BRIDGES TO OPPORTUNITY

DES MOINES’ COMMUNITY CONNECTION
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May 18, 2015

Mr. Anthony Foxx
Secretary of Transportation
US Department of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

RE: Bridges to Opportunity: Des Moines' Community Connection
    TIGER Grant Application

Dear Secretary Foxx:

The City of Des Moines, Iowa is pleased to submit the Bridges to Opportunity: Des Moines' Community Connection project for the Department of Transportation’s TIGER Discretionary Grant.

The Bridges to Opportunity: Des Moines' Community Connection project is vital to the region’s transportation and economy. The project includes replacement and rehabilitation of roadway and multi-use trail bridges in downtown Des Moines. The bridges are essential to the downtown street network that provides access to homes, jobs, government services and employment, entertainment, recreation and special events. The proposed projects will also reduce the risk of flooding that would threaten connectivity and access.

The City of Des Moines is committed to obligating funds and ensuring the Bridges to Opportunity: Des Moines' Community Connection project will be constructed within the timeframes required by the TIGER Discretionary Grant. Construction will begin in 2016 as outlined in our application schedule.

The City of Des Moines commits to the requirements of Subchapter IV of Chapter 31 of Title 40, United States Code (Federal wage rate requirements), as required by the FY 2015 Appropriations Act. If selected, the City will adhere to the reporting requirements outlined in the TIGER Discretionary Grant.

The City of Des Moines looks forward to receiving TIGER Discretionary Grant support for this critical project for the Des Moines metropolitan area. Please contact Pam Cooksey, City Engineer, at 515.283.4747 or pscooksey@dmgov.org for any questions or additional information.

Sincerely,

T.M. Franklin Cownie, Mayor
City of Des Moines

cc: Scott E. Sanders, City Manager, City of Des Moines
    Pamela S. Cooksey, City Engineer, City of Des Moines
1. **Project Description**

The City of Des Moines is requesting $18.6 million in TIGER Grant funds for the modernization and rehabilitation of seven critical river crossings, collectively the **Bridges to Opportunity: Des Moines’ Community Connection**. With a metropolitan population of approximately 570,000, the heart of the metropolitan downtown lies on the banks of the Des Moines and Raccoon Rivers. These rivers, acting as a natural cultural and economic barrier, are traversed by multiple bridge crossings which provides efficient and reliable transportation options for a connected community.

Downtown supports 80,000 jobs each day, which is over 35% of all jobs in the metro area. Downtown is home to a growing residential population of over 8,000 residents. The project provides for the replacement of two vehicular bridges, the rehabilitation of two vehicular bridges, the rehabilitation of three multi-use trail bridges, and the rehabilitation of the adjacent river wall balustrade. This transformative project will reduce the City’s structurally deficient bridges by over 30%, will re-open an historic pedestrian bridge crossing over the Raccoon River that is unsafe, and will increase the City’s resilience to future flooding. The benefits received from this timely infusion of infrastructure repair will be widespread across the entire community and will have a lasting impact on the development and livability of downtown Des Moines and adjacent neighborhoods.

This project is not only important from the improvement of physical infrastructure, but these bridges are part of a much larger, inter-connected transportation network that provides the community with efficient access to jobs, government services, education, healthcare, entertainment and recreation, and residential options. The neighborhoods surrounding the downtown area are low to moderate income areas and have a high concentration of minority population. The project will promote the mobility of people, goods and services, strengthen the community, and continue to overcome the challenge of having two major rivers converge in a downtown community.

The primary users of the downtown bridges include residents, employees, and visitors of downtown Des Moines. The primary mode of transportation in downtown Des Moines is vehicular, but other modes such as walking, bicycling, and transit are popular and easily accessed through the existing infrastructure. The vehicular bridges support a combined 35,000 vehicles each day. The Grand Avenue Bridge supports a dedicated west-bound bicycle lane, the Scott Avenue Bridge supports a north-bound bicycle lane, and the Locust Street Bridge has east-bound “sharrows”. Both the Grand Avenue and Locust Street Bridges are designated transit and downtown shuttle routes with over 250 weekday trips. The downtown trail system supports over 300,000 annual trips and is part of the 600-mile Central Iowa Trail system.
The Grand Avenue Bridge was constructed in 1918 and last rehabilitated in 1968. The structurally deficient, scour-critical bridge has experienced a significant increase in the rate and the magnitude of deterioration. Main load carrying members of the bridge are severely deteriorated, resulting in significant concrete spalling, cracking, and delamination.

The Grand Avenue Bridge provides a key connection between the east and west side of the city. The bridge provides a critical transportation connection for passenger vehicles, trucks, and transit routes: including a downtown shuttle that crosses the bridge every 10 minutes during the week with bus stops on each side of the bridge. The bridge also supports a bicycle lane that connects into the larger downtown system, provides pedestrian circulation paths, and is adjacent to regional trail connections associated with the Principal Riverwalk and John Pat Dorrian Trail. A public bicycle rental facility is strategically located 100 ft. east of the bridge.

One of the largest challenges with this project was determining the most appropriate strategy to address the structural deficiencies, balance the transportation needs of the community, and consider the historical and cultural significance of the crossing with the surrounding environment. An in-depth structural review was performed in 2013 and this analysis concluded that significant life-cycle costs savings would be realized by pursuing a full bridge replacement versus repairing the existing deficient bridge.

It is important to understand that Grand Avenue is not just any bridge crossing the Des Moines River. In 1847, Grand Avenue became the site of the first licensed ferry to provide access across the river signifying its importance to the economy and community.

**This bridge still maintains its significance by providing efficient transportation alternatives to connect people to jobs, promote mobility of goods and services, and preserves access for neighborhood revitalization.**

Due to its community importance, the City created an Aesthetics Review Committee comprised of downtown neighborhood groups, business leaders, and community stakeholders. It is important that as the City looks to the future, that stakeholders understand the needs of the community and the built environment so the new bridge will maintain its prominence in both form and function. The new bridge will be a concrete beam bridge with a design life of 100 years. The roadway geometrics and walkability of the structure will also be improved. The bridge width will have the ability to accommodate an additional east-bound lane of traffic as well as a dedicated east-bound bicycle lane, without any structural modifications to the bridge. The bridge sidewalks are being widened by 75% to enhance connectivity across the bridge and invite people onto the bridge to experience the river.
This river crossing maintains its own identity and significance to the community. The Locust Street Bridge, constructed in 1909, is the oldest concrete arch bridge in the Civic Center Historic District (CCHD). The bridge was rehabilitated in 1967 and is classified as a non-contributing structure of the CCHD (National Register of Historic Places (NRHP), 1988).

The structurally deficient, scour-critical bridge has experienced a significant increase in deterioration, resulting in main load-carrying members exhibiting significant concrete spalling, delamination, and section loss of exposed reinforcing steel. An in-depth structural review and a life-cycle cost analysis was performed yielding significant life-cycle cost savings for pursuing a full bridge replacement as opposed to a bridge rehabilitation. The proposed replacement bridge will be a concrete beam bridge, using modern design practices, to create a scour safe bridge with a design life of 100 years.

The Locust Street Bridge provides a key transportation connection between the downtown business district and the popular retail area of the Historic East Village, including a downtown bus route and a downtown shuttle that crosses the bridge every 10 minutes during the week. Pedestrian access is afforded by the bridge to access cultural events at the Des Moines Civic Center and the World Food Prize. The eastbound traffic lane will maintain “sharrows” to accommodate bicycle traffic and provide connection to other downtown bicycle routes. The bridge is centrally located and provides opportunities for events along the Downtown Riverfront such as charity gatherings, parades, entertainment arts, and movies. One iconic gathering space is the Simon Estes Amphitheater which is directly adjacent to the Locust Street Bridge.

This project also engages the Aesthetic Review Committee to establish aesthetic concepts to highlight the bridge’s identity in the larger context of the community and surrounding environment. The new bridge will improve the hydraulic conveyance of the Des Moines River, assist in lowering the regulatory flood elevation, and increase the City’s resilience to flood events. The bridge geometrics will improve, creating a more walkable environment for pedestrians and enhancing connectivity with adjacent attractions and amenities.

The Court Avenue Bridge serves as a cornerstone for the Court Avenue Entertainment District and provides key access to downtown living, entertainment, shopping, restaurants, and numerous local events, such as the Downtown Farmer’s Market. Court Avenue is the oldest bridge in the Civic Center Historic District to retain its original ornamentation and clearly demonstrates the concept of combined beautification with utility. The bridge is individually listed in the NRHP.
For several blocks surrounding the bridge, numerous government services are available, such as; City Hall, Polk County Administration Bldg, Neal Smith Federal Building, US District Court, and City Police Headquarters. The bridge facilitates efficient access to these services, provides pedestrian access to core businesses and residential properties, and creates trailhead access to the Principal Riverwalk. A public bicycle rental facility is located within one block of the bridge and a restaurant sits at the northwest corner creating a wonderful space to enjoy the riverfront.

Timely rehabilitation of this historic bridge will reduce the burden of more costly repairs in the future as the structure continues to deteriorate. The existing concrete bridge deck is in poor condition with large areas of spalled and delaminated concrete. Repairs will be constructed in stages to minimize the impact to the traveling public and maintain this connection during construction. Being the only historic vehicular bridge on the Des Moines River, this structure not only serves a vital transportation use, but also serves as an amenity for the community and surrounding neighborhoods. Court Ave. Bridge integrates into the cultural fabric of the City and is important to the historic integrity of the CCHD.

1.4 Principal Riverwalk Red Multi-Use Trail Bridge over Des Moines River Rehabilitation

- $2.4 Million construction, includes: $1.92 Million TIGER
- Increases City’s resilience to flooding by reducing regulatory flood profile

Following the 2008 Des Moines River flood, the U.S. Army Corps of Engineers conducted the Des Moines River Regulated Flow Frequency Study in 2010 to estimate the frequency and magnitude of future Saylorville Reservoir outflows and downstream river flows. The study showed that flow frequencies have increased over previous estimates and that floods similar to the 1993 and 2008 events are more likely to occur than previously estimated. In addition, the study showed that the levees in downtown Des Moines do not provide the required freeboard for a 100-year flood, thus affecting accreditation of the levees and FEMA flood hazard mapping. This bridge is identified as a controlling hydraulic constriction of the flood profile and addressing this challenge in a timely fashion is critical to the resiliency of the City from future flooding events. To solve this challenge, the proposed flood mitigation strategy includes elevating the superstructure approximately 4 feet, thereby reducing the upstream flood profile and reducing the need for levee system modifications.
The primary beneficiaries of the completed bridge improvement are the 90,000 annual bicycle and pedestrian trips that enjoy this iconic river crossing that is a critical link to the 600-mile Central Iowa Trail System. However, as a flood mitigation project, the beneficiaries of the project include the entire City and primarily those low and moderate income neighborhoods that are at higher risk to flooding events. The mitigation project will create a more resilient pedestrian crossing over the Des Moines River that will not need to be closed during high water and flooding events. This is key to maintaining a more connected and walkable community.

This pedestrian river crossing was a former railway bridge and was built in 1891 for the Wabash Railroad, an affiliate of the Des Moines Union Railway. The bridge was converted into a multi-use trail bridge as part of the Principal Riverwalk project. This rehabilitation included painting the steel truss red and installing a wooden walking surface, glass panel railing, architectural lighting, and a cantilever pedestrian overlook at the center of the bridge. This transformed the bridge into an iconic river crossing and is now commonly known as the Red Bridge.

The mitigation project will save the City over $5 million on flood improvement projects that will no longer be needed with the increased hydraulic bridge opening for high water events.

1.5 Scott Avenue over Des Moines River Bridge Rehabilitation

- $3.0 Million construction, includes: $2.4 Million TIGER
- Structurally Deficient – Bridge substructure integrated into low-head dam

The Scott Avenue Bridge provides key access from the southern areas of the city to the east side of downtown Des Moines. The bridge provides safe crossing for bicycles and pedestrians with a bike lane and a sidewalk on south side of the bridge. It also provides direct access to several multi-use trails on both sides of the river including the John Pat Dorrian Trail, Meredith Trail, and the Des Moines River Regional Trail.

This eight-span open-spandrel concrete arch bridge was built in 1937 with the foundations being incorporated into a low head dam, just downstream from the confluence of the Des Moines and Raccoon Rivers. This structurally deficient bridge continues to deteriorate; the bridge sufficiency rating has decreased by 40 percent over the past decade. Proposed improvements to the bridge include rehabilitating structurally deficient components where there is deterioration and spalling of the bridge deck, concrete arches, abutment, and piers.
There is growing demand for development along both sides of Scott Avenue Bridge with master plans for the Market District and 2 Rivers District. This river crossing will maintain a vital connection for the neighborhoods and future developments. The bridge will provide opportunities for expanding alternative transportation options along Scott Avenue further into the neighborhoods. Maintaining this important infrastructure in a timely manner will be key to providing efficient and readily accessible transportation options for years to come.

1.6 Southwest 1st Street Multi-Use Trail Bridge over Raccoon River Rehabilitation

- $0.863 Million construction, includes: $0.69 Million TIGER

The Southwest 1st Street Bridge, originally known as Riverside Drive, was built in 1937 and was originally a vehicular bridge. The structure was rehabilitated in 1974 and then converted to a multi-use trail bridge in 2006. This bridge is a contributing structure to the Civic Center Historic District and is a five-span concrete arch structure on concrete piers and abutments. The condition of the bridge exhibits significant deterioration and cracking of the sidewalks, curbs, deck, arches, piers, and transverse frame. The City’s structural evaluation conducted in 2013 recommended that concrete deck repairs be completed with full depth joint replacements, and the installation of a high density concrete overlay. Areas of spalling and cracking in the concrete arches, frame, sidewalks, curbs, and railings will be repaired to maintain the integrity of the structure within the CCHD.

The Southwest 1st Street Bridge serves as a critical crossing for the American Discovery Trail over the Raccoon River, which is part of the Meredith Trail. This trail segment is 3.1 miles long and provides walkable access for many downtown amenities; including Principal Park (Iowa Cubs) and the Court Avenue Entertainment District. People often use this bridge to walk to events and the crossing serves as a key connection to the Des Moines trail system, including the John Pat Dorrian Trail, Des Moines River Regional Trail, Martin Luther King Jr. Parkway Trail, and the Principal Riverwalk. These multi-use trails connect into a regional network of trails extending throughout central Iowa.

Supports over 300,000 annual trips (bicycle, pedestrian, etc.)
Continued structural deterioration of the fracture-critical bridge has resulted in the bridge being closed to all use in 2013. The Southwest 5th Street Bridge was built in 1898 as a roadway bridge and is a three-span, pin-connected Pratt through truss, one of only three pinned through trusses in an urban setting in Iowa. The bridge is listed on the NRHP and was converted to trail use in 1998. Significant steel corrosion of the various truss members, eyebars, and floorbeams is documented, with areas of 100 percent section loss. These conditions undermine the structural integrity of the bridge and create the potential for catastrophic and sudden failure of the structure. For these reasons, the bridge could no longer be allowed to remain in service.

In order to restore the functionality of the bridge, the usable trail width will be reduced to 14 ft. wide in order to decrease the loads on the bridge. Floor beams and truss panel connection points will be re-built and redundant load paths will be created to prevent sudden failure of the bridge. The existing lead-based paint will be completely removed and the bridge will be re-painted to preserve the structural steel components.

Opening this river crossing will be instrumental in restoring urban trail loops connecting many major attractions and recreational activities including the Science Center of Iowa, Principal Park, Gray’s Lake Park, and downtown Des Moines businesses. This bridge is also very close to new residential developments in the River Point West area and is an important connection for the City and adjacent neighborhoods. The project is important enough that substantial private dollars are being raised to open and repair this bridge. Although the project will not utilize any TIGER grant monies directly, it is important to include this project in context with the entire project as it performs a vital role in bicycle connectivity from the trail system into downtown.
The project involves rehabilitating deteriorated portions of the river wall and balustrade where it serves as a protective railing along the banks of the Des Moines and Raccoon Rivers and the Principal Riverwalk. Throughout the length of the system, sections of the balustrade have deteriorated significantly, with crumbling, cracking, and spalling concrete. Some sections of the balustrade and vertical balusters are completely missing. Rehabilitation of the river wall and balustrade would structurally restore the protective railing, improve pedestrian safety, maintain the aesthetic appearance, and help preserve the historical integrity of the Civic Center Historic District.

Similar to the SW 5th Street Bridge, this portion of the project will not utilize TIGER grant funds. However, the importance of this component of the project is emphasized by the sizeable investment in physical infrastructure to downtown bridges and the similar need to repair and maintain a public safety feature of the trail system and for the open green space directly adjacent to the 8-foot-tall river walls.

The river walls and balustrade along the Des Moines and Raccoon Rivers were built during the 1930s as the culmination of long-sought plans related to the City Beautiful Movement, early city planning, engineering, and various federal programs established by the New Deal. The balustrade was constructed on top of the river walls and is listed on the National Register of Historic Places as a contributing element to the Civic Center Historic District. The balustrade runs 4,695 feet on the west bank, 4,715 feet on the east bank of the Des Moines River, 840 feet on the north bank, and 1,875 feet on the south bank of the Raccoon River. The river walls were constructed in combination with large interceptor sewer systems by the Civilian Conservation Corps in the 1930s and complement similar balustrades on the Court Avenue Bridge and City Hall.

2. Project Location

The Bridges to Opportunity: Des Moines’ Community Connection project is the strategic combination of infrastructure improvement that will replace and restore a total of seven critical transportation connections across the Des Moines and Raccoon Rivers. The individual breakdown of the improvement includes the replacement of two vehicular bridges, the rehabilitation of five bridges (two vehicular, three multi-use trail bridges), and the rehabilitation of the historic river wall balustrade. These locations are identified on the Project Location Map, Figure 1 (page 9). It is also important to understand that all of the individual project sites are within or directly adjoin the boundaries of the Civic Center Historic District and compliment the City’s past planning documents, such as, Rediscovering the Rivers (2002) and Greening Downtown section of the 2008 Downtown Plan - What’s Next, Downtown?.

1.8 Des Moines and Raccoon River Balustrade Rehabilitation

- $2.0 Million construction, includes: $0 Million TIGER

Failed portion of balustrade
Efficient connection of the two sides of the rivers has provided the foundation for development of the City and a large generator of economic growth. According to the U.S. Census 2013 estimates, there are 207,510 residents\textsuperscript{1} in the City of Des Moines. The population of the metropolitan area, which includes the surrounding communities, is 569,633\textsuperscript{2}. Having safe and reliable river crossings was recognized early, and the first permanent bridge—a toll bridge—was constructed on Court Avenue in 1857. These efficient vehicular and multi-use trail connections and crossing are even more prominent and important today. These bridges are integrally connected to existing transportation infrastructure, as evident by:

- Combined 10 lanes of traffic with future expansion possible on Grand Avenue, with the new bridge geometrics.
- 3 of the 4 bridges are designated truck routes.
- 75\% of the bridges support an individual bicycle lane or “sharrows”, promoting alternative transportation for residents and commuters.
- Grand Ave. and Locust St. support two transit routes and the D-line shuttle (10 min.)
- Over a dozen connections to the Principal Riverwalk, John Pat Dorrian Trail, and Meredith Trails, which are the gateway to over 600-miles of regional trails.
- 8 of 10 Walking and Biking “tours” promoted by the Des Moines Bicycle Collective utilize one or more of the river bridges being improved with this project.

Des Moines is the third largest insurance hub in the world, serving the headquarters of Principal Financial, Employer’s Mutual Casualty Company, Wellmark Blue Cross Blue Shield, and Nationwide Insurance with a $3 billion combined annual payroll.

The total project improves access and mobility by connecting low-income and minority households and services to centers of employment. There are seven census tracts (2010) within 0.5 mile of the project location. Of those, six have a minority population of more than 40 percent and six are at or below 80 percent of the national per capita income of $28,051 (U.S Census Bureau, 2008–2012). Nine of the 11 census tracts within 1 mile of the project location are at or below 80 percent of the national per capita income. The census tract with the lowest per capita income in Polk County ($10,078) is located along the Des Moines River and served directly by the Scott Avenue Bridge over Des Moines River and the Southwest 1st Street Multi-Use Trail Bridge over Raccoon River. Refer to Figure 2 and 3, Page 11.

Forecasted population growth for 2050 is expected to top 750,000 people for the metro area, with the area also seeing a 40\% increase in employment. The Metropolitan Planning Organization’s Long Range Transportation plan, Mobilizing Tomorrow, indicates for the 2030 growth scenario that the population in the downtown area will almost double. The impact of this growth is critical to transportation, but it is equally important to understand the demographic shift of the population and community needs. The population group for individuals 45 and younger is expected to make up two-thirds of the region’s population and exhibit different lifestyle choices. These groups seek communities with mix use within walking distance and may not want to own an automobile. Mobilizing Tomorrow recommends increased investment in multimodal transportation options and maintaining existing infrastructure vs. expansion of the roadway system. This project meets the needs of today and prepares for tomorrow and beyond.

\textsuperscript{1} United States Census Bureau, American Fact Finder, 2010.
\textsuperscript{2} City of Des Moines: http://www.dmgov.org/InfoCenter/Pages/AboutDesMoines.aspx
3. Project Parties

The Bridges to Opportunity: Des Moines’ Community Connection is a local project that will benefit both local and regional travel. The City of Des Moines has coordinated project development with the Iowa DOT and State Historic Preservation Office (SHPO).

Project support letters have been received from the following organizations (Appendix A):

- The Greater Des Moines Partnership
- State Historic Preservation Office
- Metropolitan Planning Organization (DMAMPO)
- Italian-American Cultural Center of Iowa
- Downtown Neighborhood Association
- Des Moines Performing Arts
- Hubbell Realty Company
- Blackbird Investments, LLC
- Iowa Department of Transportation
- JSC Properties, Inc.
- University of Iowa – Pappajohn Ed. Center
- Capitol Park Neighborhood Association
- East Village Growth Partners, LLC
- Trails and Greenways Advisory Committee
- Iowa Events Center
- Principal Financial Group
- Mercy Medical Center
- Christensen Development
- Downtown Community Alliance
- Des Moines Public Schools
- Urban Land Institute Iowa
4. Grant Funds and Source/Use of Project Funds

City funding is currently programmed within the Capital Improvement Program (CIP). Amendments to the CIP will be made pending Grant award.

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<th>OTHER Funds: $16,400,000</th>
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TOTAL PROJECT COST: $35,000,000

Reduced Project Scope
The City of Des Moines is also proposing a reduced project scope that will include the removal of the Court Avenue Bridge Rehabilitation component from the full project and will remove TIGER funding from the Principal Riverwalk Red Multi-Use Trail Bridge component. A majority of the total project benefits will remain and connectivity will still be maintained. This reduced project results in a total TIGER Grant request of $11,080,000.

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REDUCED PROJECT COST: $26,400,000

 Reduced TIGER Request: $11,080,000

| TIGER Grant | $18.6 M |
| Federal STP | $3.129 M |
| City of Des Moines/Local | $10.641 M |
| Iowa State Recreational Trail | $0.5 M |
| Private | $1.05 M |
5. Selection Criteria

5.1 Primary Selection Criteria

a) State of Good Repair

The Bridges to Opportunity: Des Moines’ Community Connection would repair or replace existing bridges maintaining current and future access and mobility over the Des Moines and Raccoon Rivers. The bridges to be restored were built 80 to 124 years ago and are now well beyond their design life of 50 years. Age and wear from traffic, weather, and flooding have contributed to the deteriorating conditions of the bridge decks, piers, arches, and truss members.

The City of Des Moines has 67 bridges and culverts in the National Bridge Inventory, of which, 11 are structurally deficient (16 percent). The four vehicular bridges in this application (Grand Avenue, Locust Street, Court Avenue, and Scott Avenue) are all structurally deficient. The Southwest 5th Street Multi-Use Trail Bridge was closed for service in March 2013 as it was deemed unsafe for users due to severe deterioration of the truss elements.

The new Grand Avenue and Locust Street Bridges will have useful lives of up to 100 years. Rehabilitation of the other bridges would extend their useful lives approximately 25-50 years. Maintaining the structures in good repair will increase the City’s resiliency to sound transportation alternatives. Addressing the deficiencies of the bridges would result in stronger structures, remove their structural deficiency classifications, provide a reduction to the regulatory flood profile elevation, require less costly improvements to the levee system and protect the federal investment along the Des Moines riverfront.

TIGER Discretionary Grant funding for this project is essential for Des Moines to reduce the overall project cost and accelerate the construction timeline. If the TIGER Discretionary Grant is not awarded, the City will need to utilize additional property taxes to address these infrastructure issues. The bridge projects would need to be funded over multiple years and construction would be delayed for many years. This disparity in the infrastructure demand related to local and limited available state or federal bridge dollars will result in further deterioration of the City’s important infrastructure and transportation network. Because these bridges are interconnected to the cultural and historic fabric of the community, further delays will have a significant negative impact on our community’s most vulnerable populations that benefit from these proposed improvements. Currently, four of the seven bridges are positioned to be good candidates for rehabilitation. As the rate of deterioration continues and the structures are left un-repaired, the structural integrity of those bridges may be compromised to the point that rehabilitation efforts are no longer economically feasible. Rehabilitating these structures now will be critical in maintaining full operational capacity of the bridges and will increase their service life.
b) Economic Competitiveness

This project will maintain efficient connections for the community in the downtown area. The connections between the east, west, and south sides of Des Moines continue to promote the ladders of opportunity for businesses, residents, and employees. Downtown Des Moines is home to large employers in banking, insurance, service, entertainment, and government. Bridge removals and associated traffic rerouting would adversely affect the economic competitiveness of the region in several ways.

Ladders of Opportunity: The bridges connect low and moderate income areas (Figures 2 & 3) to the jobs and services in Downtown Des Moines. Downtown supports 80,000 jobs each day. These bridges provide the ladders of opportunity in these areas during and after construction. Access to downtown businesses, employment, and the movement of goods and services would be maintained and improved while increasing the walkability of these bridges.

Multi-modal transportation: Multi-modal transportation access would be improved in the project area and surrounding neighborhoods. The bridge connections over the Des Moines and Raccoon Rivers provide cost-effective modes of transportation to access jobs, healthcare, recreation and educational facilities downtown. As an example, the Iowa Department of the Blind uses the bridges for access to jobs and training for their constituents. Maintaining and improving these connections would reduce obstacles and hardships for low to moderate income, disadvantaged, and minority residents in the surrounding neighborhoods.

Traffic and Congestion: The project will maintain the local network providing continued access for vehicles, pedestrians, bicyclists, and transit users. It is anticipated that maintaining the connectivity of the local network would reduce air quality hotspots at most of the adjacent intersections. This continued connection is critical to providing transport of goods, and people to jobs and services.

Tourism and Special Events: Downtown Des Moines is a central destination spot for tourism and events, attended by residents across the entire State of Iowa and the Midwest.

- The Court Avenue Bridge serves as a cornerstone for the Court Avenue Entertainment District and provides key access to downtown living, entertainment, shopping, restaurants, and numerous local events, such as the Downtown Farmer’s Market. The Farmer’s Market connects urban and rural communities by supporting 300 entrepreneurs representing over 50 counties from across the state of Iowa and draws in 20,000 visitors every Saturday from May through October.
• The largest events are held at the Iowa Events Center, Hy-Vee Hall, and the Community Choice Credit Union Convention Center (a few blocks north of Grand Avenue) and include:

  ✓ Iowa Energy (NBA D-League basketball), Iowa Barnstormers (arena football), and the Iowa Wild (American Hockey League).
  ✓ Live entertainment, concerts, family attractions, conventions, trade shows, and meetings
  ✓ State tournaments for boys’ and girls’ basketball, baseball, wrestling, and other sporting events.

• Special events attract local vendors, artisans, restaurateurs, and entertainment into the city. Many special events, such as charity walks, marathons, parades, and music and art festivals, occur along the Principal Riverwalk and on the downtown street bridges throughout the year.

  ✓ Komen Race for the Cure, Dam to Dam: Iowa’s Distance Classic (a local nonprofit half marathon), The Des Moines Marathon, and the Nitefall on the River Concert Series take advantage of the connections these bridges provide and the scenic trails and sidewalks along the downtown riverfront. Each event attracts more than 10,000 attendees each year.
  ✓ The City also hosted the Register’s Annual Great Bike Ride Across Iowa (RAGBRAI) in 2013, which brought 30,000 bicyclists and visitors who used the Meredith Trail and the downtown trail bridges to travel between event areas.

**Reduction of the Regulatory Flood Profile:** Improvements to the Principal Riverwalk Red Multi-Use Trail, Locust Street, and Grand Avenue Bridges increase the hydraulic capacity and decrease the regulatory flood profile of the Des Moines River, resulting in reduced risk of flooding. These improvements will provide the opportunity for the continued investment, development and improvements in downtown Des Moines.

**c) Quality of Life**
Downtown Des Moines is the economic and cultural heart of the Des Moines metro area. The Des Moines and Raccoon Rivers are iconic center pieces that physically separate downtown and the neighborhoods. These river bridges provide safe and reliable transportation choices critical to connecting the neighborhoods, businesses, and civic institutions and services and contribute to the quality of life in Des Moines. The project is consistent with the goals, initiatives, and strategies of The Tomorrow Plan (TTP). TTP was the product a $2 million planning grant to create a regional plan for sustainable development that came from the “livability principles” outlined by HUD. The plan was prepared under HUD’s Sustainable Communities Regional Planning Grant program. The grant project was jointly funded in 2010 by HUD, DOT, and EPA.

**Connectivity:** Area residents, employees, and visitors rely on the bridges for access to recreation, shopping, employment, education, restaurants, entertainment, health services and public
transportation. Efficient vehicular and pedestrian access will be maintained between the downtown and the surrounding inner core neighborhoods. This includes connections between downtown businesses (insurance, banking, and service industry) on the west side of the Des Moines River and civic institutions (City Hall, U.S. Courthouse, capitol building etc.) and retail district on the east side of the river.

**Affordable Housing:** Access to affordable housing choices would be enhanced by improving existing transit routes and pedestrian and bicycle facilities on the bridges. The project would support the redevelopment of the downtown community and surrounding inner core neighborhoods by providing opportunities for mixed-use, transit-oriented development and land recycling.

**Historic Preservation:** Preservation of the City’s history instills a sense of pride about the community in which we live. This project will preserve the unique character of the Civic Center Historic District by retaining the historical significance of several bridges and river wall balustrade. The Historic District consists of a group of governmental buildings, bridges, river walls, and floral gardens built near the riverfront in the early 1900’s. These buildings and structures have similar design components and are inspired by Beaux Arts Modern Movement incorporation Art Deco designs, popular during the City Beautiful Movement.

**Recreation and Entertainment:** Access to culture, recreation and entertainment areas (Simon Estes Amphitheater, World Food Prize, Brenton Skate Plaza, Principal Park, Wells Fargo Arena etc.) along the Principal Riverwalk would be enhanced, supporting safe and walkable neighborhoods. Multi-use trail bridges and sidewalk access along vehicle bridges would provide improved and safer access to cultural, recreational and entertainment areas and presents commuting options for pedestrians and bicyclists. The trails and sidewalks that provide access across these bridges connect a local network of sidewalks and trails that are linked with the downtown skywalk system and regional trails. Studies have shown that cities with parks, open space, trails, and recreational facilities have lower incidents of medical conditions such as heart disease and obesity.

**d) Environmental Sustainability**

The project will promote environmental sustainability in downtown Des Moines. Specifically, the improvements will ensure that the river crossings will remain open to multiple modes of transportation. The bridges stabilize the existing dense, mixed use urban development pattern that exists on both sides of the Des Moines River in downtown and promote additional investment and urban infill in this sustainable development pattern.
Downtown Community: The Des Moines region has a growing population, estimated to grow by 250,000 people, producing a demand for 150,000 dwelling units by 2050. Downtown has the capacity to support thousands of new residents providing a sustainable location for housing this growth and reducing the need for “sprawl” that would otherwise occur to house these populations.

LED Lighting: The final design of the various bridge rehabilitation and replacement projects will integrate LED street lights. LED lights will replace the current high-pressure sodium lamps, providing a more direct and dark-sky friendly approach to lighting our pedestrian and vehicular paths across the Des Moines River. This will provide a more pleasant walking experience at night while reducing kilowatt hours and greenhouse gas emissions.

Transit: Two of the roadway bridges serve three major public transit routes across downtown. These routes are utilized by downtown employers and residents as a primary and secondary means of transit across the city, reducing traffic congestion for the entire region and limiting the amount of carbon emissions released into the atmosphere. This assists in the targeted Greenhouse Gas Reduction benchmarks set by the U.S. Mayors Climate Protection Agreement, of which Des Moines is a signatory.

Bike and Pedestrian Facilities: As provided in the City’s Bicycle and Trail Master Plan connecting the city’s recreational trail facilities with a network of complete streets, integrates bicycling into the transportation network. This results in further reduction in fossil fuel consumption and vehicle emissions. Bike and pedestrian facilities will connect adjacent facilities and promote a safe environment for cyclists and pedestrians.

Outdoor Event Energy Consumption: Rehabilitation and replacement of the bridges would provide a more attractive environment for hosting outdoor events. Outdoor events require less energy consumption, such as lighting, heating, and cooling of larger indoor facilities.

Commuter Travel Time: Replacement and rehabilitation of existing bridges allows for the continued use of efficient travel routes over the Des Moines and Raccoon Rivers. As compared to rerouting due to closure, the improvements result in less commuter travel time, less oil and gas consumption, and reduced vehicle emissions.

Safety: The bridge crossings over the Des Moines and Raccoon Rivers play a significant role in the safety of the Des Moines residents, employees, and visitors. The balustrade serves as a protective railing along portions of the Principal Riverwalk and is a public safety feature for the open green space directly adjacent to the 8-foot-tall river walls. Closure or removal of the bridges would cause disruption to the transportation network between the west, east, and south sides of Des Moines.
Emergency Response: Closure of any downtown bridges would increase response times for police, fire, and medical transport.

- Fire Station No. 1 is located on the west side of the river and serves the entire downtown area. The Des Moines Police Department is located downtown on the east bank of the Des Moines River. Current operations and response times rely on the redundancy and connectivity of the available river crossings.

- Four main hospitals provide emergency response services in Des Moines. Three of these hospitals are located on the west side of the Des Moines River. Only one hospital is located on the east side of the river, north of I-235.

Incident Management: Interstate 235 creates the northern boundary of the Des Moines downtown area. The Iowa DOT depends on the adjacent street network for emergency detours in the event of an incident on I-235. The emergency detour for incidents occurring on I-235 between 2nd Avenue and E 14th Street is designated as Grand Avenue, which includes the Grand Avenue Bridge. As volume increases on Grand Avenue due to diverted I-235 traffic, local traffic diverts to the remaining bridges to alleviate congestion and prevent gridlock in the short blocks in the downtown area.

Pedestrians/Bicycle Safety: With a unique combination of business, entertainment and residential development located along two rivers lined with recreational trails, the downtown area serves a number of pedestrians and bicyclists with different needs and abilities.

- Removal of the multi-use trail bridges would impact the connectivity of the trail system across the Des Moines and Raccoon Rivers and compromise safety for pedestrians and bicyclists. Failure to rehabilitate the bridges would require trail users to travel on or along busy downtown roadways in order to cross the rivers. The current infrastructure provides separation between motorists, pedestrians, and bicyclists throughout the downtown which allows for all skill levels and abilities from families to commuter bicyclists to access the downtown area.

- The sidewalks and bridge decks are severely deteriorated, with many spalled areas and cracks in the concrete. These deficiencies are a major tripping hazard for pedestrians and can make it challenging for those with reduced abilities to use the sidewalks and trails on the bridges. Ongoing patching and repairs are required to maintain marginally acceptable condition of the sidewalks and trails.
• Sidewalks will be widened from 8 ft. to 14 ft. on Grand Avenue and from 8 ft. to 12 ft. on Locust Street.

Public Health: Flooding poses a significant public safety issue by exposing the community to health hazards and property damage. The hydraulic capacity must be increased to reduce the regulatory flood profile upstream of the Riverwalk Red Multi-Use Trail, Locust Street, and Grand Avenue bridges in order to reduce the risk of flooding.

5.2 Secondary Selection Criteria

a) Innovation

Innovative techniques, design, and construction materials will be evaluated and used in the Bridges to Opportunity: Des Moines’ Community Connection project for cost-effective and efficient designs.

Project Funding: The project components use a variety of funding strategies, including traditional federal formula funding, City of Des Moines General Obligation Bonds, Tax Increment Finance Bonds and Polk County Gaming Revenues. The SW 5th Street (Jackson Avenue) Multi-Use Trail Bridge was programmed for demolition. Private companies and individuals worked with the Iowa Legislature to initiate a state funding program specific to historic structures being used for trails and began a private fundraising effort to leverage the available funding to allow the bridge to be rehabilitated in a manner that was less costly than the full restoration alternative. The design team for the project was hired and funded by a private company.

Design:

• Replacement of Grand Avenue and Locust Street bridges incorporates high-level scour mitigation strategies. The existing bridges are scour-critical. The replacement bridge design includes use of computer software to estimate anticipated scour depths based on hydraulics and streambed soil profiles. The new bridge design will address the scour potential and eliminate the risk associated with the current scour-critical bridges.

• A constructability review team will review preliminary plans to ensure feasibility of project design, specification, staging and overall construction details. The team will include contractor and industry representation, as well as city, state and regulatory agency staff with expertise in construction, materials and structures. This is further discussed in Section 7.4, Assessment of Project Risks and Mitigation Strategies.
Construction Materials: The use of innovative materials will provide stronger structures and make them less vulnerable to further deterioration. Innovative materials to be used include the following:

- High performance concrete (HPC) will be used for the bridge deck overlays to provide a high strength, durable, and dense wearing surface to slow the infiltration of deicing chemicals and prolong the serviceability of the bridge deck.
- Fiber-reinforced polymer (FRP) wraps will be considered for strengthening deteriorated concrete on bridge arches and pier elements. FRP wraps are an efficient material proven to enhance structural capacity and prolong the life of concrete restoration. FRP materials have been successfully used previously on City bridge projects.

Construction: Contractors will be responsible for innovative construction techniques to address the challenges of working on structures within many constraints. This will include constructing bridges in the Des Moines River with limited equipment access and subject to fluctuations in river elevations and flood control. In addition, innovation will be needed to address construction challenges, such as elevating the Red Bridge four feet. The fracture-critical bridge must be uniformly raised to minimize stress and distortion of the truss frame. This may include use of a specialized hydraulic system supported on an independent structure or integrated into the existing bridge foundation. The bid documents will include performance based specifications to allow contractors to competitively develop the most cost-effective solution to raising the bridge.

b) Partnership

The Bridges to Opportunity: Des Moines Community Connection project is a continuation of longstanding public and private investment in downtown Des Moines. Public and stakeholder input into the design of the replacement bridges began as soon as the structural evaluation revealed that rehabilitation of century old bridges was not cost-effective.

Aesthetic Committee: Following establishment of a design direction and overall budget by City Council, an aesthetic review committee was formed. The aesthetic committee includes 12 representatives from public boards, neighborhoods, agencies, and private stakeholders. The aesthetic committee is a very strong group that formed their own direction, questioned and examined every assumption. The result was a design that is contemporary, yet fitting for an urban area in a historic district. The group’s involvement is expected to continue through final design and other bridges due to their interest and commitment to the area.

Private Entities: Both the SW 5th Street (Jackson Avenue) and SW 1st Multi-Use Trail Bridges are beneficiaries of past private funding to create the Meredith Trail. The Meredith Foundation provided for the design and construction of trail construction, lighting, scenic overlooks and trail amenities that tie into the City trails, including Principal Riverwalk. Following the City’s decision to program demolition of the SW 5th Street (Jackson Avenue) Multi-Use Trail Bridge,
private companies and individuals worked to change the direction. In addition to successfully obtaining state funding, private fundraising was initiated to support rehabilitation of the historic structure. Proceeds from the 2015 Annual Mayor’s Ride and Run for Trails are going towards restoration of the bridge. The Meredith Foundation hired an engineering firm to develop a less costly strategy that would allow the popular trail bridge to be re-opened.

Public/Private: The Principal Riverwalk Red Multi-Use Trail Bridge is a former railroad bridge that was rehabilitated as part of the $60+ million Principal Riverwalk project. In 2004, private and Federal transportation dollars provided for the abatement of lead paint, paint, rail, deck and structural work required to create this unique crossing south of Court Avenue. In response to the 2010 Corps of Engineer’s Des Moines River Regulated Flow Frequency Study, the City undertook an evaluation of improvements that would lower the river elevation and otherwise address the increased risk identified in the Study.

6. Results of Benefit-Cost Analysis

Benefits of the Bridges to Opportunity: Des Moines Community Connection project have been presented throughout this Grant Application. The results of the Benefit-Cost Analysis are summarized in Table 1, page 22. Supporting documentation for the calculations and assumptions are provided in Appendix B with links to supporting Excel spreadsheets. It should also be recognized that some life-cycle cost analysis has been performed as part of the structural evaluation reports prepared by consultants, as referenced in Section 7.1, Technical Feasibility.

Costs and benefits for the individual projects are measured against a baseline of a “no build” case. Basic maintenance, such as filling potholes and minor concrete repair to walkways, to keep the bridges in service as long as possible would be performed as part of the baseline.

Benefits of the Proposed Improvements
The proposed improvements bring many benefits to the City of Des Moines, benefitting the local economy, transportation users, recreation users, residents, visitors, entertainment seekers, and safety proponents. Each of the four vehicular bridges (Grand Avenue, Locust Street, Court Avenue, and Scott Avenue) are primarily justified in monetary terms by the reductions in costs related to Vehicle Miles Travelled (VMT) and travel time. The three multi-use trail bridges provide significant monetized benefits in terms of pedestrian commuting travel time saved, recreational trail usage, and as destinations for community events. As described qualitatively throughout the application, the bridges provide other significant benefits, such as maintaining property values by preserving connectivity, allow safe and efficient transportation choices to access employment and services for all populations, including large areas of minority and low income populates.

Costs of the Proposed Improvements
The net present value (NPV) costs for each project component includes costs of construction, engineering and design, utility relocation, annual maintenance, and required bridge inspections. The net present value construction cost element for each project includes the initial capital costs for construction and minor rehabilitation costs over the project life, which is documented in the referenced spreadsheets.
Table 1 summarizes the benefits of each proposed improvement in terms of the net gain over the base case. The NPV results, at both a 3 percent and 7 percent discount rate are shown. These rates are consistent with the long-term rate on federal borrowing. All project components have positive NPVs and benefit cost ratios greater than one when discounted at 3 percent and an overall net benefit to the community of over $92 million. Only a small subset of the benefits of each bridge have been monetized and conservative assumptions were applied.

Table 1 – Benefit Cost Summary Table

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<th>Project Component</th>
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<th>Total Benefit ($ mil) **</th>
<th>Total Project ($ mil)</th>
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</table>

Notes:

* - Total costs include construction and/or rehabilitation, engineering, utility relocations, annual maintenance, biennial bridge inspections and residual value (as a negative cost).

** - Total benefits for vehicular bridges include vehicle operating costs (VOC), travel time savings, criteria pollutant emission, transit cost savings, and greenhouse gas emissions. Benefits for pedestrian bridges include trail usage, special events and trail commuter benefits.

7. Project Readiness

7.1 Technical Feasibility

Structural evaluations were conducted for all four vehicular bridges, as well as the SW 1st St. and SW 5th St. (Jackson Ave) multi-use trail bridges, to establish the structural condition, evaluate alternatives, estimate costs and approximate the life cycle cost of alternatives. These in-depth reports supplement the biennial bridge inspections performed. A feasibility review was performed to ensure raising the Principal Riverwalk Red Bridge was an appropriate mitigation measure to reduce the impacts of increased flow frequencies in the Des Moines River. A condition survey of the historic balustrade was prepared as part of the Principal Riverwalk project. The project reports
and documents are available on the project website at:
http://www.dmgov.org/Departments/Engineering/Pages/BTO.aspx

These documents serve as the basis of work proposed at each location and are expanded on below. Preliminary design work based on the evaluations is underway on six of the project components. These project components come together as the Bridges to Opportunity: Des Moines’ Community Connection:

Grand Avenue over Des Moines River Bridge Replacement includes demolition of the existing bridge and construction of a new bridge. The new bridge will be a 446 ft., four-span pretensioned, prestressed concrete beam bridge (PPCB) bridge with concrete stem piers and integral abutments, all with driven or drilled steel piling into bedrock. The bridge will support three lanes of traffic (2-WB, 1-EB), a westbound bicycle lane, and curb parking on the south side. The bridge deck and sidewalk will be poured in place concrete. A modified Wyoming-rail will be placed along the exterior edge of the bridge and will serve as a combination vehicular/pedestrian railing. The bridge will feature a metal panel arch façade and other aesthetic features that are being explored by the project’s aesthetic review committee.

Locust Street over Des Moines River Bridge Replacement includes demolition of the existing bridge and construction of a new bridge. The new bridge will be a four-span 446 ft, PPCB bridge, with the same structural elements as the proposed Grand Avenue Bridge. The bridge will support two lanes of traffic, an eastbound bicycle “sharrows”, and curb parking on both sides. The pier design and metal panel arch façade will be similar to Grand Avenue. However, the aesthetic review committee is exploring options to make the river crossing unique and how to engage the connection with the river and maintain historical context.

Court Avenue over Des Moines River Bridge Historic Rehabilitation will address the aesthetic and structural repair needs to maintain the 496 ft. 5-span open spandrel arch bridge. The bridge deck will be milled to within ¼” of the top reinforcing steel. Full depth repairs will take place in areas of severe deterioration and where deck joints are replaced. A high density concrete deck overlay will be placed. Due to condition it is expected that the entire sidewalk and rail will be removed and replaced with a stronger designed sidewalk section. A cast-stone replacement railing will be proposed, based on current rail dimensions, to replace the cut-stone railing to maintain long-term maintenance and aesthetic goals for the bridge. Other standard concrete repairs to the bridge arches, abutments, and piers are planned for areas of spalled and delaminated concreted. The final details will be coordinated with SHPO.

Principal Riverwalk Red Multi-Use Trail Bridge over Des Moines River Rehabilitation will result in the bridge superstructure being raised approximately four feet vertically. Concrete pedestals will be constructed under each truss bearing on top of the existing piers. This will require both
150 ft. long single-span truss sections to be uniformly raised and supported in-place. The piers and abutments for the approach spans will be similarly modified to account for the new truss elevation. The approach trail sections adjacent to the bridge will be re-constructed for ADA compliance.

Scott Avenue Bridge over Des Moines River Rehabilitation includes various concrete repairs to the eight-span 747 ft open-sprandrel arch bridge. The deck and sidewalk will be milled to within ¼” of the top reinforcing steel with full depth repairs made at each replaced deck joint. A high density concrete overlay will be placed. Concrete repairs will be made to the barrier rails and the exterior sidewalk handrail will be replaced. Areas of spalled and delaminated concrete in the bridge arches, spandrel columns, and caps, will be repaired and cracks will be epoxy-injected. Settled and deteriorated approach pavement will be removed and replaced.

SW 1st Street Multi-Use Trail Bridge over Raccoon River Rehabilitation includes various concrete repairs to the five-span 487 ft open-sprandrel arch bridge. The existing asphalt overlay will be removed. With the overlay removed, a combination of shallow and full-depth repairs will be required as well as full replacement of the existing expansion joints. A high density concrete deck overlay will be placed. Areas of spalled and delaminated concrete in the bridge arches, spandrel columns, and caps, will be repaired and cracks will be epoxy-injected. The existing planters on the bridge will need to be removed to facilitate construction and can be placed on the bridge once construction is complete.

SW 5th Street (Jackson Avenue) Multi-Use Trail Bridge over Raccoon River Rehabilitation will provide the structural repairs required to restore a 14-foot-wide path (see schematic below) consisting of a ten-foot wide trail and two (2), two-foot-wide shoulders, overlook areas at each of the bridge piers. Due to advanced corrosion of this fracture critical bridge, a load (capacity) rating could not be adequately determined and the structure was closed to all use in 2013. The project reduces the trail width which limits both the dead and live load, and therefore reduces the necessary repair work. In addition, the structure will be painted.
Des Moines and Raccoon River Balustrade Rehabilitation includes concrete repairs to the balustrade and the river walls to maintain adequate safety and the aesthetic significance of the system. There are several geometric variations of the balustrade within the Civic Center Historic District which will require unique designs. Each different section will require appropriate concrete mix design and testing to match that portion of the balustrade. These details will be further coordinated with SHPO.

Cost estimates presented are based on the need identified in the evaluations, experience on past projects of a similar nature, and unit costs for improvements in the Des Moines area. Individual project estimates include contingency amounts ranging from 10-20%, appropriate to the level of design performed. In addition, an overall project contingency is budgeted at $3 million, or about 9%. The reduced scope project has a reduced contingency consistent with removing the Court Avenue Bridge project component.

7.2 Financial Feasibility

The City of Des Moines has the management experience and fiscal capacity to ensure the Bridges to Opportunity: Des Moines’ Community Connection project is achieved with TIGER Discretionary Grant funds.

The City has a proven record in managing grant funding and financial reporting. Over the past five years, the City has successfully administered 136 State/Federal grant projects. The Iowa DOT Office of Local Systems has identified Des Moines as an agency that systematically does an excellent job of administering Federal-Aid projects. The City hires an independent auditor each year and includes the Single Audit review, encompassing both financial and compliance components for all federal awards. The City has received the Certificate of Achievement for Excellence in Financial Reporting from the Government Finance Officers Association of the United States and Canada (GFOA). The GFOA award is the highest form of recognition in governmental accounting and financial reporting, and its attainment represents a significant accomplishment by a government and its management.

The City Council goes beyond the annual budget requirement and approves a two year funding plan for operations. The general fund and enterprise fund balances have increased over the last few years, even while municipalities across the country have been fiscally challenged. The City’s adherence to fiscal policy and sound management, including maintaining adequate reserves and contingency planning, has resulted in maintaining a high credit rating of AA+ from Standard and Poor’s and Aa2 from Moody’s.

The City’s annual budget is about $600 million, which includes a $100 million capital budget. Each year, the City’s five-year Capital Improvement Program (CIP) plan is developed and approved by City Council. The CIP provides for long range planning of projects that meet City priorities and ensures funding is in place to complete the projects. Funding is in place or committed in the CIP to advance the project components in this application and is re-affirmed by Mayor Cownie’s opening letter. Pending notification of grant award, any necessary amendments to the CIP will be made. The detailed project budget is tabulated in Table 2, page 26.
Table 2 – Detailed Project Budget

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<th>Estimated Construction</th>
<th>% Total Project</th>
<th>Federal STP Funds</th>
<th>% Funding</th>
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**REDUCED SCOPE AND REDUCED TIGER REQUEST**

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<th>Project Component</th>
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<th>% Total Project</th>
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<tr>
<td>DO NOT INCLUDE - Court Ave. Bridge Rehabilitation</td>
<td>($7,000,000)</td>
<td>-</td>
<td>($5,600,000)</td>
<td>-</td>
<td>-</td>
<td>($1,400,000)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Remove TIGER share for Red Bridge Rehabilitation</td>
<td>-</td>
<td>-</td>
<td>($1,920,000)</td>
<td>-</td>
<td>-</td>
<td>$1,920,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>REDUCED - Contingency</td>
<td>($1,600,000)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>($1,600,000)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>$26,400,000</strong></td>
<td><strong>12%</strong></td>
<td><strong>$11,080,000</strong></td>
<td><strong>42%</strong></td>
<td><strong>$500,000</strong></td>
<td><strong>20%</strong></td>
<td><strong>$1,050,000</strong></td>
<td><strong>20%</strong></td>
<td><strong>$10,641,000</strong></td>
<td><strong>20%</strong></td>
<td><strong>$11,721,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

7.3 Project Schedule

The Bridges to Opportunity: Des Moines’ Community Connection project is consistent with projects administered by the City of Des Moines. On average, the City manages one bridge rehabilitation project and one bridge replacement project annually. The City has the experience and personnel capacity to handle these projects within the proposed schedule.

The project schedule and the key milestones are shown in Figure 4, page 27. The schedule was prepared, primarily on the construction impacts and coordination required between the project locations. Connectivity was also considered due to the mix between vehicular and pedestrian bridges, traffic impacts and delays, and trail use. We have prepared a preliminary traffic study to identify critical locations that may need to be modified to mitigate construction impacts (such as; change traffic timing, restrict street parking to gain capacity, etc.). This study will also monitor real-time detour congestion so appropriate decisions can be made to best accommodate the issues identified.
As illustrated, SW 5th Street (Jackson Ave.) Bridge will be ready for letting in early 2016 with construction starting right away. Grand Ave. and Locust St. will be the most impactful projects and those are scheduled so both bridges are not closed at the same time. Due to proximity and type of work performed, Scott Ave., SW 1st St., and Court Ave. will be assembled together in one bid package for early 2017. This will create contract efficiencies and allow construction timing between the three locations to be better controlled. Preliminary design is underway for six of the eight projects and development will continue with the project parties, including Iowa DOT, State Historic Preservation Office, and other regulatory agencies. There will not be a need for additional right-of-way for these projects. Temporary construction easements may be needed for Grand Ave. That process generally takes 4-6 months to complete. These efforts will be started immediately once NEPA approval is obtained and the project plans are further developed.

7.4 Required Approvals

Environmental Permits and Reviews

NEPA and cultural studies have been completed and submitted to the Iowa DOT for their review and consideration by FHWA. The SHPO has concurred in the determination of No Adverse Effect (Feb. 24, 2015) for archeological resources and No Adverse Effect with Conditions (Feb. 26, 2015) for historical/architectural. The condition is that project plans will be provided to the SHPO for
review to support the No Adverse Effect determination. Through coordination with the Iowa DOT and FHWA staff (July 11, 2014), the project was determined to be a Countersigned Categorical Exclusion (CE). The original CE document submittal was in December 2014 to Iowa DOT. Formatting and other minor changes necessitated a revised submittal. These submitted CE documents are available for viewing on the project website. Based on our continued coordination, the City anticipates approval during the summer of 2015. Additionally, the Section 4(f) decision process information has been sent to FHWA for concurrence. If they concur, all impacts to the recreational properties will be considered a temporary impact and there will be no Section 4(f) impacts.

Wetland delineations were conducted and submitted to U.S. Army Corps of Engineer and Iowa Department of Natural Resources for review as part of the Section 404/401 permit process. As requested by the Iowa DNR, a unionid (mussel) survey is being coordinated by the City along the Des Moines and Raccoon Rivers to evaluate the presence of any threatened and endangered species. The field survey work has been completed and the results will be shared with DNR and US Fish and Wildlife Service.

As individual projects are further developed, they will be appropriately submitted to USACE, Iowa DNR Floodplain, and Iowa DNR Sovereign Lands to obtain appropriate clearance. Three of the projects have completed the Joint Application submittal and are pending review. The projects will also progress through the Iowa DOT’s project development guidelines (I.M. 3.005) and obtain project reviews/clearances for various project milestones.

Legislative Approvals
No legislative approvals are required to advance the project. Local and regional support for the project is expressed as shown in Section 3, Project Parties, and by the numerous support letters (Appendix A).

State and Local Planning
The project is included in the Transportation Improvement Program (TIP) for the purposes of project planning and NEPA. In addition, both the Grand Avenue and Locust Bridge replacements are specifically in the TIP and Long Range Transportation Plan (LRTP), known as Mobilizing Tomorrow. Once additional federal funds are secured, additional project components will be included in the appropriate planning documents, including the TIP and LRTP.

The project is consistent with the goals, initiatives, and strategies that were developed as part of The Tomorrow Plan to create a resilient regional economy, invest in rehabilitation of existing infrastructure, and use transportation funding to maintain infrastructure and to increase availability of bike and pedestrian networks. The Tomorrow Plan’s analysis shows that the metro area does not need future capacity thru 2050 and recommends a strategy consistent with the Bridges to Opportunity: Des Moines’ Community Connection project stating a priority for “investment in rehabilitation of existing infrastructure.”

Assessment of Project Risks and Mitigation Strategies
The City of Des Moines has experience successfully constructing a full range of municipal projects, including rehabilitation and replacement of bridges. The highest areas of risk associated with most bridge projects are utility coordination, proper construction planning, and weather/high water uncertainties. The strategies to reduce risk associated with these items are described below.
Utility Coordination

- Significant utilities are within the project corridor and in the immediate vicinity. The replacement of Grand Avenue and Locust Street bridges requires the most effort as approximately 12 different utilities are affected, including high-voltage electric, gas, water, and communications. Coordination with impacted utilities began in Feb. 2014 and has continued. Utility relocation has already started in preparation of Grand Ave. construction and all utilities are planned to be completely relocated prior to letting. The rehabilitation projects do have utility impacts, although they are not as extensive and most will be allowed to stay in-place. Proper coordination will occur as the project development proceeds.

Construction Planning

- With the number and variety of projects, proper traffic control/planning is needed to minimize disruption and impact to commuters, residents, and businesses. This is addressed in Section 7.3, Project Schedule.

- Construction design/planning. The bridge rehabilitation projects utilize fairly standard bridge repair techniques and materials and all of them have been previously repaired. Although there is variability of the repairs needed, using “tried and true” repair techniques and materials minimizes the risk to the contractor and allows for better competition as there is limited specialty work.

A large challenge comes with Grand Ave. and Locust St. bridge replacement projects. The Iowa DOT has been notified that the City will host a Constructability Review for Grand Ave. Bridge project. Although both projects utilize fairly standard concrete substructure and superstructure components, the bridge is in a dense urban environment over a major river in downtown. A constructability review will be performed to help mitigate upfront uncertainty in the design details, project sequencing, construction access, and scheduling requirements. The findings of the constructability review will help tailor design documents and will be incorporated into the project specifications and bid documents for all prospective bidders to take advantage of. These efficiencies will be carried over into the design and implementation of Locust St. bridge replacement.

Weather/High water uncertainties

- There are no weather guarantees in construction. The three projects most affected by weather will be Grand Ave. and Locust St. replacements, and Red Bridge rehabilitation as they require work in the river. The projects have been scheduled to perform the work in historical low flow times of the year. Reasonable weather impacts are already accounted for in the construction schedule and there is additional flexibility to accommodate unexpected weather impacts. Additionally, each project component that affects the City’s flood protection will include a flood operation plan developed by the contractor, reviewed by the City and approved by the Corps of Engineers.

8. Federal Wage Rate Certification

The City of Des Moines will comply with the requirements stated in subchapter IV of Chapter 31 of Title 40 of the United States Code of Federal Wage Requirements, which is required by the FY 2015 Appropriations Act. This commitment is verified by Mayor T. M. Franklin Cownie’s signature on the cover letter.