Kansas Department of Transportation
Lawrence Office
Bioscience & Technology Business Center
2029 Becker Drive, Suite 236
Lawrence, KS 66047

Technical Memorandum

To: Cooperating Agencies, Participating Agencies and Other Interested Stakeholders	**Date:** March 27, 2019
From: South Lawrence Trafficway SEIS Study Team	
Subject: SLT SEIS Proposed Alternatives Screening Criteria	

South Lawrence Trafficway Supplemental Environmental Impact Statement Proposed Alternatives Screening Criteria

Introduction

The purpose of this technical memorandum is to describe the proposed screening criteria for the initial alternatives for the South Lawrence Trafficway (SLT) Supplemental Environmental Impact Statement (SEIS). This Proposed Alternatives Screening Criteria Technical Memorandum is one of several interim reports to be prepared for the SLT SEIS for review and concurrence by Cooperating and Participating Agencies for the project.

Background and History

SLT EIS

A previous Environmental Impact Statement (EIS) was prepared in 1990 for the overall SLT study area. The Purpose and Need stated in that EIS was to relieve congestion on existing 23rd Street and Iowa Street by diverting through and local traffic from these two existing streets and Clinton Parkway, thereby achieving an improved level of traffic service on the local street network. As an outcome of the approved 1990 EIS, two expressway lanes of the West Section were constructed and opened to traffic in 1996. The East Section was not constructed and a subsequent SEIS with a "No Build" decision was approved in 2000. A subsequent EIS, in conjunction with a USACE 404 Permit, was completed in 2002 and adopted and approved by FHWA in November 2007. The FHWA then issued a Record of Decision (ROD) in May 2008. Since the completion of the ROD, the East Section four-lane freeway was constructed and opened to traffic in 2016.

K-10 West Leg Concept Study

The *K-10 West Leg Concept Study*, conducted from 2014-2016 for the Kansas Department of Transportation, investigated the current and future needs and functions in the K-10/SLT West Section. This study considered alternatives for the future widening and upgrade of the corridor, which modified the current 2-lane expressway design to a 4-lane freeway design with limited access, and either closed existing at-grade intersections or upgraded them to grade separated interchanges. During the concept study, proposed conceptual alternatives went through a screening process to evaluate qualitative and quantitative impacts of the alternatives for the West Section improvements. The concept study and its

alternatives screening process will be used as a baseline and reference document for the SLT SEIS for developing and screening the initial alternatives.

Overview of SLT SEIS Alternatives Development Process

A Supplemental Environmental Impact Statement (SEIS) will be prepared for the proposed project. Within the SEIS, the alternatives development process identifies alternatives for the proposed project that are reasonable and feasible from a technical, environmental and economic standpoint. Initial Alternatives for the project will be developed using the SLT 1990 EIS and the K-10 West Leg Concept Study as a baseline for the proposed build alternatives.

The current SEIS, as a supplement to the original 1990 EIS, will evaluate a 'No Action' alternative as well as a combination of proposed Build Alternatives for the entire SLT study area, designated as the ***Initial Alternatives***. Roadway configuration options will be evaluated, including upgrading of the West Section as a four-lane freeway, with controlled access and interchanges at West 6th Street/U.S. 40, Bob Billings Parkway, Clinton Parkway, an interchange between Wakarusa Drive and Kasold Drive, and at U.S. 59/Iowa Street. Also, interchange alternatives at I-70/East 600 Road/Lecompton Road and K-10/I-70/North 1800 Road will be considered. A range of funding options will also be evaluated for the proposed alternatives.

The East Section of the SLT is included in this study because it was a part of the study area for the original 1990 EIS, and because funding options, such as tolled and toll-free options, are being evaluated for the project. Therefore, the entire SLT corridor will need to be evaluated to assess potential impacts of the funding options and their ability to provide sustainable funds for operation, maintenance and future SLT improvements. It is not anticipated that there will be any physical roadway improvements or modifications that require additional right-of-way on the East Section as a result of the funding options.

Once the Initial Alternatives are identified, the process will entail a screening of the alternatives to determine which alternatives warrant further consideration for the project. Based on the screening of these Initial Alternatives, the alternatives development process then defines and evaluates a range of No Action and Build Alternatives in sufficient detail to identify the feasible and prudent alternatives (i.e., ***Reasonable Alternatives***). The Reasonable Alternatives are then carried forward and evaluated with regard to the acceptability of the environmental and social impacts, as presented within the Affected Environmental and Environmental Consequences section of the SEIS. The more detailed evaluation of the Reasonable Alternatives then identifies the alternative that best accomplishes the purpose and need for the proposed project while providing acceptable impacts to both the natural and man-made environment. This alternative is designated as the ***Identified Preferred Alternative***. The Identified Preferred Alternative is then presented within the Draft SEIS and at the Public Hearing for agency and public review and comment. After the comments on the Public Hearing and Draft SEIS have been received and addressed, the Identified Preferred Alternative is approved by FHWA as the ***Selected Alternative*** for the project and a Final SEIS and Record of Decision will be prepared.

The process of alternatives screening and ascending level of detailed evaluation assures decision-makers of the fulfillment of the improvement's goals, while developing informed consent with the reviewing agencies, stakeholders and the general public. This screening process will be performed in collaboration with the public and agency coordination plan as defined in the Project Coordination Plan.

Figure 1
Alternatives Development Process

Proposed Screening Criteria

The Initial Alternatives will be screened against the purpose and need goals for the project. Natural and human environmental impacts, as well as engineering issues and associated relative costs, will also be evaluated at a high-level for the Initial Alternatives. An Initial Alternatives Screening Matrix will then be prepared to screen the alternatives based on the screening criteria developed. Public and stakeholder input will be a component of the screening criteria for the Initial Alternatives.

Purpose and Need Criteria

The purpose of the South Lawrence Trafficway is to provide the traveling public with an efficient and cost-effective transportation facility for users of K-10 Highway and the surrounding state highway system. In addition, the purpose and need established in the 1990 EIS will be carried forward for the SEIS, which is to relieve congestion on the local street network within the city of Lawrence.

The proposed project is needed to:

- ***Reduce congestion*** and improve the traffic capacity to meet existing and future travel demands,
- ***Enhance safety*** to help address high crash locations within the study area,
- ***Promote a multimodal transportation system*** by ensuring the project accommodates the needs of other transportation modes and
- ***Support local and regional growth*** by providing and coordinating transportation connections to be consistent with planned and proposed community land use and development.

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

- **Enhance Safety** – The alternative includes measures that potentially address safety of the SLT West Section over existing conditions.
    - Reduction in Number and Severity of Crashes - This screening measure is rated using the Harvey balls/ideograms type system. The alternative includes improvements to address a specific number of locations with critical crash rates above the statewide average. The focus is on a reduction in number and severity of crashes as a result of the alternative improvements.
    - Crash Modification Factors - This screening measure is rated using the Harvey balls/ideograms type system. The alternative incorporates countermeasures (i.e., additional driving lanes, installation of grade-separated interchanges, traffic signals or

median barriers) on the SLT West Leg mainline that result in an expected reduction in crashes using the FHWA Crash Modification Factors Clearinghouse as a basis of analysis.

- **Reduce Congestion** – The alternative includes measures that increase the capacity of the SLT West Section and/or increase transit service and use that would be sufficient to anticipate a reduction in congestion to level of service (LOS) D during the peak periods.
    - Potential Improvements to LOS D or greater on K-10 and on major urban arterials – This screening measure is rated using LOS reporting, with the scale encompassing LOS A (best) through LOS F (worst). The alternative that improves LOS conditions to LOS D or better during peak periods will receive a higher relative rating.
    - Decrease in Travel Time- This screening measure is rated using the Harvey balls/ideograms type system. This screening measure is used for evaluating decreases in travel time and will quantify the change in travel distances and/or travel times and speeds over existing conditions.

- **Promote a Multimodal Transportation System** – The alternative includes reasonable measures to enhance crossing of the corridor for non-motorized travel and freight and increases the effectiveness of transit options in the corridor.
    - Potential for Crossing Improvements – This screening measure is rated using the Harvey balls/ideograms type system. The alternative that allows for potential crossing improvements of SLT at new locations will receive a higher relative rating.
    - Increased Accommodation of Bus Transit Routes – This screening measure will include the potential increase in the number of bus transit routes that may facilitate improved transit access within the community. This will be measured by an increase/decrease in the number of potential transit route crossings of the SLT that could link with nearby existing transit routes.
    - Provides Connection to Pedestrian, Bike or Trail Facility – This screening measure is rated using the Harvey balls/ideograms type system. The alternative will preserve existing bike or trail systems and accommodate future planned connections.
    - Potential to Eliminate Freight Bottlenecks – This screening measure is rated using the Harvey balls/ideograms type system. This screening measure will evaluate improvements that may be beneficial to freight movement (i.e. increased turning radii, access points) or improvements that may reduce or eliminate freight bottlenecks on areas of the SLT corridor (i.e., the number of signalized intersections potentially eliminated that cause backups and queues along SLT, adding traffic capacity with additional lanes, improving traffic merge distances, etc.) that can impact goods movement.

- **Support Local and Regional Growth –** The alternative accommodates planned population, land use and other growth and development plans in the region.
    - Compatibility with Local Planning – This screening measure is rated using the Harvey balls/ideograms type system. This screening measure will evaluate the alternative's compatibility and consistency with city plans for future growth and development.
    - Compatibility with Regional Planning - This screening measure is rated using the Harvey balls/ideograms type system. This screening measure will evaluate the

alternative's compatibility and consistency with regional metropolitan planning organization (MPO) plans for future growth and development.

Environmental Criteria

The study team will also perform a cursory evaluation of the potential natural and human environmental impacts for each initial alternative. The natural environmental impacts relate to the anticipated effect on natural sites. The human environmental impacts include any community, neighborhood, or business resources that may be affected by the alternatives.

- **Environmental Fatal Flaws** – This screening measure is a simple yes or no evaluation to determine if the alternative has any environmental fatal flaws. Environmental fatal flaws are defined as unavoidable impacts for which mitigation is not considered an acceptable remedy. Examples (though not all-inclusive) include impacts to critical habitat for threatened and endangered species, impacts to sensitive Native American cultural and burial sites, or substantial impacts to Section 4(f)/6(f) resources that require the development of an avoidance alternative.
- **Potential Parks Impacted** – This screening measure will include the number of parks potentially impacted by each alternative.
- **Potential Community Facilities Impacted** – This screening measure will include the number of community facilities potentially impacted by each alternative.
- **Potential for Changes to Land Use** – This screening measure is rated using the Harvey balls/ideograms type system. The alternatives that will require more right of way have more potential to change the surrounding land use. This screening measure does not determine whether the change is positive or negative as this is often subjective.
- **Potential for Environmental Justice Impacts** – This screening measure is rated using the Harvey balls/ideograms type system. The direct impact on environmental justice areas are from relocations as related to the need for right of way and range of funding options being considered for the project.
- **Potential for Noise Impacts** – This screening measure is rated using the Harvey balls/ideograms type system. The impact of noise is typically related to the need for right of way and proximity to sensitive noise receptors. Once the reasonable alternatives are identified, the evaluation will consider the number of noise receptors affected.
- **Potential for Natural Environmental Resources Impacts** – This screening measure is rated using the Harvey balls/ideograms type system.
- **Potential for Hazardous Materials and Contaminated Sites Impacts** – This screening measure will include the number of hazardous materials and contaminated sites potentially impacted by each alternative.
- **Stakeholder and Public Support** - This screening measure is rated using the Harvey balls/ideograms type system.

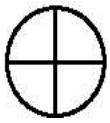
Engineering Criteria

The study team will also perform an evaluation of potential engineering issues including fatal flaws, right of way impacts, and construction phasing for the initial alternatives. The engineering criteria incorporate the major elements used within the K-10 West Leg Concept Study as a baseline.

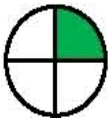
- **Engineering Fatal Flaws** – This screening measure is a simple yes or no evaluation to determine if the alternative has any engineering fatal flaws.
- **Right of Way Impacts** – This screening measure is rated using the Harvey balls/ideograms type system. The evaluation will be high level at this stage and more detail will be available as the study proceeds.
- **Allows for Project Phasing** – This screening measure is a simple yes or no evaluation to determine if the alternative allows for construction to be phased over time.
- **Maintenance of Traffic and Constructability** – This screening measure is rated using the Harvey balls/ideograms type system. The evaluation is high level at this stage and measures complexity of staging and anticipated road closures.

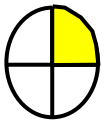
Harvey Balls/Ideograms Ratings

A Harvey balls/ideograms rating system will be established as part of the screening process and used in the screening matrix when screening the Initial Alternatives. An example rating system is shown below.

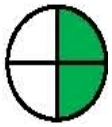


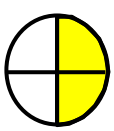
No Achievement/No Impact: For the purpose and need goals this symbol relates to the extent of achieving a goal; for environmental and engineering/cost criteria, it relates to the level of potential impacts (the greater the impact, the more slices in the circle are highlighted). This rating denotes that this criterion is not met at all (or very negligible) and there are no (or negligible) environmental and engineering/cost impacts. It should be noted that impacts can have either a positive or negative connotation depending on what criteria is being evaluated.





Some Achievement/Some Impact (approximately 25%): For the purpose and need goals this symbol relates to the extent of achieving a goal in green; for environmental and engineering/cost criteria in yellow, it relates to the level of potential impacts (the greater the impact, the more slices in the circle are highlighted). This rating indicates that approximately a quarter of the purpose and need goals are met and there are approximately 25% impacts for environmental and engineering/cost criteria. It should be noted that impacts can have either a positive or negative connotation depending on what criteria is being evaluated.

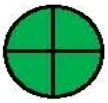


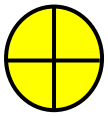


Half Achievement/Moderate Impact (approximately 50%): For the purpose and need goals this symbol relates to the extent of achieving a goal in green; for environmental and engineering/cost criteria in yellow, it relates to the level of potential impacts (the greater the impact, the more slices in the circle are highlighted). This rating indicates approximately half of the purpose and need goals are met and there are approximately 50% impacts for environmental and engineering/cost criteria. It should be noted that impacts can have either a positive or negative connotation depending on what criteria is being evaluated.

Substantial Achievement/Substantial Impact (approximately 75%): For the purpose and need goals this symbol relates to the extent of achieving a goal in green; for environmental and engineering/cost criteria in yellow, it relates to the level of potential

impacts (the greater the impact, the more slices in the circle are highlighted). This rating indicates approximately three-quarters of the purpose and need goals are met and there are approximately 75% impacts for environmental and engineering/cost criteria. It should be noted that impacts can have either a positive or negative connotation depending on what criteria is being evaluated.



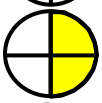


Complete Achievement/High Impact (approximately 100%): For the purpose and need goals this symbol relates to the extent of achieving a goal in green; for environmental and engineering/cost criteria in yellow, it relates to the level of potential impacts (the greater the impact, the more slices in the circle are highlighted). This rating indicates all or the vast majority of the purpose and need goals are met and there are approximately 100% impacts for environmental and engineering/cost criteria. It should be noted that impacts can have either a positive or negative connotation depending on what criteria is being evaluated.

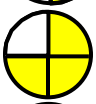
Project Cost Criteria

In addition, the final evaluation criterion was the relative costs of each alternative. The alternatives were given one of the ratings below:

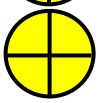
Alternatives would have low or minimal additional cost beyond what is anticipated for long-term maintenance (i.e. maintaining the existing facility – No Action).



Alternatives anticipated have moderate to average costs related to other alternatives proposed.



Alternatives anticipated have substantial costs related to other alternatives proposed.



Alternatives anticipated to have a cost that is orders of magnitude higher than other alternatives.

Next Steps

The proposed screening criteria is preliminary at this time. Comments and input from the Cooperating and Participating Agencies will be incorporated into the proposed screening criteria before it is finalized for the project. Once the Purpose and Need Statement for the project is reviewed and concurred upon by the agencies and the Initial Alternatives are identified for the project, the screening criteria will be applied to evaluate and screen the range of Initial Alternatives.