5%
Information provided by City of Overland Park	44.0%	40.5%	39.0%	47.4%	42.1%	43.4%	7.6%	7.9%	36.3%
Local news media	28.0%	37.8%	41.0%	36.1%	37.9%	38.5%	50.0%	31.6%	38.0%
Other	10.0%	6.8%	10.0%	7.2%	12.6%	7.3%	15.2%	18.4%	10.2%

WITHOUT "DON'T KNOWS"

Q1b. How useful were these sources in helping you understand efforts to improve U.S. 69? (without "don't knows")

N=763	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Very useful	10.2%	8.2%	13.3%	14.1%	16.0%	11.4%	7.8%	8.2%	11.6%
Useful	32.7%	28.8%	30.6%	30.4%	25.5%	34.3%	26.6%	11.0%	28.6%
Somewhat useful	40.8%	57.5%	46.9%	43.5%	47.9%	46.8%	53.1%	53.4%	48.4%
Not useful	8.2%	5.5%	4.1%	9.8%	7.4%	5.0%	7.8%	19.2%	7.7%
Not useful at all	8.2%	0.0%	5.1%	2.2%	3.2%	2.5%	4.7%	8.2%	3.8%

WITHOUT "NOT PROVIDED"

Q1c. Overall, how well would you rate KDOT's efforts to keep residents informed of planned improvements to U.S. 69 between 103rd and 179th Streets? (without "not provided")

N=763	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Excellent	4.2%	2.7%	9.3%	6.5%	11.8%	8.9%	4.8%	8.2%	7.7%
Good	20.8%	39.7%	39.2%	39.1%	36.6%	30.5%	25.4%	12.3%	31.5%
Average	60.4%	39.7%	30.9%	40.2%	40.9%	38.9%	42.9%	45.2%	40.7%
Poor	12.5%	9.6%	16.5%	9.8%	7.5%	14.3%	12.7%	20.5%	13.1%
Very poor	2.1%	8.2%	4.1%	4.3%	3.2%	7.4%	14.3%	13.7%	7.0%

Q2. How frequently have you used any portion of U.S. 69 between 103rd and 151st Streets during the past month?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Almost daily	11.9%	15.6%	24.4%	29.6%	39.3%	60.3%	22.1%	51.6%	35.1%
A few times a week	18.8%	18.4%	30.7%	30.9%	29.3%	25.4%	18.3%	21.8%	24.9%
At least once a week	14.9%	24.1%	15.9%	22.2%	14.7%	10.7%	22.1%	12.9%	16.6%
At least once a month	24.8%	18.4%	21.0%	11.1%	10.7%	2.9%	20.6%	9.7%	13.4%
Less than once per month	29.7%	23.4%	8.0%	6.2%	6.0%	0.7%	16.8%	3.2%	9.9%
Not provided	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.1%

Q3. Compared to 6 months ago, how has the frequency that you use any portion of U.S. 69 between 103rd and 151st changed?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Increased significantly	3.0%	3.5%	4.0%	7.4%	3.3%	7.0%	1.5%	4.8%	4.7%
Increased	6.9%	12.1%	9.7%	19.8%	16.0%	15.1%	13.0%	11.3%	13.4%
Stayed about the same	70.3%	70.9%	75.6%	64.2%	70.0%	67.6%	73.3%	72.6%	70.2%
Decreased	9.9%	5.0%	8.5%	3.1%	6.7%	7.0%	6.1%	5.6%	6.4%
Decreased significantly	3.0%	1.4%	1.1%	3.7%	4.0%	2.2%	3.1%	2.4%	2.5%
Don't know	6.9%	7.1%	1.1%	1.9%	0.0%	1.1%	3.1%	3.2%	2.6%

Q4. Over the next 6 months, how do you think the frequency that you use any portion of U.S. 69 between 103rd and 151st will change?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Increased significantly	5.0%	5.0%	2.3%	9.3%	3.3%	8.5%	1.5%	4.0%	5.3%
Increased	6.9%	12.8%	10.8%	15.4%	15.3%	15.4%	19.1%	10.5%	13.7%
Stayed about the same	70.3%	71.6%	81.3%	72.8%	79.3%	72.4%	74.0%	79.0%	75.1%
Decreased	4.0%	0.7%	1.7%	0.0%	1.3%	2.2%	2.3%	2.4%	1.8%
Decreased significantly	3.0%	0.7%	0.6%	0.6%	0.0%	0.4%	0.0%	0.8%	0.6%
Don't know	10.9%	9.2%	3.4%	1.9%	0.7%	1.1%	3.1%	3.2%	3.6%

WITHOUT "NOT PROVIDED"

Q5. Thinking about your most common trip on U.S. 69 anywhere between 103rd and 151st Streets, what is the maximum time this trip could take before the length would not be acceptable? (without "not provided")

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Less than 10 minutes	33.7%	33.9%	46.4%	45.4%	43.7%	40.6%	40.5%	40.9%	41.2%
11-20 minutes	40.7%	50.8%	44.6%	46.1%	41.5%	43.7%	38.8%	35.5%	43.1%
21-30 minutes	16.3%	11.3%	7.7%	6.6%	14.1%	12.3%	17.4%	17.3%	12.3%
31+ minutes	9.3%	4.0%	1.2%	2.0%	0.7%	3.4%	3.3%	6.4%	3.4%

Q6. How important do you think U.S. 69 is to businesses and jobs in Overland Park?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Very important	48.5%	58.9%	55.1%	67.3%	72.7%	70.2%	65.6%	76.6%	65.2%
Important	27.7%	24.8%	30.7%	21.6%	18.0%	19.1%	21.4%	16.1%	22.2%
Somewhat important	12.9%	10.6%	10.8%	8.6%	6.0%	7.0%	6.9%	4.8%	8.3%
Not important	2.0%	2.1%	0.6%	0.0%	0.0%	1.1%	0.8%	0.0%	0.8%
Not important at all	0.0%	0.7%	0.0%	0.0%	0.7%	0.4%	1.5%	0.0%	0.4%
Don't know	8.9%	2.8%	2.8%	2.5%	2.7%	2.2%	3.8%	2.4%	3.2%

Q7. How do you think the amount of traffic on U.S. 69 will change over the next 20 years?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
It will triple	14.9%	22.7%	25.0%	32.1%	28.0%	32.4%	22.9%	26.6%	26.7%
It will double	29.7%	31.9%	33.0%	34.0%	38.0%	36.8%	42.7%	39.5%	35.8%
It will be 50% more	24.8%	24.8%	24.4%	19.8%	23.3%	20.6%	22.1%	17.7%	22.0%
Stay about the same	5.0%	3.5%	4.0%	1.9%	2.0%	1.8%	2.3%	5.6%	3.0%
Will decrease	1.0%	0.7%	0.6%	0.0%	0.0%	0.0%	0.0%	0.8%	0.3%
Don't know	24.8%	16.3%	13.1%	12.3%	8.7%	8.5%	9.9%	9.7%	12.1%

Q8. How soon do you think KDOT should begin making traffic flow improvements on each of the portions of U.S. 69 listed below?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q8-1. Between 103rd & 119th Streets									
Within next year	26.7%	33.3%	27.8%	35.2%	32.7%	33.5%	37.4%	26.6%	32.0%
1-2 years	23.8%	24.8%	26.7%	24.1%	31.3%	33.8%	23.7%	28.2%	27.8%
3-5 years	18.8%	14.2%	22.7%	19.8%	18.7%	14.0%	19.1%	21.0%	18.1%
6-10 years	4.0%	6.4%	6.8%	5.6%	7.3%	5.1%	1.5%	4.0%	5.3%
10+ years	0.0%	1.4%	0.0%	1.9%	2.0%	1.1%	2.3%	1.6%	1.3%
Will not be needed	5.9%	5.7%	5.1%	3.7%	2.0%	3.7%	4.6%	5.6%	4.4%
Don't know	20.8%	14.2%	10.8%	9.9%	6.0%	8.8%	11.5%	12.9%	11.1%
Q8-2. Between 119th & 151st Streets									
Within next year	14.9%	17.7%	21.6%	29.0%	37.3%	35.3%	27.5%	33.1%	28.2%
1-2 years	30.7%	33.3%	40.3%	34.0%	33.3%	35.3%	34.4%	30.6%	34.4%
3-5 years	23.8%	24.1%	19.9%	20.4%	15.3%	16.9%	19.8%	17.7%	19.3%
6-10 years	4.0%	4.3%	6.3%	2.5%	5.3%	3.7%	3.1%	3.2%	4.1%
10+ years	1.0%	2.1%	1.1%	1.2%	0.7%	1.1%	2.3%	1.6%	1.4%
Will not be needed	3.0%	2.8%	1.1%	0.0%	2.0%	1.8%	1.5%	3.2%	1.8%
Don't know	22.8%	15.6%	9.7%	13.0%	6.0%	5.9%	11.5%	10.5%	10.8%

Q8. [CONTINUED] How soon do you think KDOT should begin making traffic flow improvements on each of the portions of U.S. 69 listed below?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q8-3. Between 151st & 179th Streets									
Within next year	5.9%	8.5%	8.0%	12.3%	10.0%	12.9%	12.2%	16.1%	11.0%
1-2 years	13.9%	14.9%	20.5%	18.5%	22.0%	22.1%	14.5%	19.4%	18.9%
3-5 years	27.7%	29.1%	32.4%	35.2%	35.3%	34.9%	35.9%	29.0%	32.9%
6-10 years	16.8%	18.4%	16.5%	13.0%	16.7%	16.2%	13.0%	16.1%	15.8%
10+ years	3.0%	4.3%	6.3%	4.3%	6.0%	2.9%	6.1%	4.8%	4.6%
Will not be needed	5.9%	5.0%	1.7%	0.6%	2.0%	4.0%	3.1%	6.5%	3.4%
Don't know	26.7%	19.9%	14.8%	16.0%	8.0%	7.0%	15.3%	8.1%	13.4%

WITHOUT "DON'T KNOWS"

Q9. Please rate how important the following issues should be in determining the types of improvements (if any) that could be made to U.S. 69 between 103rd and 179th Streets. (without "don't know")

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q9-1. Minimizing total cost of the project									
Extremely important	20.9%	16.3%	21.3%	15.6%	18.6%	14.2%	23.2%	25.4%	18.7%
Very important	20.9%	15.5%	19.5%	20.8%	16.4%	26.5%	20.8%	24.6%	21.2%
Important	47.3%	48.1%	41.4%	47.4%	43.6%	39.2%	38.4%	34.7%	42.1%
Less important	7.7%	17.8%	14.4%	13.0%	15.7%	14.2%	14.4%	11.0%	13.9%
Not important	3.3%	2.3%	3.4%	3.2%	5.7%	5.8%	3.2%	4.2%	4.1%
Q9-2. Minimizing portion of total cost that are paid by Overland Park residents									
Extremely important	33.0%	29.9%	32.0%	27.9%	30.3%	30.9%	19.2%	11.7%	27.6%
Very important	22.0%	29.9%	22.3%	20.8%	20.4%	28.2%	19.2%	15.3%	23.0%
Important	31.9%	29.9%	34.9%	33.1%	28.9%	29.8%	33.6%	28.8%	31.3%
Less important	11.0%	9.7%	6.9%	14.3%	17.6%	7.3%	23.2%	27.9%	13.5%
Not important	2.2%	0.7%	4.0%	3.9%	2.8%	3.8%	4.8%	16.2%	4.5%

WITHOUT "DON'T KNOWS"

Q9. [CONTINUED] Please rate how important the following issues should be in determining the types of improvements (if any) that could be made to U.S. 69 between 103rd and 179th Streets. (without "don't know")

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q9-3. Completing the project sooner rather than later									
Extremely important	18.0%	18.2%	15.6%	18.6%	29.0%	27.2%	14.2%	28.8%	21.8%
Very important	12.4%	20.5%	25.7%	25.0%	22.1%	19.9%	26.0%	20.3%	21.8%
Important	43.8%	37.1%	37.7%	34.6%	27.6%	34.1%	38.6%	34.7%	35.5%
Less important	19.1%	20.5%	16.2%	15.4%	17.9%	13.4%	18.9%	11.0%	16.2%
Not important	6.7%	3.8%	4.8%	6.4%	3.4%	5.4%	2.4%	5.1%	4.8%
Q9-4. Minimizing disruption construction has on traffic flow									
Extremely important	34.8%	38.0%	36.8%	39.4%	39.6%	42.1%	38.8%	54.6%	40.5%
Very important	21.7%	29.9%	36.2%	29.4%	29.9%	29.9%	27.9%	25.2%	29.4%
Important	34.8%	24.8%	21.8%	25.0%	24.3%	23.0%	28.7%	12.6%	23.9%
Less important	6.5%	5.8%	5.2%	5.6%	5.6%	3.8%	4.7%	6.7%	5.3%
Not important	2.2%	1.5%	0.0%	0.6%	0.7%	1.1%	0.0%	0.8%	0.8%

WITHOUT "DON'T KNOWS"

Q9. [CONTINUED] Please rate how important the following issues should be in determining the types of improvements (if any) that could be made to U.S. 69 between 103rd and 179th Streets. (without "don't know")

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q9-5. Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible									
Extremely important	27.8%	26.7%	32.0%	28.1%	27.6%	31.7%	21.3%	25.6%	28.2%
Very important	28.9%	28.9%	25.7%	23.8%	25.5%	21.0%	33.9%	23.1%	25.6%
Important	25.6%	28.9%	27.4%	30.0%	26.9%	26.7%	31.5%	28.2%	28.1%
Less important	13.3%	12.6%	12.0%	14.4%	17.2%	16.8%	9.4%	15.4%	14.2%
Not important	4.4%	3.0%	2.9%	3.8%	2.8%	3.8%	3.9%	7.7%	3.9%
Q9-6. Minimizing impact of improvements on the environment									
Extremely important	35.9%	31.4%	31.4%	22.0%	21.4%	19.0%	27.9%	16.8%	24.9%
Very important	25.0%	21.9%	22.7%	19.5%	17.9%	20.5%	18.6%	18.5%	20.5%
Important	22.8%	22.6%	27.9%	32.1%	27.6%	33.3%	32.6%	35.3%	29.8%
Less important	10.9%	20.4%	11.0%	15.1%	21.4%	16.7%	14.7%	16.8%	16.0%
Not important	5.4%	3.6%	7.0%	11.3%	11.7%	10.5%	6.2%	12.6%	8.8%

WITHOUT "DON'T KNOWS"

Q9. [CONTINUED] Please rate how important the following issues should be in determining the types of improvements (if any) that could be made to U.S. 69 between 103rd and 179th Streets. (without "don't know")

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q9-7. Ensuring public transportation services can be offered in the corridor									
Extremely important	25.0%	15.6%	14.9%	13.5%	10.5%	11.8%	12.7%	8.5%	13.5%
Very important	25.0%	13.3%	22.6%	18.1%	16.8%	16.5%	17.5%	14.5%	17.8%
Important	22.7%	43.0%	23.8%	27.7%	30.8%	25.9%	25.4%	26.5%	28.1%
Less important	18.2%	16.4%	25.0%	25.8%	27.3%	27.8%	33.3%	33.3%	26.3%
Not important	9.1%	11.7%	13.7%	14.8%	14.7%	18.0%	11.1%	17.1%	14.4%
Q9-8. Minimizing congestion by using innovative & creative solutions									
Extremely important	40.2%	29.9%	34.3%	34.4%	39.6%	35.5%	32.3%	30.4%	34.6%
Very important	29.3%	38.1%	32.5%	32.5%	31.3%	32.0%	32.3%	32.2%	32.6%
Important	25.0%	23.9%	24.3%	23.2%	21.5%	24.6%	29.9%	26.1%	24.7%
Less important	4.3%	6.7%	7.1%	6.0%	4.9%	5.1%	2.4%	8.7%	5.6%
Not important	1.1%	1.5%	1.8%	4.0%	2.8%	2.7%	3.1%	2.6%	2.5%

Q10. Which THREE of the items listed in Question 9 are most important?

N=1257	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q10. 1st choice									
Minimizing total cost of the project	6.8%	11.1%	19.1%	12.3%	7.4%	13.0%	13.6%	16.7%	12.9%
Minimizing portion of total cost that are paid by Overland Park residents	10.6%	11.1%	15.2%	14.3%	16.1%	26.3%	5.5%	0.9%	17.3%
Completing the project sooner rather than later	2.2%	7.9%	9.6%	14.5%	17.5%	28.5%	9.2%	10.5%	18.1%
Minimizing disruption construction has on traffic flow	7.8%	10.7%	13.7%	10.7%	11.1%	20.4%	10.4%	15.2%	21.5%
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	5.7%	12.6%	14.9%	16.1%	12.6%	21.8%	9.2%	6.9%	6.9%
Minimizing impact of improvements on the environment	19.4%	17.7%	19.4%	12.9%	1.6%	8.1%	17.7%	3.2%	4.9%
Ensuring public transportation services can be offered in the corridor	14.3%	23.8%	19.0%	0.0%	0.0%	14.3%	19.0%	9.5%	1.7%
Minimizing congestion by using innovative & creative solutions	7.5%	10.1%	13.8%	13.2%	10.1%	22.6%	13.8%	8.8%	12.6%
None chosen	17.6%	17.6%	3.9%	11.8%	9.8%	21.6%	5.9%	11.8%	4.1%

Q10. Which THREE of the items listed in Question 9 are most important?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q10. 2nd choice									
Minimizing total cost of the project	9.6%	5.8%	12.5%	8.7%	13.5%	22.1%	9.6%	18.3%	8.3%
Minimizing portion of total cost that are paid by Overland Park residents	7.0%	11.3%	22.6%	12.4%	7.5%	28.5%	5.4%	5.4%	14.8%
Completing the project sooner rather than later	6.4%	10.7%	12.1%	10.0%	14.3%	23.6%	9.3%	13.6%	11.1%
Minimizing disruption construction has on traffic flow	4.5%	8.7%	13.3%	17.2%	13.6%	21.7%	10.7%	10.4%	24.6%
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	10.3%	13.8%	11.7%	13.1%	11.0%	19.3%	12.4%	8.3%	11.5%
Minimizing impact of improvements on the environment	10.6%	21.3%	12.8%	9.6%	10.6%	12.8%	18.1%	4.3%	7.5%
Ensuring public transportation services can be offered in the corridor	10.7%	12.5%	14.3%	17.9%	5.4%	17.9%	16.1%	5.4%	4.5%
Minimizing congestion by using innovative & creative solutions	9.2%	9.8%	14.7%	10.4%	15.3%	20.2%	10.4%	9.8%	13.0%
None chosen	15.0%	15.0%	3.3%	13.3%	10.0%	21.7%	6.7%	15.0%	4.8%

Q10. Which THREE of the items listed in Question 9 are most important?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q10. 3rd choice									
Minimizing total cost of the project	5.7%	14.2%	13.5%	15.6%	9.9%	20.6%	12.1%	8.5%	11.2%
Minimizing portion of total cost that are paid by Overland Park residents	5.7%	12.2%	13.0%	13.8%	14.6%	30.1%	6.5%	4.1%	9.8%
Completing the project sooner rather than later	9.2%	12.1%	12.8%	13.5%	10.6%	21.3%	9.2%	11.3%	11.2%
Minimizing disruption construction has on traffic flow	5.1%	8.7%	13.3%	12.3%	11.8%	26.2%	14.9%	7.7%	15.5%
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	9.7%	9.7%	14.8%	11.9%	14.2%	18.8%	10.2%	10.8%	14.0%
Minimizing impact of improvements on the environment	14.2%	12.4%	19.5%	8.0%	15.9%	12.4%	6.2%	11.5%	9.0%
Ensuring public transportation services can be offered in the corridor	9.8%	4.9%	19.7%	16.4%	11.5%	21.3%	13.1%	3.3%	4.9%
Minimizing congestion by using innovative & creative solutions	6.1%	11.4%	14.8%	12.7%	9.6%	21.0%	11.4%	13.1%	18.2%
None chosen	12.8%	15.4%	3.8%	14.1%	10.3%	21.8%	6.4%	15.4%	6.2%

SUM OF THE TOP THREE CHOICES

Q10. Which THREE of the items listed in Question 9 are most important? (top 3)

N=1257	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q10. Sum of the Top Three Choices									
Minimizing total cost of the project	28.7%	31.2%	35.8%	31.5%	26.7%	26.8%	37.4%	46.8%	32.4%
Minimizing portion of total cost that are paid by Overland Park residents	42.6%	42.6%	51.7%	43.8%	44.7%	54.0%	22.9%	13.7%	41.8%
Completing the project sooner rather than later	26.7%	35.5%	32.4%	40.7%	50.0%	47.1%	35.9%	47.6%	40.5%
Minimizing disruption construction has on traffic flow	44.6%	51.8%	59.1%	65.4%	63.3%	63.6%	68.7%	71.0%	61.6%
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	36.6%	34.0%	31.8%	33.3%	34.7%	29.4%	33.6%	29.8%	32.5%
Minimizing impact of improvements on the environment	37.6%	31.9%	26.1%	16.0%	19.3%	11.4%	26.7%	15.3%	21.4%
Ensuring public transportation services can be offered in the corridor	14.9%	10.6%	13.6%	12.3%	6.7%	9.6%	16.0%	5.6%	11.0%
Minimizing congestion by using innovative & creative solutions	40.6%	41.1%	45.5%	41.4%	42.0%	43.0%	49.6%	48.4%	43.8%
None chosen	8.9%	6.4%	1.1%	3.7%	3.3%	4.0%	2.3%	4.8%	4.1%

Q11. Are you aware that cities like Overland Park, Wichita, and Topeka contribute additional local funds to help ensure major highway projects important to them are constructed?

N=1257	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Yes	43.6%	44.7%	52.3%	56.2%	52.7%	49.3%	49.6%	41.1%	49.2%
No	38.6%	36.2%	32.4%	27.2%	28.0%	32.0%	34.4%	36.3%	32.6%
Don't know	17.8%	19.1%	15.3%	16.7%	19.3%	18.8%	16.0%	22.6%	18.1%

Q12. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69 between 103rd and 179th Streets?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q12-1. People who use/drive on US 69 regardless of where they live									
Very high (should pay the most)	28.7%	27.0%	25.6%	27.2%	28.7%	30.1%	15.3%	10.5%	25.0%
High	29.7%	24.8%	30.7%	25.9%	30.7%	21.3%	28.2%	22.6%	26.3%
Medium	16.8%	23.4%	20.5%	22.2%	15.3%	19.5%	26.0%	23.4%	20.8%
Low	7.9%	7.1%	6.3%	10.5%	8.7%	9.9%	10.7%	12.1%	9.1%
None (should not pay anything)	7.9%	11.3%	12.5%	9.9%	7.3%	13.6%	12.2%	26.6%	12.6%
Don't know	8.9%	6.4%	4.5%	4.3%	9.3%	5.5%	7.6%	4.8%	6.2%
Q12-2. Residents of Overland Park regardless of whether or not they use US 69									
Very high (should pay the most)	7.9%	7.1%	5.7%	11.1%	8.0%	7.7%	7.6%	15.3%	8.6%
High	16.8%	19.9%	24.4%	29.6%	20.7%	21.7%	23.7%	24.2%	22.8%
Medium	30.7%	36.2%	31.8%	33.3%	37.3%	34.6%	42.0%	30.6%	34.6%
Low	25.7%	20.6%	21.6%	14.8%	20.0%	16.9%	12.2%	11.3%	17.7%
None (should not pay anything)	9.9%	8.5%	13.1%	8.6%	7.3%	13.6%	9.2%	14.5%	10.9%
Don't know	8.9%	7.8%	3.4%	2.5%	6.7%	5.5%	5.3%	4.0%	5.3%

Q12. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69 between 103rd and 179th Streets?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q12-3. Residents of other areas of Johnson County									
Very high (should pay the most)	8.9%	9.2%	9.1%	9.9%	8.7%	8.8%	3.8%	8.9%	8.5%
High	19.8%	24.8%	18.8%	21.6%	18.0%	19.5%	19.1%	22.6%	20.4%
Medium	30.7%	36.9%	39.8%	44.4%	36.0%	35.7%	35.1%	31.5%	36.7%
Low	19.8%	12.8%	17.6%	14.8%	24.7%	19.1%	22.9%	12.1%	18.1%
None (should not pay anything)	11.9%	9.9%	10.8%	6.2%	6.0%	11.4%	11.5%	19.4%	10.7%
Don't know	8.9%	6.4%	4.0%	3.1%	6.7%	5.5%	7.6%	5.6%	5.7%
Q12-4. Residents of neighboring counties such as Miami & Wyandotte Counties									
Very high (should pay the most)	5.0%	7.8%	8.5%	6.8%	5.3%	7.4%	0.0%	1.6%	5.7%
High	9.9%	12.1%	14.8%	10.5%	11.3%	10.7%	9.2%	10.5%	11.2%
Medium	25.7%	23.4%	25.6%	30.9%	32.0%	30.5%	31.3%	25.0%	28.4%
Low	28.7%	29.1%	29.5%	32.7%	33.3%	25.7%	32.8%	25.8%	29.4%
None (should not pay anything)	17.8%	20.6%	14.8%	14.2%	10.0%	18.8%	18.3%	34.7%	18.2%
Don't know	12.9%	7.1%	6.8%	4.9%	8.0%	7.0%	8.4%	2.4%	7.0%

Q13. Have you seen "Express Toll Lanes" in urban areas of other states like Texas, Colorado, or Minnesota where drivers can choose to pay a toll to drive in an express lane that bypasses congestion in untolled lanes?

N=1257	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Yes	79.2%	73.8%	71.6%	84.6%	80.0%	81.6%	78.6%	73.4%	78.2%
No	20.8%	26.2%	28.4%	15.4%	20.0%	18.4%	21.4%	26.6%	21.8%

WITHOUT "DON'T KNOWS"

Q13a. If "YES" to Question 13, please rate your level of agreement/disagreement with the following statements about Express Toll Lanes (ELTs). (without "don't know")

N=983	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q13a-1. ELTs are a good way to keep traffic moving									
Strongly agree	24.3%	23.0%	26.7%	28.1%	30.3%	18.9%	31.4%	25.8%	25.4%
Agree	39.2%	36.0%	30.0%	30.4%	32.8%	37.7%	35.3%	24.7%	33.5%
Neutral	16.2%	19.0%	20.8%	20.0%	13.4%	20.3%	11.8%	19.1%	18.0%
Disagree	8.1%	9.0%	9.2%	11.9%	13.4%	14.2%	11.8%	15.7%	12.0%
Strongly disagree	12.2%	13.0%	13.3%	9.6%	10.1%	9.0%	9.8%	14.6%	11.0%

WITHOUT "DON'T KNOWS"

Q13a. If "YES" to Question 13, please rate your level of agreement/disagreement with the following statements about Express Toll Lanes (ELTs). (without "don't know")

N=983	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q13a-2. ELTs are easy to use									
Strongly agree	24.3%	18.6%	17.9%	27.1%	30.3%	16.5%	29.7%	18.4%	22.3%
Agree	33.8%	30.9%	29.9%	30.1%	24.4%	29.7%	33.7%	28.7%	29.9%
Neutral	21.6%	26.8%	22.2%	24.1%	18.5%	31.6%	18.8%	24.1%	24.4%
Disagree	12.2%	11.3%	15.4%	11.3%	17.6%	14.6%	8.9%	14.9%	13.5%
Strongly disagree	8.1%	12.4%	14.5%	7.5%	9.2%	7.5%	8.9%	13.8%	9.9%
Q13a-3. ELTs are fair because tolls are paid only by people who use them									
Strongly agree	33.8%	29.1%	28.2%	36.0%	32.5%	21.4%	36.3%	27.8%	29.7%
Agree	42.9%	31.1%	30.6%	27.9%	33.3%	34.4%	30.4%	23.3%	31.7%
Neutral	6.5%	17.5%	21.0%	16.9%	11.7%	20.5%	16.7%	18.9%	17.0%
Disagree	6.5%	7.8%	7.3%	8.1%	11.7%	12.1%	5.9%	12.2%	9.3%
Strongly disagree	10.4%	14.6%	12.9%	11.0%	10.8%	11.6%	10.8%	17.8%	12.3%

Q14. If two free lanes were available in each direction and KDOT added one additional express toll lane in each direction of U.S. 69 between 103rd and 151st Streets, how often would you pay to use the express lane to avoid congestion on U.S. 69 if the cost were between 65 cents and $1.75 or less to travel the complete distance between 103rd and 151st Streets?

N=1257	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q14. How often would you pay to use express lane to avoid congestion if the cost were between 65 cents & $1.75 or less?									
All of the time	5.0%	4.3%	1.7%	4.3%	2.7%	3.3%	5.3%	4.0%	3.7%
Most of the time	8.9%	4.3%	8.5%	11.1%	10.0%	8.1%	10.7%	6.5%	8.5%
Some of the time	24.8%	17.7%	19.3%	24.1%	30.7%	25.4%	22.9%	23.4%	23.6%
Only in emergencies	16.8%	27.0%	25.6%	31.5%	24.0%	32.4%	24.4%	21.0%	26.5%
Never	37.6%	36.9%	38.1%	24.1%	27.3%	26.8%	29.0%	40.3%	31.7%
Don't know	6.9%	9.9%	6.8%	4.9%	5.3%	4.0%	7.6%	4.8%	6.0%

Q15. Please rate the importance of the following benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q15-1. Reduce congestion across all lanes of traffic									
Extremely important	28.7%	27.0%	26.7%	25.9%	33.3%	28.7%	35.1%	28.2%	29.0%
Very important	24.8%	22.0%	27.3%	29.0%	28.7%	26.5%	22.1%	20.2%	25.5%
Important	18.8%	24.1%	23.3%	23.5%	18.7%	21.0%	23.7%	25.0%	22.2%
Less important	6.9%	7.1%	3.4%	7.4%	4.7%	4.8%	4.6%	9.7%	5.8%
Not important	8.9%	8.5%	10.8%	4.9%	6.7%	9.9%	6.1%	10.5%	8.4%
Don't know	11.9%	11.3%	8.5%	9.3%	8.0%	9.2%	8.4%	6.5%	9.1%
Q15-2. Reduce cost of the project by $85 million dollars									
Extremely important	32.7%	23.4%	26.7%	23.5%	29.3%	20.2%	25.2%	21.8%	24.7%
Very important	22.8%	27.0%	22.2%	27.2%	26.0%	23.9%	28.2%	15.3%	24.2%
Important	17.8%	17.7%	25.6%	24.1%	23.3%	22.8%	20.6%	32.3%	23.2%
Less important	4.0%	9.2%	6.8%	6.2%	6.7%	13.6%	7.6%	12.9%	8.9%
Not important	6.9%	10.6%	10.8%	8.0%	9.3%	10.3%	8.4%	8.9%	9.4%
Don't know	15.8%	12.1%	8.0%	11.1%	5.3%	9.2%	9.9%	8.9%	9.7%

Q15. Please rate the importance of the following benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q15-3. Reduce disruptions to traffic flow during construction									
Extremely important	22.8%	17.7%	18.8%	23.5%	23.3%	24.3%	26.7%	33.9%	23.6%
Very important	29.7%	28.4%	30.1%	32.1%	32.7%	27.9%	28.2%	24.2%	29.2%
Important	20.8%	27.0%	26.7%	21.6%	25.3%	24.6%	24.4%	21.0%	24.2%
Less important	5.9%	7.1%	6.8%	6.2%	5.3%	6.6%	6.9%	7.3%	6.5%
Not important	6.9%	8.5%	9.1%	5.6%	6.0%	8.8%	5.3%	8.1%	7.5%
Don't know	13.9%	11.3%	8.5%	11.1%	7.3%	7.7%	8.4%	5.6%	9.0%
Q15-4. Leave two free lanes in each direction									
Extremely important	26.7%	31.9%	28.4%	32.1%	40.0%	42.3%	43.5%	47.6%	37.0%
Very important	31.7%	23.4%	31.8%	30.9%	28.7%	19.1%	28.2%	22.6%	26.3%
Important	16.8%	19.9%	20.5%	17.3%	14.7%	18.0%	13.0%	12.9%	16.9%
Less important	5.0%	7.1%	3.4%	6.2%	5.3%	5.5%	3.1%	5.6%	5.2%
Not important	7.9%	8.5%	9.1%	3.7%	4.0%	7.0%	4.6%	4.8%	6.3%
Don't know	11.9%	9.2%	6.8%	9.9%	7.3%	8.1%	7.6%	6.5%	8.3%

Q15. Please rate the importance of the following benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q15-5. Allow improvements to be completed sooner									
Extremely important	19.8%	17.7%	17.6%	26.5%	31.3%	26.1%	19.1%	26.6%	23.5%
Very important	22.8%	22.7%	21.0%	24.7%	28.0%	21.7%	20.6%	19.4%	22.6%
Important	21.8%	26.2%	28.4%	16.0%	20.0%	21.7%	35.9%	29.8%	24.5%
Less important	11.9%	9.2%	10.8%	13.6%	7.3%	10.7%	6.9%	10.5%	10.2%
Not important	9.9%	11.3%	10.8%	8.6%	6.7%	10.7%	9.9%	7.3%	9.5%
Don't know	13.9%	12.8%	11.4%	10.5%	6.7%	9.2%	7.6%	6.5%	9.7%
Q15-6. Provide another way for Overland Park to provide a local contribution to the project without using City sales or property tax dollars									
Extremely important	34.7%	21.3%	27.8%	27.2%	32.0%	22.4%	23.7%	17.7%	25.5%
Very important	16.8%	24.1%	26.1%	21.0%	25.3%	23.9%	22.1%	10.5%	22.0%
Important	18.8%	24.8%	18.8%	21.0%	16.7%	16.5%	22.1%	27.4%	20.2%
Less important	5.9%	6.4%	7.4%	11.7%	10.7%	14.3%	13.7%	22.6%	11.8%
Not important	7.9%	10.6%	10.8%	8.0%	8.7%	12.9%	9.2%	10.5%	10.2%
Don't know	15.8%	12.8%	9.1%	11.1%	6.7%	9.9%	9.2%	11.3%	10.4%

Q16. Would you be interested in participating in future meetings and/or focus groups about improvements to US 69 between 103rd and 179th Streets? These meetings may be conducted virtually.

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Yes	14.9%	14.2%	15.3%	20.4%	18.0%	25.4%	17.6%	16.9%	18.7%
No	85.1%	85.8%	84.7%	79.6%	82.0%	74.6%	82.4%	83.1%	81.3%

Q17. Do you live inside the City of Overland Park?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Yes	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	79.7%
No	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%	20.3%

Q18. What is your age?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q18. Your age									
18-34	32.7%	28.4%	17.6%	19.1%	14.0%	15.1%	22.9%	13.7%	19.4%
35-44	12.9%	16.3%	11.4%	19.8%	26.0%	23.9%	20.6%	25.0%	19.9%
45-54	17.8%	14.2%	13.6%	22.2%	16.7%	22.8%	22.1%	25.8%	19.6%
55-64	16.8%	13.5%	29.0%	18.5%	19.3%	21.0%	15.3%	16.1%	19.3%
65+	14.9%	25.5%	26.7%	16.7%	22.0%	14.7%	16.8%	16.1%	19.1%
Not provided	5.0%	2.1%	1.7%	3.7%	2.0%	2.6%	2.3%	3.2%	2.7%

Q19. What is your gender?

N=1257

	Area								Total
	Overland Park Ward 1	Overland Park Ward 2	Overland Park Ward 3	Overland Park Ward 4	Overland Park Ward 5	Overland Park Ward 6	Other Johnson County	Miami County	
Q19. Your gender									
Male	45.5%	48.9%	48.9%	47.5%	56.7%	54.0%	45.8%	46.8%	50.0%
Female	53.5%	51.1%	51.1%	52.5%	43.3%	44.9%	54.2%	53.2%	49.7%
Other/Not provided	1.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.3%

4 Tabular Data: Overall Results

Q1. Before receiving this survey, did you know that KDOT was studying improvements to U.S. 69 between 103rd and 179th Streets?

Q1. Did you know KDOT was studying improvements to US 69 between 103rd & 179th Streets before receiving this survey	Number	Percent
Yes	763	60.7 %
No	494	39.3 %
Total	1257	100.0 %

Q1a. How did you learn about KDOT's efforts to plan improvements to U.S. 69 between 103rd and 179th Streets?

Q1a. How did you learn about KDOT's efforts to plan improvements to US 69 between 103rd & 179th Streets	Number	Percent
Facebook/social media	192	25.2 %
Virtual open-houses	9	1.2 %
Public meetings	25	3.3 %
US69Express.org website	42	5.5 %
Information provided by City of Overland Park	277	36.3 %
Local news media	290	38.0 %
Other	78	10.2 %
Total	913	

WITHOUT "NOT PROVIDED"

Q1b. How useful were these sources in helping you understand efforts to improve U.S. 69? (without "not provided")

Q1b. How useful were these sources in helping you understand efforts to improve US 69	Number	Percent
Very useful	86	11.6 %
Useful	213	28.6 %
Somewhat useful	360	48.4 %
Not useful	57	7.7 %
Not useful at all	28	3.8 %
Total	744	100.0 %

WITHOUT "NOT PROVIDED"

Q1c. Overall, how well would you rate KDOT's efforts to keep residents informed of planned improvements to U.S. 69 between 103rd and 179th Streets? (without "not provided")

Q1c. How would you rate KDOT's efforts to keep residents informed of planned improvements to US 69 between 103rd & 179th Streets	Number	Percent
Excellent	57	7.7 %
Good	234	31.5 %
Average	302	40.7 %
Poor	97	13.1 %
Very poor	52	7.0 %
Total	742	100.0 %

Q2. How frequently have you used any portion of U.S. 69 between 103rd and 151st Streets during the past month?

Q2. How frequently have you used any portion of US 69 between 103rd & 151st Streets during past month	Number	Percent
Almost daily	441	35.1 %
A few times a week	313	24.9 %
At least once a week	209	16.6 %
At least once a month	169	13.4 %
Less than once per month	124	9.9 %
Not provided	1	0.1 %
Total	1257	100.0 %

Q3. Compared to 6 months ago, how has the frequency that you use any portion of U.S. 69 between 103rd and 151st changed?

Q3. How has the frequency that you use any portion of US 69 between 103rd & 151st changed compared to 6 months ago	Number	Percent
Increased significantly	59	4.7 %
Increased	169	13.4 %
Stayed about the same	883	70.2 %
Decreased	81	6.4 %
Decreased significantly	32	2.5 %
Don't know	33	2.6 %
Total	1257	100.0 %

Q4. Over the next 6 months, how do you think the frequency that you use any portion of U.S. 69 between 103rd and 151st will change?

Q4. How will the frequency that you use any portion of US 69 between 103rd & 151st change over next 6 months	Number	Percent
Increased significantly	66	5.3 %
Increased	172	13.7 %
Stayed about the same	944	75.1 %
Decreased	22	1.8 %
Decreased significantly	8	0.6 %
Don't know	45	3.6 %
Total	1257	100.0 %

WITHOUT “NOT PROVIDED”

Q5. Thinking about your most common trip on U.S. 69 anywhere between 103rd and 151st Streets, what is the maximum time this trip could take before the length would not be acceptable? (without "not provided")

Q5. What is the maximum time this trip could take before the length would not be acceptable	Number	Percent
Less than 10 minutes	480	41.2 %
11-20 minutes	502	43.1 %
21-30 minutes	143	12.3 %
31+ minutes	39	3.4 %
Total	1164	100.0 %

Q6. How important do you think U.S. 69 is to businesses and jobs in Overland Park?

Q6. How important is US 69 to businesses & jobs in Overland Park	Number	Percent
Very important	819	65.2 %
Important	279	22.2 %
Somewhat important	104	8.3 %
Not important	10	0.8 %
Not important at all	5	0.4 %
Don't know	40	3.2 %
Total	1257	100.0 %

Q7. How do you think the amount of traffic on U.S. 69 will change over the next 20 years?

Q7. How will the amount of traffic on US 69 change over next 20 years	Number	Percent
It will triple	336	26.7 %
It will double	450	35.8 %
It will be 50% more	277	22.0 %
Stay about the same	38	3.0 %
Will decrease	4	0.3 %
Don't know	152	12.1 %
Total	1257	100.0 %

Q8. How soon do you think KDOT should begin making traffic flow improvements on each of the portions of U.S. 69 listed below?

(N=1257)

	Within next year	1-2 years	3-5 years	6-10 years	10+ years	Will not be needed	Don't know
Q8-1. Between 103rd & 119th Streets	32.0%	27.8%	18.1%	5.3%	1.3%	4.4%	11.1%
Q8-2. Between 119th & 151st Streets	28.2%	34.4%	19.3%	4.1%	1.4%	1.8%	10.8%
Q8-3. Between 151st & 179th Streets	11.0%	18.9%	32.9%	15.8%	4.6%	3.4%	13.4%

WITHOUT "DON'T KNOW"

Q9. Please rate how important the following issues should be in determining the types of improvements (if any) that could be made to U.S. 69 between 103rd and 179th Streets. (without "don't know")

(N=1257)

	Extremely important	Very important	Important	Less important	Not important
Q9-1. Minimizing total cost of the project	18.7%	21.2%	42.1%	13.9%	4.1%
Q9-2. Minimizing portion of total cost that are paid by Overland Park residents	27.6%	23.0%	31.3%	13.5%	4.5%
Q9-3. Completing the project sooner rather than later	21.8%	21.8%	35.5%	16.2%	4.8%
Q9-4. Minimizing disruption construction has on traffic flow	40.5%	29.4%	23.9%	5.3%	0.8%
Q9-5. Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	28.2%	25.6%	28.1%	14.2%	3.9%
Q9-6. Minimizing impact of improvements on the environment	24.9%	20.5%	29.8%	16.0%	8.8%
Q9-7. Ensuring public transportation services can be offered in the corridor	13.5%	17.8%	28.1%	26.3%	14.4%
Q9-8. Minimizing congestion by using innovative & creative solutions	34.6%	32.6%	24.7%	5.6%	2.5%

Q10. Which THREE of the items listed in Question 9 are most important?

Q10. Top choice	Number	Percent
Minimizing total cost of the project	162	12.9 %
Minimizing portion of total cost that are paid by Overland Park residents	217	17.3 %
Completing the project sooner rather than later	228	18.1 %
Minimizing disruption construction has on traffic flow	270	21.5 %
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	87	6.9 %
Minimizing impact of improvements on the environment	62	4.9 %
Ensuring public transportation services can be offered in the corridor	21	1.7 %
Minimizing congestion by using innovative & creative solutions	159	12.6 %
None chosen	51	4.1 %
Total	1257	100.0 %

Q10. Which THREE of the items listed in Question 9 are most important?

Q10. 2nd choice	Number	Percent
Minimizing total cost of the project	104	8.3 %
Minimizing portion of total cost that are paid by Overland Park residents	186	14.8 %
Completing the project sooner rather than later	140	11.1 %
Minimizing disruption construction has on traffic flow	309	24.6 %
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	145	11.5 %
Minimizing impact of improvements on the environment	94	7.5 %
Ensuring public transportation services can be offered in the corridor	56	4.5 %
Minimizing congestion by using innovative & creative solutions	163	13.0 %
None chosen	60	4.8 %
Total	1257	100.0 %

Q10. Which THREE of the items listed in Question 9 are most important?

Q10. 3rd choice	Number	Percent
Minimizing total cost of the project	141	11.2 %
Minimizing portion of total cost that are paid by Overland Park residents	123	9.8 %
Completing the project sooner rather than later	141	11.2 %
Minimizing disruption construction has on traffic flow	195	15.5 %
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	176	14.0 %
Minimizing impact of improvements on the environment	113	9.0 %
Ensuring public transportation services can be offered in the corridor	61	4.9 %
Minimizing congestion by using innovative & creative solutions	229	18.2 %
None chosen	78	6.2 %
Total	1257	100.0 %

SUM OF THE TOP THREE CHOICES
Q10. Which THREE of the items listed in Question 9 are most important? (top 3)

Q10. Sum of the top three choices	Number	Percent
Minimizing total cost of the project	407	32.4 %
Minimizing portion of total cost that are paid by Overland Park residents	526	41.8 %
Completing the project sooner rather than later	509	40.5 %
Minimizing disruption construction has on traffic flow	774	61.6 %
Minimizing impact of improvements on surrounding homes & businesses by keeping footprint of the project as small as possible	408	32.5 %
Minimizing impact of improvements on the environment	269	21.4 %
Ensuring public transportation services can be offered in the corridor	138	11.0 %
Minimizing congestion by using innovative & creative solutions	551	43.8 %
None chosen	51	4.1 %
Total	3633	

Q11. Are you aware that cities like Overland Park, Wichita, and Topeka contribute additional local funds to help ensure major highway projects important to them are constructed?

Q11. Are you aware cities like Overland Park, Wichita, & Topeka contribute additional local funds to help ensure major highway projects	Number	Percent
Yes	619	49.2 %
No	410	32.6 %
Don't know	228	18.1 %
Total	1257	100.0 %

Q12. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69 between 103rd and 179th Streets?

(N=1257)

	Very high (should pay the most)	High	Medium	Low	None (should not pay anything)	Don't know
Q12-1. People who use/drive on US 69 regardless of where they live	25.0%	26.3%	20.8%	9.1%	12.6%	6.2%
Q12-2. Residents of Overland Park regardless of whether or not they use US 69	8.6%	22.8%	34.6%	17.7%	10.9%	5.3%
Q12-3. Residents of other areas of Johnson County	8.5%	20.4%	36.7%	18.1%	10.7%	5.7%
Q12-4. Residents of neighboring counties such as Miami & Wyandotte Counties	5.7%	11.2%	28.4%	29.4%	18.2%	7.0%

Q13. Have you seen "Express Toll Lanes" in urban areas of other states like Texas, Colorado, or Minnesota where drivers can choose to pay a toll to drive in an express lane that bypasses congestion in untolled lanes?

Q13. Have you seen "Express Toll Lanes" in urban areas of other states where drivers can choose to pay a toll to drive in an express lane	Number	Percent
Yes	983	78.2 %
No	274	21.8 %
Total	1257	100.0 %

WITHOUT “DON’T KNOW

Q13a. If "YES" to Question 13, please rate your level of agreement/disagreement with the following statements about Express Toll Lanes (ELTs). (without "don't know")

(N=983)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Q13a-1. ELTs are a good way to keep traffic moving	25.4%	33.5%	18.0%	12.0%	11.0%
Q13a-2. ELTs are easy to use	22.3%	29.9%	24.4%	13.5%	9.9%
Q13a-3. ELTs are fair because tolls are paid only by people who use them	29.7%	31.7%	17.0%	9.3%	12.3%

Q14. If two free lanes were available in each direction and KDOT added one additional express toll lane in each direction of U.S. 69 between 103rd and 151st Streets, how often would you pay to use the express lane to avoid congestion on U.S. 69 if the cost were between 65 cents and $1.75 or less to travel the complete distance between 103rd and 151st Streets?

Q14. How often would you pay to use express lane to avoid congestion if the cost were between 65 cents & $1.75 or less	Number	Percent
All of the time	46	3.7 %
Most of the time	107	8.5 %
Some of the time	297	23.6 %
Only in emergencies	333	26.5 %
Never	398	31.7 %
Don't know	76	6.0 %
Total	1257	100.0 %

Q15. Please rate the importance of the following benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

(N=1257)

	Extremely important	Very important	Important	Less important	Not important	Don't know
Q15-1. Reduce congestion across all lanes of traffic	29.0%	25.5%	22.2%	5.8%	8.4%	9.1%
Q15-2. Reduce cost of the project by $85 million dollars	24.7%	24.2%	23.2%	8.9%	9.4%	9.7%
Q15-3. Reduce disruptions to traffic flow during construction	23.6%	29.2%	24.2%	6.5%	7.5%	9.0%
Q15-4. Leave two free lanes in each direction	37.0%	26.3%	16.9%	5.2%	6.3%	8.3%
Q15-5. Allow improvements to be completed sooner	23.5%	22.6%	24.5%	10.2%	9.5%	9.7%
Q15-6. Provide another way for Overland Park to provide a local contribution to the project without using City sales or property tax dollars	25.5%	22.0%	20.2%	11.8%	10.2%	10.4%

Q16. Would you be interested in participating in future meetings and/or focus groups about improvements to US 69 between 103rd and 179th Streets? These meetings may be conducted virtually.

Q16. Would you be interested in participating in future meetings and/or focus groups about improvements to US 69 between 103rd & 179th Streets	Number	Percent
Yes	235	18.7 %
No	1022	81.3 %
Total	1257	100.0 %

18. What is your age?

Q18. Your age	Number	Percent
18-34	244	19.4 %
35-44	250	19.9 %
45-54	246	19.6 %
55-64	243	19.3 %
65+	240	19.1 %
Not provided	34	2.7 %
Total	1257	100.0 %

Q19. What is your gender?

Q19. Your gender	Number	Percent
Male	628	50.0 %
Female	625	49.7 %
Other/Not provided	4	0.3 %
Total	1257	100.0 %

Q20. What is your home zip code?

Q20. What is your home zip code	Number	Percent
66223	170	13.5 %
66221	156	12.4 %
66213	144	11.5 %
66212	129	10.3 %
66053	107	8.5 %
66210	98	7.8 %
66214	58	4.6 %
66204	58	4.6 %
66209	57	4.5 %
66207	52	4.1 %
66085	43	3.4 %
66013	35	2.8 %
66224	32	2.5 %
66062	24	1.9 %
66215	23	1.8 %
66202	19	1.5 %
66216	15	1.2 %
66208	9	0.7 %
66205	8	0.6 %
66206	7	0.6 %
66203	6	0.5 %
66083	3	0.2 %
66211	3	0.2 %
66227	1	0.1 %
Total	1257	100.0 %

5 Survey Instrument

Kansas
Department of Transportation

Dwight D. Eisenhower State Office Building
700 S.W. Harrison Street
Topeka, KS 66603-3745
Julie L. Lorenz, Secretary

Phone: 785-296-3901
Fax: 785-296-4302
kdot#publicinfo@ks.gov
http://www.ksdot.org
Laura Kelly, Governor

April 2021

Dear Johnson County and Surrounding Area Residents:

The Kansas Department of Transportation (KDOT) is conducting a survey to find out what Kansans think about potential future improvements to the US 69 Corridor between 103rd and 179th Streets in Johnson County. The is the second of two major surveys we are conducting, so your input is needed to help the decisions we make reflect the needs and priorities of your community.

We have selected ETC Institute to help us with the survey. ETC Institute has an outstanding record of working with transportation departments nationwide. They will prepare a report based on everyone's collective responses which will be delivered in this summer and posted on the KDOT website. We look forward to having these results so that we can better understand and meet your transportation needs.

Please take a few minutes to complete the enclosed survey within the next few days using one of two options. You may return your completed survey by mail using the postage-paid envelope provided, or you can complete the survey online at KDOTUS69Survey.org (feel free to scan the QR Code below). Please choose only one option.

If you have questions, please contact Ann Melton, Kansas Department of Transportation, at 785-409-2190.

Thank you for participating in this important process.

Sincerely,

Julie Lorenz
Secretary, Department of Transportation
Enclosure

Scan to take the survey:

Kansas Department of Transportation

U.S. 69 Highway Corridor Survey

Please take a few minutes to complete this important survey. Your input will be used by the Kansas Department of Transportation (KDOT) as part of a comprehensive study to plan improvements to U.S. 69 Highway between 103rd and 179th Streets. We encourage you to complete the survey online at *KDOTUS69Survey.org*. You may also complete this survey and return it in the postage-paid envelope provided.

Part I: Awareness

1. Before receiving this survey, did you know that KDOT was studying improvements to U.S. 69 between 103rd and 179th Streets?

____(1) Yes ____(2) No *[Skip to Q2.]*

1a. How did you learn about KDOT's efforts to plan improvements to U.S. 69 between 103rd and 179th Streets?

____(1) Facebook/Social media
____(2) Virtual open-houses
____(3) Public meetings
____(4) *US69Express.org* website
____(5) Information provided by the City of Overland Park
____(6) Other: ____

1b. How useful were these sources in helping you understand efforts to improve U.S. 69?

____(1) Very useful
____(2) Useful
____(3) Somewhat useful
____(4) Not useful
____(5) Not useful at all

1c. Overall, how well would you rate KDOT's efforts to keep residents informed of planned improvements to U.S. 69 between 103rd and 179th Streets?

____(1) Excellent
____(2) Good
____(3) Average
____(4) Poor
____(5) Very poor

Part II: Usage of U.S. 69

2. How frequently have you used any portion of U.S. 69 between 103rd and 151st Streets during the past month?

____(1) Almost daily
____(2) A few times a week
____(3) At least once a week
____(4) At least once a month
____(5) Less than once per month
____(6) Never

3. Compared to 6 months ago, how has the frequency that you use any portion of U.S. 69 between 103rd and 151st changed?

____(1) Increased significantly
____(2) Increased
____(3) Stayed about the same
____(4) Decreased
____(5) Decreased significantly
____(9) Don't know

4. Over the next 6 months, how do you think the frequency that you use any portion of U.S. 69 between 103rd and 151st will change?

____(1) Increased significantly
____(2) Increased
____(3) Stayed about the same
____(4) Decreased
____(5) Decreased significantly
____(9) Don't know

5. Thinking about your most common trip on U.S. 69 anywhere between 103rd and 151st Streets, what is the maximum time this trip could take before the length would not be acceptable?

Maximum Time: ______ minutes

Part III: Perceptions of U.S. 69

6. How important do you think U.S. 69 is to businesses and jobs in Overland Park?

____(1) Very important ____(3) Somewhat important ____(5) Not important at all
____(2) Important ____(4) Not important ____(9) Don't know

7. How do you think the amount of traffic on U.S. 69 will change over the next 20 years?

____(1) It will triple ____(3) It will be 50% more ____(5) Will decrease
____(2) It will double ____(4) Stay about the same ____(9) Don't know

8. How soon do you think KDOT should begin making traffic flow improvements on each of the portions of U.S. 69 listed below?

	Portion of U.S. 69	Within the next year	1-2 years	3-5 years	6-10 years	More than 10 years	Will Not Be Needed	Don't Know
1.	Between 103rd and 119th Streets	5	4	3	2	1	0	9
2.	Between 119th and 151st Streets	5	4	3	2	1	0	9
3.	Between 151st and 179th Streets	5	4	3	2	1	0	9

Part IV: Design Preferences

9. Please rate how important the following issues should be in determining the types of improvements (if any) that could be made to U.S. 69 between 103rd and 179th Streets.

	Issues	Extremely Important	Very Important	Important	Less Important	Not Important	Don't Know
1.	Minimizing the total cost of the project	5	4	3	2	1	9
2.	Minimizing the portion of the total costs that are paid by Overland Park residents	5	4	3	2	1	9
3.	Completing the project sooner rather than later	5	4	3	2	1	9
4.	Minimizing the disruption that construction has on traffic flow	5	4	3	2	1	9
5.	Minimizing the impact of improvements on surrounding homes and businesses by keeping the footprint of the project as small as possible	5	4	3	2	1	9
6.	Minimizing the impact of improvements on the environment	5	4	3	2	1	9
7.	Ensuring public transportation services can be offered in the corridor	5	4	3	2	1	9
8.	Minimizing congestion by using innovative and creative solutions	5	4	3	2	1	9

10. Which THREE of the items listed above are most important? *[Write in your answers below using the numbers from the list in Question 9.]*

1st: ____ 2nd: ____ 3rd: ____

Part V: Funding

11. Are you aware that cities like Overland Park, Wichita, and Topeka contribute additional local funds to help ensure major highway projects important to them are constructed?

____(1) Yes ____(2) No ____(9) Don't know

12. How much responsibility do you think the following groups of people should have for paying for improvements to U.S. 69 between 103rd and 179th Streets?

	Group	Very High (should pay the most)	High	Medium	Low	None (should not pay anything)	Don't Know
1.	People who use/drive on U.S. 69 regardless of where they live	5	4	3	2	1	9
2.	Residents of Overland Park regardless of whether or not they use U.S. 69	5	4	3	2	1	9
3.	Residents of other areas of Johnson County	5	4	3	2	1	9
4.	Residents of neighboring counties such as Miami and Wyandotte Counties	5	4	3	2	1	9

Part VI: Express Toll Lanes

13. Have you seen "Express Toll Lanes" in urban areas of other states like Texas, Colorado, or Minnesota where drivers can choose to pay a toll to drive in an express lane that bypasses congestion in untolled lanes?

____(1) Yes ____(2) No *[Skip to Q14.]*

13a. If "Yes," please rate your level of agreement/disagreement with the following statements about Express Toll Lanes (ELTs).

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Don't Know
1.	ELTs are a good way to keep traffic moving	5	4	3	2	1	9
2.	ELTs are easy to use	5	4	3	2	1	9
3.	ELTs are fair because tolls are paid only by people who use them	5	4	3	2	1	9

14. If two free lanes were available in each direction and KDOT added one additional express toll lane in each direction of U.S. 69 between 103rd and 151st Streets, how often would you pay to use the express lane to avoid congestion on U.S. 69 if the cost were between 65 cents and $1.75 or less to travel the complete distance between 103rd and 151st Streets?

____(1) All of the time ____(3) Some of the time ____(5) Never
____(2) Most of the time ____(4) Only in emergencies ____(9) Don't know

15. Please rate the importance of the following benefits that express toll lanes could provide if they were included in the design of improvements to U.S. 69.

	Issues	Extremely Important	Very Important	Important	Less Important	Not Important	Don't Know
1.	Reduce congestion across all lanes of traffic	5	4	3	2	1	9
2.	Reduce the cost of the project by $85 million dollars	5	4	3	2	1	9
3.	Reduce disruptions to traffic flow during construction	5	4	3	2	1	9
4.	Leave two free lanes in each direction	5	4	3	2	1	9
5.	Allow the improvements to be completed sooner	5	4	3	2	1	9
6.	Provide another way for Overland Park to provide a local contribution to the project without using city sales or property tax dollars	5	4	3	2	1	9

Part VII: Demographics

16. Would you be interested in participating in future meetings and/or focus groups about improvements to U.S. 69 between 103rd and 179th Streets? These meetings may be conducted virtually.

____(1) Yes ____(2) No *[Skip to Q17.]*

16a. If "Yes", please provide your contact info below.

Name: ____ Phone: ____________________________

Email: ____

17. Do you live inside the City of Overland Park? ____(1) Yes ____(2) No

18. What is your age? ______ years

19. What is your gender? ____(1) Male ____(2) Female

20. What is your home zip code? ______________________

21. If you have any specific issues or concerns related to U.S. 69 between 103rd and 179th Streets that you would like to share with KDOT, please write them in the space provided below.

____

____

____

This concludes the survey. Thank you for your time!

Please return your completed survey in the enclosed postage-paid envelope addressed to:
ETC Institute, 725 W. Frontier Circle, Olathe, KS 66061

Your responses will remain completely confidential. The information printed to the right will ONLY be used to better understand how people who live in different areas responded to the survey questions. If your address is not correct, please provide the correct information. Thank you.