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Sam Brownback, Governor

June 9, 2016

Charles F. Soules, P.E.
Lawrence Public Works Director
P. O. Box 708
Lawrence, Kansas 66044-0708

Dear Mr. Soules:

Subject: K-10 West Leg South Lawrence Trafficway (SLT)
Final Report of Near-Term Alternatives at East 1200 Road and K-10
KDOT Project No. 10-23 KA-3634-04 in Douglas County

We are submitting to you a final report that includes a summary of the Kansas Department of Transportation's (KDOT) engineering analysis, public involvement, public open house comments, and near-term alternative recommendations at the East 1200 Road and K-10 intersection.

KDOT would like to review the final report and recommendation with the Lawrence City Commission at the meeting scheduled for June 21, 2016. At that meeting, KDOT requests feedback from the Lawrence City Commission on the recommended alternative.

Thank you for your time and attention to this matter. If you have any questions, please contact me at (785) 296-0142.

Sincerely,

Scott W. King, P.E., Chief
Bureau of Road Design

A handwritten signature in blue ink that reads "Ryan Barrett".

Ryan Barrett, P.E.
Special Requirements Engineer

RPB:js

Enclosure

K-10 and E. 1200 Road Near-Term Alternatives

KDOT Project No. 10-23 KA-3634-04

Report prepared for

City of Lawrence

Douglas County

By



June 9, 2016



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K-10 and E. 1200 Road Near-Term Alternatives

Introduction

This report is being provided at the request of city and county engineering staff to summarize results of the Kansas Department of Transportation's (KDOT) analysis efforts of the K-10 and E. 1200 Road intersection for the consideration of City of Lawrence and Douglas County Commissions. The analysis focused on near-term alternatives at the intersection to help enhance safety and traffic flow when the K-10 East Leg South Lawrence Trafficway (SLT) opens to traffic in the fall of 2016. The results of the analysis were shared with the public at an Open House on June 1, 2016. This report summarizes the engineering analysis, public comments, and includes KDOT's recommendation to construct a partial access right in, right out intersection at the K-10 and E. 1200 Road intersection. The goal is for KDOT to review the final report and recommendation with the City and County Commissions. At that time, KDOT will request feedback from the local commissions on the recommended alternative. Questions are welcome and thank you for your time and attention to this matter.

Executive Summary

With the connection of K-10 from U.S. 59 to existing K-10 east of Lawrence opening in the fall of 2016, traffic is expected to more than double on K-10 west of U.S. 59. Additionally, crashes at the K-10 and E. 1200 Road intersection are expected to increase in number and severity. KDOT has been analyzing this intersection to address near-term safety concerns until the four-lane freeway can be constructed west of U.S. 59 to I-70 on K-10. Through an analysis of traffic flow, safety, and access, along with local partner coordination, KDOT developed four alternatives as near-term solutions:

- Alternative 1: Do Nothing/No Build
- Alternative 2: Traffic Signal at E. 1200 Road and K-10 Intersection
- Alternative 3: Right In Right Out
- Alternative 4: Intersection Closure and Traffic Signal at CR 458 and U.S. 59

The combined safety at the K-10 and 27th St., K-10 and E. 1200 Rd., and U.S. 59 and CR 458 intersections for each near-term alternative at E. 1200 Rd. can be summarized as follows:

- A 78% increase in total predicted crashes is expected by the do nothing Alternative 1
- The number of total predicted crashes is higher with Alternative 2 compared to doing nothing, but a lower portion will be severe right angle (t-bone) crashes
- Fewer total predicted crashes occur with Alternative 3 compared to doing nothing
- The fewest total predicted crashes occur with Alternative 4

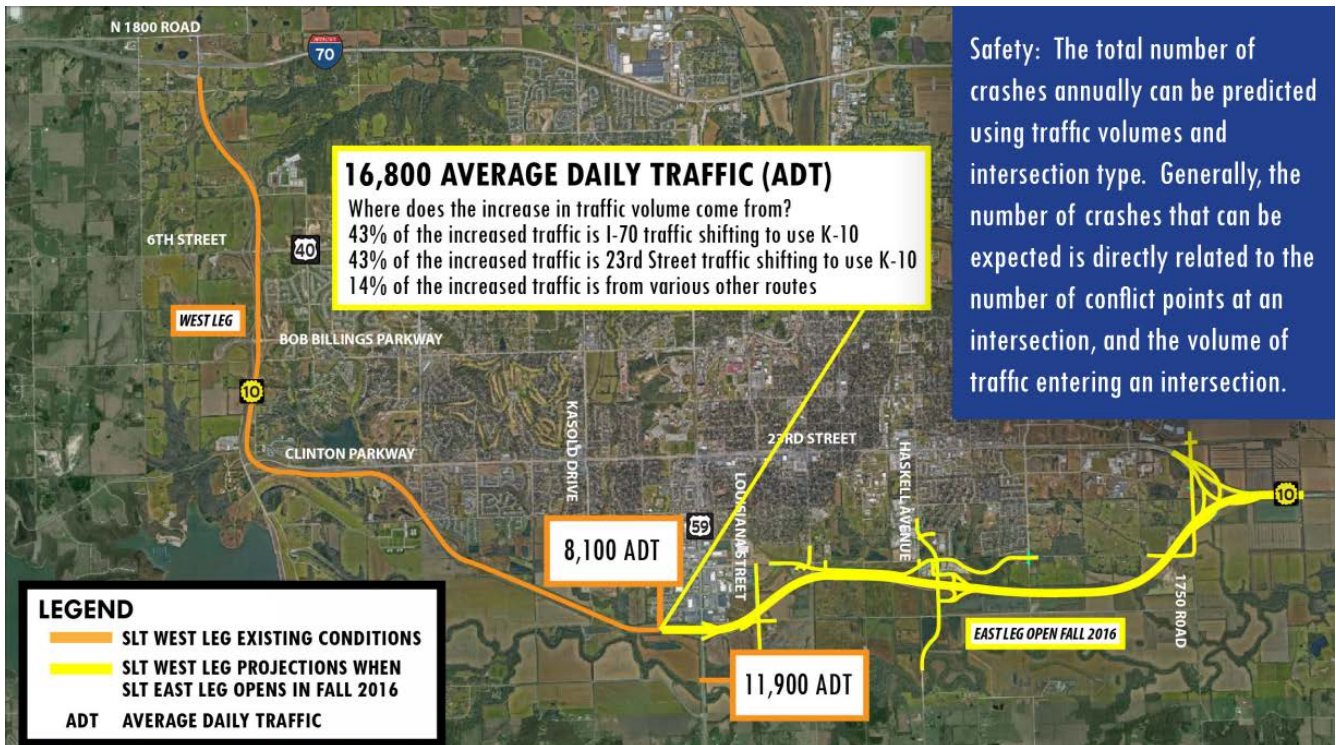
All alternatives address EMS response time. No alternative significantly impacts traffic operations at nearby intersections such as K-10/27th Street, 31st Street/Iowa Street or CR 458/U.S. 59. No alternative greatly impacts access for the majority of the intersection's current users. Safety is the largest analyzed differentiator between alternatives.

The public comments, collected at the June 1st Open House and through an online survey, showed a high preference for access to be maintained. Those who favored closure cited safety as their top priority. The highest ranked alternative in the survey is Alternative 2, installation of a traffic signal at the K-10 and E. 1200 Road intersection. The public's top priority factoring into their preference is safety, closely followed by access. It is evident through the comments left by the public that no single solution exists that equally satisfies all parties.

KDOT recommends to reconfigure the intersection as a right in, right out intersection, which will be a lower cost version of Alternative 3, to arrive at a compromise solution that can be implemented concurrent with the opening of the K-10 East Leg SLT in the fall of 2016.

Traffic Impacts when the K-10 East Leg SLT opens

Current average daily traffic (ADT) on K-10 near E. 1200 Road is 8,100 vehicles. When the newly constructed four-lane K-10 East Leg opens in the fall of 2016, the South Lawrence Trafficway will be connected from I-70 to K-10 east of Lawrence. An increase in traffic on K-10 is expected as regional traffic travelling between I-70 and Johnson County will have the choice to use K-10 instead of I-70 or 23rd Street. Traffic on K-10 near E. 1200 Road is predicted to increase to 16,800 vehicles ADT within a short time of the K-10 East Leg SLT opening.



Safety Impacts when the K-10 East Leg SLT opens

An increase in the volume of traffic at an intersection will increase the number of crashes at that intersection. The Highway Safety Manual (HSM) provides a method to predict the average number of crashes that can be expected given a traffic volume and an intersection type. When the K-10 East Leg SLT opens, with no action, crashes at K-10 and E. 1200 Rd. are predicted to increase from 1.1 to 1.8 average crashes per year, crashes at K-10 and 27th Street are predicted to increase from 1.6 to 3.4 average crashes per year, and crashes at County Road 458 and U.S. 59 are predicted to increase from 0.7 to 0.8 average crashes per year.

Between 2012 and 2016, there were seven crashes at the K-10 and 27th Street signalized intersection, four of which were injury accidents, and one fatal crash. In the same time frame, there were seven crashes at the three-leg unsignalized U.S. 59 and County Road 458 intersection, two of which were injury accidents. There were five crashes experienced at the K-10 and E. 1200 Rd. intersection between 2012 and 2016, with three of those being injury crashes. The K-10 and E. 1200 Road intersection is an unsignalized, at-grade intersection. The increase in traffic on K-10, high percentage of injury crashes experienced at the E. 1200 Road intersection, and increase in the predicted number of crashes are safety concerns. KDOT is considering the four alternatives below for addressing safety.

Alternatives Considered

Near-term alternatives for the K-10 and E. 1200 Road intersection are do nothing, install a traffic signal, reconfigure the intersection to allow only right turns, or close the intersection and install a traffic signal at County Road 458 and U.S. 59.



Near-Term Alternative 1: Do Nothing/No Build

This alternative would not change anything at the existing intersection prior to the K-10 East Leg SLT opening.



Alternative 1: Do nothing/No build

- Predicted increase in total crashes, especially T-bone crashes due to traffic volume increase on K-10
- Risky driver behavior possible due to longer wait times for gaps in K-10 traffic
- Maintains access at existing location
- EMS response times maintained/unaffected
- Increase in wait time for all movements from side roads due to estimated traffic volume increase on K-10
- Could accommodate bike connectivity by routing a shared use path under existing Yankee Tank Creek bridge as a local partner project

Schedule for implementation: Implemented

COST: NO COST

Near-Term Alternative 2: Traffic Signal

This alternative would install a traffic signal at K-10 and E. 1200 Road intersection as-is to control access at the location. Advanced signal warning signs would be installed along K-10 in both directions to alert motorists.



Alternative 2: Traffic signal at E. 1200 Road and K-10 Intersection

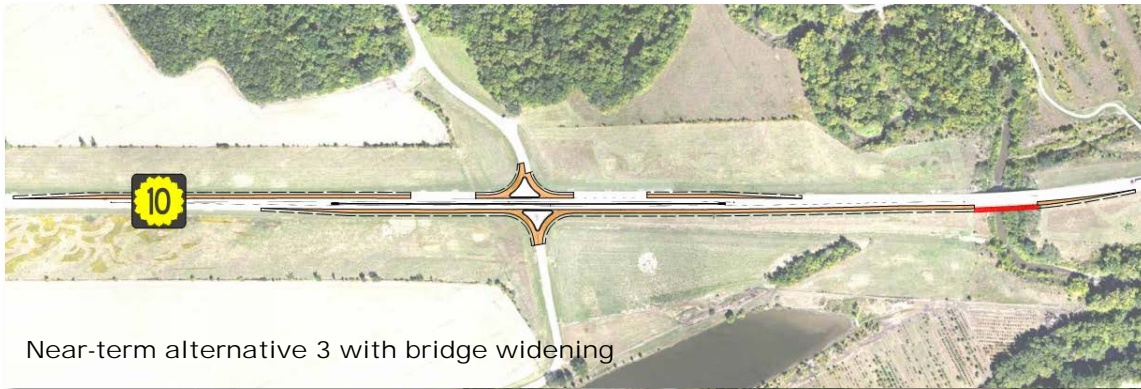
- Predicted increase in total crashes per year on K-10 at E. 1200 Road with predicted decrease in T-bone crashes. No change in crashes per year at CR 458 and U.S. 59 intersection
- Maintains access at existing location
- EMS response times maintained/unaffected
- Increase in wait time due to installation of traffic signal
- Introduces queuing and a potential stop for K-10 through traffic near exiting and entering traffic from U.S. 59 ramps
- Additional expense to remove signal when the four-lane freeway is constructed
- Bike connectivity accommodated with signal installation

Schedule for implementation: Construction concurrent with opening of K-10 East Leg SLT

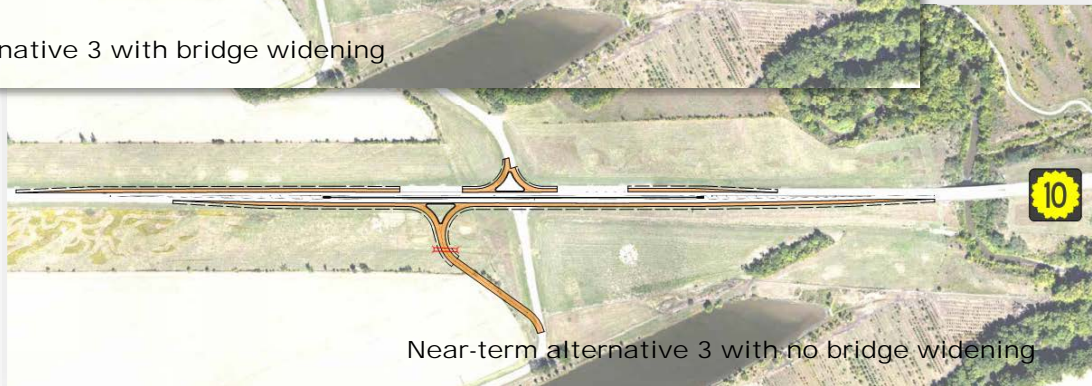
COST: \$70,000 (span wire) or \$170,000 (poles and mast arms)

Near-Term Alternative 3: Right In Right Out

This alternative reconfigures the intersection to only allow drivers to turn right into and out of E. 1200 Road. There would be no left-turn access and no through traffic allowed across K-10.



Near-term alternative 3 with bridge widening



Near-term alternative 3 with no bridge widening

Alternative 3: Right In Right Out

- Slight predicted increase in crashes per year at CR 458 and U.S. 59 intersection due to some traffic shifting to that intersection. Reduces total crashes per year and eliminates T-bone crashes
- Provides partial access to K-10. No left turns or through movements from E. 1200 Road. No left turns from K-10.
- Potential increase in EMS response time
- No wait time increase for E. 1200 Road traffic
- Three of the four heaviest existing traffic turning movements cannot be accommodated with this intersection type and will shift to other routes
- Shifted traffic will have minimal operations impact to other nearby intersections
- Additional expense to remove right-in right-out when the four-lane freeway is constructed
- Could accommodate bike connectivity by routing a shared use path under existing Yankee Tank Creek bridge as a local partner project

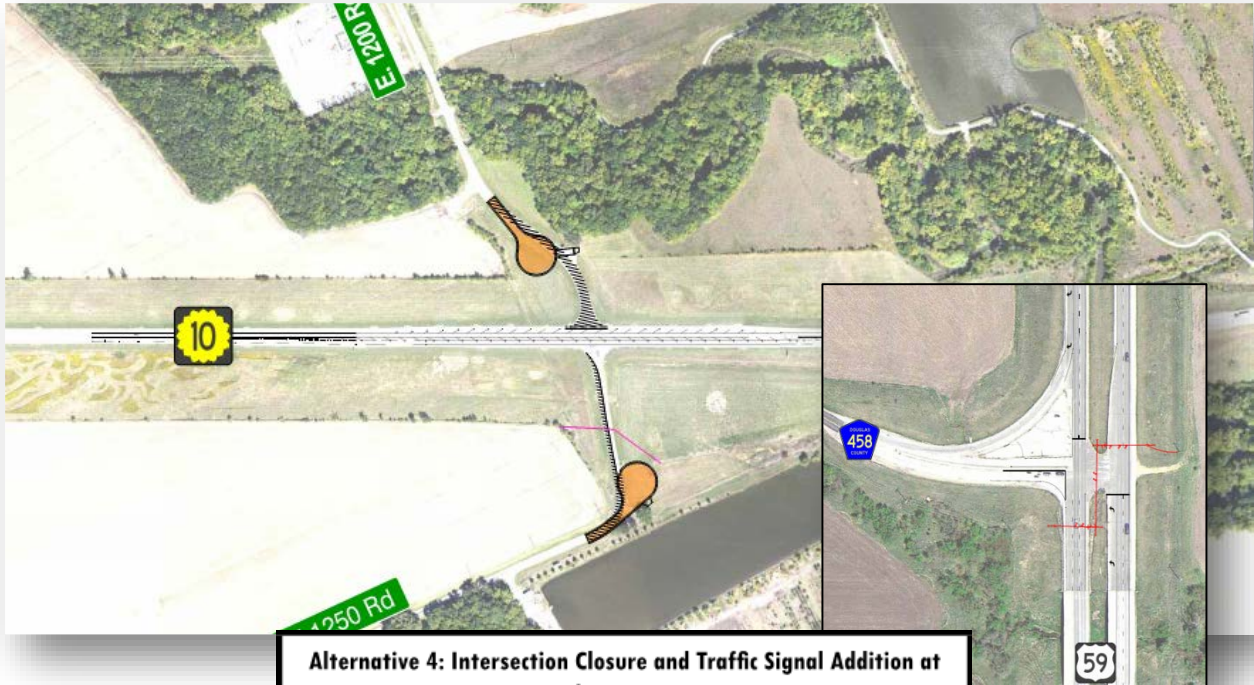
Schedule for implementation: Construction not concurrent with opening of K-10 East Leg SLT

COST: \$1.2M* to \$1.5M*

* (Lower cost options were analyzed, but would not meet a 65mph design. The lower cost, lower speed options were eliminated as the decision has been made by KDOT to not reduce the speed limit on K-10.)

Near-Term Alternative 4: Intersection Closure & Traffic Signal at CR 458/U.S. 59

This alternative would close the K-10 and E. 1200 Road intersection. There would be no access to or from K-10 at E. 1200 Road. The existing street would end in cul-de-sacs. A traffic signal would be added to the County Road 458 and U.S. 59 intersection. An emergency access gate would be constructed south of K-10 for fire trucks, law enforcement, and ambulance services only to access N. 1250 Road and points farther in southwest Douglas County.



Alternative 4: Intersection Closure and Traffic Signal Addition at CR 458 and U.S. 59 Intersection

- Slight predicted increase in total crashes per year at CR 458 and U.S. 59 with installation of traffic signal on U.S. 59. Crashes at E. 1200 Road and K-10 intersection will drop to zero with closure.
- Eliminates driver decision point on K-10
- Moves access to K-10 via CR 458 and U.S. 59. K-10 through traffic unaffected
- Addition of emergency access gate on south side of K-10 addresses EMS response time
- Increase in wait time for all U.S. 59 movements at CR 458 and U.S. 59 intersection due to installation of traffic signal
- Introduces queuing and a potential stop for U.S. 59 through traffic
- No additional expense when the four-lane freeway is constructed
- Could accommodate bike connectivity by routing a shared use path under existing Yankee Tank Creek bridge as a local partner project

Schedule for implementation: Construction concurrent with opening of K-10 East Leg SLT

Cost: \$270,000

Traffic Operations: How Do the Alternatives Compare?

Traffic operations are a measure of how freely traffic moves and flows. Level of Service (LOS) is the industry standard of measurement used for traffic operations and is similar to school grades: A is the best, while F is the worst. A VISSIM traffic network model was used to determine the peak hour daily traffic volume LOS at each intersection listed below, for each alternative, after the K-10 East Leg SLT is open. Two intersections outside the VISSIM network were modeled using the intersection evaluation software called Synchro, which is more conservative than the detailed VISSIM model. KDOT designs for Average Daily Traffic (ADT) and Peak Hour Traffic, not event-day traffic.

Intersection	Peak Hour Level of Service (LOS)			
	Alternative 1: Do Nothing	Alternative 2: Traffic Signal	Alternative 3: Right In Right Out*	Alternative 4: Intersection Closure
1. K-10 & E. 1200 Road				N/A
2. K-10 & 27th Street				
3. Wakarusa Drive & 27th Street				
4. U.S. 59 & 34th Street				
5. U.S. 59 & Westbound K-10				
6. U.S. 59 & Eastbound K-10				
7. U.S. 59 & N. 1250 Road				
8. U.S. 59 & 31st Street	Conservative models show LOS of B in worst case. Detailed model did not include this intersection.			
9. U.S. 59 & County Road 458	Conservative models show LOS of B in worst case. Detailed model did not include this intersection.			

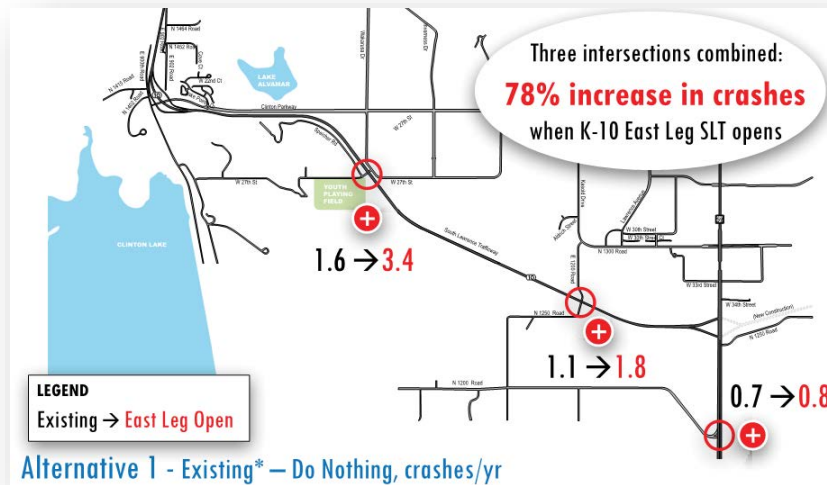
*Operations expected to fall between other Alternatives. Alternative 3 scenario not modeled.

LOS	Intersection Delay (Sec)	
	Signalized	Unsignalized
A - C	≤ 35	≤ 25
D	35.1-55	25.1-35
E	55.1-80	35.1-50
F	> 80	> 50

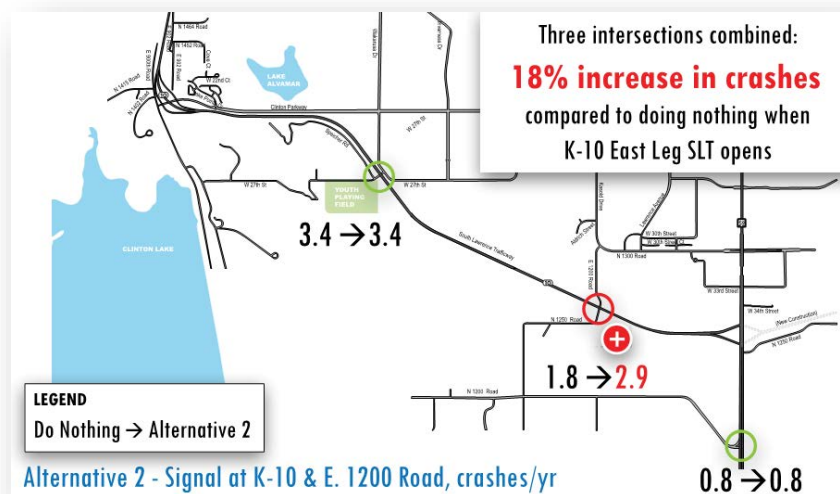
The results illustrate that all alternatives indicate an acceptable traffic flow at K-10 and E. 1200 Road, and that the alternatives at E. 1200 Road do not significantly impact operations of nearby intersections such as K-10 and 27th St., 31st St. and Iowa St., or County Road 458 and U.S. 59.

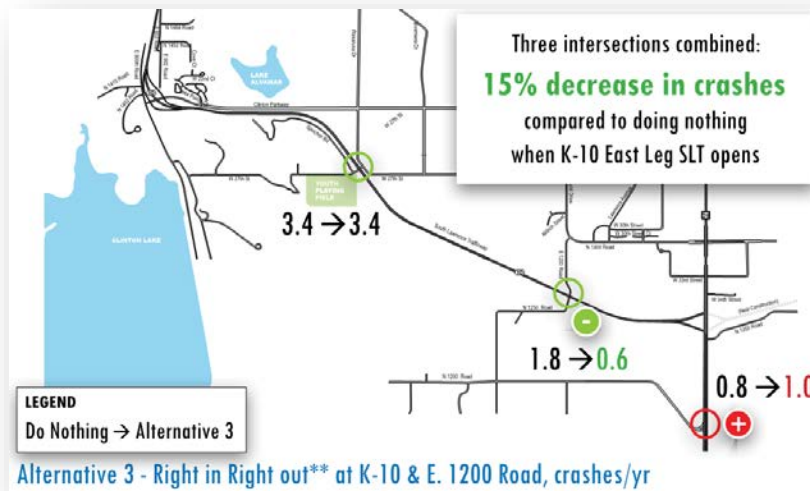
Safety: How Do The Alternatives Compare?

The total number of crashes can be predicted using Highway Safety Manual (HSM) methodology and expressed as an average crashes per year rate. The number of crashes that can be expected at an intersection is directly related to the number of conflict points at the intersection, type of intersection control (i.e. traffic signal), and the volume of traffic entering the intersection. For comparison purposes, the existing average annual crash rate was predicted using HSM methodology. Actual crash history will vary based on the number and range of years examined.

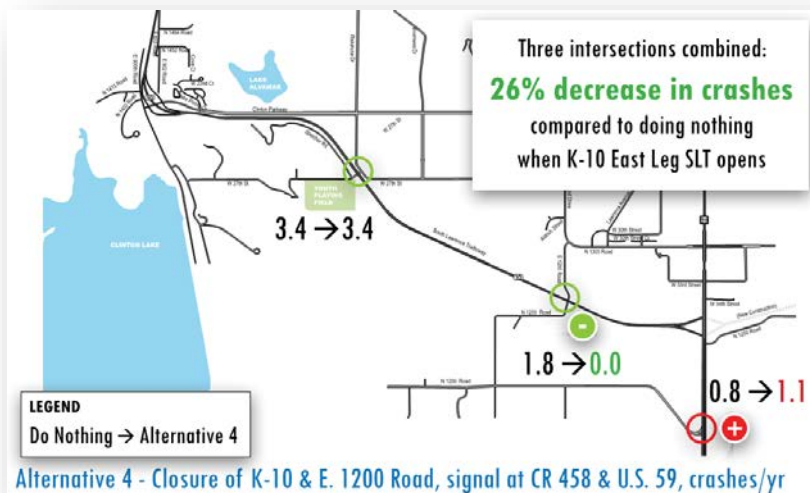


When a traffic signal is installed at any intersection where previously there were only stop signs or no controlling device, it is anticipated that the intersection will experience an increase in rear-end crashes, but a decrease in angle (“t-bone”) crashes. Typically, rear-end crashes are much less severe than angle (“t-bone”) crashes, so although the rear-end crashes will increase, severe angle crashes will likely decrease. The K-10 and E. 1200 Road intersection is currently a two-way, stop-controlled intersection. Adding a signal on K-10 will add a stop for both directions of K-10 traffic. Since there was not a stop on K-10 before, an increase in rear-end crashes is expected but a decrease in the typically more severe (t-bone) crashes is also expected.





The HSM methodology cannot predict average annual crashes at a right in right out intersection. A study performed by the Oregon DOT showed that the reduced number of conflict points at a right in right out intersection generally reduces the crash rate by half. An additional fifteen percent reduction in crashes can be expected when acceleration and deceleration lanes are provided for the right turn movements. The crash rate at County Road 458 and U.S. 59 increases because the right in right out intersection at K-10 and E. 1200 Road shifts additional traffic to the intersection at County Road 458 and U.S. 59.



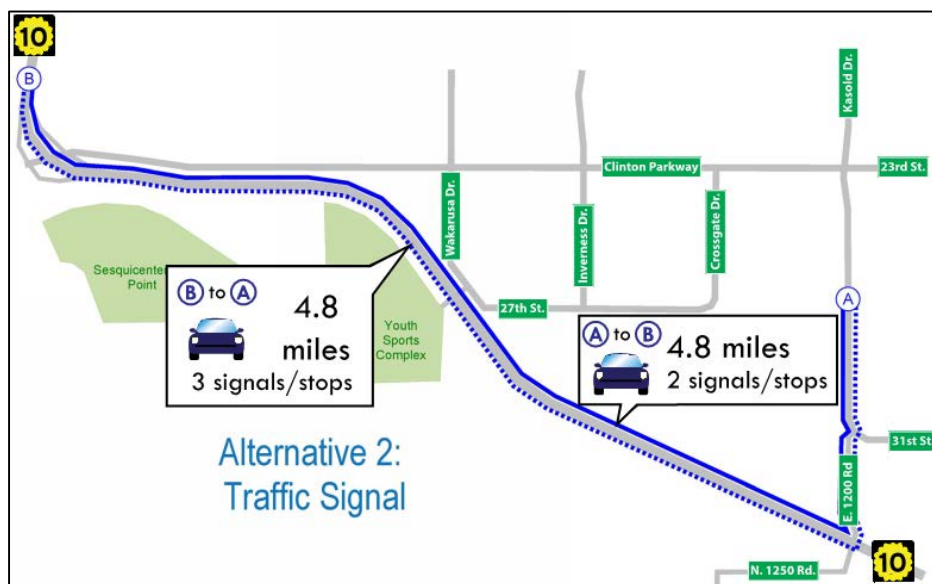
Closing the K-10 and E. 1200 Road intersection eliminates all conflict points and reduces the predicted crash rate at the location to zero. The closure shifts additional traffic to the intersection at County Road 458 and U.S. 59, and a traffic signal will be installed at that location. Both an increase in traffic volume as well as the installation of a traffic signal will contribute to an increase in overall crash rates at the County Road 458 and U.S. 59 three-legged intersection, however a decrease in severe (“t-bone”) crashes is expected.

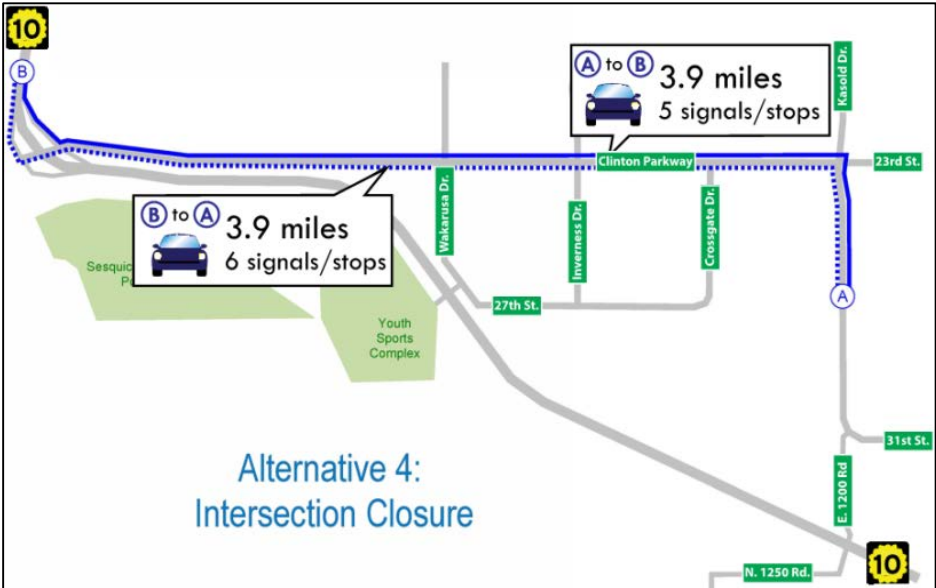
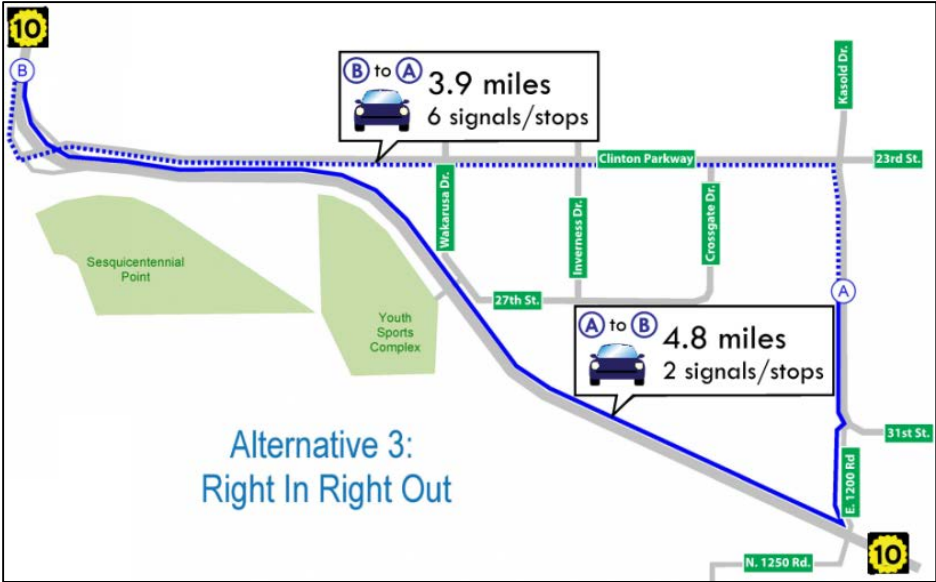
Access: How do the Alternatives compare?

Under current conditions, the four heaviest movements at the K-10 and E. 1200 Road intersection are:

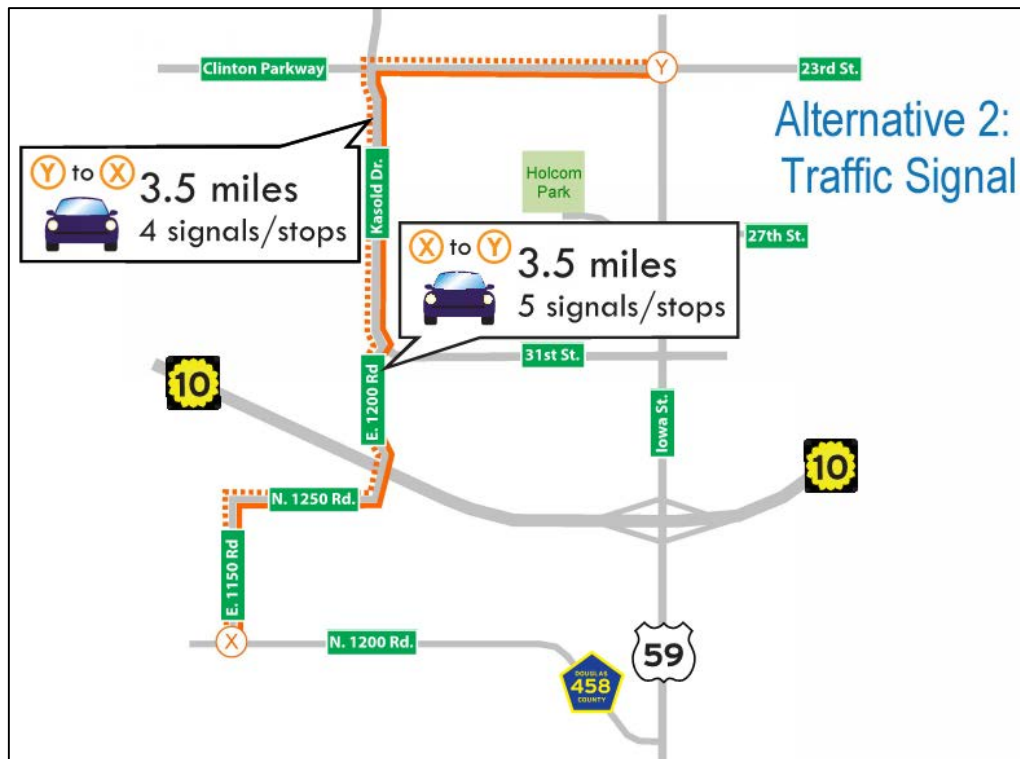
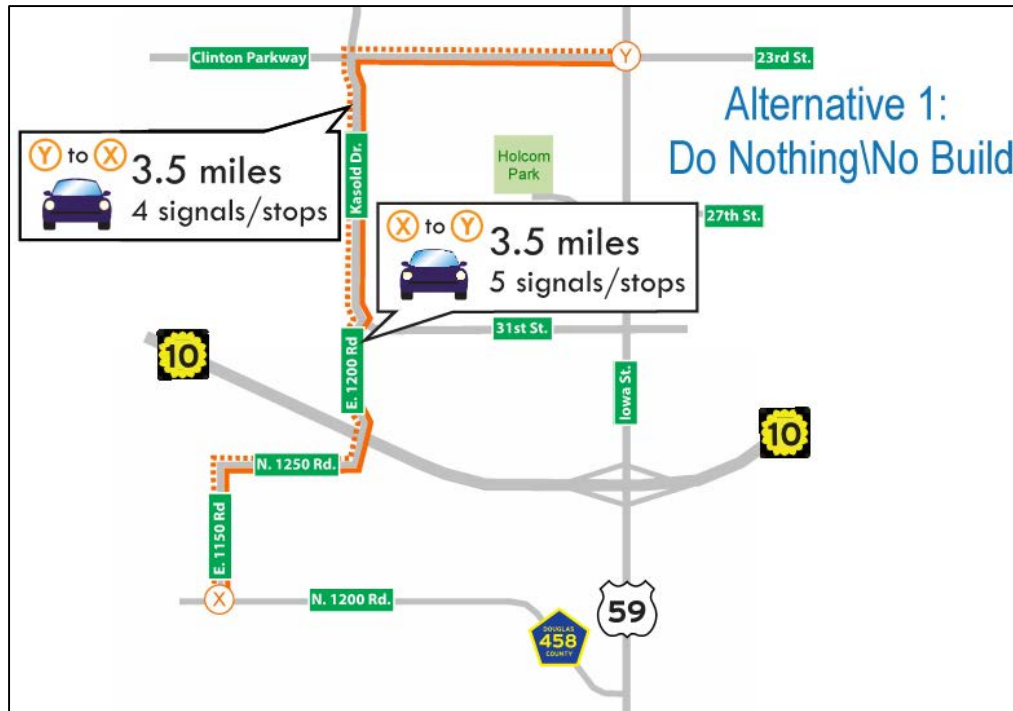
- Southbound to Westbound (right-hand turn from E. 1200 Road)
- Eastbound to Northbound (left-hand turn from K-10)
- Northbound (crossing K-10 on E. 1200 Road)
- Southbound (crossing K-10 on E. 1200 Road)

To compare how the different alternatives impact access for the majority of intersection users, two representative round-trips were evaluated for each intersection alternative. The round trip travel routes will change depending on the intersection alternative at K-10 and E. 1200 Road. Representative starting point A is located on Kasold Dr. one-half mile south of Clinton Parkway, and representative ending point B is located on K-10 north of the Clinton Parkway interchange.





Representative starting point X is located on County Road 458 at E. 1150 Road, and representative ending point Y is located at U.S. 59/Iowa Street and Clinton Parkway/23rd Street.





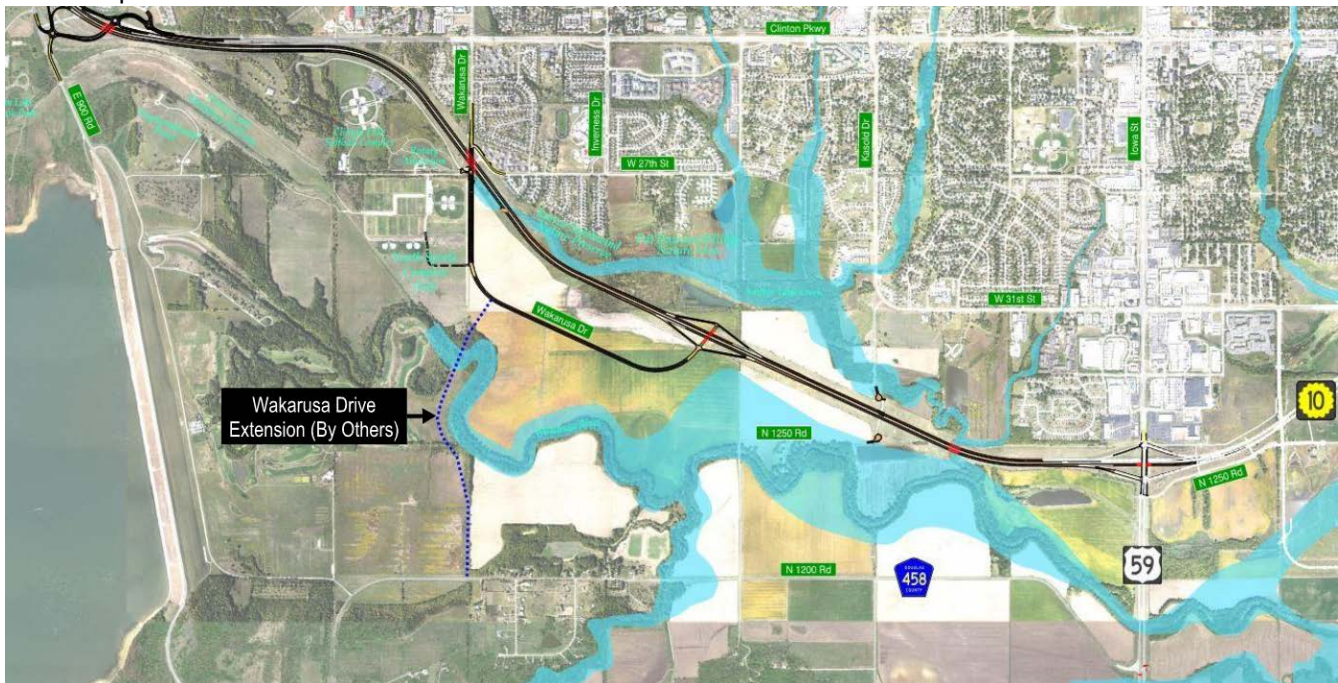
The City of Lawrence and Douglas County Municipal Planning Organization (MPO) travel demand model was used to determine the magnitude of traffic increase on E. 900 Road (“Dam Road”) if the intersection at K-10 and E. 1200 Road were closed. The MPO travel demand model takes existing land use data, planning and zoning data, existing infrastructure, and planned infrastructure into account to generate traffic patterns and traffic volumes. Periodic traffic counts help to validate the accuracy of the model. The traffic demand model shows that when the K-10 East Leg SLT is opened to traffic, 1250 vehicles per day would choose to use the portion of E. 1200 Road south of K-10. If the K-10 and E. 1200 Road intersection were closed, those 1250 vehicles per day would distribute to other routes as follows:

- 200 vehicles per day would re-route to E. 900 Road (“Dam Road”)
- 50 vehicles per day would re-route to E. 902 Road (“Lower Dam Road”)
- 1000 vehicles per day would re-route to County Road 458 and U.S. 59

If the K-10 and E. 1200 Road intersection remains open, E. 900 Road would see 1000 vehicles per day and E. 902 Road would see 700 vehicles per day according to the MPO model. With the E. 1200 Road intersection closed, E. 900 Road would see 1200 vehicles per day and E. 902 Road would see 750 vehicles per day. Combined, a 15% increase in traffic on those two roads sounds significant, but 250 additional vehicles per day is not a large volume of traffic. The additional 1000 vehicles per day at County Road 458 and U.S. 59 would have a significant impact on the stop controlled intersection. Therefore, a traffic signal is proposed with the closure option to provide acceptable operations at the intersection with the increased traffic volume on CR 458.

K-10 West Leg SLT Long-Term Access Plan: From Clinton Parkway to U.S. 59

The preferred alternative shown below provides access to K-10 at a new Clinton Parkway interchange, a new Wakarusa Drive interchange, and at the U.S. 59 interchange. Access between Lawrence and southwest Douglas County will be possible on U.S. 59 and Wakarusa Drive when a Wakarusa Drive Extension connects to County Road 458 as shown in the Lawrence/Douglas County MPO Long-Range Transportation Plan.



Other long-term access alternatives have been considered, including:

- Diamond interchange connecting 31st Street to E. 1150 Road
- E. 1200 Road overpass of K-10

- K-10 overpass of E. 1200 Road

The previously considered long-term access alternatives were not selected because:

- High cost of improvement
- Low predicted volumes along E. 1200 Road
- Close proximity to FEMA-regulated floodway
- Higher traffic volumes expected along Wakarusa Drive in the future

Public Involvement

Throughout the K-10 West Leg SLT concept study, a number of public involvement activities were undertaken to listen and understand the concerns of the public. Community interviews, online surveys, and public open houses provided opportunities for the general public to provide input, while Technical Advisory Group meetings and various public official presentations provided opportunities to hear from elected officials and community decision-makers. Based on public input from September 2014 through November 2015, KDOT listened to concerns about safety and traffic congestion along K-10. Comments were made both in support of closing the K-10 and E. 1200 Road intersection in the long-term, and in opposition to losing that access point. Neither point of view was overwhelmingly represented at any meeting or through any open comment process. The public involvement activities through 2015 are summarized as follows.

September-October 2014 Initial Community Interviews Conducted

Met with City and County Staff, EMS, Parks and Recreation, KU, Lawrence Chamber of Commerce, land developer, Federal Highway Administration. Overall, stakeholders are supportive of the project as they think the K-10 West Leg (SLT) needs to be improved to four-lanes and are glad it is being studied for future improvements. It is a priority for the community to get completed and most everyone noted they would like to see it done within the next 10 years, or sooner. A few stakeholders noted that E. 1200 Road could become an overpass or an underpass and that would be acceptable because access across K-10 was important at that location.

January 8, 2015 Technical Advisory Group (TAG) Meeting #1

Reviewed purpose of study and presented initial existing and future traffic information.

January 9, 2015 City of Lecompton Council Presentation

October 24-November 23, 2014 Online Survey #1

298
survey
respondents

Gathered input on the existing and future traffic needs of K-10 West Leg. 298 people responded to the survey. 91% of respondents think K-10 West Leg should be improved. Safety and increased traffic were the top concerns. 79% of respondents were supportive or very supportive of at-grade intersections being closed or converted to an overpass/underpass. A sample of respondent comments about the needed improvements are below:

- "No access to Kasold or somehow a safe exit. The mess at the stoplight at 27th/ Wakarusa needs addressing with a proper on/off ramp and a way for pedestrians and bicyclists to get over it safely. That thing is a travesty and whoever designed it should have to live with the knowledge that they are partially responsible for all of the people who have been killed there."
- "Please keep traffic lights to a minimum!"
- "Utilize grade separated interchanges. Do not use traffic lights or stop signs."
- "While I am not typically in favor of more roads or the suburbanization of Lawrence, those are just going to be facts of life here. So, I believe this project is of great importance to the Lawrence community as a whole and properly planned growth is imperative. I certainly hope we don't have another 30 year wait to do this section properly."
- "No at Grade intersections"
- "Restricted access (on/off ramps) at all existing intersection."
- "Non-controlled intersections such as N 1500 Rd and E 1200 (Kasold) will become VERY dangerous."

February 7, 2015 City of Lawrence Commission Presentation

March 9, 2015

Technical Advisory Group (TAG) Meeting #2

Reviewed and discussed all interchange concepts under consideration.

March 31, 2015

Public Information Open House #1

114
attended

The purpose of the meeting was to inform, answer questions and obtain feedback and to allow the public to learn more about the K-10 West Leg South Lawrence Traffic Way (SLT) Concept Study. Maintaining access at Clinton Parkway and access options near Inverness Drive (Wakarusa Access Interchange) received the most comments. 49 people left comments.

July 26-August 24 2015 Online Survey #2

358
survey
respondents

Survey 2 gathered information regarding thoughts and opinions related to the two corridor access alternatives being evaluated. 358 people responded to the survey. When asked about priority for interim interchanges or intersection improvements, K-10 and E. 1200 Road ranked last out of the options provided.

- *"Both alternatives show closing the Kasold Dr access ... I believe this would severely limit fast access that Law Enforcement and Emergency services could have to the new road. There are many residents who travel both East and West from the area of the 31st and Kasold "curve" who rely on this access ... improvement of Kasold to the South of 31st, to connect with K-10 should be considered for both a public safety and a convenience standpoint ..."*
- *"Kasold and 27th street are dangerous intersections. Kasold can be closed immediately with very little expense."*
- *"Kasold intersection to K-10 must be improved to allow access. Whatever needs to be done this is a vital intersection on one of Lawrence's busiest through streets."*
- *"I'll be sad to see the Kasold intersection go away. If the funding for the west upgrade is delayed, does that mean Kasold intersection stays open longer? It may be unusable/unsafe with the increase in traffic..."*
- *"Prefer access to and from Kasold."*

August 31, 2015

City of Lecompton Council Presentation

September 1, 2015

City of Lawrence Commission Presentation

October 14, 2015

Technical Advisory Group (TAG) Meeting #4

Provided overview of two preferred access alternatives.

October 29, 2015 Public Information Open House #2

112
attended

Presented the recommended corridor access alternative from the K-10 West Leg South Lawrence Trafficway (SLT) Concept Study and inform, obtain feedback and answer questions from the public. 32 people left comment forms. Here are all the comments received on the K-10 and E. 1200 Road intersection:

- *"Would really like to see a Kasold Drive under or overpass"*
- *"We have a commercial business at 1194 N 1250 Road that has had access severely restricted since the under/overpass has been eliminated at Kasold extended. As it stands, to access our nursery we and our customers will need to trace down 59 Hwy South to 458 then west to E 1150 Road North..."*
- *"I don't believe that the time costs of the alternatives to commuters have been taken into consideration and request that as many access points as possible be maintained – Kasold, Wakarusa, Clinton Parkway. By timing my commute multiple times, I know my commute to Topeka averages 3 minutes each way more if I use Iowa rather than 27th and Kasold. That is 25 hours a year that I will lose if/when Kasold entrance to the SLT is closed."*

On February 18, 2016, KDOT presented to the Municipal Planning Organization (MPO) plans to close the intersection at K-10 and E. 1200 Road in advance of the K-10 East Leg SLT opening in the fall of 2016. Several residents in the area provided comments in opposition to the intersection closure, and based on that concern, the MPO asked KDOT to revisit the decision of closing access at the intersection. At a March 23rd Douglas County Commission meeting and at a March 29th City of Lawrence Commission Meeting, KDOT was asked to provide more details of near-term alternatives considered at the K-10 and E. 1200 Road intersection. A number of public concerns over the closure were vocalized at both Commission meetings, including:

- The impact to local roads due to re-routed traffic, most notably E. 900 Road (“Dam Road”) and the U.S. 59 and CR 458 intersection
- Emergency Service (EMS) response times to SW Douglas County
- School Bus routes that use the intersection
- Perceived impacts to a business with access off N. 1250 Rd. due to loss of nearby access to K-10

To address or better understand public concerns, KDOT undertook the following:

- On April 5, 2016 KDOT met with the US Army Corps of Engineers (USACE) to discuss the predicted traffic shifts that may be experienced if the K-10 and E. 1200 Road intersection were closed based on the City/County travel demand model. The USACE maintains E. 900 Road (“Dam Road”).
- On April 20, 2016 KDOT met with First Student, Douglas County Sheriff, and City and County EMS representatives to discuss their needs for accessibility with each of the alternatives
- On May 17, 2016 KDOT met with property owner Frank Male to discuss his concerns as a business owner regarding accessibility with each of the near-term alternatives.

On May 18, 2016 KDOT presented the near-term alternatives to the City and County commissions at a working session as a preview to information that would be shown at the June 1, 2016 Public Open House. On June 1, 2016, KDOT hosted a Public Open House to share information regarding the four near-term alternatives for the K-10 and E. 1200 Road intersection, obtain feedback, and answer questions. Available information included traffic operations, safety, travel convenience (access), cost, and schedule for the alternatives. A survey was available for meeting participants and an online survey was available for those unable to attend.

Public Open House Comment Summary

Nearly 90 people signed in for the June 1, 2016 Public Open House. Over 60 comments were left at the meeting, and an online survey and comment form has generated over 130 additional comments almost one week later. While the survey is a non-scientific survey and a person could have filled out a written survey at the Open House as well as filled out an online survey, it does provide an opportunity to gather valuable input from the public. The results of the survey indicate a majority of respondents prefer maintaining access at the K-10 and E. 1200 Road intersection, with approximately half preferring the traffic signal alternative. It should be noted that of the Open House attendees and survey respondents, most, if not nearly all, are likely to be current users of the K-10 and E. 1200 Road intersection. It is somewhat surprising that about 22% (one in five) of the survey respondents *prefer* closing the intersection in the near-term. About 32% (roughly one in three) of the survey respondents could support providing partial access through construction of a right in, right out intersection in the near-term. An almost equal split between safety and access/convenience is selected as the reason for respondents’ preferred near-term solution, with safety only slightly higher.

It is apparent that no single near-term alternative will satisfy everyone. The tone of comments indicate that a large number of respondents favoring alternatives that provide access at the intersection will be upset with a decision to close the K-10 and E. 1200 Road intersection. While there are fewer comments

in support of closure, it is clear those respondents would be upset with keeping full access at the intersection. A few sample comments are listed below:

- Regarding Alternative 1: Do Nothing
 - “With increased traffic it will be hard to get on and off the road safely”
 - “I cross this intersection regularly on my bicycle and it is very difficult/dangerous”
 - “The intersection works as is. It already has merge lanes to get up to speed for vehicles entering the SLT. It also provides access for vehicles to get south of town without having to go over to Iowa.”
 - “There will be far too much K-10 traffic after the finished Eastern SLT.”
 - “There will be too much traffic. People already cut across thru traffic which is dangerous”
- Regarding Alternative 2: Traffic Signal
 - “This will provide for the safety needed while preserving the access to the SW Douglas county area. There are already traffic lights on this segment of the SLT so the additional light should not cause a significant increase accidents. The light could be timed to handle the additional traffic on K10 during rush hour. This is a more cost effective solution for the short term.”
 - “Full access is preferred. But only as a temporary measure until the Wakarusa extension is constructed. A signal would hopefully result in less severe crash types than doing nothing.”
 - “It is already unfortunate that there is a stop light on K10 at Wakarusa, which defeats the purpose (somewhat) of the bypass around Lawrence in the first place.”
 - “It is ridiculous to slow/stop 65mph traffic – it is not safe. That also applies to K-10 and Wakarusa.”
 - “Improves safety at intersection and keeps increased traffic off Iowa”
- Regarding Alternative 3: Right In Right Out
 - “Too expensive for what we get out of it, safety-wise. Not enough bang for the buck...plus the deconstruction costs. This is my least-preferred option.”
 - “This is only a temporary solution and really isn’t worth leaving open since it doesn’t allow through traffic from 1200 to 1250 Rd. There would still be motorists that try to do prohibited traffic movements.”
 - “Most people use this intersection to cross, so I think many would be inconvenienced but it would give access to the bypass without having to force people onto 59. It’s not ideal for many, but an ok alternative.”
 - “While weird and confusing, this seems like the least of all evils.”
 - “This will be good and won’t mess with traffic flow.”
- Regarding Alternative 4: Intersection Closure
 - “This will add 4 traffic lights and a roundabout to my commute; this is the worst alternative for me to get to North Topeka every work day. I live right on...”
 - “This provides the safest option and long term there will not be access at this point any way.”
 - “I need the ability to cross k10 at the e. 1200 Rd. intersection.”
 - “1. Impacts county/urban planning and growth negatively. 2. Delays emergency response times. 3. Reduced access to K10 for commuters.”
 - “Safest solution. One additional death from the other options is not worth the total accumulated minutes of every single delay this solution adds to every single driver of this highway for as long as this highway remains 2 lanes.”

Recommended Alternative

The Kansas Department of Transportation (KDOT) is dedicated to being responsible and responsive to the travelling public in the State of Kansas. As a result, KDOT evaluated the operations (traffic flow), access, and safety for each of the near-term intersection alternatives and engaged the public to listen to their concerns. Operations are not significantly impacted with any of the near-term alternatives considered, and the impact of various traffic shifts with any of the alternatives are anticipated to be minimal. Safety and public desire for access are the largest differentiators between the alternatives. To be responsible and responsive, KDOT must strike a balance between many factors which include safety and public sentiment. Alternative 1: Do Nothing/No Build, has the second highest predicted crash rate of the alternatives, with the highest percentage of those crashes expected to be severe t-bone crashes. Even though it provides full access, which is a predominant factor seen in public comments, it does not address the predicted increase in total crashes and severe t-bone crashes, making it the least preferred alternative.

Alternative 4: Closure of K-10 and E. 1200 Road with a traffic signal at CR 458 and U.S. 59 has the lowest predicted crash rate of the alternatives when considering the predicted total crashes for the K-10/27th St., K-10/E. 1200 Rd. and CR 458/U.S. 59 intersections combined. However, Alternative 4 requires the greatest shift in traffic to other routes among the alternatives.

Considering Alternative 2: Traffic Signal at K-10 and E. 1200 Road or Alternative 3: Right In Right Out, both alternatives will reduce the number of predicted severe t-bone crashes over doing nothing, and both still provide access at the intersection. When looking at the predicted total crashes for the K-10/27th Street, K-10/E. 1200 Road, and CR 458/U.S. 59 intersections combined, a 78% increase in total crashes is expected due to opening the K-10 East Leg SLT if no alternative is implemented. Alternative 2 is predicted to increase those total crashes an additional 18%, while Alternative 3 is predicted to decrease those crashes by 15%. Alternative 3 eliminates intersection conflict points that result in severe t-bone crashes; Alternative 2 does not reduce any intersection conflict points. As traffic volumes increase in the future on K-10, the predicted number of total crashes will continue to increase.

Feedback from the engaged public regarding near-term alternatives at K-10 and E. 1200 Road indicates a desire to maintain access at the intersection. While public feedback indicated both support and opposition for each alternative, the top preferred alternative is for Alternative 2: Traffic Signal. Convenience of access into Lawrence and the perception that installation of a traffic signal reduces overall crashes, which is not supported by engineering analysis, were reasons commonly cited by public comments in support of Alternative 2. Partially accommodating access at the intersection and avoiding the addition of a traffic signal along K-10 were the reasons commonly cited by public comments in support of Alternative 3.

Alternative 3: Right In Right Out reduces the predicted number of total crashes and t-bone crashes compared to doing nothing which addresses safety, it provides partial access at the current location which addresses public desire for access, and it will not significantly impact traffic flow on K-10 or at nearby intersections making this KDOT's recommended alternative. Due to the desire to implement an alternative concurrently with the K-10 East Leg SLT opening, a lower cost Right In Right Out which does not involve pavement widening or reconstruction of any part of E. 1200 Road will be implemented. This low cost Right In Right Out is estimated to cost less than \$70,000. A layout is depicted on the following page. Pavement marking and reflective delineators would be used to channelize traffic, preventing left turns and through movements, while providing right-turn acceleration and deceleration lanes. This near-term alternative will be removed when K-10 becomes a 4-lane freeway. After implementation of the selected alternative, KDOT will collect data and evaluate the intersection per current statewide practice.



Next Steps

- Present to Lawrence City Commission on June 21st
- Present to Douglas County Commission on June 22nd
- Finalized selection of a near-term improvement alternative in late June 2016
 - With City and County commission consensus on the results of the engineering analysis, public engagement, and recommendation, KDOT will move forward with a low-cost Right In Right Out near-term improvement.
- Hold a construction letting for the selected near-term improvement project in September 2016

Attachment

- June 1, 2016 Open House handout

Public Engagement

- **September – October 2014:** Initial Community interviews
- **October 24 – November 23, 2014:** Online Survey #1
- **January 8, 2015:** Technical Advisory Group (TAG) Meeting #1
- **January 9, 2015:** City of Lecompton Council Meeting Presentation
- **February 7, 2015:** City of Lawrence Commission Presentation
- **March 9, 2015:** TAG Meeting #2
- **March 31, 2015:** Public Information Open House #1
- **May 27, 2015:** City of Lawrence Commission Presentation
- **June 3, 2015:** TAG Meeting #3
- **June 18, 2015:** Lawrence/Douglas County Municipal Planning Organization (MPO) Presentation
- **July 2015:** Factsheet #2 Available
- **July 26 – August 24, 2015:** Online Survey #2
- **August 31, 2015:** City of Lecompton Council Meeting Presentation
- **September 1, 2015:** City of Lawrence Commission Presentation
- **October 14, 2015:** TAG Meeting #4
- **October 29, 2015:** Public Information Open House #2
- **February 18, 2016:** Lawrence/Douglas County MPO Presentation
- **March 3, 2016:** Public Meeting
- **March 23, 2016:** Douglas County Commission Meeting
- **March 29, 2016:** City of Lawrence Commission Presentation
- **May 18, 2016:** City of Lawrence and Douglas County Working Session
- ★ **June 1, 2016:** Public Open House on Near-Term Alternatives



Next Steps

- Final Report to City of Lawrence and Douglas County including public comment summary from June 1st Open House and KDOT recommendation
- City of Lawrence Commission Presentation: June 21st
- Douglas County Commission Presentation: June 22nd
- Near-term Improvement Alternative Selection: Late June 2016
- Construction Letting for Near-Term Project Improvement: September 2016

For more information:

Project No. 10-23 KA-3634-04

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K-10 West Leg

South Lawrence Trafficway

June 2016



The Kansas Department of Transportation developed the K-10 West Leg SLT Concept Study with recommended improvements for K-10 from U.S. 59 to I-70 based on existing and future traffic, safety, and operational needs. The recommended improvements include upgrading K-10 to a four-lane access controlled freeway.

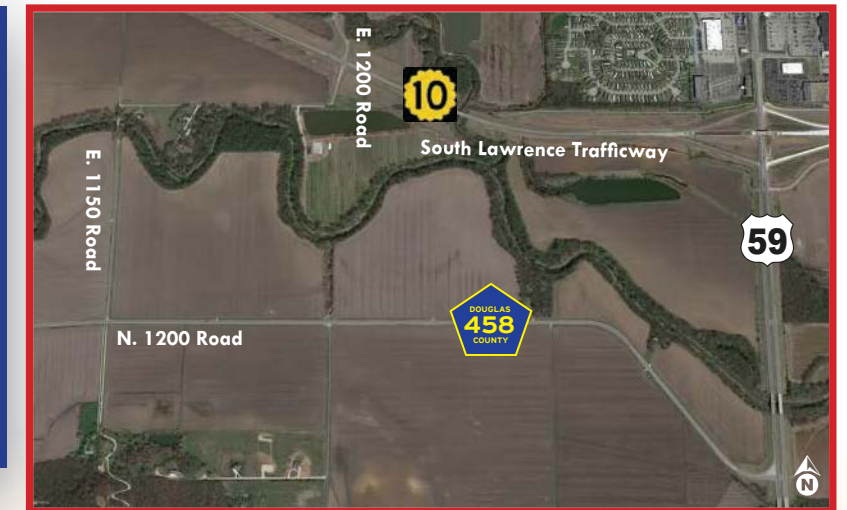
Once the K-10 East Leg SLT opens, there is concern about safety and access at the K-10 and E. 1200 Road intersection until the four-lane freeway is constructed. KDOT developed four near-term alternatives for that location. The near-term alternatives include:

Alternative 1: Do Nothing/No Build

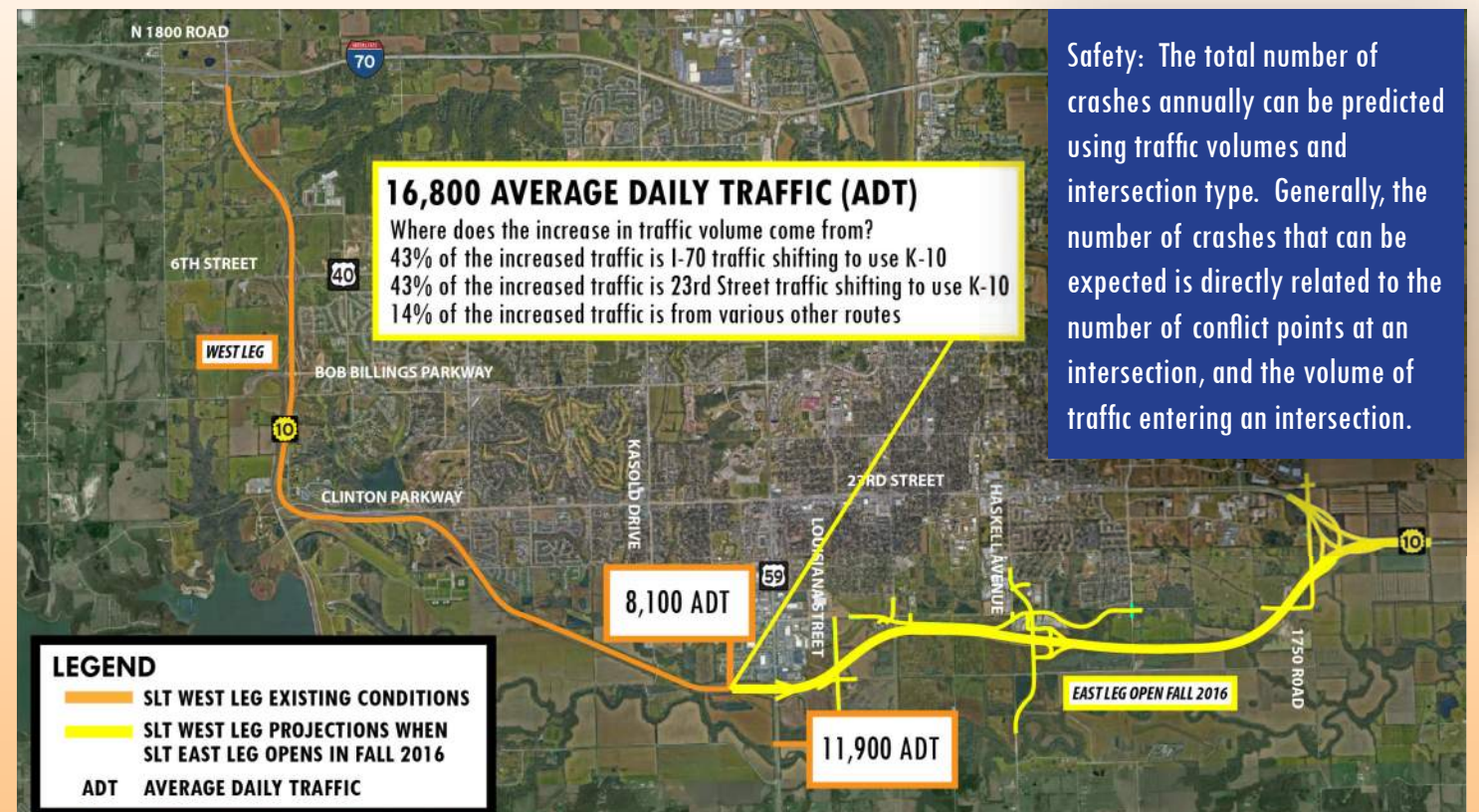
Alternative 2: Traffic Signal at K-10 and E. 1200 Road Intersection

Alternative 3: Right In Right Out at K-10 and E. 1200 Road Intersection

Alternative 4: Closure of K-10 and E. 1200 Road Intersection with a new traffic signal at CR 458 and U.S. 59



When the K-10 East Leg opens in the fall of 2016, an increase in traffic is estimated as regional traffic traveling between I-70 and Johnson County will have a choice to use K-10 instead of I-70 or 23rd Street.



Safety: The total number of crashes annually can be predicted using traffic volumes and intersection type. Generally, the number of crashes that can be expected is directly related to the number of conflict points at an intersection, and the volume of traffic entering an intersection.

Near-Term Alternatives

KDOT developed four near-term alternatives for the K-10 and E. 1200 Road intersection. Near-term alternatives are solutions to help maintain safety and traffic flow when K-10 East Leg SLT opens to traffic in the fall of 2016 and prior to construction of a four-lane access controlled freeway.



<p>Alternative 1: Do Nothing/No Build</p> <ul style="list-style-type: none"> Predicted increase in total crashes, especially T-bone crashes due to traffic volume increase on K-10 Risky driver behavior possible due to longer wait times for gaps in K-10 traffic Maintains access at existing location EMS response times maintained/unaffected Increase in wait time for all movements from side roads due to estimated traffic volume increase on K-10 Could accommodate bike connectivity by routing a shared use path under existing Yankee Tank Creek bridge as a local partner project
<p>Schedule for implementation: Implemented</p>
<p>COST: NO COST</p>



<p>Alternative 2: Traffic Signal at E. 1200 Road and K-10 Intersection</p> <ul style="list-style-type: none"> Predicted increase in total crashes per year on K-10 at E. 1200 Road with predicted decrease in T-bone crashes. No change in crashes per year at CR 458 and U.S. 59 intersection Maintains access at existing location EMS response times maintained/unaffected Increase in wait time due to installation of traffic signal Introduces queuing and a potential stop for K-10 through traffic near exiting and entering traffic from U.S. 59 ramps Additional expense to remove signal when the four-lane freeway is constructed Bike connectivity accommodated with signal installation
<p>Schedule for implementation: Construction concurrent with opening of K-10 East Leg SLT</p>
<p>COST: \$70,000 (span wire) or \$170,000 (poles and mast arms)</p>



The Near-term Alternative 3 with bridge widening



The Near-term Alternative 3 with no bridge widening

<p>Alternative 3: Right In Right Out</p> <ul style="list-style-type: none"> Slight predicted increase in crashes per year at CR 458 and U.S. 59 intersection due to some traffic shifting to that intersection. Reduces total crashes per year and eliminates T-bone crashes Provides partial access to K-10. No left turns or through movements from E. 1200 Road. No left turns from K-10 Potential increase in EMS response time No wait time increase for E. 1200 Road traffic Three of the four heaviest existing traffic turning movements cannot be accommodated with this intersection type and will shift to other routes Shifted traffic will have minimal operations impact to other nearby intersections Additional expense to remove Right In Right Out when the four-lane freeway is constructed Could accommodate bike connectivity by routing a shared use path under existing Yankee Tank Creek bridge as a local partner project
<p>Schedule for implementation: Construction not concurrent with opening of K-10 East Leg SLT</p>
<p>COST: \$1.2 Million* to \$1.5 Million* *(Lower cost options were analyzed, but would not meet a 65 mph design. The lower cost/lower speed options were eliminated as the decision has been made by KDOT to not reduce the speed limit on K-10.)</p>



<p>Alternative 4: Intersection Closure and Traffic Signal Addition at CR 458 and U.S. 59 Intersection</p> <ul style="list-style-type: none"> Slight predicted increase in total crashes per year at CR 458 and U.S. 59 with installation of traffic signal on U.S. 59. Crashes at E. 1200 Road and K-10 intersection will drop to zero with closure Eliminates driver decision point on K-10 Moves access to K-10 via CR 458 and U.S. 59. K-10 through traffic unaffected Addition of emergency access gate on south side of K-10 addresses EMS response time Increase in wait time for all U.S. 59 movements at CR 458 and U.S. 59 intersection due to installation of traffic signal Introduces queuing and a potential stop for U.S. 59 through traffic No additional expense when the four-lane freeway is constructed Could accommodate bike connectivity by routing a shared use path under existing Yankee Tank Creek bridge as a local partner project
<p>Schedule for implementation: Construction concurrent with opening of K-10 East Leg SLT</p>
<p>Cost: \$270,000</p>