

Spanning over the Tennessee River and connecting to the University of Tennessee's Thompson Boling Arena, an 18-mile downtown greenway system on the north side, and a 45-mile Urban Wilderness Trail system on the south side, the South Waterfront Pedestrian/Bike Bridge is sure to enhance quality of life for Knoxville.

Funding the bridge would equal true environmental, cultural and economic impact to the vibrant, thriving Knoxville, Tenn., which has come into its own as an outdoor tourism city and a college town.



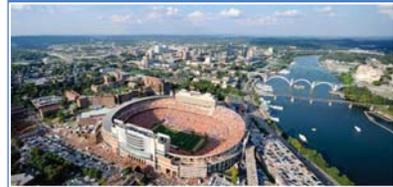
KNOXVILLE SOUTH WATERFRONT PEDESTRIAN/BIKE BRIDGE PROJECT



Transportation Investment Generating Economic Recovery VII Grant Application

June 5, 2015

Submitted By
City of Knoxville, TN
TIGER ID #
dmf373



Transportation Investment Generating Economic Recovery VII Grant Application Knoxville South Waterfront Pedestrian and Bike Bridge

EXECUTIVE SUMMARY

The Knoxville South Waterfront Pedestrian and Bike Bridge (referred to throughout this document as the “Project”) is a highly visible public improvement project designed to stimulate redevelopment efforts along the City’s south riverfront. The Knoxville South Waterfront Vision and Action Plan is a 20-year revitalization strategy adopted by Knoxville City Council in 2006. The Vision Plan included extensive public involvement and enjoys a high level of public support as a result. The bridge is defined as one of the plan’s most popular features and considered a significant public improvement project to link Knoxville’s south and north waterfronts.

The City of Knoxville, in cooperation with the Tennessee Department of Transportation (TDOT) is requesting \$24 million in TIGER Discretionary Grant funds for the Project. These funds, combined with matching investments from the city will be used to construct a new pedestrian/bike connection that will span the Tennessee River to link residents with mixed-use developments on both sides of the river.

The Tennessee River in Knoxville, as in most riverfront cities, was once lined with industrial uses. Overtime, those industrial sites either relocated or become obsolete. Now, these riverfronts are being redeveloped as places to live and play, giving way to higher and better uses that improve the quality of life for all.

While primarily a residential neighborhood, the south side of the river has challenges in topography, infrastructure and land uses. Ironically, one of the area’s greatest asset—the Tennessee River—represents a pedestrian divide between South Knoxville and two of Knoxville’s other primary assets: downtown and the University of Tennessee. This new pedestrian bridge will provide an alternative transportation choice that will increase connectivity spanning from the South Waterfront to the University of Tennessee campus and Knoxville’s city center. Having such a close proximity to downtown, this Project reflects the City of Knoxville’s vision of stimulating economic opportunity by investing outward from our City’s urban core.

Eventually, the Project will result in an opportunity for more residential growth and higher density development occurring along the south side of the river and connect existing greenway systems located on the north side of the river.

The timeliness of this bridge is essential, as it will eradicate any potential of the South Waterfront Redevelopment losing steam due to geographic separation from urban core development and happenings on the north side of the river.

The City has jumpstarted redevelopment efforts along the South Waterfront by investing local dollars to construct new streetscapes, river walks and a new public park designed to spur private, market-driven development toward creation of an exciting mixed use environment.

The Knoxville South Waterfront Redevelopment Plan, adopted by the City Council in 2006, calls for mixed uses with the idea that the South Waterfront will become an extension of downtown where people will live, work, play and seek entertainment. The project will provide efficient access to jobs, services and centers of trade on both sides of the river.

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When complete, the improvements to the area will increase the region's economic development potential by attracting new private development and significantly improving the region's State of Good Repair.

The requested \$24 million in TIGER funds will complement the \$ 6 million (20 % local match) from the City and is projected to yield nearly \$62.5 million in benefits discounted to 2013 dollars in the BCA's low case projections), or approximately \$2.30 in 2013 dollars in public benefits for every \$1 spent.

A summary of the project's impact on the short and long-term outcomes for the region are indicated in **Table ES-1**.

Table ES-1: Summary of Benefits

Benefit	Time Scale	2013 Dollars
Safety	Yearly	\$3,049,312.96
CO2 Reductions	Total Discounted at 7%	\$1,897,710.10
Time Saved	Yearly	\$2,668,140.00
Property Value	Total Discounted at 7%	\$19,313,537.66

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1.0 PROJECT DESCRIPTION

The Project will span the Tennessee River to connect downtown and the University of Tennessee with the south waterfront. The north side of the bridge is located within the heart of the City of Knoxville and directly linked with an existing 18 mile greenway system running east-west throughout the city. The south side of the bridge will provide a new amenity to two low-middle income neighborhoods directly across the river known as Old Sevier and Scottish Pike.

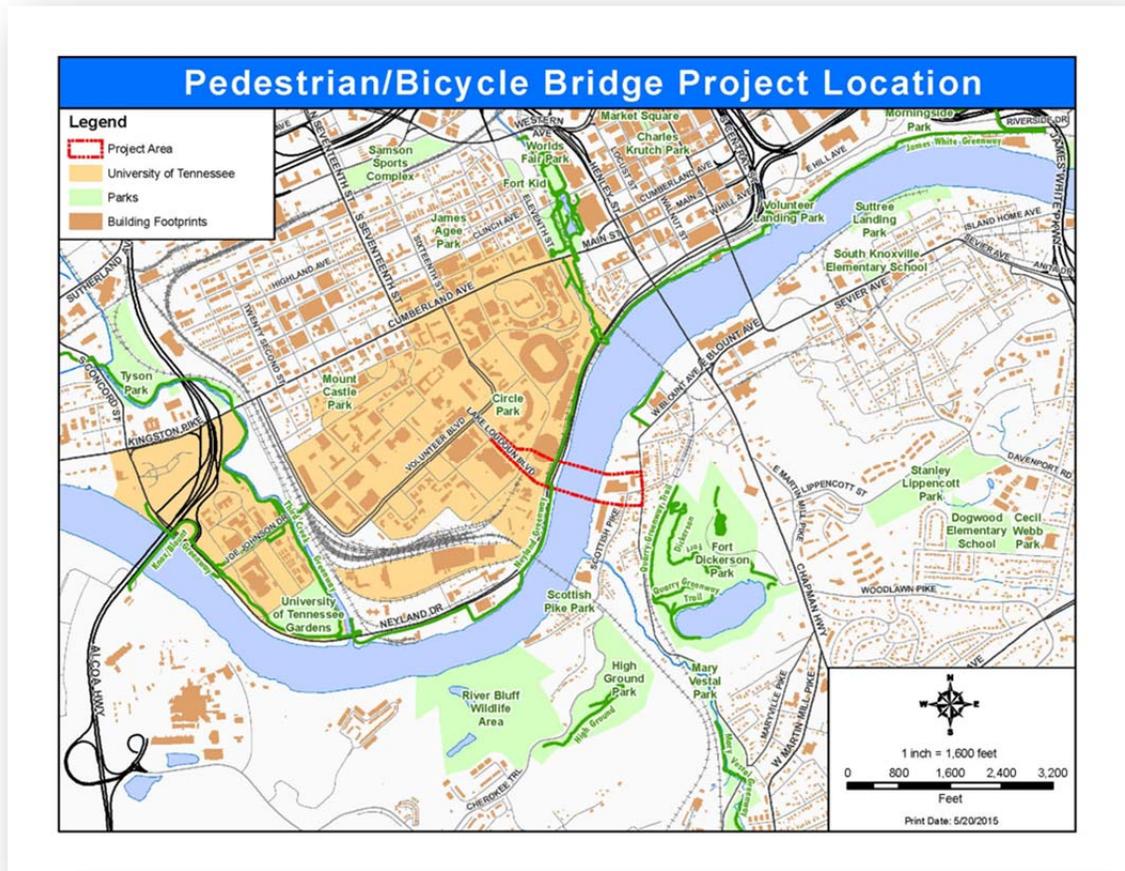


Figure 1: Project Area Description

Located within the City of Knoxville, this south Knoxville community is a mix of mostly industrial and residential uses. There are approximately 5,000 people living in the community. Its geography is defined by two ridges, three valleys, and an old flood plain of the river. It is bounded by the north by the Tennessee River. To the west, the Scottish Pike and Blount Avenue and districts form a distinctive mixed live-work environment with industry located on the low shelf along the river and housing ranging behind it and beyond a limiting rail underpass. Housing in this area is of mixed conditions, but over 50 percent owner occupied. Close to 15 percent of jobs in this area are held by neighborhood residents. Formally known as an Empowerment Zone, this area of South Knoxville is diverse in every way racially, economically, and educationally. Just to the east between the Henley and Gay Street Bridges is the South Waterfront's core commercial and institutional district.

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Eleven percent of the population of the community is African American and 5 percent of the community is Hispanic or Latino. Approximately 5 percent of residents speak Spanish at home. One hundred percent of the students at South Knoxville elementary qualify for free and reduced lunch. Other challenges for the community include older homes in need of repair, decreasing home ownership, old infrastructure, declining retail business, and a school in need of updating. In addition, absentee property owners have been buying up large pieces of the neighborhood. Only 35 percent of the homes located in the community are owner occupied. During its heydays in the 1950's and 1960's the community was bustling with economic and social activity.

Just north of our project area is the site of the City's South Waterfront Redevelopment Area. The South Waterfront, all told, is the 750 acres along the southern shoreline of the Tennessee River that is entering its second phase of design and development. The public improvements envisioned for the South Waterfront Redevelopment Area—including a continuous pedestrian/bicycle riverwalk—are designed to create new economic and recreational opportunities for the Old Sevier and Scottish Pike neighborhoods, and for other nearby communities.

On the north side of the proposed project is Knoxville's Central Business District (CBD) and the University of Tennessee. With a daytime worker population of 20,000 in the CBD and about 27,000 students at the university, this bridge will help make the South Waterfront an extension of downtown Knoxville linking to cultural, commercial and academic centers.

1.1 Project Summary

In 2006, the City of Knoxville adopted the Knoxville South Waterfront Vision and Action Plan as a 20-year revitalization strategy for the south side of the Tennessee River. The area covered by the South Waterfront Plan spans approximately three miles, consisting of a total of 750 acres (1.2 square miles) along which public and private improvements are already underway. The South Waterfront Pedestrian and Bike Bridge is a recommended public improvement project to aid in redevelopment efforts and economic investments.



The Project involves the construction of a new 1,710 linear foot pedestrian-bike bridge to connect the South Knoxville community to the University of Tennessee. Land slated for redevelopment along the South Waterfront will connect to the University of Tennessee near Thompson Boling Arena, which is a major event center. The bridge will also connect existing greenway systems located on the north side of the river to the South Waterfront Riverwalk.

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The Project will provide a multi-modal option and provide a safe alternate, designated route for pedestrians and bicyclist seeking to cross the river at downtown and to the university.

Information and project status on the pedestrian-bike bridge is located on the City's website at <http://www.cityofknoxville.org/southwaterfront/>

Projects such as this outside of the City's South Waterfront Redevelopment Area will create an environment of innovation that will positively affect investment and development for the city.

1.2 Detailed Project Description

The Project identified in the adopted 2006 Knoxville South Waterfront Vision Plan. The Project was included in the Vision Plan to provide connectivity between the South Waterfront and the University of Tennessee as a way to improve access between the north and south sides of the Tennessee River and to stimulate investment and redevelopment interest in the South Waterfront area.

The basic design is a 1,710 linear feet of a long-span arch spanning the entire river with one single arch. It will essentially have zero impact on the river environment. This would be done utilizing a series of towers and tie-backs, and cantilevering out from the skew-backs on the riverbanks on each side of the river. This would most likely be built using cast-in-place or precast concrete, although steel is a probable option. Visually, this preferred design offers significant aesthetic enhancement to the site.

During the preliminary design stage, several discussions were held with the City, TPO, UT, stakeholders and other working groups regarding the best way for cyclists and pedestrians to co-exist on the bridge, whether it is a shared use path or a path separated from other users by an actual raised path or by striping. With a proposed width of 25 feet, any of these options could be done. Final design will involve more public involvement and discussions to program the most favorable amenities that will benefit both bicyclists and pedestrians.

In 2009, the city received a TCSP grant of \$666,900 (\$533,520 granted from the TCSP grant; locally matched at \$133,380, or 20 percent) for preliminary engineering including environmental clearance and right of way identification (not purchase). The City successfully completed all assigned phases of this grant in September 2014. The approved Categorical Exclusion (CE) document indicating environmental clearance approval can be viewed in Appendix A.

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FIGURE 2: Project Location

The project design has required analysis of several complex factors, including evaluation of potential landing areas, minimizing environmental impact, meeting vertical clearance requirements over the river's barge channel and respecting existing structures and utilities.

The Project will maximize pedestrian safety by allocating a route unshared by motor vehicles across the river, and will aid in minimizing environmental impacts and transportation-related fuel consumption by providing safe and attractive alternative transportation and commuting options.

This Project is necessary to implement the South Waterfront's transit-oriented development plans, traffic calming measures and coordinated transportation, community and system creation practices. South Waterfront is planned to provide multi-modal transportation choices. Public improvements to provide accessible and connected pedestrian and bicycle facilities are implemented in new streetscape improvements. The City has already constructed portions of what will eventually be a three mile Riverwalk providing continuous pedestrian and bicycle infrastructure along the waterfront, with this Project as the largest pedestrian link connecting both north and south sides of the river.

Our region has a strong commitment to livability and sustainability as evidenced through our recently completed three year regional planning effort, Plan East Tennessee (PlanET). PlanET was part of the US HUD, DOT, and EPA Partnership for Sustainable Communities program. The City of Knoxville was chosen in 2010 to receive a grant from the Sustainable Communities Regional Planning Grant program on behalf of a 5-county region. Over 10,000 individuals contributed to the planning effort which resulted in a number of strategies for implementation.

As part of work completed in 2014 for PlanET, priority populations were identified to help inform strategies for improving quality of life throughout the region. Priority populations comprise areas of disproportionate burden where opportunity and accessibility are low, and vulnerable population groups are centered.

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Neighborhoods at the confluence of low opportunity, limited accessibility, and high vulnerability comprise our priority populations. The community in which the Project seeks to connect, has been identified as one of those neighborhoods.

Today, only 15 percent of residents in the community have a bachelor's degree or higher. Housing cost is low but transportation costs are high. The majority of the community pays more than 45 percent of their income on housing and transportation costs combined. Thirty nine percent of people in the census tract are below the poverty line. Close to 100 percent of the children living in this neighborhood qualifies for free or reduced lunches. Many individuals living in this neighborhood have limited mobility options.

Transportation plays a critical role in connecting Americans and communities to economic opportunity. This Project would provide a safe, reliable and affordable option to connect people to jobs, education, and other essential services. By connecting an economically challenged community, the bridge will serve as a catalyst for revitalization and economic growth in an area characterized by low opportunity. This Project not only creates a physical connection but unites a community disconnected from the recent successes of revitalized and enhanced opportunity being experienced across the river. This project creates a pathway to enhanced quality of life for existing and future residents on the south side of the river.

Our region and this community are poised to move to implementation of our vision as a premier region of choice and opportunity. The construction of this Project adheres to the goals of the PlanET effort and takes our region one step closer to realizing our vision.

Long term outcomes anticipated for this project include:

- fuel efficiency and reduced reliance on nonrenewable resources;
- creating a vital pedestrian link; to increase accessibility for tourist, residents, workers, students
- reduction in carbon emissions

The total project cost is estimated at \$30,000,000. The project elements are presented in **Table 1**.

TABLE 1: Project Elements

NAME	JURISDICTION	IMPROVEMENT	LENGTH (miles)
Knoxville South Waterfront Pedestrian/Bike Bridge	City of Knoxville	On bridge; pedestrian and bicycle facility	0.32

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1.3 Project Parties

The City of Knoxville, Tennessee is the lead applicant for this TIGER Grant Application. Supporters include TDOT, TPO, and the University of Tennessee, Knoxville. Regulatory agencies involved with this project include TVA,USACE, TDEC and TWRA.

The primary point of contact for this application is:

Dawn Michelle Foster, CEP

Deputy Director

City of Knoxville

Office of Redevelopment

400 Main Street, Suite 655

Knoxville, TN 37901-1631

Project Participants are listed in Table 2.

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TABLE 2: Project Parties

PARTY	DESCRIPTION	GRANT ROLE
City of Knoxville, TN	The City of Knoxville has a population of 178,874 (2010) census, making it the state's third largest city. Knoxville is the principal city of the Knoxville Metropolitan Statistical Area	Lead Applicant
Knox County, TN	Knox County is a county in the U.S. state of Tennessee. As of the 2010 census, the population was 432,226, making it the third-most populous county in Tennessee.	Stakeholder
Tennessee Department of Transportation (TDOT)	TDOT is a multimodal agency with responsibilities in highways, aviation, public transit, waterways, railroads and bicycle and pedestrian. Their involvement includes funding, environmental permitting assistance and enhancement of non-motorized transportation.	Stakeholder
Knoxville Transportation Planning Organization (TPO)	The Knoxville Regional Transportation Planning Organization coordinates a comprehensive, multimodal transportation planning process for the Knoxville Urban Area. Member jurisdictions include Knox County and the urbanized areas of Anderson, Blount, Loudon and Sevier Counties and includes the following cities: Alcoa, Clinton, Knoxville, Lenoir City, Loudon, Maryville and Oak Ridge, the Town of Farragut, Tennessee Department of Transportation and East Tennessee Development District.	Stakeholder
Knoxville Transportation Planning Organization (Bike Plan)	The Knoxville Regional Bicycle Plan provides a guide for the development of a convenient, efficient transportation system where people can bike safely to all destinations. This Plan recognizes the growing needs of the bicycling public and seeks to encourage more bicycling for both personal transportation and recreation. Bicycling as transportation improves air quality and reduces traffic congestion. In addition, bicyclists benefit from improved health and fitness.	Stakeholder
University of Tennessee, Knoxville	The University of Tennessee, Knoxville, is a public sun-grant and land-grant university headquartered in Knoxville, Tennessee. It is the flagship institution of the statewide University of Tennessee system with nine undergraduate colleges and eleven graduate colleges and hosts almost 28,000 students.	Stakeholder

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1.4 Grant Funds and Sources and Uses of Project Funds

The Project is part of the 20 year strategy to support over more than \$800 million in private, market-driven redevelopment through construction of \$139 million in public improvements.

To date the city has utilized several sources of funding to implement transportation improvement projects for the South Waterfront.

- 1) In September 2006, the creation of a Tax Increment Financing (TIF) district encompassing the entire South Waterfront was approved by the Knoxville City Council, with an expected yield of \$44 million over the next 20 years.
- 2) Recipient of HPP funding (Project #4983) federal SAFETEA-LU highway authorization bill) in the amount of \$5.4 million (including 20% local match of \$1.08 million) for streetscape improvements along a major south waterfront arterial. Environmental documentation is being review by TDOT and FHWA. Funding is obligated, with construction pending in 2018.
- 3) Recipient of TCSP grant funding (TDOT PIN # 113061.00) in the amount of \$666,900 (including 20% match of \$133,380) for environmental documentation and preliminary design. All assign phases of this grant were completed by September 2014, receiving environmental clearance on the project.
- 4) Recipient of TDOT Transportation Enhancement (TE) for the construction of City View Riverwalk in the amount of \$678,110.50.00 (including 20% local match or \$135,622) construction completed in Spring 2013; TDOT PIN:108784.02; Federal Project No.STP-EN-9109(138); State Project No: 47LPLM-F3-042
- 5) Local funds from the City’s Capital budget allocated to South Waterfront Redevelopment Projects

The requested TIGER funds are needed to complete project elements leading to the construction of the pedestrian bridge project and described in Section 1.2 of the grant application. The City is requesting TIGER grant funds in the amount of \$24 million, approximately 80 percent of the estimated construction costs. The source for the 20 percent match for the grant (\$6 million) will be the City of Knoxville Capital Improvement Program (CIP) budget.

TABLE 3: Proposed Funding Sources for Construction

FUNDING PARTNER	FUNDING AMOUNT (\$ millions)	FUNDING PERCENT	FUNDING SOURCE
City of Knoxville	\$6,000,000	20%	Local
USDOT	24,000,000	80%	TIGER Grant

In addition, local –STP funds are programmed through the Knoxville Regional Transportation Planning Organization (TPO) in the amount of \$1.2 million (20 percent local match of \$300,000) to be utilized for final design and Right-of-Way acquisition. These funds will not contribute to the City’s match for TIGER funding.

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2.0 PRIMARY SELECTION CRITERIA

2.1 Long-Term Outcomes

The proposed Project will allow pedestrian and cyclists to enjoy a previously inaccessible section of river in the heart of Knoxville. Additionally, investing in our downtown and close in communities is more cost effective than spreading development out over a large area.

The proposed Project will provide several significant public benefits including:

- New off-street pedestrian and bicycle facilities spanning the Tennessee River to connect the South Knoxville Waterfront to the University of Tennessee, Knoxville campus
- An economic development catalyst for private riverfront development projects
- Expansion Knoxville's pedestrian/bicycle network by connect existing greenways on the north side and continuing Riverwalk expansion along the south side
- Reduced environmental impacts
- Reduction in transportation related fuel consumption
- Providing a safe, secure and efficient mobility option for those that cannot or chose not to drive
- Improved air quality benefits through the reduction of carbon and other air pollutant emissions

2.2 State of Good Repair

We have a growing region and people are asking for more service and infrastructure, especially as it relates to pedestrian and bicycle facilities. The addition of a pedestrian bridge builds upon the City of Knoxville's robust and growing network of greenway connections. The Project will separate pedestrians and bicyclists from the railroad bridges and other crossings to the north and south. This is both safer for non-motorized users but also contributes to the resiliency of the overall transportation network by expanding crossing options over the river. Diversifying the network helps to relieve stress on existing infrastructure while capitalizing on important infrastructure investments that have already been and our currently underway on both sides of the river.

All TIGER funds and matching funds from the City of Knoxville will be used for labor and materials costs associated with project construction. The TPO is providing additional funding for final project design and right-of-way acquisition.

2.3 Economic Competitiveness

This new off-street facility will result in savings of personal vehicle operating costs and serve as an economic development driver. The Project is a planning product of in-depth examination of community development patterns as outlined in the South Waterfront Vision Plan, and has been identified as a tool to encourage private sector development. The Project will provide access to jobs, service, and education along both sides of the cities riverfront.

This Project is part of our growing regional greenway network and supportive of key economic development goals for the region. It improves connectivity and contributes to our regional focus

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on enhancing access and opportunity not only to jobs but to multiple modes of transportation and opportunities for improved health. If awarded, the grant would provide a significant boost to the City of Knoxville's redevelopment efforts and have a ripple effect throughout our region as our core city continues to grow and develop as a major center of economic activity in the state.

Thanks to the Urban Wilderness Corridor development in congruence with the City of Knoxville's South Knoxville Waterfront Development, South Knoxville's housing market alone experienced \$6.79 million dollars in property investment over roughly 30 months as of Spring 2014. The construction of the Project would further catalyze such residential growth.



Knoxville Mayor Madeline Rogero with USDOT Transportation Secretary Anthony Foxx(center) and Knoxville Regional TPO Director, Jeff Welch during Foxx's visit to Knoxville in May 2015

2.4 Quality of Life

The quality of life of a community is a good indicator of its economic viability. Greenways, sidewalks, and transit are becoming increasingly more and more attractive to both residents and businesses alike. Enhanced connectivity from greenways and sidewalks is not only becoming increasingly desirable it is also a driver of rising property values and economic growth. Research finds that greenways boost property values of nearby homes, all other things being equal. For example, each additional foot of proximity to the Little Miami Scenic Trail in Southwest Ohio was associated with increased property values of \$7 to nearby homes¹. A study of 10,000 homes sales in Texas found that proximity to a trail added a 5% premium to the sale price².

The impact of trails on physical activity in a neighborhood is positive as well. A researcher at University of Tennessee-Knoxville found that the addition of a greenway trail to Knoxville's Bearden neighborhood led to an increase in physical activity among neighborhood residents, as compared with residents of other neighborhoods³.

Two statistically valid surveys were administered as part of the PlanET process to gauge public opinion about the opportunities and challenges facing the region. The surveys revealed that people want access to sidewalks and public transportation close to where they live. Additionally,

¹ Karadeniz (2008). The impact of the Little Miami Scenic Trail on single family residential property values. <http://atfiles.org/files/pdf/LittleMiamiPropValue.pdf>

² Asabere, P.K., and Huffman, F.E. (2009). The Relative Impact of Trails and Greenbelts on Home Price. *J Real Estate Finan Econ* (2009) 38:408–419.

³ Fitzhugh, et al (2010). Urban trails and physical activity: A natural experiment. *Am J Prev Med* 2010;39(3)259 – 262. http://smokymountainsgreenways.org/docs/bearden_greenway_ajpm_2011.pdf

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reducing air pollution is high priority for residents living in this area. These are two regional priorities that are directly related to quality of life and addressed by the Project.

The City of Knoxville owns and operates 85 miles of greenways/trails within its 98-square-miles. This greenway mileage total is significant for Knoxville, given that the City only had 4.5 miles in 1992 and faces rather challenging topography for greenway construction in its location at the foot of the Great Smoky Mountains.

The greenway and trail expansion to 85 miles in two decades has been supported through grants from the Tennessee Department of Transportation (TDOT), City internal construction in cooperation with the Public Service Department, and volunteer trail construction through the Appalachian Mountain Bike Club.

The ambition of the City's greenway efforts has been to connect neighborhoods, schools, churches, and public buildings to parks. This Project would form a pivotal connecting piece to the puzzle in the greenway/trail system in Knoxville.

In light of the First Lady Michelle Obama's national campaign to fight childhood obesity, Knoxville and Knox County government joined the National League of Cities Let's Move! Cities, Towns and Counties (LMCTC) initiative. Shortly thereafter, the City of Knoxville and Knox County were ranked #1 in the nation among LMCTC goals by the National League of Cities. Of the five goals, the National League of Cities staff found the City of Knoxville to excel the most at Goal V: Active Kids At Play, especially because of the city's Urban Wilderness Corridor and expansive greenway/trail system. In 2013, Mayor Rogero was invited to speak at the White House during First Lady Michelle Obama's ceremony celebrating the Let's Move! Cities, Towns and Counties goals.

This Project will enhance the quality of life for those currently living south of the river and for future residents who work at the University of Tennessee or in downtown Knoxville by providing a non-motorized option for getting to and from their place of employment or other activities while also reducing the impact of motorized vehicles on our air quality.

2.5 Environmental Sustainability

Designated a 2014 Climate Action Champion by the White House, the City of Knoxville is a regional and national leader in promoting environmental sustainability and local resilience through practical and impactful policies and programs. The Project will contribute toward the City's goals of reducing greenhouse gas emission, while also promoting multiple other sustainability values, such as multi-modal transportation and healthy and active living.

Knoxville's Energy & Sustainability Initiative is guided by ambitious, yet realistic greenhouse gas emission goals: to reduce the emissions associated with City operations and the community each 20 percent by 2020 relative to 2005 levels. Results of the most recent inventory, which compared the 2005 baseline with 2012 data, show significant progress. Within City operations, GHG emissions are down 12.99 percent, and the City is on track to achieve 20 percent. At the community level, we've reduced emissions approximately 7.75 percent.

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Transportation comprises 44 percent of the Knoxville community's greenhouse gas emissions. Although transportation emissions fell 3.7 percent between 2005 and 2012, continued commitment to promote alternative transportation by Knoxville's residents is necessary to bring community emission levels in line with our 2020 goal. The Project will contribute toward reduced greenhouse gas emissions by increasing the convenience of using walking or biking to move from residential nodes on the south side of the Tennessee River to UT campus and downtown, thereby decreasing the use of fossil-fueled single-occupancy vehicles for the same trip. It is projected that between 1,215 -3,645 students, faculty, and staff of the University of Tennessee would use the bridge to supplant a traditional commute, which would result in the avoidance of 1.9 million lbs. of greenhouse gas emissions annually.

The Project will also advance Knoxville's sustainability objective to accommodate multiple types of transportation alternatives. The City of Knoxville has a long history of promoting "Complete Streets" principles and in 2013, hired the City's first "Alternative Transportation Engineer" who oversees efforts to better accommodate all modes and users. The City recently institutionalized this commitment by adopting a Complete Streets Ordinance that commits the City to plan for, design, construct, maintain, and operate streets to reflect Complete Streets principles and provide for a comprehensive and integrated street network that accommodates all users and modes. This Project will be a key component of Knoxville's network for safe commuting by bike and foot.

Knoxville is also committed to promoting an active and healthy lifestyle among residents. Analysis suggests that the TN Pedestrian Bridge & Path will result in at least 2,430 more trips by foot or bicycle per day which can help those commuters stay fit and active through everyday activities. The Bridge will also connect nearby communities with Knoxville's greenway systems and the Urban Wilderness, a 1,000+ acre outdoor recreation destination just across from the river from downtown that includes 10 parks, more than 40 miles of recreational trails, a nature education center, a wildlife management area, four Civil War sites, incredible views, and unparalleled natural features. Despite our hilly topography, the City is committed to expanding our local greenway system and has built over 50 miles of paved, accessible greenways since 1994. Through the Urban Wilderness and our greenways, the City and its partners provide local and free amenities to help residents stay healthy and active.

2.6 Safety

The City of Knoxville has joined Secretary Foxx's Mayors' Challenge for Safer People and Safer Streets and is committed to improving safety for all pedestrians and bicyclists of all ages and abilities. The Project will provide a walking and bicycling route completely separated from motor vehicle traffic between the South Waterfront and UT/Downtown Knoxville. That sort of route is currently unavailable. As a result, pedestrians and bicyclists currently commuting between the South Waterfront and UT/Downtown Knoxville will have a safer, car-free route available.

This Project also provides the Knoxville region with the following benefits:

- Minimal impact of the physical environment
- Physical separated non-motorized facility encourages use and perception of non-modal choices

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- Connects with existing public transportation network to create multimodal infrastructure network
- Bicycle facilities for use by commuters or recreational purposes meet environmental sustainability goals by reducing automobile travel (vehicle miles traveled-VMT)
- Non-motorized traffic will be utilizing an off-street facility for a continuous connection across the Tennessee River
- The newly reconstructed Henley Bridge was rebuilt to include sidewalks and bike lanes on a vehicular bridge carrying approximately 45,000 vehicles a day. Bicycle lanes don't extend beyond the bridge leaving bicyclists more vulnerable to conflicts with motor vehicles. However, the bike/pedestrian bridge Project provides more direct connection to the University and the greenway system, and a route more favorable for bicyclists who are less comfortable sharing right-of-way with motorists.

2.7 Job Creation and Regional Economic Stimulus

By connecting an economically challenged community in South Knoxville with the heart of downtown Knoxville, the Project will serve as a catalyst for revitalization and economic growth in an area characterized by low opportunity. The Project not only creates a physical connection but unites a community disconnected from the recent successes of revitalized and enhanced opportunity being experienced across the river. This Project creates a pathway to enhanced quality of life for existing and future residents on the south side of the river.

It is expected that the Project will generate various employment opportunities during the project development phase and construction. The final design phase and construction of the facility will employ area construction workers, including surveyors, field technicians and laborers. With federal funding, Title VI compliance will be met to allow opportunities for small, disadvantaged and minority businesses to be involved to meet require DBE/WBE goals.

The end result will deliver an iconic structure that will become a regional asset for visitors, residents and workers within the area linking both sides of the Knoxville's riverfront. The attraction of the structure will increase foot traffic along the greenways and sidewalks producing an anticipated revenue stream to retail establishments along the route.

Our region and this community are poised to move to implementation of our vision as a premier region of choice and opportunity. The construction of the Project adheres to the goals of the PlanET effort and takes our region one step closer to realizing our vision.

2.8 Project Schedule

Construction of the Project could begin in the 1st quarter of 2018. Prior to construction, final design will require 12 months for final design and 12-18 months for property acquisition for right-of-way and /or temporary and construction and easements. Being managed as a TDOT Locally Managed Project ensures close oversight and guidance with TDOT and FHWA.

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2.9 Environmental Approvals

This Project was classified as a D-List Categorical Exclusion document. The Environmental Division of TDOT reviewed the proposed project for compliance with environmental laws and regulations. The proposed project will not involve significant adverse impacts to planned growth, land use or existing travel patterns. The findings outlined in the approved environmental document demonstrate the fact that the proposed improvements will not indirectly or cumulatively have any significant environmental impacts.

The City received NEPA clearance on the environmental assessment for the proposed location for the Project. Outlined in the approved document are several environmental commitments that are involved for project development during construction in regards to the subsurface soils and/or groundwater in the area, and further characterization of soils for proper handling and disposal of soils. Agency coordination with the following regulatory agencies including the Tennessee Department of Transportation (TDOT), State Historic Preservation Office (SHPO), Tennessee Division of Environmental and Conservation (TDEC), Tennessee Valley Authority (TVA), US Army Corp of Engineers (USACE), US Fish and Wildlife Service (USFWS) and Native American Consultation were vital to identify potential impacts to the project area. Letters from the agencies citing no significant impacts can be found in Appendix B.

2.10 Legislative Approvals

The Project is supported by the State of Tennessee, and endorsed by local, county and state officials and regulatory agencies impacted by the project. Please see the partnership section of this application.

2.11 State and Local Planning

This Project is included in the Regional Mobility Plan and has been included in our Transportation Improvement Program for Fiscal Years 2014-2017. The TPO views this Project as part of our growing regional greenway network and supportive of key economic development goals for the region. It improves connectivity and supports our regional focus on enhancing access and opportunity not only to jobs but to multiple modes of transportation and opportunities for improved health. If awarded, the grant would provide a significant boost to the City of Knoxville's redevelopment efforts and have a ripple effect throughout our region as our core city continues to grow and develop as a major center of economic activity in the state.

2.12 Technical Feasibility

A conceptual design document (see Appendix C) was prepared as part of the preliminary design and environmental documentation for the pedestrian bridge. This Project has required analysis of several complex factors, including the evaluation of potential landing areas, minimizing environmental impact, meeting vertical clearance requirements over the river's barge channel, respecting existing structures and utilities.

Review, discussion and feedback regarding the bridge's preliminary design presented at several public meetings including open houses, the City's South Waterfront Website and at the City

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Council Workshops to assess the recommended preliminary design, and receive consensus on moving forward to a more detailed Design Development phase.

The Project consists of three areas of focus: the river crossing, the north landing and the south landing.

Location

The proposed Project connects the South Waterfront Redevelopment area with the north waterfront area, in the vicinity of the University of Tennessee. The north landing will be in the vicinity of the pedestrian concourse between the Thompson-Boling Arena and the Pratt Pavilion. Aesthetically, the bridge must complement the family of nearby historic bridges (Gay Street and Henley Bridge), the nearby downtown buildings, and the college campus, yet be designed to speak to its own time.

The proposed Project must provide the following minimum clearance envelopes:

- Neyland Drive-18 ft. vertical and 30 ft. horizontal (from edge of closest traffic lane).
- Gulf and Ohio Railroad -25 ft. vertical and 25 ft. horizontal (From center of track to front face of pier)
- Tennessee River Barge Channel- 60 ft. vertical (above the 813.5 mean summer pool elevation of the Tennessee River) and 300 ft. horizontal.

Utilities

Several existing utilities are located within the project area. The design of the Project is developed to minimizing utility impacts as necessary. The south landing appears to be in an unavoidable conflict of a 12” sanitary sewer line that will likely be relocated. In the vicinity of the north landing, several utilities must be factored into the design process: a 78” sanitary line, a 30” water line, a 36” storm drain running perpendicular to Neyland Drive from the river into the UT campus, the G&O Railroad, underground and overhead electric, and communications facilities.

Several alignments were identified with an initial evaluation made of a design that would stimulate growth in the South Waterfront Redevelopment Area, and create functional and economic development linkages between the UT campus and the South Waterfront Area, as well as expand the pedestrian/bicycle network, connecting existing greenway, Volunteer Landing and the planning South Waterfront Riverwalk.

The preferred option consists of a long span (approximately 1,710 l.f.) spanning the entire river with one single arch. It can be made to essentially have zero impact on the river environment. The general anticipation is that this would be constructed utilizing a series of towers and tie-backs, and cantilevering out from the skew-backs on the riverbanks on each side of the river. This would most likely be built using cast-in-place or precast concrete, although steel is a probable option. A concrete box girder was considered, probably a single cell that would be post-tensioned in order to attain adequate strength. It would include an edge girder system with transverse floorbeams and a longitudinal slab system. The arch rib is tapered in the vertical and horizontal directions, giving it a more massive appearance at the skew-back and a very slender

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appearance in the mid-span area. Visually, this alternative offers much for the improvement to the site.

2.13 Financial Feasibility

The receipt of the TIGER funds will enable substantial completion of all project elements discussed in this application by the third quarter of 2022 to enable the completion and benefits of the project. The financial commitments from each of the project partners are presented in Section 1.4 of this application.

3.0 SECONDARY SELECTION CRITERIA

3.1 Innovation

The iconic design and location of the Project will aesthetically address the north and south landings, which will require accommodation for large vertical gap between the bridge deck and the at-grade elevations.

There is an existing network of trails for pedestrians and bicyclists at the north landing, including Neyland Greenway, which is the heart of an 18-mile east-west greenway system. There is also a network of walkways on the UT campus. In the area of the south landing, there are also numerous proposed trails, including the riverwalk in South Knoxville.

The South Waterfront Redevelopment Plan calls for mixed use opportunities which will allow the South Waterfront to become an extension of downtown where people will live, work, play and seek entertainment. Many owners of new residential units along the South Waterfront purchased their units because of the close proximity to downtown, which provides options to walk or bike instead of driving.

Additionally, when constructed, this Project will provide increased access to jobs, services and education to a traditionally underserved community. The Project will maximize pedestrian and bicycle safety by allocating a non-motorized route unshared by motor vehicles across the river and will aid in minimizing environmental impacts, transportation-related fuel consumption and reliance on foreign oil by providing a safe, attractive and alternative transportation option for commuters, visitors and residents to the Knoxville area.

3.2. Partnerships

The Project involves many stakeholders on the local, regional and federal levels that support the City's effort to seek funding to construct the Project. The majority of these partners have been involved since the recommendation for a north-south pedestrian link was first suggested during the 2006 Vision Plan process. There is a range of widespread support for the construction of this pedestrian/bridge project, from our 2nd District Congressman John J. Duncan, Jr, who supported the initial funding for the environmental documentation and preliminary engineering design to local greenway/bicycle advocates and adjacent neighborhoods. A list of project supporters is provided in Table 3. Letters of support for project funding can be found in Appendix D. Several

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public meetings and workshops have been held to inform the general public of the project's progress. A listing of public meetings and workshops are provided in Appendix E.

TABLE 3: LIST OF PROJECT SUPPORTERS

- Congressman John J. Duncan, Jr-TN 2nd Congressional District
- Governor Bill Haslam-Tennessee
- Tennessee Department of Transportation-Commissioner John C. Schroer
- City of Knoxville-Mayor Madeline Rogero
- City of Knoxville-Parks and Recreation Department
- Knox County-Mayor Tim Burchett
- Knoxville Regional Transportation Planning Organization (TPO)
- University of Tennessee, Knoxville
- Knoxville Community Development Corporation (KCDC)
- Knoxville Chamber of Commerce
- Knoxville Area Transit (KAT)
- Knoxville Police Department (KPD)
- National League of Cities
- Legacy Parks
- Tennessee Valley Authority (TVA)
- East Tennessee Quality Growth (ETQG)
- Great Smoky Mountains Regional Greenway Council
- East Tennessee Children's Hospital
- Knoxville Section-American Planning Association (KAPA)
- Knoxville Track Club
- TN East Section- American Society of Landscape Architects
- National Recreation and Park Association
- City of Knoxville Greenway Commission-Brian Hann, Chair
- South Knoxville Alliance (SKA)
- Visit Knoxville
- Carol R Johnson Associates, Inc. (Landscape Architects)
- Dewhirst Construction, David Dewhirst (local developer)

On May 26, 2015, City Council approved the request for the City to submit a formal application for this series of the TIGER grant. The approval was unanimous. The city council agenda and resolution is provided in Appendix F.

4.0 BENEFITS-COSTS ANALYSIS

A benefits-costs analysis (BCA) was conducted to support this Project. BCA is a technique used to determine options that provide the best approach for the adoption and practice in terms of benefits in labor, time and cost savings etc.

Construction of this Project will have main economic benefits. These benefits will stem from an increase in the accessibility from the relatively isolated area directly across the Tennessee River

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from the University of Tennessee (UT) campus. The increased accessibility makes the entire riverfront area more attractive for student, staff and faculty living for at the University of Tennessee and citizens of the greater Knoxville area in general.

This Project will result in four main economic benefits:

- 1) Reduced traffic accidents;
- 2) Reduced CO₂ emissions;
- 3) Reduced commuting time; and,
- 4) Increased property values.

The first three benefits deal with traffic patterns. Projecting the changes in traffic patterns due to changes in public works infrastructure is notoriously difficult. However, the recent closure and subsequent opening of the Henley St. Bridge for the multi-year reconstruction provides an ideal natural experiment to project how changes in travel options affect traffic patterns in Knoxville. We combine data on traffic patterns provided by the City of Knoxville pre-closure and post-closure with parking permit data (there are roughly 20,000 students, faculty and staff that drive to UT daily) from the University of Tennessee to get bounds for the likely effects of project construction on traffic.

Construction of the Project will also affect property values. Currently, riverfront property sitting opposite the UT campus is isolated from UT. As a result, single family dwellings sell for roughly 50 percent of the value (measured in \$/square foot) as the more well-connected Fort Sanders area proximate to UT. The Project effectively makes a large swath of south Knoxville equally well connected as the Fort Sanders area if not more so. Once property values adjust, there is a wealth of evidence to suggest the property values in the affected area of south Knoxville would increase to the levels of Fort Sanders. Due to proximity to the Tennessee River, it is even feasible south Knoxville property values could exceed those of Fort Sanders.

Detailed technical information on the BCA is provided in the Appendix G.

5.0 FEDERAL WAGE DETERMINATION

The City of Knoxville will comply with the requirements of the Federal Wage Requirement (subchapter of IV of Chapter 31 of title 40, United States Code, as required by the FY 2015 Appropriations Act. A signed certification is provided in Appendix H.

6.0 PROJECT READINESS AND NEPA

The National Environmental Policy Act (NEPA) requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions. A Categorical Exclusion (CE) Document was performed for the South Waterfront Pedestrian/Bike Bridge Project to evaluate and analyze this Project to have only minimal environmental impacts. The CE Document is included in the document as Appendix A to this application.

To start this environmental process, the City of Knoxville was awarded a Transportation Community Systems Preservation (TCSP) grant of \$533,520 with a 20 percent local match, or

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\$133,380 to start preliminary design and environmental documentation for the bridge. A working group composed of key stakeholders including representatives from the City of Knoxville, University of Tennessee, Knoxville (UTK), Tennessee Valley Authority (TVA), Tennessee Department of Transportation (TDOT), Gulf and Ohio Railroad (G&O), and South Waterfront property owners were formed to prepare a scope of work and take part in the consultant selection process.

Since the TCSP grant was facilitated as a TDOT Locally Managed Program, TDOT and FHWA review and approval were necessary on all assigned work as part of the grant.

Federal-TCSP-9TN (2)

State- PE-N: 47LPLM-F0-038

State-PE-D: 47LPLM-F1-038

There were several regulatory agencies involved due to their jurisdiction over the planning and permitting of the pedestrian bridge. Of these agencies, the University of Tennessee, TDOT, TVA, the US Army Corp of Engineers (USACE), the US Coast Guard (USCG), the State Historic Preservation Office (SHPO), the Federal Emergency Management Agency (FEMA), the Knoxville Utility Board (KUB), and the G&O Railroad were vital during the environmental documentation for NEPA clearance.

Previous to the environmental work, the City commissioned environmental studies to explore potential developable areas along the entire South Waterfront to accompany the TVA 26a and USACE 404 Permitting Process for portions of Schematic Design. Documentation available includes the following analyses:

- Cultural Context, Archaeological Research Design and Phase 1 Survey Results Report
- Natural Resources and Ecological Evaluation Report
- Hydraulic Investigation Report
- Sidescan Sonar Survey Results
- Knoxville South Waterfront Traffic Study Report (commissioned in 2006 for the Vision Plan Process)

Right-of Way Acquisition

Property Acquisition for the bridge will involve several participants. The Project does not involve relocation. Flowage easement rights must be obtained from TVA, air rights over Neyland Drive (State Route 158) must be obtained from TDOT, air rights must be obtained from the Gulf and Ohio Railroad, and property rights must be obtained from the University of Tennessee. In the NEPA documentation, property acquisition and proposed permanent easements were identified but no exact amount of right-of-way and/or easements that will be acquired has been determined. No other work related to the property acquisition has been performed.

The bridge will be on air rights over the Tennessee River and no piers are proposed in the river. The bridge route other than the south bank is on property which will not be purchased in fee. For purposes of the Categorical Exclusion (CE) document, a corridor measuring 1,930 feet long by 80- feet wide was assumed to calculate potential easements or fee simple right of way. Based on this assumption, the potential right of way and/or easement acquisition could be as much as 3.5

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acres. The City of Knoxville will carry out a right-of-way and relocation program. This program will be in accordance with the Tennessee Uniform Relocation Assistance Act of 1972 and the Uniform Relocation and Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 9-646).

Final Design and Property Acquisition are the next phases necessary to prepare this Project for construction. The City has requested additional funding support from its regional metropolitan planning organization. The Knoxville Regional Transportation Planning Organization (TPO) coordinates a comprehensive, multimodal transportation planning process for the Knoxville Urban Area. Member jurisdictions include Knox County and the urbanized areas of Anderson, Blount, Loudon and Sevier Counties and include the following cities: Alcoa, Clinton, Knoxville, Lenoir City, Loudon, Maryville and Oak Ridge, the Town of Farragut, Tennessee Department of Transportation and East Tennessee Development District. A resolution by the executive board of the TPO amending the FY 2014-2017 Transportation Improvement Program (TIP) by adding FY 2017 L-STP funds in the amount of \$1,500,000 total (\$1,200,000 federal and \$300,000 local) which could be used for this Project for final design and ROW acquisition. (Appendix I).

7.0 CHANGES TO THE PRE-APPLICATION

The following changes have been made to the pre-application:

- 1) The total project cost estimate has been revised to \$30 Million instead of \$20 Million;
- 2) The total project cost of local matching funds has been updated to \$6 million instead of \$4 million
- 3) The total amount of TIGER funds requested has been revised to \$24 million instead of \$30 million.