

KANSAS CITY REGIONAL TIGER APPLICATION

APPENDIX D:

KC Bicycle/Pedestrian Project

CITY OF FOUNTAINS
HEART OF THE NATION



KANSAS CITY
MISSOURI

PROJECT TYPE:

Bicycle / Pedestrian Infrastructure
and Education

LOCATION:

Kansas City, Missouri
Jackson, Clay and Platte counties
Congressional Districts 5 & 6

AREA:

Urban

REQUESTED AMOUNT:

\$ 12,100,000

CONTACT:

Deb Ridgway
Bicycle/Pedestrian Coordinator
City of Kansas City, Missouri
414 E. 12th Street, 20th Floor
Kansas City, MO 64106
816- 513-2592
deb_ridgway@kcmo.org

I. PROJECT DESCRIPTION

Bicycle- and pedestrian-friendly cities are vibrant, healthy, active and highly desirable places to live, learn, work and play. Traffic congestion is reduced, air quality is improved, businesses experience increased vitality and the health and well-being of residents is significant. Places like Portland, Oregon; Minneapolis, Minnesota; Chicago, Illinois; and Boulder, Colorado, are leading the way with investments in biking, walking, and transit, and reporting significant modal shifts as a result of these investments.

"We have a window of opportunity to think differently about transportation and propose bold, new approaches to improve the livability of our nation's communities."

-Transportation Secretary Ray LaHood¹

In Kansas City only 0.4 percent of all trips are made by bicycle and 3.9 percent by walking. These statistics are not surprising however, as Kansas City's lack of bicycle and pedestrian infrastructure discourages residents and employees from using these alternative modes of transportation.

Transforming transportation in the Kansas City region to include significant bicycling and walking infrastructure is a bold, new approach that can also have a major impact on the local economy. In a region with the most highway miles per capita in the country, Kansas City has the opportunity to be the change agent in transforming the region's auto-centric transportation system into one that promotes walking, biking and transit, providing all its residents with mobility options currently lacking.

Elected officials, staff and community advocates are working together to change perceptions as well as reality. In May 2007, Kansas City, Mo., Mayor Mark Funkhouser set forth the goal of achieving platinum designation from the League of American Bicyclists as a bike-friendly city by 2020. At the same time the Kansas City, Mo., City Council established a citizen-led Bicycle Pedestrian Advisory Committee which recently developed an annual action plan for transforming Kansas City into a bikeable and walkable city. In 2008, British Broadcasting Company (BBC radio) aired a 30-minute international broadcast about Kansas City's desire to go from "worst to first" as a bicycle-friendly city, highlighting the challenges it faces, as well as the determination of the city to get there.

Kansas City has taken the first steps to create a bike- and pedestrian-friendly community. Bike, trail and walkability plans are in place. The BPAC is providing guidance to the city council on policies and programs that will encourage biking and walking. And funding for infrastructure improvements has been secured. Yet a critical mass of infrastructure investments, as well as programs that support the 5 E's, (engineering, education, encouragement, enforcement, and evaluation) are needed before real results can be achieved. The funding requested in this TIGER application would provide the additional resources needed to get Kansas Citians out of their cars and using people-powered modes of transportation.

Kansas City is up to the challenge that Secretary LaHood has presented. The following sections outline Kansas City's approach for how to get there.

A. The Challenge

While Kansas City has long had plans which encourage the inclusion of infrastructure for biking and walking, the city and region have been slow to embrace the implementation of such ideas. The result is a fragmented system of trails, little to no on-street bicycle facilities, sidewalks in disrepair and few residents biking or walking to work, school or social activities. Yet, area residents want to walk and bike. "Make walkability the highest transportation priority in the

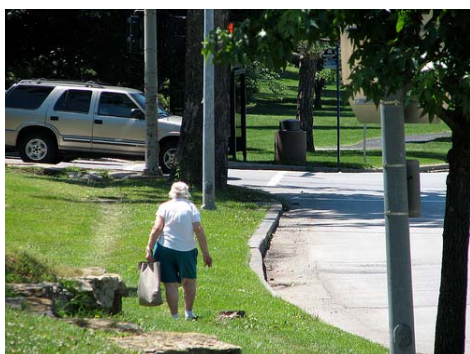
downtown area.”¹ This was heard time and again from participants in the development of an area plan for downtown.

i. Lack of Infrastructure

The KC Downtowner, a Kansas City online paper recently featured an article titled “The Bike Path to Nowhere.” This title is a great representation of one of the challenges facing Kansas City as it strives to create a strong bicycle/pedestrian network. An interconnected network of on-street bicycle facilities, multi-use trails, and sidewalks is needed in order to change peoples’ behavior. Unfortunately, with over 2,750 centerline miles of roadways in Kansas City, Mo., only 6.5 miles currently include bike lanes. And of the 35 miles of trails that exist, most are in segments of one to two miles, which can accommodate a pedestrian, but certainly do not attract bicycle use. Kansas City’s existing bike, trail and walkability plans provide guidance on how to effectively build out the city’s bicycle and pedestrian infrastructure. Funding has been raised and over the next two years, significant infrastructure will be on the ground. However, major gaps still need to be addressed in order to ensure that Kansas City’s system has the critical mass and connectivity needed to kick-start significant biking and walking activity.

“General perception is that KC is very bicycle unfriendly. This directly impacts my business and ability to sell bicycles and accessories. People think ‘why buy a bicycle when it is too dangerous to ride on the streets of KC.’”

-Theresa Van Ackeran, Family Bicycles, LLC, Kansas City, Mo.



Lack of sidewalks doesn't negate the need



Hazardous sewer grates



Ghost bikes installed at site of crash, two lives lost

ii. Safety

Providing safe accommodations is a key factor to increasing biking and walking. It is widely acknowledged that increasing the perception of safety is important to encourage cycling and walking.² The bicycle compatibility index (BCI) is designed to measure a roadway’s compatibility to serve both bicyclists and motor vehicles which is impacted by bicyclists’ perception of that roadway. For example, if you add bike lanes to a moderate traffic, four-lane roadway it increases the BCI from D+ (moderately low) to B- (very high). Converting a six-lane road to four lanes, plus bike lanes, increases the BCI from a D+ to B. As expressed in the quote at the beginning of this section, residents’ perception of safety would likely rate Kansas City streets D, E or F.

Between 2000 and 2006 Kansas City averaged 271 pedestrian and 524 bicyclist injuries per year. Between 2000 and 2008, 128 pedestrian and eight bicyclist deaths occurred in Kansas City. From Memorial Day to the Fourth of July in 2006, five bicyclists and 12 pedestrians were killed in motorist-involved crashes in the region. This tragic loss of lives

¹ Greater Downtown Area Plan. City of Kansas City, Mo. http://plandowntownkc.com/documents/04_Transportation.pdf

² Transportation Research Board. *Translating Demand and Benefits Research into Guidelines*. NCHRP Report No. 552. Pg. F-1.

in such a short time frame has emphasized the need for better law enforcement, community awareness and education, and safer places for people to bike and walk in the region.

The National Safety Council estimates the cost of a bike/ped injury at \$53,000 per incident and a fatality at \$3.8 million per incident.³ Improving safety for our bicyclists and pedestrians not only encourages more people to use alternative forms of transportation, it also reduces costs to the community.

iii. Awareness / Education

Kansas City, Mo., streets have been designed and engineered for vehicles, and as cars are the dominant users of these roadways, many residents do not understand the rights of bicyclists and pedestrians. Bicyclists and pedestrians are also guilty of not following the rules of the road. For example, Prairie Village, Kan., police recently started ticketing cyclists on group rides that blow through stop signs. This often creates frustration when different modes interact on city streets, and sometimes results in inappropriate and unsafe behavior as documented in a 2007 *Kansas City Star* article. The report highlighted incidences of violence intentionally targeting cyclists. Bottles, beverages, and even computer keyboards have been hurled by motorists as they passed cyclists on Kansas City region roadways.⁴ Raising awareness and educating the public about how bicyclists, pedestrians and vehicles can safely share our roadway system is an integral component of a program that aims to increase bicycling and walking.

iv. Health and Physical Activity

The U.S. is facing an obesity health crisis. Some experts predict that for the first time in our nation's history we may have a generation with a shorter life expectancy than their parents. Nationally, two-thirds of adults and one in five children are obese or overweight costing our health care system \$147 billion annually.⁵ Locally, Missouri has the 17th highest rate of adult obesity, and almost 65 percent of Kansas City, Mo., residents over 18 are overweight or obese.⁶

The Center for Disease Control reports that "there is now scientific evidence that providing access to places for physical activity increases the level of physical activity in a community."⁷ Active transportation systems in the urban core can provide much needed universal mobility, but they can also change the health and livability of our community, serving the most vulnerable users, including children, women, seniors and disabled residents.

v. Environmental Impacts

Kansas City not only needs to find ways to address the health of its residents but also the health of our air. Reducing air pollutants is critical in Kansas City, where in 2007 ozone monitors violated the EPA standard. Kansas City's annual VMT is over 3 billion miles.⁸ This equates to more than 1.6 million metric tons of CO₂ emissions each year. Throughout the US, one-fourth of all trips are one mile or less, but three-fourths of these trips are made by car.⁹ Providing bicycle and pedestrian facilities can provide Kansas Citians alternatives to getting in their cars, thereby reducing the associated environmental impacts.

³ Pedestrian and Bicycle Information Center. <http://www.walkinginfo.org/faqs/answer.cfm?id=42>

⁴ Diuguid, Lewis. "KC Area Streets Can Be Mean For Cyclists." *Kansas City Star*. Opinion:B11. 27 Sept 2006.

⁵ *Wall Street Journal Online*. <http://online.wsj.com/article/SB20001424052970204563304574314794089897258.html>

⁶ Kansas City Health Department. Community Health Assessment 2007:178.

⁷ Department of Health and Human Services, Centers for Disease Control and Prevention. Active Environments. www.cdc.gov/nccdphp/dnpa/physical/health_professionals/active_environments/

⁸ Kansas City Regional Household Travel Survey, 2003-2004.

⁹ US Department of Transportation. Federal Highway Administration, Research and Technical Support. Nationwide Personal Transportation Survey. Lanham, MC: 1997.

B. The Solution

Never has there been such strong multijurisdictional support for improving the safety and mobility of cyclists and pedestrians in the Kansas City region. This project will transform the transportation options available to Kansas City area residents, one-third of who do not drive or own a vehicle.

"We need more investments in making cities safe for walking and biking. We need more investments in public transportation . . . These are investments that can be made at the neighborhood, city, and state levels."

*-Health & Human Services Secretary
Kathleen Sebelius¹*

Kansas City's bike/ped proposal is based on the 5 E's — engineering, education, encouragement, enforcement and evaluation. Nationally this model was developed with the Safe Routes to School guidelines¹⁰ and the League of American Bicyclists uses the 5 E's in determining a city's level of bicycle friendliness.¹¹ Cities leading the way in implementing infrastructure changes early on realized that engineering alone did not draw more people to biking and walking. These cities demonstrated the important role of education and encouragement programs along with enforcement events in bringing to bear the full benefit of infrastructure investments.

In May 2009, the city's Bicycle Pedestrian Advisory Committee released the first annual bicycle/pedestrian-friendly community action plan. The plan sets forth goals structured under the 5 E's model to help transform transportation options for residents and visitors. By using the principles of the 5 E's, Kansas City, Mo., aims to significantly increase biking and walking across the city.

i. Engineering Solutions: Infrastructure – \$25 million

Due to Kansas City's lack of existing bike/ped facilities, the most significant component of this proposal is infrastructure improvements. These include: 55 miles of bike lanes and shared-lane markings; 19 miles of shared-use trails; wayfinding signage (destination, distance, direction) on the 55 miles of bike lanes/shared-lane markings as well as on an additional 135 miles of bike routes; 1,000 bicycle racks; 10 bicycle lockers; 20 intersections with pedestrian-safety improvements including high-visibility, marked crosswalks; signage; curb cuts; signals; detectable warning plates; raised crosswalks; and/or traffic-calming measures. This project is based on the need to provide a critical mass of infrastructure improvements, ensuring connectivity between on- and off-street systems as well as with existing facilities. Safety improvements will be concentrated in school zones and in areas with high rates of pedestrian and bicycle injuries and fatalities. The impact of TIGER funding will be further leveraged and enhanced by more than \$12.9 million in infrastructure funding that has been secured locally. See Attachment D-1 for infrastructure improvement locations.

Bicycle and Pedestrian Infrastructure Improvements¹²

- 1) 55 miles of bike lanes or shared lane markings (including wayfinding signage)
- 2) 19 miles of multi-use trails
- 3) 135 miles of wayfinding signage on bike routes
- 4) 20 intersections with pedestrian safety improvements including high-visibility marked crosswalks, signage, curb cuts, signals, detectable warning plates, raised crosswalks, and/or traffic-calming measures
- 5) 1,000 bicycle parking racks
- 6) 10 bicycle lockers

¹⁰ US Department of Transportation. Federal Highways Administration. <http://safety.fhwa.dot.gov/saferoutes/guidance/#toc123542169>.

¹¹ League of American Bicyclists. http://www.bikeleague.org/programs/bicyclefriendlyamerica/communities/bfc_five-Es.php

¹² Images on following page provided by Dan Burden. www.pedbikeimages.org/danburden



Shared-lane markings



Trails provide transportation option



Colored bicycle lanes / bicycle box



Pedestrian safety improvements (crosswalks / traffic calming)



Bicycle parking options

ii. Education, Encouragement and Enforcement Solutions – \$2 million

Infrastructure improvements alone are not sufficient to create the significant change in biking and walking behavior that Kansas City needs and desires. As evidenced in the success of implementing safe-routes-to-school programs and the League of American Bicyclists' bike-friendly community program, communities must also implement the remaining E's: education, encouragement and enforcement programs.

The KC Bicycle/Pedestrian Project proposes to replicate four highly successful program models from across the U.S. and Canada: Bike Share KC (rental bikes in Washington, D.C., Denver, Minneapolis, Louisville), Travel Smart KC (started in Portland and duplicated by many cities), Safe Routes to School, and Project Revolve KC (a bike mechanic job-training program based on the Velogik program in Quebec, Canada). All outreach programs proposed in this project will focus on underrepresented groups including women, children, minorities and seniors.

Project Revolve KC, a training program creating jobs and promoting job preservation in the urban core would seek to remove two barriers: lack of reliable transportation and job skills. The hub of Project Revolve KC would be a unique, full-service bicycle shop and bicycle-mechanic training center. Trainees would master basic and intermediate bicycle-mechanical skills, and hone managerial skills required to run the daily operations of a retail bicycle store. Participants would rotate through the Project Revolve KC shop and retail environment in a six-month cycle. Project Revolve will work with other vocational rehabilitation agencies to identify program participants suited to learning and applying other necessary employment skills such as communication, literacy and computer proficiency. Participants will learn bicycle mechanics by refurbishing and building bicycles for sale at little or no cost to individuals in need of reliable transportation in order to maintain employment.

Bike Share KC would be an exciting new means of public transportation. Residents and tourists can access rental bikes when and where they need them. The system will provide the missing link between existing points of public transportation and desired destinations. Bike Share KC will change the way people travel around the city — offering convenience, freedom of movement, and time to enjoy all the city has to offer.

Bike Share KC will use the Smart Bike system currently implemented in Chicago, Minneapolis, Louisville, Tulsa and Washington, D.C. Bikes in the program are designed for frequent use by different users under varied conditions. The bikes must be durable and able to tolerate rough handling yet be easy to maneuver and light for the user. More importantly, the bike must be safe and comfortable. Bikes are used 10 to 15 times per day on average for about 20 minutes each trip.

Twelve docking stations with 10 bikes each would be installed at various points in the downtown loop. The stations consists of docking modules which lock the bike in place, ready for use, as well as the vertical interactive and informative column that identifies the user. Stations are designed for easy and fast installation, expansion and maintenance.

Revolve, a local nonprofit seeking to broaden access to cycling as safe, reliable and sustainable transportation, is poised to implement this project. Bike Share KC will use the latest technologies including solar-powered, checkout stations and global position system tracking to calculate VMT and emissions reductions. Project Revolve participants will provide maintenance and operational services for Bike Share KC.

Travel Smart KC, a neighborhood-based wellness and active-lifestyle program originating in Portland, is the perfect complement to both the Project Revolve KC and Bike Share KC programs. The Green Impact Zone in a blighted area of Kansas City, Mo., is an ideal location to pilot this program. Travel Smart KC would women, youth and seniors to become physically active. Participants receive safety-education materials and the opportunity to join hands-on skills classes and events. Many learn how to ride a bike but never really learn how to drive a bike on the street. Travel Smart KC would provide a safe environment to teach valuable safety skills while encouraging a more active lifestyle. Weekly classes along with guided walks and bike rides would be offered to neighborhood residents. This program would expand a similar program currently offered by the Missouri Bicycle and Pedestrian Federation. Additional partners for this program include the Kansas City, Mo., departments of Public Works and Parks and Recreation, as well as neighborhood associations and churches.

Safe Routes to School has enjoyed national success in communities across the country. However, Kansas City has not been able to garner any infrastructure or programming funds. Bridging The Gap, a local nonprofit partner, has successfully implemented walking and biking school bus programs in communities on the Kansas side of the region. TIGER funds would allow the city to bring their model to Kansas City, Mo.

The Share the Road Safety Task Force (www.sharetheroadkc.com) formed in July 2006 with a goal to reduce the number of bicycle and pedestrian crashes and fatalities in the region through education and enforcement. More than 30 agencies work collaboratively on local events that raise greater public awareness regarding bicycle and pedestrian laws, and how to safely interact at intersections, crosswalks and general turning movements. Since its inception, the task force has sponsored two enforcement events and three safety education events. This fall the task force will launch a new campaign to get more bikers, joggers and walkers to be visible at night. The task force will assist with all community enforcement activities for each of the programs seeking TIGER funds.

iii. Evaluation

A vital component to the 5 E's measures the success of infrastructure improvements and program implementation. The City's bicycled/pedestrian-friendly community action plan outlines annual goals to be achieved and will result in an annual report of performance measures. Each education/encouragement program will use appropriate evaluation tools pertinent to their goals. Additionally, the city will participate in the National Bicycle and Pedestrian Documentation Project — an effort to physically count the number of people biking and walking in all parts of the city. Kansas City will participate for the first time in 2009, and that will establish baseline data on current use.

iv. Connections to Existing Transportation Infrastructure

The success of this project relies on implementation of safe pedestrian- and bicycle-facility improvements utilizing the current street-grid system. Enhancing the existing transportation system to better accommodate other modes of transportation ensures that the proposed improvements maximize connectivity and mobility, while minimizing life-cycle costs. The improvements proposed in this application focus not only on providing better bicycle and pedestrian facilities, but ensuring that those bicycle and pedestrian facilities provide connectivity to existing transit lines and transit improvements proposed in Appendix B of this application. All Kansas City Area Transportation Authority buses are equipped with bike racks and the number of riders employing the bike-and-bus system is growing. By providing improved bicycle and pedestrian facilities, along with transit improvements, the number of Kansas Citians using alternative modes of transportation will grow, and the city will provide those who are currently transit/bike/pedestrian-dependent with the improved services and infrastructure they deserve.

C. Project Parties

Missouri Bicycle Federation
P.O. Box 104871
Jefferson City, MO 65110
816-695-6736
www.mobikefed.org

Revolve, Inc.
1210 E 49th Terrace
Kansas City, MO 64110
816-835-3310

Bridging The Gap
435 Westport Road, #23
Kansas City, MO 64111
816-561-1087
www.bridgingthegap.org

Share the Road Safety
Task Force
600 Broadway, Suite 200
Kansas City, MO 64105
913-642-5555
www.sharetheroadkc.com

D. Grant Funds and Sources and Uses of Project Funds

- TIGER request: \$12.1 million
- Total project costs: \$25.1 million
- TIGER funds: 48 percent
- Other secured funds : 52 percent

TABLE 1. KC Bicycle/Pedestrian Project Facility Cost Summary			
Improvements	TIGER Request	Local Funds	Other Federal Funds
ENGINEERING SOLUTIONS: INFRASTRUCTURE			
Bicycle lanes / shared-lane markings / hazard mitigation	\$ 2,250,000		
Shared-use trails	\$ 4,800,000	\$4,284,000	\$8,676,843
Signage	\$ 820,000		
Bicycle parking	\$ 200,000		
Pedestrian improvements	\$ 2,055,000		
EDUCATION & ENCOURAGEMENT SOLUTIONS			
Smart Bikes KC	\$ 500,000		
Safe Routes to School	\$ 500,000		
Travel Smart KC	\$ 250,000		
Project Revolve KC	\$ 725,000		
TOTAL	\$ 12,100,000	\$4,284,000	\$8,676,843

Maintenance (annual)	Cost
Bicycle lanes / shared-lane markings / hazard mitigation	\$ 135,922
Shared-use trails (\$11,000/mile per Trails KC Plan)	\$ 211,200
Signage (15% initial cost)	\$ 123,000
Bicycle parking (5% initial cost)	\$ 10,000
TOTAL	\$ 480,122

E. Grant / Funding Management Plan

As a steward of federal ARRA TIGER funds, the KC Bicycle/Pedestrian Project team is committed to a transparent and accountable financial management plan that will include:

- Current and complete disclosure of all spending on an accrual basis.
- Thorough documentation and recording of all authorizations, obligations, unobligated balances, assets, outlays, income and interest.
- Effective control over and accountability for all funds, property and other assets. All assets will be safeguarded and used solely for authorized purposes.
- Comparison of outlays with budget amounts for each award, related to performance and unit cost
- Written procedures to minimize time elapsed between transfer of funds
- Written procedures for determining reasonableness, allocability and allowability of costs in accordance with provisions of federal cost principles and terms and conditions of the award
- Accounting records including cost accounting records that are supported by source documentation
- Bond coverage as deemed necessary

<http://www.dot.gov/ost/m60/grant/49cfr19.htm#subpartc> Sec. 19.52

II. SELECTION CRITERIA | PRIMARY

A. Long-Term Outcomes

i. State of Good Repair

Consistent with efforts to maintain transportation systems in a state of good repair

- Biking and walking trips reduces the number of VMT and lessens the impact on roadway infrastructure.
- Project will reduce annual VMT by 13.5 million miles¹³

Rehabilitate projects that threaten future economic growth due to poor condition

- Upgrade 55 miles of city streets by equipping them with bike lanes and shared-lane markings which will provide safer accommodations for bicyclists (i.e., Chouteau Bridge currently has wide shoulders that are used by bicyclists. It will be upgraded with 5-foot bike lanes as well as an 8-foot, barrier-separated, shared-use trail on both sides to accommodate bicyclists and pedestrians).
- Upgrade 135 miles of bike routes with wayfinding (direction, distance, and destination) signage which will enhance on-street bicycle system, making it easier for residents and visitors to find their way on bikes.
- Pedestrian improvements at 20 intersections such as high-visibility, marked crosswalks, signage, curb cuts, signals, detectable warning plates, raised crosswalks, and/or traffic-calming measures will upgrade the existing infrastructure and provide safer accommodations that encourage people to walk more. Intersections targeted for improvements are in school zones and locations where multiple bicycle and pedestrian-involved crashes have occurred.
- Bike and pedestrian improvements in the Green Zone and other economically distressed areas will upgrade aging infrastructure that is a blighting influence on many parts of our city. Replacing/upgrading this infrastructure can help spark private reinvestment in these areas.

Project is appropriately capitalized; optimizes long-term cost structure

- The city's adopted design standards for bicycle and pedestrian improvements considered the long-term maintenance requirements/costs when they were developed. Improvements will therefore optimize long-term cost structure.

Sustainable source of revenue for long-term operations

- Despite budget woes, Kansas City's adopted annual capital improvement budget has a dedicated line item for trail maintenance. Funding from the 1 percent tax that supports public improvements capital program is available. This legislation has a 2014 sunset but has been consistently renewed in past elections.
- Bike-lane and shared-lane facilities are part of regular street maintenance.

ii. Economic Competitiveness

Improve long-term efficiency, reliability or cost-competitiveness in movement of workers or goods

- Adding one mile of bicycle facilities per square mile increases bicycle commuter mode share by 1 percent.¹⁴

¹³ See Attachment 2 for VMT calculations and methodology

¹⁴ See Attachment 2 for VMT calculations and methodology

- Improvements are projected to increase commuter trips by bike from 66,000 to 118,000 (an increase of 52,000 trips/year).¹⁵
- Improvements are projected to increase commuter trips by walking from 730,000 to 744,000 (an increase of 14,000 trips/year).¹⁶
- 1/3 of the population cannot drive (people with disabilities, residents who cannot afford a car, youth, seniors). Providing viable, alternative modes of transportation ensures that this large segment of the population has the mobility needed in order to access jobs and other destinations.
- Providing better connections to transit stops will extend bike and bus trips and invite more people to walk.

Allow for net new investments in expansion, hiring, or other growth of private-sector production, particularly in Economically Distressed Areas

- Project Revolve KC job training program will train and apprentice 15 bike mechanics per year. Project Revolve KC will open entrepreneurial jobs for new retail and job-skills training.
- Bike Share KC will employ three mechanics to keep the rental fleet in good repair.
- Travel Smart KC will engage 300 residents annually with active lifestyle events and programs, employing two FTE.
- Walking/Biking School Bus program will employ three FTE and work with 10 schools in Kansas City, Mo., school districts annually.
- KC region is currently served by 20 bike retailers who have annual sales of almost \$9 million and have approximately 80 to 90 full-time employees. Increasing biking, especially in economically distressed areas which are underserved by bike retail shops, provides retailing opportunities in these neighborhoods.

Other methods of demonstrating economic competitiveness

- Nationally, health-care costs due to obesity are \$147 billion annually.¹⁷
- Providing facilities for more biking/walking will encourage people to exercise, thereby improving health.
- Per capita cost savings from physical activity are \$128 per year.¹⁸
- Health benefits for this project are estimated at \$2.3 million annually.¹⁹

iii. Livability

Enhance user mobility through creation of more options

- Current system is disconnected and fragmented, leaving behind those who most need alternative modes of transportation — youth, seniors and low-income individuals.

¹⁵ Ibid

¹⁶ Ibid

¹⁷ *Wall Street Journal* Online. <http://online.wsj.com/article/SB20001424052970204563304574314794089897258.html>

¹⁸ Translating Demand and Benefits Research into Guidelines, NCHRP Report No. 552, Transportation Research Board

¹⁹ See Attachment 3 for Cost/Benefit calculations and methodology

- Increasing the trails system from 35 miles to 54 miles — providing the connectivity sorely missing in its current state.
- Increasing bike-lanes/shared-lane markings from 6.5 miles to 55 miles — allowing those in the urban core to more easily access desired destinations: home, work, school and business.
- Installing 135 miles of bike route wayfinding signage — completing the larger backbone of the on-street system will allow local residents and tourists to better enjoy the many amenities our city has to offer.
- Providing bicycle/pedestrian infrastructure encourages the behavior change needed to improve health, the environment and overall quality of life.
- One mile of bike facility per square mile shows modal choice increase by 1 percent.²⁰
- Modal share of biking trips will increase from 0.4 percent of all trips to 0.7 percent.²¹
- Modal share of walking trips will increase from 3.9 percent of all trips to 4.0 percent.²²

Modal connectivity, reducing congestion

- Providing better bicycle/pedestrian connections to transit stops will extend bike and bus trips and invite more people to walk, ride and use transit.
- 100 percent of all KCATA buses currently have bike racks.
- Congestion savings are estimated at \$10,473/year.²³

Improve accessibility, especially for Economically Distressed Areas

- One-third of the population cannot drive (people with disabilities, residents who cannot afford a car, youth, seniors). Providing viable, alternative modes of transportation ensures that this large segment of the population has the mobility needed to access jobs and other destinations.
- Sidewalks and crosswalk improvements are vital to the mobility needs of seniors, youth and the disabled. This project will focus improvements in the Green Impact Zone as well as areas around schools and senior centers.

Result of a planning process coordinating transportation and land-use planning

- Project implements priorities of existing plans. Bike KC, Trails KC, and the Walkability plans are the result of rigorous public involvement to determine the best corridors for facility improvements.²⁴
- All plans have been adopted by city ordinance and incorporated into relevant regional transportation plans.

²⁰ See Attachment 2 for VMT calculations and methodology

²¹ Ibid

²² Ibid

²³ See Attachment 3 for Cost/Benefit calculations and methodology

²⁴ Plans are available at www.kcmo.org/tiger_bikeped

iv. Sustainability

Improve energy efficiency; reduce dependence on oil; reduce greenhouse gas emissions

- Project is expected to reduce annual VMT by 13.5 million as people divert auto trips with trips by biking and/or walking.²⁵
- Saves over 785,000 gallons of fuel/year (based on national average of 17.2 miles/gallon).
- Eliminates over 7,000 metric tons of air pollution.
- Biking and walking are the only two truly green forms of transportation, resulting in zero emissions and reduction of the number of automobiles on our roadways.

Maintain, protect or enhance environment

- Majority of infrastructure improvements are within the existing roadway right-of-way and therefore have minimal impact on the environment.
- Several of the shared-use trails are proposed in greenways, however, Kansas City has an adopted stream setback ordinance which ensures that development (including trails) does not negatively impact the riparian environment. Mitigation measures are required for any displacement of riparian vegetation.

TABLE 2. KC Bicycle/Pedestrian Project Emission Reduction Calculations						
Annual VMT Reductions = 13,513,051						
Annual Air Pollution Savings = \$608,087						
Emission	Rate		Reduction Totals			
NOX Reductions	1.222	grams/vehicle mile	16,512,948	grams/year	16.51	metric tons/year
VOC Reductions	0.879	grams/vehicle mile	11,877,972	grams/year	11.88	metric tons/year
CO	7.613	grams/vehicle mile	102,874,858	grams/year	102.87	metric tons/year
CO ₂	8.8	kilograms/ gallon of fuel	7,134,891	kilograms/year	7,135	metric tons/year

Emission reduction rates based on Mobile6 runs.

\$0.045 per vehicle-mile for motor vehicle air pollution, Victoria Transportation Policy Institute, Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications, 2006. <http://www.vtpi.org/tca>. Accessed on July 29, 2008.

17.2 miles/gallon = 2007 U.S. vehicle average. Source: Bureau of Transportation Statistics. http://www.bts.gov/publications/national_transportation_statistics/html/table_04_09.html

v. Safety

Ability to reduce number, rate and consequences of crashes

- FHWA crash-reduction factor statistics show that upgrading pedestrian facilities with improvements such as continental crosswalks, pedestrian signals, raised medians, refuge islands, etc., decreases pedestrian injuries and fatalities.
- Improved bicycle facilities such as bike lanes provide separated, safe bicycle accommodations while also raising awareness for drivers of a bicyclist's right to the road. Both of these factors improve safety and reduce bicycle injuries and fatalities.

²⁵ See Attachment D-2 for VMT calculations and methodology

- Fatalities and injuries are high in proportion to the percentage of users. Media coverage of bicycle- and pedestrian-involved crashes are well documented and influence the perceptions of safety to the general public.

TABLE 3. Bike/Ped Crash Statistics –Annual Projected Safety Improvement Cost Savings					
Pedestrian	Total	Annual Rate	Reduction (%)	Reduction (#)	Savings
Fatalities	128	14.2	15%	2.1	\$ 8,192,000
Injuries	1,896	270.9	15%	40.6	\$ 2,149,251

Bicycle	Total	Annual Rate	Reduction (%)	Reduction (#)	Savings
Fatalities	8	0.9	15%	0.1	\$ 512,000
Injuries	524	74.9	15%	11.2	\$ 593,991

Data from "Destination: Safe" Coalition, Mid-America Regional Council, 2001–2008

TABLE 4. National Bicycle/Pedestrian Safety Statistics – Loss of Life and Injury Costs			
Category	Cost per Event	2005 Events	Total 2005 Cost
Bicycle Fatalities	\$ 3,840,000	784	\$ 3,010,560,000
Bicycle Injuries	\$ 52,900	45,000	\$ 2,380,500,000
Pedestrian Fatalities	\$ 3,840,000	4,881	\$ 18,743,040,000
Pedestrian Injuries	\$ 52,900	64,000	\$ 3,385,600,000

http://www.walkinginfo.org/faqs/answer_cfm?id=42
 Uses National Safety Council estimates (2005 dollars)

B. Job Creation and Economic Stimulus

The KC Bicycle/Pedestrian Project includes over \$23 million in infrastructure investment which is shown to not only generate significant construction-related jobs, but has an indirect and induced impact on job creation as the salaries and sales generated by the construction activity, in turn, generate additional purchases and jobs. The following table provides direct and indirect, as well as short-term and long-term job projections. In all, the project proposal will have a significant impact on the local Kansas City economy.

TABLE 5. KC Bicycle/Pestrian Project Estimated Jobs Created	
Short-Term	Amount
Construction Jobs ¹	725
Education / Encouragement Programming Jobs ²	23
Indirect / Induced Jobs ¹	482
Long-Term	Amount
Long-Term Jobs ³	178

Construction Costs = \$23,085,843

¹ 314,000 construction jobs / \$10 billion investment

132,000 indirect jobs / \$10 billion investment

77,000 induced jobs / \$10 billion investment

Source: Cambridge Systematics, *Public Transportation and the Nation's Economy*, 1999.

² Nonprofit partners' employment projects

³ Bureau of Economic Analysis (see Green Impact Zone, Appendix A)

III. SELECTION CRITERIA | SECONDARY

A. Innovation

The KC Bicycle/Pedestrian Project will include several innovative components. Bike Share KC will use the latest technologies including solar-powered checkout stations and GPS tracking to calculate VMT and emissions reductions. The project will also include the use of shared-lane markings, a roadway pavement marking which is not currently part of MUTCD, but is under consideration (Kansas City will submit its request to FHWA to use the shared-lane marking upon submission of this application.) Shared-lane markings are an innovative new way to assist bicyclists with positioning when lanes are too narrow for bike lanes and to alert drivers to the location bicyclists are likely to occupy when utilizing the roadway. Green and wet-weather solutions will be integrated into pedestrian facility improvements as much as possible. Curb extensions and mini-circles will include rain garden plantings whenever possible.

B. Partnerships

Bike and pedestrian improvements have a wide range of benefits: mobility, safety, health, recreational opportunities, and environmental benefits. As a result, this proposal has a strong, multi-disciplinary team of partners that represent transportation and safety advocates, environmental as well as health nonprofits, neighborhood associations, and biking and walking clubs. As these diverse disciplines are represented in the project partners and stakeholders, it ensures that implementation is well rounded, benefiting many groups and members of the community who would might not be reached if this was a transportation-only project.

The education and encouragement (i.e., programming) component of the bike/ped project includes significant collaboration with nonprofit partners, including Revolve, Inc., Bridging the Gap (Kansas City's leading environmental organization), the Share the Road Safety Task Force and the Missouri Bicycle Federation, who will be the lead agencies for implementing the programs outlined in this proposal. The implementation of the Project Revolve KC and Travel Smart KC in the Green Impact Zone are tremendous opportunities to get local neighborhood groups active in

promoting biking and walking. The Safe Routes to School program will also be a tremendous opportunity to engage not only local schools and schoolchildren but parents, churches, neighbors and community volunteers.

III. EVALUATION OF PROJECT BENEFITS AND COSTS

Overall, the project has an annual estimated benefit of \$36.6 million as compared to the TIGER request of \$12.1 million. Over a 20-year time horizon, the total estimated benefit is over \$353 million, whereas the total costs are estimated at \$30 million for a benefit-to-cost ratio of 11.8.

The table found in Attachment D-3 provides details of the anticipated costs and benefits of the KC Bicycle/Pedestrian Project.

IV. EVALUATION OF PROJECT PERFORMANCE

Infrastructure projects will be evaluated using before- and after-user counts at key intersections. Counts will be conducted annually and reported to the National Bicycle and Pedestrian Documentation Project. Education/encouragement programs will also be evaluated using the tools appropriate to each project. Bike Share KC will use the data collected from the GPS units installed on each bike: number of trips, miles logged (VMT reduction, etc, etc). Project Revolve KC will perform job readiness assessment for each participant, pre- and post-knowledge test of bike maintenance, and tracking participant job placement. Travel Smart KC will have a pre- and post-test on bike and pedestrian safety. The program will also track the pre- and post-activity levels of all participants. Safe Routes to School will use the national toolkit evaluation requirements to track participation, physical activity and safety knowledge.

Data collected will be used to compare existing and future mode share to determine if the project achieves its VMT reduction projections and thus achieves the associated benefits: air quality, health, mobility, recreation, congestion and user savings. The city of Kansas City, Mo., and the Mid-America Regional Council will continue to monitor crash incidents to determine if the improvements reduce the occurrence of pedestrian and bicyclist injuries and deaths.

V. PROJECT READINESS

A. Project Schedule

The infrastructure components of the KC Bicycle/Pedestrian Project are ready to be constructed. Project partners that will implement the education and encouragement components of the project have already developed business plans/ programming and are ready to mobilize as soon as an award decision is made. The schedule for improvements depends on the award of the grant, but the proposed schedule is as follows:

TABLE 6. KC Bicycle/Pedestrian Project Schedule Summary (by quarter)												
Project Component	2010				2011				2012			
	1	2	3	4	1	2	3	4	1	2	3	4
NEPA Completion	X											
On-Street Bicycle Improvements								X				
Shared-Use Trails								X				
Signage								X				
Bicycle Parking						X						
Pedestrian Improvements								X				
Smart Bikes KC								X				
Safe Routes to School								X				
Travel Smart KC								X				
Revolve KC								X				
Evaluation									X			

TABLE 7. Estimated Construction Jobs Created (by quarter)	
1 st Quarter 2010	44
2 nd Quarter 2010	80
3 rd Quarter 2010	239
4 th Quarter 2010	145
1 st Quarter 2011	65
2 nd Quarter 2011	65
3 rd Quarter 2011	44
4 th Quarter 2011	43
TOTAL	725

B. Environmental Approvals

Chouteau Bridge bike lanes and shared-use trail project and the Riverfront Heritage Trail project have already received NEPA approval Categorical Exclusion (CE). The remaining projects will qualify for CE (NEPA is underway for the Indian Creek to Trolley Track Trail project) as all construction activities will occur within existing rights-of-way and on previously disturbed soil. The Van Brunt Trail will be managed by the Kansas City, Mo., Parks and Recreation Department, which will endorse the 4-F Certification. Supporting documents can be found at www.kcmo.org/tiger_bikeped.

C. Legislative Approvals

No further legislative approvals are needed for the project to move forward.

D. State and Local Planning

Some of the projects (Riverfront Heritage Trail, Chouteau Bridge bike lanes and trail) are already on the Transportation Improvement Plan (TIP). The region is in the process of updating the Long-Range Transportation Plan and the remaining projects have been submitted for inclusion. All bike/trail projects are included as priorities in the city's adopted Trails KC and Bike KC Plans.

E. Technical and Financial Feasibility

Choteau Bridge, Riverfront Heritage Trail, Indian Creek to Trolley Track Trail, on-street bike and pedestrian improvements and wayfinding signage routes are designed and ready to construct. The Van Brunt Trail is located within the current right-of-way and is a simple design/build contract using the city's adopted engineering standards. Cost estimates have been prepared and matching funds are in-hand which ensures the financial feasibility of the project.

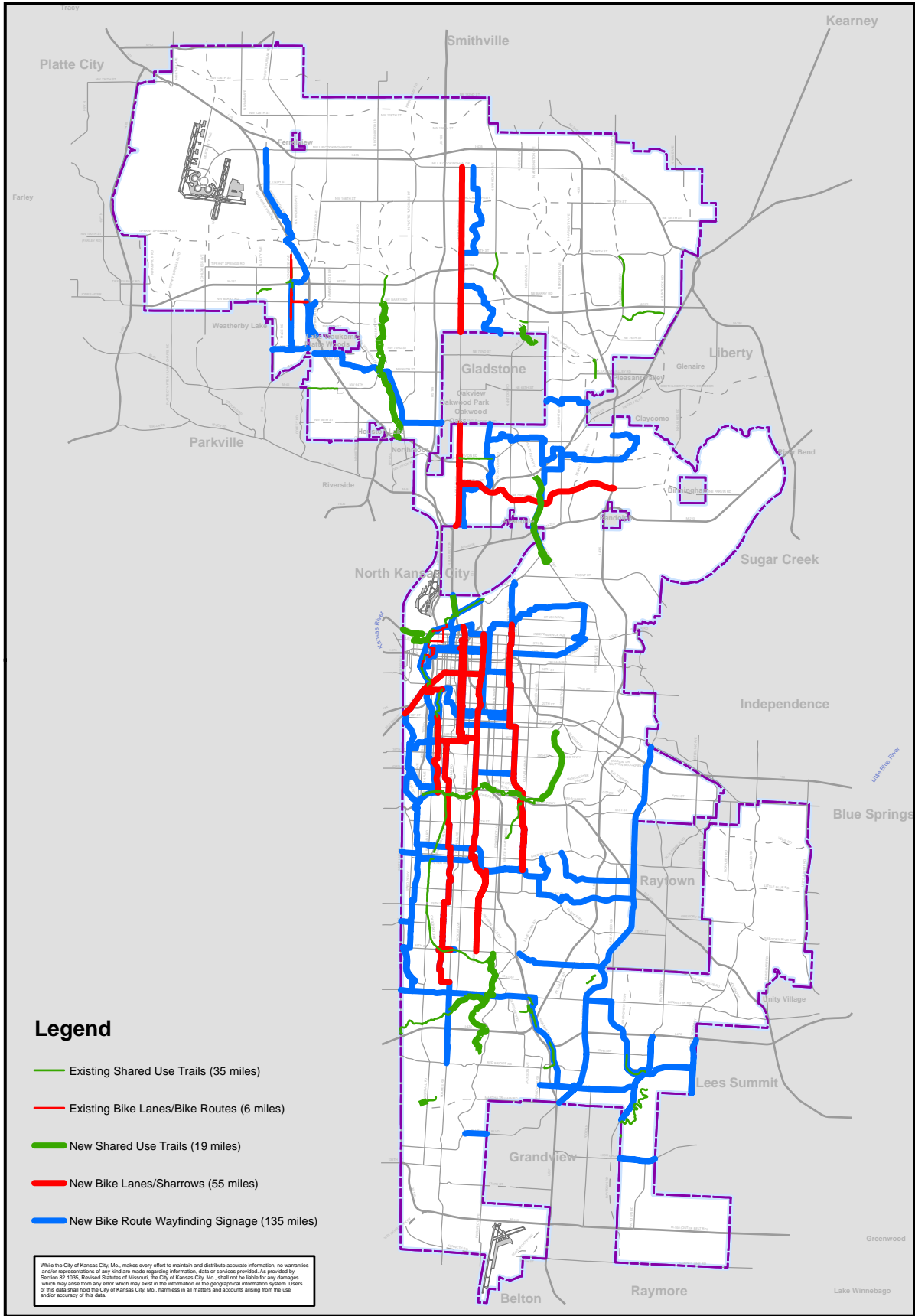
F. Federal Wage Rate Requirement

All laborers and mechanics employed by contractors and subcontractors on projects funded directly, in whole or in part, by TIGER grant funds through the federal government shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with U.S. Code Subchapter IV, Chapter 31, Title 40. The signed certification of compliance can be found at www.kcmo.org/tiger_bikeped.

G. Confidential Business Information

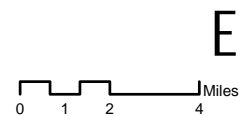
No information contained within this application is confidential.

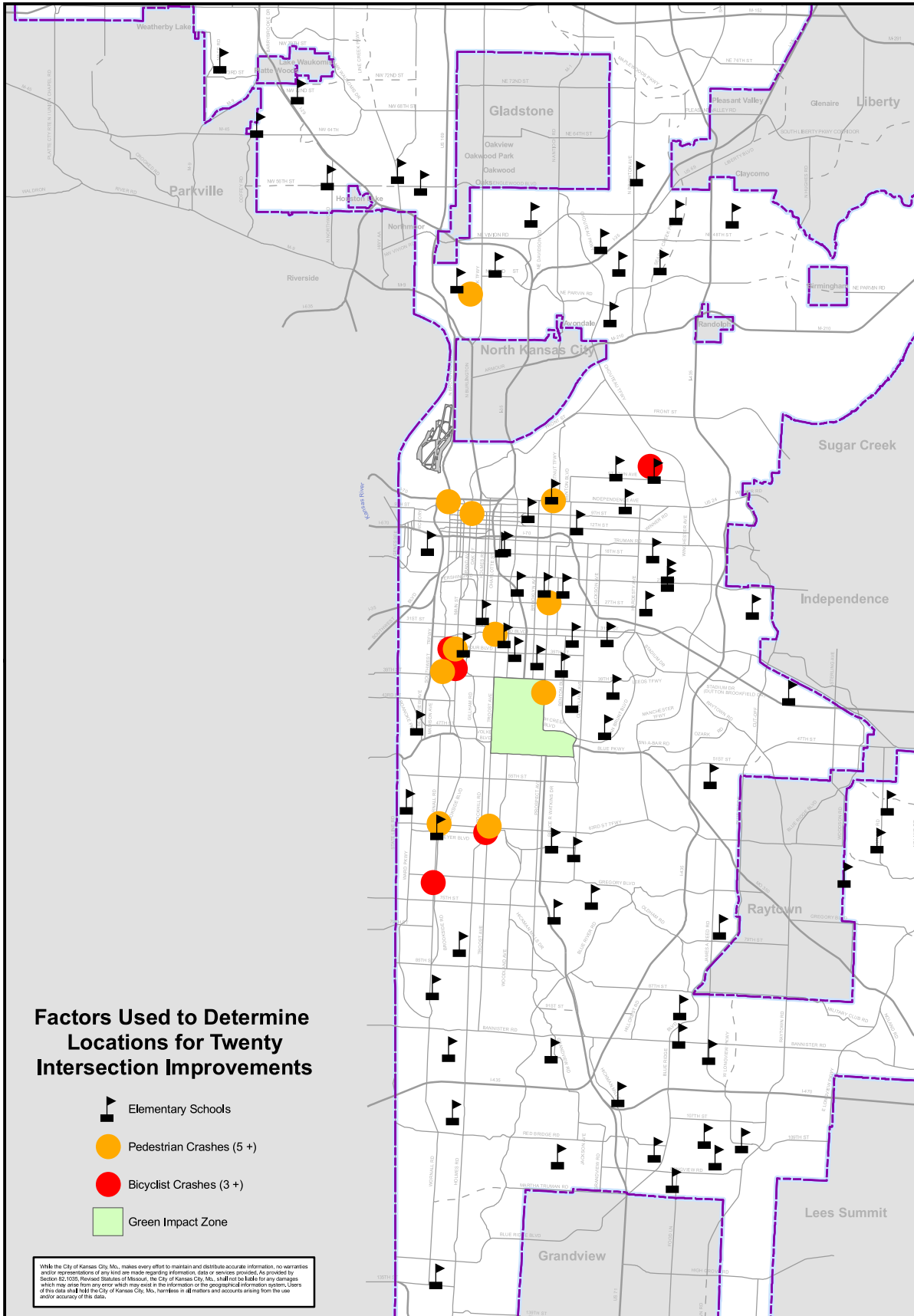
ATTACHMENT D-1: Supporting Documents



KANSAS CITY TIGER BIKE/PED PROJECT

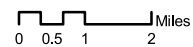
Prepared by: City Planning and Development Department
City of Kansas City, Missouri





KANSAS CITY TIGER BIKE/PED PROJECT

Prepared by: City Planning and Development Department
City of Kansas City, Missouri



**ATTACHMENT D-2:
Mode Share and VMT Reduction Calculations**

WHAT WILL PERCENTAGE MODE SHARE INCREASE BE FROM INCREASING THE AMOUNT OF BICYCLING/PEDESTRIAN FACILITIES?

Number of miles added to the system

Bicycle lanes	55	miles
Marked on-street bicycle routes (135 miles discounted at rate of 20%)	27	miles
Trails	19.2	miles
Total of all new/added bicycle facilities	101.2	
Total of all new/added ped facilities	19.2	
Square miles in KC	318	sq miles
Miles of bicycle facility per sq mile of KCMO	0.318238994	
Miles of trail facility per sq mile of KCMO	0.060377358	
Added percentage points of bicycle mode share	0.32%	
Added percentage points of bicycle mode share from trails	0.06%	

Assumption: Adding one mile of bicycle facilities per square mile increases bicycle commuter mode share by 1%
 p. 6, Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them, Commuters Will Use Them – Another Look
 Jennifer Dill and Theresa Carr, Portland State University, TRB Annual meeting 2003
http://www.des.ucdavis.edu/faculty/handy/ESP178/Dill_bike_facilities.pdf

Assumption: Total bicycle travel mode share tracks bicycle commuter mode share (approximately/reasonable assumption)
 Translating Demand and Benefits Research into Guidelines, based on Guidelines for Analysis of
 Investments in Bicycle Facilities, NCHRP Report 552, Transportation Research Board, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_552.pdf
<http://www.bicyclinginfo.org/bikecost/docs/Translating%20Demand%20and%20Benefits%20Research%20into%20Guidelines.pdf>

Assumption: Pedestrian are more frequent on trails than bikes. An additional 386,000 bike trips are attributable to the additional 19.2 miles of shared-use trails (0.06% bike mode share increase).
 Additional ped trips are estimated to be equal to or higher than the bike trips on new trails using local experience/data from other cities (est. 482,939 additional ped trips).
 Using Pedestrian Count Models to Estimate Urban Trail Traffic, Patrick Lindsey and Greg Lindsey, Journal of Regional Analysis and Policy, 2004, 34:1, pp 50-68.
 PFK Consulting. (1994). Analysis of Economic Impacts of the Northern Central Rail Trail.

Current (annual basis)				Predicted (annual basis)			Annual Change (difference between current & predicted)			
Item	Source	Amount	Unit	Source	Amount	Unit	Source	Amount	Unit	
Vehicle miles driven		3,113,777,492	miles		3,100,264,441	miles		-13,513,051	miles	less than baseline
Vehicle trips %			90.7% of all trips			90.3% of all trips		-0.4%	of all trips	less than baseline
Bicycle trips		2,562,780	trips		4,601,721	trips		2,038,941	trips	more than baseline
Bicycle trips %			0.4% of all trips			0.7% of all trips		0.3%	of all trips	more than baseline
Bicycle miles		9,226,007	miles		16,566,196	miles		7,340,188	miles	more than baseline
Bicycle commuting %			0.1% of commuting trips	Assuming bicycle commute trip:		0.2% of commuting trips		0.1%	of commuting trips	more than baseline
Bicycle commute trips		65,735	trips		118,034	trips		52,299	trips	more than baseline
Bicycle commute miles		236,647	miles		424,923	miles		188,276	miles	more than baseline
Avid cyclists	Assuming 80% of new	19,985	people	Assuming 80% of new trips are f	35,885	people		15,900	people	more than baseline
Walking trips		24,987,103	trips		25,470,042	trips		482,939	trips	more than baseline
Walking trips %			3.9% of all trips			4.0% of all trips		0.1%	of all trips	more than baseline
Walking miles		37,480,655	miles		38,205,063	miles		724,408	miles	more than baseline
Walking commute trips		730,392	trips	Assuming walk commute trips ri	744,509	trips		14,117	trips	more than baseline
Walking commute miles		1,095,588	miles		1,116,763	miles		21,175	miles	more than baseline
Avid pedestrians, walkers, joggers, runners		95,166	people	Assuming 40% of new trips are f	97,005	people		1,839	people	more than baseline
Transit trips %			1.0% of all trips			1.0% of all trips		0.0%	of all trips	more than baseline
Other trip modes, %			4.0% of all trips			4.0% of all trips		0.0%	of all trips	more than baseline
Assumptions (KCMO residents)				Assumptions for prediction			Change			
<i>from Kansas City Regional Household Travel Survey, 2003-2004</i>										
Total trips, annual		640,694,957	trips		640,694,957	trips		0		
Ave trip distance			4.86 miles/trip			4.86 miles/trip				
Vehicle miles driven, annual		3,113,777,492	miles		3,113,777,492	miles		0	miles	more than baseline
Vehicle trips percentage			90.7% of all trips			90.3% of all trips		-0.4%	of all trips	less than baseline
Commute trips, %			11.4% of all trips			11.4% of all trips		0.0%	of all trips	more than baseline
Commute trips, annual		73,039,225	trips		73,039,225	trips		0	trips	more than baseline
KCMO population		475,830	people		475,830	people		0	people	more than baseline
Bicycle trips, annual		2,562,780	trips		4,601,721	trips		2,038,941	trips	more than baseline
Bicycle trip %			0.4% of all trips			0.7% of all trips		0.3%	of all trips	more than baseline
Average bicycle trip length, miles	p. 38, http://www.mar		3.6 miles	p. 38, http://www.marc.org/Tra		3.6 miles		0.0	miles	more than baseline
Population bicycling at least once annu	Household Travel Surv	99,924.3	people							
Avid cyclists	Assuming 20% of total	19,984.9	people							
Average annual trips by avid cyclists	Assuming 20% of bicyc	102.6	trips annually							
Walking trips, annual		24,987,103	trips		25,470,042	trips		482,939	trips	more than baseline
Walking trip %			3.9% of all trips			4.0% of all trips		0.1%	of all trips	more than baseline
Average walking trip length, miles	p. 38, http://www.mar		1.5 miles	p. 38, http://www.marc.org/Tra		1.5 miles		0.0	miles	more than baseline
Walking commute trip %	Household Travel Surv		1.0% of commuter trips							
Avid pedestrians	20% of population are	95,166	people							
Average annual trips by avid pedestrians	Assuming this group d	105.0	trips							
Transit trips %			1.0% of all trips			1.0% of all trips		0.0%	of all trips	more than baseline
Other trip modes %			4.0% of all trips			4.0% of all trips		0.0%	of all trips	more than baseline

ATTACHMENT D-3: Cost Benefit Projections and Methodology

NET PRESENT VALUE AND BENEFIT / COST RATIO CALCULATION FOR BIKE/PED PROJECT

ASSUMPTIONS:	
ANALYSIS HORIZON =	20 YEARS
DISCOUNT RATE =	7.00%
CONSTRUCTION YEAR =	0

ANALYSIS YEAR	ANNUAL VALUE OF USER BENEFITS								DISCOUNT FACTOR	TOTAL ANNUAL PRESENT VALUE OF BENEFIT	ANNUAL PROJECT COSTS				
	Mobility Benefit	Air Quality Benefit	Health Benefit	Recreation Benefit	Congestion Savings	User Savings	Safety Benefit	Economic Benefit (prop. values, tourism, sales, bus attraction)			TOTAL ANNUAL USER BENEFIT	Initial Construction Cost (TIGER)	Initial Construction Cost (Match)	Maintenance Cost	TOTAL ANNUAL PRESENT VALUE OF COST
0									\$0	1.000	\$0	\$12,100,000	\$12,960,843		\$25,060,843
1	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	not calculated	\$36,565,263	0.935	\$448,712			\$480,122	\$448,712
2	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.873	\$31,937,517			\$480,122	\$419,357
3	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.816	\$29,848,146			\$480,122	\$391,923
4	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.763	\$27,895,464			\$480,122	\$366,283
5	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.713	\$26,070,527			\$480,122	\$342,321
6	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.666	\$24,364,979			\$480,122	\$319,926
7	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.623	\$22,771,008			\$480,122	\$298,996
8	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.582	\$21,281,316			\$480,122	\$279,436
9	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.544	\$19,889,080			\$480,122	\$261,155
10	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.508	\$18,587,925			\$480,122	\$244,070
11	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.475	\$17,371,893			\$480,122	\$228,103
12	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.444	\$16,235,414			\$480,122	\$213,180
13	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.415	\$15,173,284			\$480,122	\$199,234
14	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.388	\$14,180,639			\$480,122	\$186,200
15	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.362	\$13,252,934			\$480,122	\$174,018
16	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.339	\$12,385,920			\$480,122	\$162,634
17	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.317	\$11,575,626			\$480,122	\$151,994
18	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.296	\$10,818,342			\$480,122	\$142,051
19	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.277	\$10,110,600			\$480,122	\$132,758
20	\$186,899	\$608,087	\$2,270,621	\$22,035,656	\$10,473	\$6,284	\$11,447,243	"	\$36,565,263	0.258	\$9,449,159			\$480,122	\$124,073
PRESENT VALUE OF BENEFITS = \$353,648,485											PRESENT VALUE OF COSTS = \$30,147,266				

NET PRESENT VALUE =	\$353,648,485
BENEFIT / COST RATIO =	11.73
BENEFIT / COST RATIO FOR TIGER FUNDS =	29.23

Bike/Ped Cost Benefit Calculations

Benefit calculations		
	Annual Value	Calculation + Source
Air pollution reduction (bicycle & pedestrian combined)	\$608,087	\$0.045 per vehicle-mile for motor vehicle air pollution, Victoria Transport Policy Institute (VTPI), Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications, 2006. http://www.vtpi.org/tca/ . Accessed on July 29th, 2008.
Safety benefit	\$11,447,243	\$3.84 million cost per fatality, \$52,900 cost per injury, National Safety Council. http://www.walkinginfo.org/faqs/answer.cfm?id=42 . Kansas City's averages for fatalities and injuries and projections for reductions are included in the safety section of the document.
Bicyclist mobility benefit	\$186,899	\$3.57/mile = value of these routes to bicycle commuters, based on the amount of time they will spend to seek them out in preference to other, worse, routes; Source: Translating Demand and Benefits Research into Guidelines, Benefit-Cost Analysis of Bicycle Facilities, Active Transportation Research Group, http://www.bicyclinginfo.org/bikecost/docs/Translating%20Demand%20and%20Benefits%20Research%20into%20Guidelines.pdf
Bicyclist recreation benefit	\$17,879,781	Net benefit of recreation hours spent, valued at \$10/trip using two different, independent methods, in "Translating Demand and Benefits Research into Guidelines". Note that this net benefit is the benefit "above and beyond the value of the time taken by the activity itself." This assumes 90% of all non-commute trips are recreational trips.
Bicyclist health benefit	\$2,035,188	Annual per-capita cost savings from physical activity for newly active people, median value of 10 studies is \$128/year. Source: Translating Demand and Benefits Research into Guidelines
Congestion savings-bicycle commuting & errands	\$9,414	Reduction in congestion by eliminating motor vehicle commute & utility trips. Per source, p. 3, amount of commute miles * \$0.05 is a good estimate for this number. Source: Translating Demand and Benefits Research into Guidelines, p. 3
User savings from bicycle commuting & errands	\$5,648	Cost savings to users for replacing commuting and utility trips with nonmotorized trips. \$0.03 * commuter miles is a good estimate according to the source: Translating Demand and Benefits Research into Guidelines, p. 3. Based on IRS figures, \$0.03/mile is a very, very conservative figure.
Pedestrian recreation benefit	\$4,155,875	Net benefit of recreation hours spent, valued at \$10/trip using two different, independent methods, in "Translating Demand and Benefits Research into Guidelines". Note that this net benefit is the benefit "above and beyond the value of the time taken by the activity itself." This assumes 90% of all non-commute trips are recreational trips.
Pedestrian health benefit	\$235,433	Annual per-capita cost savings from physical activity for newly active people, median value of 10 studies is \$128/year. Source: Translating Demand and Benefits Research into Guidelines
Congestion savings-pedestrian commuting & errands	\$1,059	Reduction in congestion by eliminating motor vehicle commute & utility trips. Per source, p. 3, amount of commute miles * \$0.05 is a good estimate for this number. Source: Translating Demand and Benefits Research into Guidelines, p. 3
User savings-pedestrian commuting & errands	\$635	Cost savings to users for replacing commuting and utility trips with nonmotorized trips. \$0.03 * commuter miles is a good estimate according to the source: Translating Demand and Benefits Research into Guidelines, p. 3. Based on IRS figures, \$0.03/mile is a very, very conservative figure.