

The Research Gateway

K-10 Highway & Bob Billings Parkway Interchange Lawrence, Kansas

2011 TIGER Grant Application







Project Type: Multi-modal Roadway, Bicycle, Pedestrian

Project Area: Rural

Location: Kansas, Douglas County

Total Project Cost: \$21,025,000

Requested Amount: \$5,256,250

Lead Applicant: Kansas Dept. of Transportation

Second Applicant: City of Lawrence, Kansas

Third Applicant: Douglas County, Kansas

Joint Application for 2011 TIGER Discretionary Grants – National Infrastructure Investments

Project Name:	The Research Gateway
Project Type:	Multi-modal: roadway, bicycle, pedestrian
Project Location:	Kansas, Douglas County, City of Lawrence, Kansas 2 nd Congressional District
Lead Applicant:	State of Kansas, Department of Transportation DUNS #: 126298996 CCR #: KDOT is a registered CCR member Employer Taxpayer #: 48-1124839 TIGER ID: chrish32011

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Why Lawrence?

Lawrence is a diverse and multifaceted city that provides many of the amenities of a large metropolitan area, while still maintaining a strong sense of community. Located in Northeast Kansas, Lawrence is just 45 minutes west of Kansas City, and 30 minutes east of Topeka, the state capital. Lawrence offers a rich and fascinating history, a wide range of exciting cultural experiences, nationally recognized educational institutions, and some of the most unique and enjoyable shopping opportunities in the Midwest.



From Ashes to Immortality

Since its founding in 1854, Lawrence secured its place in history. Abolitionists from New England rushed to the Kansas Territory to keep the territory from becoming pro-slavery. Lawrence was also an important stop on the Underground Railroad, assisting escaped slaves reach freedom safely.

In 1863, Lawrence's residents experienced a horrific sacking and burning of the town; Lawrence was left to rebuild its community from ashes and heartbreak. Resilient and not-deterred, the community rebuilt, grew and was soon named the home of Kansas' first state university – The University of Kansas.

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Focused on Education

Lawrence is home to two universities: The University of Kansas and Haskell Indian Nations University.



Numerous associations and media outlets rank Lawrence as a top 'college town' based on the community's commitment to its educational facilities and the extensive opportunities for activities off-campus.

Culture, Art & Entertainment

Lawrence possesses all of the aspects of a friendly, active and culturally diverse community. Lawrence is unique in the fact that residents have access to national touring acts, world-class political and educational speakers, and world-renowned artists who frequent the University of Kansas campus. In 2010, Lawrence's Massachusetts Street, 'Mass. Street' to locals, was named a "Top 10 Great Place" by the American Planning Association.

Now and into the Future

Today, Lawrence boasts a population of 90,000 residents. Our residents consistently provide high marks to the city when addressing city services, quality of life and overall satisfaction with the community's amenities.

Executive Summary

Founded in 1854, through the twists and turns of time, Lawrence has secured her place in history as a unique and eclectic place to live, learn, work and pursue dreams while enjoying a rich and diverse cultural experience. As the home of the University of Kansas (KU), one of the premier research institutions in the nation, Lawrence is proud of its vibrant and growing research facilities and human capital. The proposed Research Gateway is a vital transportation link for our community in order to continue our edge in education, research and technology and thereby, to ensure economic prosperity and livability of our people.

Stakeholder Collaboration and Community Support

The Research Gateway project is the result of a long and comprehensive planning effort by our local community. The implementation of this project is being undertaken through an innovative collaboration among three governmental entities: the Kansas Department of Transportation, the City of Lawrence and Douglas County. The University of Kansas has also joined in this effort to make this project a reality. As demonstrated in the letters of support, the Lawrence community has spoken in an unequivocal and unified voice in support of this project. The areas west of K-10 highway are prime locations for residential, commercial and industrial development. The proposed interchange is regarded as the most critical infrastructure to accommodate westward growth and development in Lawrence/Douglas County. This interchange is considered the Future Gateway to and from the research and technology corridor along Bob Billings Parkway and the University of Kansas.

Long Term Economic Impact - Job Creation

The long term economic benefits of this project are highly impressive with a benefit-cost ratio of 2.69. Based on our analysis and conservative estimates, in the medium term (10 to 15 years), this project will create 45,000 new jobs locally as a direct result and 80,000 new jobs regionally as an indirect result. In the long term (15+ years), the total direct jobs are expected to reach 57,000 while the total indirect and regional jobs figure would exceed 100,000.

Energy Efficiency and Reduction in Greenhouse Gas Emission

This project would substantially contribute to improved energy efficiency and reduced greenhouse gas emissions through reduction in traffic congestion and travel time. It is estimated that in the near term, 150,000 VMT (Vehicle Miles Traveled) or 60,000 VHT (Vehicle Hour Traveled) per year will be achieved as a direct result of this project. In the long term (25 years), the estimated reduction is 450,000 VMT and 180,000 VHT per year. The VMT/VHT savings corresponds to an estimated fuel savings of 35,000 gallons (\$105,000 @ \$3.00/gallon) per year in the near term and 105,000 gallons (\$315,000) per year in the long term.

Focused on Research

- In 2009, the National Science Foundation survey of federally funded science and engineering research expenditures ranked KU 81st overall and 44th in the country among comparable, national, public, research universities.
- In 2010, KU's externally funded sponsored project expenditures for science and engineering research, training, service and other research exceeded \$224.6 million, a new record.
- KU researchers, at all campuses, received 153 ARRA awards in the total amount of \$71.5 million.
- The School of Pharmacy ranks fourth nationally in the amount of research funding it receives annually from NIH. In 2010, the school opened a new, \$45 million teaching and practice building in Lawrence, adjacent to the West Campus Research Circle facilities.



Executive Summary

It is estimated that this project would contribute to reduction in greenhouse gas (CO_2 , CO and NOx) emission of over 350 tons per year in the near term. In the long term, reduction would exceed 1,000 tons per year. [See Appendix I for details]

Safety

By eliminating the existing at-grade intersection, this project would dramatically improve traffic flow and safety along this busy and high speed transportation corridor. Safe movements of pedestrians and bicyclists in the east-west direction across K-10 highway would become a reality with the completion of this project. This project would greatly improve east-west connectivity in Lawrence. By attracting a lot of the KU traffic, this project would also help reduce congestion and improve traffic flow and safety at the existing interchange at K-10 highway and US 40/West 6th Street, located about 1 mile north of this project.

Sustainability

The sustainability of this infrastructure has been well thought out. The future maintenance of the interchange will be included in the comprehensive pavement and asset management program of KDOT, one of the top ranking agencies in the nation for infrastructure management. By reducing demand and load on the existing transportation network, this project will contribute to better upkeep and longer life span of our existing infrastructure.

Economic Competitiveness

By providing safe and direct access to research and technology clusters, reducing congestion and travel time, reducing fuel usage and green house gas emissions, this project will make significant contribution to the long term economic competiveness of the region. The future medical discoveries at KU research facilities will have a significant impact on the health and well-being of the nation.

Project Readiness

Engineering Design, Property Acquisition and Environmental review are well underway. This project will be ready for construction in late 2013, and can be completed by the end of 2014 if funded by TIGER.

Project Cost and TIGER Funds Request

The total estimated cost of this project is \$21,025,000, 75% of which will be funded by state and local agencies. We are requesting TIGER grant for \$5,256,250 or 25% of the total project cost. The requested TIGER funds will make up for the shortfall in the available local funding and will accelerate this project resulting in faster economic growth and development in the region. There are no other sources of federal funding for this project. **The requested TIGER grant will not be used to supplant state or local funding already programmed for this project.**

The Research Gateway

Quick Facts

Multi-modal – bike lanes, sidewalks and connection to existing shared-used paths

 A critical infrastructure to promote and accommodate economic growth

Broad-based community support

Future western Gateway to the University of Kansas (KU)

> Would improve traffic flow and safety tremendously

Benefit/Cost Ratio: 2.69

> Improved Energy Efficiency and long term economic competitiveness

Reduction in VMT/VHT per year: 150,000/60,000 (near term) Fuel savings: 35,000 gallons, dollar value: \$105,000

Reduction in VMT/VHT per year: 450,000/180,000 (long term) Fuel savings: 105,000 gallons, dollar value: \$315,000

 Reduction in greenhouse gas emissions: 350 tons/year (near term)

 Reduction in greenhouse gas emissions: over 1,000 tons/year (long term)

 Economic Impact/Job Creation (medium term, 10 to 15 years):
 45,000 new jobs (direct), 80,000 new jobs (indirect)

Economic Impact/Job Creation (long term, 15+ years): 57,000 new jobs (direct), over 100,000 new jobs (indirect)

- Total Project Cost: \$21.02 million
- State Funds: \$15.57 million
- Local Funds: \$200,000
- ► TIGER request: \$5.25 million

> No other federal funding available for this project

> Will be ready for construction in late 2013 and completion by 2014

General Description

The Research Gateway project consists of a diamond interchange at K-10 Highway and Bob Billings Parkway (BBP) in Lawrence, Kansas. This project will eliminate the current at-grade intersection by constructing a bridge over K-10, extending Bob Billings Parkway to this bridge, and re-aligning County Road N 1500.



When completed, BBP and County Road N 1500 will be connected via the bridge over K-10. As a result, east-west traffic on BBP and N 1500 will move safely without having to negotiate the high speed traffic on K-10. There will be on/off ramps enabling safe movement and transition of traffic in all four directions.

The project would also include multi-modal features, including bike lanes and sidewalks with decorative LED lighting. Existing bike lanes and sidewalks on Bob Billings Parkway will be extended to and across this interchange and to the west side of K-10 for future extension and continuation. Lawrence/Douglas County Metropolitan Planning Organization is currently conducting a feasibility study of future transit services to the areas west of K-10. Without the proposed interchange at K-10 Highway and Bob Billings Parkway, the full potential of the transit services for the areas west of K-10 cannot be achieved.









The Objective

This project will fulfill a long-overdue infrastructure need in West Lawrence. Equipped with the essential utilities (such as water, sewer, gas) already in the ground, the areas west of K-10 Highway are prime locations for residential, commercial and industrial development. In the "West of K-10 Future Area Plan," approved by both the City and County Commissions, this interchange was identified as a critical infrastructure in order to accommodate westward growth and economic development in Lawrence/Douglas County. The projected growth and development will add new jobs to the region's economy in the long term. In the short term, this project will create a good number of high-paying construction jobs.

In 1997, a portion of Bob Billings Parkway, just east of K-10, was built as a four-lane facility (consistent with the BBP cross section as had existed for some time) on the premise that BBP would continue to function as a city arterial road to move traffic safely and efficiently in the east-west direction and would someday connect with K-10/South Lawrence Traffic Way. This project would fulfill that promise. In the city's 2011 citizen survey, 70% of our residents have expressed concerns about traffic congestion and lack of east-west connectivity in Lawrence. The proposed interchange is a vital transportation link for our community to reduce congestion and improve connectivity. This project is also considered as the Future Gateway to KU as this will provide direct western access to KU from Highway K-10.

Consequences of Inaction

Due to high speed on K-10 Highway, safety is of prime concern at the existing at-grade intersection of K-10 and Bob Billings Parkway. This intersection cannot safely accommodate future traffic in this corridor. Without the proposed diamond interchange, the growth potential of the area west of K-10 will remain unrealized.

Transportation financing is challenging in today's economy. Funding uncertainty at the federal, state and local level have limited the number of projects that can be implemented to preserve and improve our Nation's transportation system. Despite the uncertain economy, the Kansas Legislature passed Transportation Works for Kansas (T-WORKS), an \$8 billion 10year transportation program in May 2010. T-WORKS is designed to create jobs, preserve highway infrastructure and provide multimodal economic development opportunities across the state. Over 50% of the program is dedicated to system preservation

Grant Funds/Sources and Uses of Project Funds*

Total Project Cost (2014 \$)	\$21.02 million
Tiger Grant Request (25%)	\$5.25 million
KDOT Project Contribution	\$15.57 million
City of Lawrence, KS Contribution	\$100,000
Douglas County, KS Contribution	\$100,000
Total State & Local Match (75%)	\$15.77 million

*See Appendix E for Detailed Project Cost Estimates

Source of KDOT Funding Match: 20% State Funds, 80% Advanced Construction Funds (funds owed to KDOT by Federal government for projects already completed)

Source of City of Lawrence Funding Match: City's Capital Improvement Program (CIP) funds

Source of Douglas County Funding Match: County's Capital Improvement Program (CIP) funds

which constrains the investment in modernization and expansion projects around the state.

The proposed interchange at K-10 and Bob Billings Parkway in Lawrence has been included in the T-WORKS program. However, the funding is not programmed until 2016, and moreover, funding is contingent on tolling of portion of K-10 Highway. KDOT is currently performing a study to determine if tolling would be a feasible and acceptable method to partially fund this project. Without tolling, KDOT does not have a full financial package for the Research Gateway project. The requested TIGER grant will not be used to supplant state or local funding already programmed for this project; the grant will simply make up the shortfall in the current funding level for this project and would enable KDOT to proceed with this project relatively quickly and begin construction in late 2013. With an accelerated project schedule, economic growth and development in Lawrence/Douglas County will occur sooner, creating new jobs and excitement in the region's economy.

Without the TIGER grant, the multi-modal features (e.g. bike lanes, sidewalks across the interchange with decorative lighting) might be eliminated from the project. The city and the county have already allocated \$100,000 each for the construction of this project. In this tough economy, it does not appear that either the city or the county would be able to increase their contribution to avoid elimination of the multi-modal features.

Lawrence is one of the only two cities in Kansas with Bronze status (a designation conferred by the American League of Bicyclists) as a Bicycle Friendly Community. Promoting multimodal transportation is one of the stated goals of the City of Lawrence and Douglas County. The letters of support from various civic and community organizations clearly demonstrate the importance and value of bike lanes and sidewalks to the people of this community. With that understanding, KDOT, the city and the county will not proceed with this project until additional funding can be programmed to pay for the multi-modal features of this project. Research into other sources of Federal assistance has not identified programs that would support transportation improvements as the interchange project in Lawrence.



The Research Gateway:

- TIGER funding will provide multi-modal features that are important to the local community
- Lawrence has been a bronze level bike-friendly community since 2004
- The local community values bike lanes and multi-modal transportation
- Creation of hiking, biking trails and paths was listed as the top priority in the 2011 Lawrence Citizens' Survey
- Lawrence City Commission is currently reviewing a Total Street Policy for adoption.

Project Team

This project is a joint venture among three governmental entities: Kansas Department of Transportation, the City of Lawrence, Kansas and Douglas County, Kansas. KDOT will be the lead agency/applicant, the city and the county will function as the second and the third applicant respectively. The University of Kansas is a very important stakeholder in this project (see letter of support from Chancellor Bernadette Gray-Little in Appendix C) as this interchange is considered the Future Gateway to Kansas University.



This project is being designed by KDOT engineers with active participation by engineers at the City of Lawrence and Douglas County. These three agencies have successfully collaborated and completed many projects in the Lawrence/Douglas County region.

As the lead agency, KDOT will be responsible for administration of the grant funds in compliance with all applicable local, state and federal laws and regulations. Issues related to public opinion and interests will be closely coordinated among the city, county and KDOT.

The Research Gateway:

Governmental and private support already achieved

- Gov. Sam Brownback
- U.S. Senator Pat Roberts
- ➢ U.S. Senator Jerry Moran
- Congresswoman Lynn Jenkins
- Congressman Kevin Yoder
- Kansas University Chancellor Bernadette Gray-Little
- Kansas Secretary of Transportation Deb Miller

Numerous members of the Kansas Legislature that represent Douglas County and Lawrence have submitted letters of support for the Research Gateway Project.

See Appendix C for local community and civic organizations letters of support.

Long-Term Outcomes

State of Good Repair

This project would not directly involve any repair, upgrade or maintenance work of any of the existing transportation facilities. It would, however, redistribute the heavy truck traffic on the arterial streets in Lawrence. Bob Billings Parkway, West 6th Street and Iowa Street are all city arterial streets and their pavement sections are designed to support truck traffic. However, due to not being connected to the state highway system, Bob Billings Parkway currently carries very little truck traffic; hence the design capabilities of its pavement structure is being underutilized. With this project completed, Bob Billings Parkway would be accessible to trucks via K-10 - as a result, a portion of the truck traffic on West 6^{th} Street/US 40 and Iowa Street/US 59 will be diverted to Bob Billings Parkway via the proposed interchange. Consequently, the life of pavement structure on West 6th and Iowa streets will likely be extended while pavement on Bob Billings Parkway would carry the intended/design truck traffic.

The existing road section of Bob Billings Parkway (BBP currently dead-ends approximately 1,000 feet east of the K-10 Highway) provides bike lanes and sidewalks. As part of the proposed interchange construction, these bike lanes and sidewalks will be extended westward over K-10 and to the west side of K-10 connecting to the County Road N 1500. These multi modal features of this project would decrease the burden on the roadway network.

With the anticipated construction of the east leg of the South Lawrence Traffic Way (SLT)/ K-10 in 2015/2016, construction of The Research Gateway in 2013/2014 is a very timely undertaking. The local funding (from KDOT, city and county) of this project has been decided based on thorough analysis, comparison and prioritization strategies. The future maintenance of the interchange and the on/off ramps will be addressed by KDOT as part of KDOT's comprehensive pavement and asset management plan. It is relevant to note, KDOT ranks very high in the nation with respect to the maintenance and operation of the highway system in Kansas. The extended Bob Billings Parkway will be maintained by the City of Lawrence as part of the comprehensive pavement management system in Lawrence. In 2009, Lawrence passed a sales tax initiative generating approximately \$5.0 million annually entirely dedicated to the upkeep and maintenance of the road network in Lawrence.



The Research Gateway: Now is the time.

- Reduce wear and tear of existing infrastructure
- Comprehensive pavement management and asphalt management plan in place
- Economic growth equals more resources to maintain transportation infrastructure

The long-term maintenance and operation of the extended Bob Billings Parkway has been well thought out. The County Road N 1500 will be maintained by Douglas County, and in the long run, this will become city's responsibility when this area is annexed into the city.

Economic Competitiveness

Lawrence offers many amenities to businesses looking to expand or grow from the ground up. Businesses are attracted to Lawrence because of its location in the center of the country and accessibility to a large, highly educated workforce. The city is conveniently located within a short distance of the state capitol in Topeka (23 miles) and the Kansas City Metropolitan Area (less than 34 miles).

Lawrence is also home to the University of Kansas, a major research university with over 29,000 students coming from all 50 States and 109 countries. Offering 200 fields of study, KU provides over 4,000 undergraduate and 2,250 masters, doctoral, and professional level graduates each year for potential employment in the local, state, and national work force.¹

The educated workforce, robust transportation system and unparalleled cultural attractions offer businesses and their employees a unique and desirable location to live and work. This attraction has contributed to the substantial research and technology business clusters that have developed within Lawrence, including along Bob Billings Parkway, a primary research and technology corridor in Lawrence.

The Research Gateway Interchange is anticipated to be the primary western gateway to the research and technology clusters along Bob Billings Parkway as well as the main campus of the University of Kansas, accommodating direct access from Denver, Topeka, and other western communities. The interchange will connect K-10 to Bob Billings Parkway, providing western access to world-class research facilities, expertise and a highly qualified labor pool. Specifically, direct access will be provided to three major research and technology clusters, each of which hosts multiple technology and research-based companies.





The Research Gateway: Lawrence is ready.

- Centrally located within the U.S.
- Lawrence offers an educated workforce with 55% of the population holding a bachelor or graduate-level degree
- Top-ranked schools with millions of dollars annually in research funding
- 38% of Lawrence's residents are employed in either the education, health care or social assistance field

Current and Future Employment Clusters

The primary research and technology corridor runs along Bob Billings Parkway to three main employment clusters that house a multitude of professional businesses, facilities, and educational resources focusing on technology and research based industries. A list of current research and technologybased tenants is included in Appendix D.

In addition to existing entities, KU Endowment, the official fundraising foundation for Kansas University, owns property on the south side of Bob Billings Parkway from Iowa Street west to Kasold Drive. This sizeable tract of partially developed land, acquired by KU Endowment in the early 1950s, is available to Kansas University as needed for future expansion. During the past 20 years, a number of structures have been built in this area, known generally as "West Campus." KU envisions additional construction in this area in coming years as funding becomes available, with priority given to research, teaching, and technology commercialization projects.



Enhanced Efficient Roadway System

The existing road section of Bob Billings Parkway currently deadends approximately 1,000 feet east of K-10 Highway. This project calls for replacing the current at-grade intersection with a bridge over K-10, extending Bob Billings Parkway to this bridge and re-aligning County Road N 1500. As a result, the interchange will directly connect the highway to Bob Billings Parkway, becoming the primary western gateway to and from the research and technology clusters along Bob Billings Parkway and the University of Kansas.

Improved Travel Time

Currently, primary access from K-10 to the University of Kansas and the research and technology corridor along Bob Billings Parkway are via 6th Street and Clinton Parkway, see chart below. The Research Gateway would provide both substantial distance and travel-time savings.

Cluster				
		1	2	3
	Research Gateway at K-10 (in miles)	1.5 mi	3.9 mi	4.1 mi
Site Via	Research Gateway at K-10 (in minutes)	2.25 min	8.25 min	10.65 min
ange \$	K-10 via 6 th Street (in miles)	3.3 mi	5.5 mi	5.7 mi
Interch	K-10 via 6 th Street (in minutes)	6.8 min	12.8 min	15.2 min
From	K-10 via Clinton Parkway (in miles)	3.7 mi	6.0 mi	6.2 mi
	K-10 via Clinton Parkway (in minutes)	5.85 min	10.85 min	13.25 min

Research Gateway:

Improvement of Traffic Congestion and Pedestrian-Friendly Corridors



- According to the 2011 City of Lawrence Citizen Survey:
- 55% of residents were satisfied with ease of north/south travel
- 54% were satisfied with the availability of pedestrian paths
- Only 36% of residents were satisfied with ease of east/west travel

Economic Development Attraction

Access to exceptional research, laboratories, and technology facilities, as well as a large labor pool of highly educated potential employees attracts both start-up and expanding businesses to Lawrence. Many have established a presence within the research and technology corridor running along Bob Billings Parkway to the University of Kansas, including research and development firms, technology companies and bioscience industry entrepreneurs.

The Research Gateway has the potential to enhance business attraction and growth along the research and technology corridor as it opens up western access. The employment potential over the next 10-15 years is estimated at 45,000 direct and 80,800 indirect jobs and 11,600 direct and 20,800 indirect jobs in the long-term (15+ years). A majority of these businesses will be technology and research based companies providing products and services that benefit the entire Nation. See Appendix D for more details on employment potential.

Livability

This project will improve the livability of Lawrence/Douglas County residents by reducing traffic congestion on our streets and highways. By attracting substantial portion of the KU traffic, this interchange will reduce traffic back-up at the existing interchange at US 40/West 6th and K-10. Traffic congestion on 6th street and Iowa Street is also likely to improve due to the proposed interchange.

The elimination of the existing at-grade intersection would tremendously improve traffic flow and safety in this corridor impacting livability of our citizens in a positive way. The addition of bike lanes and sidewalks will further improve livability of our community by providing alternative modes and choices of transportation, including transit connections for future residents and businesses in the area west of K-10.

The economic growth and development, along with a good number of high paying jobs spurred by this critical transportation infrastructure, would enhance the overall economic well being of this eclectic community.

This project will make a significant contribution to the growth of the bio-tech research corridor spearheaded by the University of Kansas. Life-changing discoveries at these research facilities will



Research Gateway: City/County/State Participation is strong in Lawrence & Douglas County

- Bioscience and Technology Business Center (BTBC) on KU's West Campus is predicted to be at capacity by end of 2011 – only 15 months from opening.
- Several start-up and entrepreneurial firms located within the BTBC with expansion opportunities at the BTBC Expansion Facility at Wakarusa and Bob Billings Parkway



enhance the livability and well being of not just Lawrence and Douglas County residents, but for the entire region, perhaps for the nation and the world.

Sustainability

By reducing traffic congestion, this project will contribute to reduction in green house gas emissions and higher energy efficiency. With improved connectivity, this project will reduce travel time and delay. Based on our estimates, in the near term the vehicle miles traveled (VMT) will be reduced by 150,000 per year, the corresponding reduction in vehicle hour traveled is 60,000 per year. In the long term, the yearly VMT and VHT reduction are 450,000 and 180,000 correspondingly. The reduction is fuel consumption is estimated to be 35,000 gallons per year in the near term and 105,000 gallons per year in the long term.

As a result of the reduced travel time and delay, this project will contribute to a reduction in green house gas emissions by over 350 tons per year in the near term and over 1,000 tons per year in the long term. The corresponding savings related to greenhouse gas emissions as a result of less miles traveled is estimated to be \$2,550 per year in the near term and \$7,650 per year in the long term. [See Appendix I for details]

This project would improve the utility of existing infrastructures in several different ways. Currently, Bob Billings Parkway, a four-lane median divided arterial street dead-ends approximately 1,000 feet east of K-10 Highway. The full potential of this important roadway to carry traffic in the east west direction will be utilized when the proposed interchange is completed. Bike lanes and pedestrian walkways along BBP will be connected with the existing shared-use path that runs along K-10 Highway.

During construction, this project will employ best management practices with respect to storm water to minimize impact of soil erosion and protect water quality. Impact on the natural environment will be kept to a minimum and restored to original condition as much as possible.

Use of recycled asphalt as pavement materials will be made part of the project specifications which would contribute to the overall sustainability of the environments. Use of durable aggregates in concrete extends the life span of concrete pavement and structure which also contributes to a sustainable environment.

Research Gateway:

Less Congestion, Sustainable Materials Equals Improved Ecological Impacts



- > VMT Reduction (long term): 450,000 per year
- VHT Reduction (long term):180,000 per year
- Reduction in Fuel
 Consumption (long term):
 105,000 gallons per year
- Reduction in greenhouse gas emissions, over 350 tons per year (near term) and over 1,000 tons per year (long term)
- Greater access for walking/biking instead of utilizing automobiles to travel around town
- > Utilization of existing infrastructure

Safety

Due to high speed, fatality rates on freeways are much higher. As a result, safety is of prime concern at the existing at-grade intersection of K-10 and Bob Billings Parkway. Without the interchange, the growth potential of the area west of K-10 will remain unrealized as the existing at-grade intersection is not capable of handling the increased traffic in a safe manner.

With the completion of the South Lawrence Traffic Way/K-10 Highway (a \$200 million dollar project funded as part of the T-WORKS, the 10-year comprehensive transportation program passed by Kansas Legislature in 2010) in 2016, it is anticipated that traffic on K-10 will increase at a higher than usual rate. The increased traffic on K-10 would further deteriorate the situation with respect to traffic flow and safety at the existing at-grade intersection.

The elimination of the at-grade intersection is crucial to ensure safe movement of people and goods along this busy and high speed corridor in Lawrence. In addition, the traffic movement in general in the east west direction would be much safer when the interchange is completed. Safe movement of pedestrians and bicycles in the east-west direction over K-10 will become a reality with the completion of the proposed interchange.

Furthermore, by attracting a substantial amount of the KU traffic, the Research Gateway interchange will reduce congestion and improve safety at the existing interchange at K-10 highway and US 40/West 6th Street. In addition, the Research Gateway interchange, by providing an alternative western gateway to KU, would contribute to reduced traffic volume and improved safety on two of the busiest transportation corridor in Lawrence: West 6th Street/US 40 and Iowa Street/US 59. These corridors are already congested and as the Transportation 2030 modeling shows, the congestion would become even worse as traffic volume increases with time. Therefore, the Research Gateway is a very critical and necessary infrastructure need in Lawrence.

Research Gateway:

Improving the Safety of our Roadways Benefits Everyone



- K-10 Corridor is growing; improved intersections are necessary to handle increasing traffic and safety concerns
- Future completion of the eastern leg of K-10 Highway will increase traffic at the K-10 Highway and Bob Billings Parkway
- Elimination of at-grade intersections is necessary to maximize pedestrian and bicycle safety

Job Creation and Economic Stimulus

Job Creation: Short-, Mid-, and Long-Term Employment Benefits

The majority of direct, on-project jobs during the construction phases will be in the categories of laborers and equipment operators. This will create significant job opportunities for lowincome workers during the three-year construction period. It is estimated that the interchange will foster 102 short-term jobs via direct construction employment, resulting in an additional 170 indirect jobs.

Completion of the project is also expected to help foster business attraction and the generation of a substantial number of permanent jobs over the mid-term (10-15 years) and long-term (15+ years). Many of these will draw from the labor pool provided through the University of Kansas, providing jobs for low-income students.

Employment Potential	Initial Change in Employment (Direct Jobs)	Total Effect on Regional Employment (Indirect Jobs)*
Short-Term Employment		
(construction)	102	170
Mid-Term Employment (10-15 years		
from project completion)	45,148	80,814
Long-Term Employment (15+ years		
from project completion)	11,644	20,842
Total Estimated Employment	56,893	101,827

*See Appendix D for methodology and details on employment calculations.

Research Gateway:

Economic Benefits – Now and Into the Future



The Research Gateway will foster business attraction and generate a substantial number of permanent jobs over the course of the midand-long term.

Direct Jobs:
56,893
Indirect Jobs:
101,827

Disadvantaged Businesses

It is the policy and commitment of KDOT that disadvantaged businesses as defined in CFR part 26 shall have a level playing field to participate in the performance of contracts financed with federal funds. Through the use of KDOT DBE certification procedures, KDOT will ensure that only fully eligible firms are permitted to participate in the narrowly tailored DBE program. KDOT shall set DBE participation goals for this project in alignment with federal objectives and will remove barriers to the participation of these eligible firms. KDOT will support the development of eligible firms to make them competitive both within and outside of the DBE Program. This will include Veteran-Owned Small Businesses with particular emphasis on Service-Disabled Veteran-Owned Small Businesses where we seek to meet or exceed the 3% procurement goals for SDVOSB's established in Executive Order 13360. KDOT will seek to use community based organizations in connecting disadvantaged workers with economic opportunities by identifying these organizations and ensuring they are advised as contracting and employment opportunities develop and that they have access to all the necessary information to assist their disadvantaged worker constituents or members in identifying and applying for project employment opportunities. The project will support entities that have a sound record on labor practices and compliance ensuring that workers are safe and treated fairly.

In accordance with Federal and State law, the project will implement best practices consistent with civil rights and equal opportunity laws to ensure that all individuals benefit from the Recovery Act. Project contracts shall specify Equal Employment Opportunity Special Provisions that will specify contractor obligations to comply with the Civil Rights Acts of 1964 and 1991 and Executive Order 11246.

The Procurement Plan is likely to create follow-on jobs and provide a significant economic stimulus for manufacturers and suppliers. All major categories of material will be procured from American-made sources. These project related supplier employment benefits are an integrated component of the overall project employment benefits projections and are included in the job-years.



Research Gateway: Economic Benefits – Now and Into the Future

- Project meets the requirements set forth by KDOT for disadvantaged businesses
- Project will support sound employment practices and Equal Opportunity provisions
- Project will utilize Americanmade materials

Economically Distressed Areas Impacted

According to 42 U.S.C. 3161, Economically Distressed Areas (EDAs) are areas where the unemployment is 1% or more above the national average or the per capita income is 80% or less than the national average. As per the latest Census Bureau data, the national average for per capita income is \$26,059 (2010).¹ Given these guidelines, the areas shown below are 80% less of the national average (or \$20,847) and qualify as economically distressed.

The map below highlights the areas of economic distress, along with the interchange site and primary research & technology employment clusters. The Research Gateway project is expected to assist in job enhancement for the larger labor pool and particularly for the low-income student population.

Census Tracts Experiencing Economic Distress



Selection Criteria — Secondary

Innovation

This project includes installing conduits for fiber optic cables across the Bridge to west of K-10. These conduits will be utilized to bring the future traffic signals (at the on/off ramps) into the City wide Intelligent Transportation System (ITS) network. The City of Lawrence began operation of its ITS-based Traffic Operation Center in 2010. Currently, about 25% of the traffic signals in the city make up the ITS network. The expansion of the ITS network has been an ongoing process in Lawrence as opportunities and funding become available.

As this interchange is regarded as the future Gateway to KU, aesthetics has been an important consideration in this project. There will be decorative lighting on the bridge along with Welcome signs and artwork. All lighting used in this project will be LED. According to city policy, all new lighting installation and replacement of existing lighting installations have to be LED. As a relevant note, currently 85% of all traffic signals in Lawrence are LED with anticipated 100% conversion to be achieved by the end of 2011. The City of Lawrence was the first municipal organization in Kansas to begin use of LED in traffic signals.

This project is being pursued by a unique and innovative multijurisdictional partnership where Kansas Department of Transportation is the lead agency with close collaboration and coordination with the City of Lawrence and the Douglas County. The project design team at KDOT has been seeking input and expertise from the city and county staff on an ongoing basis. One of the important objectives of this collaboration has been to seek public input earlier in the design process – engineers from all three agencies have met with various community organizations to date. The public outreach will continue so project scope can be steadily updated and refined to address public comments to the extent it is feasible and cost-effective.



- Intelligent Transportation System
- LED lighting
- Innovative multi-modal transportation access
- Use of Complete Streets design

Selection Criteria — Secondary

Partnership & Supporters

This is a joint venture among Kansas Department of Transportation, the City of Lawrence and Douglas County with broad based support from our local community. The Lawrence City Commission and the Douglas County Board of Commissioners have already approved \$100,000 each for the construction of this project. KDOT will contribute \$15.57 million to pay for the construction of this project in addition to providing professional services for engineering design, property acquisition and environmental review. The combined city, county and KDOT contribution would cover 75% of the total project cost. We are asking for the remaining 25% of the project cost or \$5.25 million to come from the TIGER discretionary grant.

Application Partners

Kansas Department of Transportation (Lead Applicant)

City of Lawrence, Kansas (Second Applicant)

Douglas County, Kansas (Third Applicant)

Application Supporters

Legislators

US Senator Pat Roberts of Kansas US Senator Jerry Moran of Kansas US Congresswoman Lynn Jenkins , Kansas, 2nd District US Congressman Kevin Yoder, Kansas, 3rd District State Senator Marci Francisco State Senator Tom Holland State Representative Terri Lois Gregory State Representative Thomas Sloan

State, Local & County Governments

Sam Brownback, Governor of Kansas Bernadette Gray-Little, Chancellor, University of Kansas Deb Miller, Kansas Secretary of Transportation Aron Cromwell, Mayor, Lawrence, Kansas Jim Flory, Chairman, Board of County Commissioners Lawrence Board of Education, USD #497 Lawrence/Douglas County Transit Authority Lawrence/Douglas County MPO Lawrence/Douglas County Planning Commission

Local Business

Lawrence Chamber of Commerce Lawrence Home Builder's Association Lawrence Regional Technology Center

Community Organizations

Lawrence Association of Neighborhoods (LAN) Lawrence/Douglas County Bicycle Advisory Board Lawrence/Douglas County Complete Streets Committee Lawrence/Douglas County Sustainability Advisory Board















Lawrence Association of Neighborhoods Neighborhoods Working Together





Evaluation of Expected Project Costs and Benefits

A benefit/cost analysis was completed looking at the build and no build conditions using both a 3% and 7% discount factor. When using a discount rate of 7%, the benefit/cost ratio for building the Research Gateway interchange is 1.64, with the great majority of benefit coming from the reduced travel time by using the new interchange instead of congested parallel routes. Smaller benefits accrue due to the increased reliability of avoiding the congested roads. The B/C ratio grows to 2.69 if a lower, 3% discount rate is assumed. See Appendix F for additional benefitcost details.

	Scenario A vs. Base Case 7% discount rate	Scenario A vs. Base Case 3% discount rate
BENEFITS		
Vehicle operating costs	1.8	3.3
Reduced travel time	15.1	26.7
Value of personal time	6.2	11.0
Safety	0.4	0.7
Logistics/freight costs	3.6	6.4
Productivity from access/connectivity	0	0
Environmental factors	0.1	0.2
Consumer surplus and other social welfare	0	0
COSTS		
Capital costs	16.9	18.9
Maintenance Costs	0.4	0.6
Residual value	0.7	1.6
BENEFIT/COST RATIO	1.64	2.69



Research Gateway

- Benefits from reduced travel time
- Increased reliability due to less congestion on roadways

Project Readiness

Project Schedule

Engineering Design and Property Acquisition

Engineering design of this project is being performed by engineers at the Kansas Department of Transportation and is about 50% complete at the time of submitting this application. Property acquisition, also handled by KDOT staff, is currently well underway and is expected to be completed by June of 2013.

Construction Timeline

Based on the anticipated TIGER grant award by the end of 2011, this project will be ready for construction in late 2013 and can meet the following schedule.

June 2013	Complete Engineering Design		
	Complete R/W Acquisition		
	Complete Environmental Review		
	and Permitting		
September 2013	Award Construction Contract		
November 2013	Begin Construction		
December 2014	Construction Complete		



Research Gateway: Ready for Construction

- Project can meet the TIGER funding obligation by 9/30/2013
- Design is 50% complete

Environmental Approvals

Environmental Review – National Environmental Policy Act (NEPA) Requirements

Environmental review and permitting requirements are being handled by the Environmental Services Section of the Kansas Department of Transportation. The following table provides a status update and timeline for completion of the environmental review and the NEPA requirements for this project.

Item	Status / Comment	Expected Completion Date
Noise	A noise study is underway.	March, 2012
	Feasible and reasonable	
	measures, as determined by	
	FHWA, will be incorporated into	
	the project.	
Archeology	A Phase I survey is complete.	March, 2012
	Phase II has begun and Phase	
	III survey may be required	
	depending on findings on the	
	ground.	
Historic	No properties within the project	March, 2012
	limits.	
Wildlife/	No species within the project	March, 2012
Federal	limits.	
Wildlife/	Red-belly snake habitat may be	March, 2012
State	within the project limits; KBS	
	(Kansas Biological Survey)	
	underway.	
Section 404	Permit will be required	June, 2013
Corps of		
Engineers		
Division of	Permit will be required	June, 2013
Water		
Resources		
(DWR)		
Farmland	Cleared	
Hazardous	Cleared	
Waste		



Research Gateway:

Permits, Reviews already planned

- NEPA-required reviews already underway
- Area already cleared from farmland and hazardous waste review
- Permits can be completed in 2013

Project Readiness

Legislative Approvals

This project does not require legislative approvals to proceed. The Lawrence City Commission and the Board of County Commissioners of Douglas County have approved the concept of this project and have allocated \$100,000 each for the construction of this project.

State and Local Planning

The areas west of K-10 are prime locations for new residential, commercial and industrial development. In the "West of K-10 Area Plan" approved by both the city and county commissions, this interchange was identified as a critical infrastructure in order to accommodate westward growth in Lawrence/Douglas County.

The engineers at Kansas Department of Transportation began preliminary work on this project more than a decade ago. This project is included in the current Transportation Improvement Program (TIP) of the Lawrence/Douglas County MPO (See Appendix G)

Technical Feasibility

Engineering Design of this project is being performed by a group of experienced and competent Civil Engineers (Road and Bridge) at Kansas Department of Transportation. Engineers at the City of Lawrence and Douglas County are also closely involved with the project design and various other issues of public interest. Future alignment and connectivity of the city streets and the county roads including shared-use path and sidewalks are some of the challenging issues that are being resolved. Project design is about 50% complete as this time and there are no challenges with regards to the technical feasibility of this project that cannot be met by the unique and multidisciplinary group of professionals and engineers spanning three public agencies: the Kansas Department of Transportation, City of Lawrence, and Douglas County.

Financial Feasibility

The financing of this project consists of funds from Kansas Department of Transportation, the City of Lawrence, Douglas County and the TIGER grant. State Funds for the construction of this project (\$15.57 million) have already been allocated as part of the T-WORKS, the comprehensive 10-year Transportation Program passed by Kansas Legislature in 2010. Participation by the city and the county for the construction of this project have been approved and allocated by the respective commissions. All professional services related to Engineering Design, Property



Research Gateway: Project is part of the area's long-term plans

- Research Gateway is included in the long-range planning for Douglas County and Lawrence
- Project team is experienced and has the technical skills necessary to complete the project
- Funding is not 100% complete for this project; Tiger grant funding would make up the shortfall but will not supplant state or local funding

Project Readiness

Acquisition and Environmental Review are being performed by KDOT staff.

With \$5.25 million (25% of the construction cost) from TIGER grant program, this would financially be a very feasible project. Without the TIGER grant, the financial feasibility of this project is uncertain at this time or may require significant modification in the project scope by eliminating the multi-modal transportation features from the project (e.g. bike lanes, sidewalks etc.).

Confidential Business Information

There is no confidential business information in this application.

Conclusion

- ➤ Lawrence a great community in the Midwest.
- > The Research Gateway is a great transportation project.
 - Innovative partnership
 - Sustainable design
 - High Benefit/Cost Ratio
- Result of a long-range and comprehensive planning effort by the Local Community and MPO.
- Future Gateway to the University of Kansas, one of the premier education and research institutions in the nation.
- Multi-modal bike lanes, sidewalks and connection to existing shared use paths.
- Broad-based Community Support
- Long over-due this is a critical infrastructure need in Lawrence/Douglas County to accommodate growth and development in the region.
- Impact on long term economic growth and job creation is very impressive.
- Benefit Cost Ratio: 2.69
- \succ 75% of the project cost by State and Local funds
- > TIGER discretionary funds request is only 25% of the total project cost or \$5.25 million.
- Project will be ready by 2013 for construction with anticipated completion by the end of 2014.
- > No other federal funding source available for this project.
- > The requested TIGER grant will not be used to supplant state or local funding already programmed for this project.

The Research Gateway:

Enhanced Economy



Jobs



Innovative & Sustainable



Multi-Modal





The Research Gateway K-10 Highway & Bob Billings Parkway Interchange Lawrence, Kansas

Appendix Directory

- A. Federal Wage Rate Certification Letter(s)
- B. National Environmental Policy Act Requirement
- C. Letters of Support
- D. Employment Potential
- E. Project Cost Estimate
- F. Comprehensive Cost-Benefit Analysis
- G. TIP Lawrence/Douglas County MPO
- H. West of K-10 Area Plan
- I. Details of VMT/VHT and Greenhouse Gas Emissions
- J. Lawrence/Douglas County Land Development Code
- K. Transportation 2030