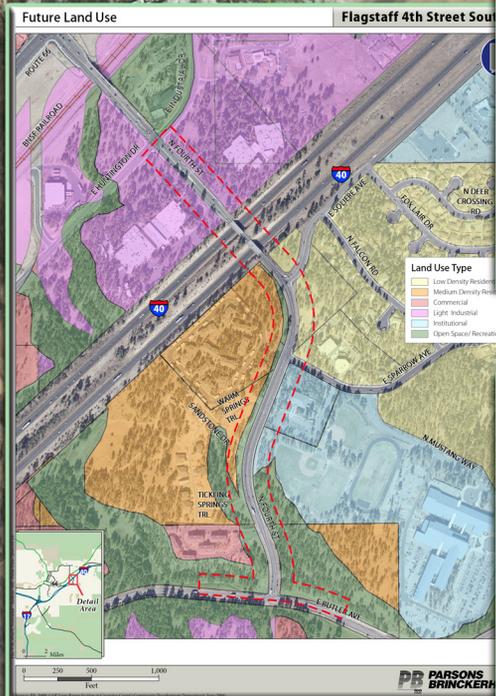


FOURTH STREET CORRIDOR

Complete Street

TIGER VII GRANT APPLICATION



June 5, 2015





City of Flagstaff

OFFICE OF THE MAYOR

May 21, 2015

Honorable Anthony Foxx
Secretary of Transportation
1200 New Jersey Avenue SE
Washington, D.C. 20590

RE: City of Flagstaff Fourth Street Complete TIGER Grant

Dear Secretary Foxx:

The City of Flagstaff is proud to present this TIGER application for the South Fourth Street Corridor. We have established a strong partnership of private developers and public agencies to deliver this crucial link in our transportation system. We sincerely hope that the USDOT will seek to join our partnership and we thank you for this opportunity to make our case.

Within the Fourth Street corridor and those connected to it – Butler Avenue, Huntington Drive, Route 66 - are major manufacturers, wholesalers, a major resort and truck stop, community recreational facilities, government offices and significant retailers. The prospect for development of thousands of acres south of the project will greatly improve. This will help our housing industry for years to come.

The advantages from the connections created by this project cannot be overestimated. Students to Schools. Residents to Recreation. Employees to Jobs. Disadvantaged to Services. Shoppers to Shopping.

We believe the letters of support from our Community, the financial support our partnership brings to the table, and benefit-cost ratio we demonstrate make ours a very competitive application.

Thank you for your consideration of the City's application.

Sincerely,

Gerald W. Nabours

Mayor

928-213-2015

FOURTH STREET CORRIDOR Complete Street Project

TIGER VII Grant Application Summary

Lead Applicant	City of Flagstaff and Flagstaff Metropolitan Planning Organization
Contact Information	David Wessel Manager, Flagstaff Metropolitan Planning Organization 928-213-2650 dwessel@flagstaffaz.gov
Project Type	Urban
Project Description	Project will transform the Fourth Street Corridor between Butler Avenue and Industrial Drive into a complete street by replacing Fourth Street Bridge over I-40, reconfiguring the intersection at Butler Avenue, completing the Flagstaff Urban Trails System, widening Fourth Street to a continuous four lane width, and incorporating various "complete street" elements.
Project Cost	\$15,917,025
TIGER VII Request	\$10,000,000
Other Source(s) & Amounts	\$462,000 – Federal (FHWA) Transportation Alternatives Program \$4,409,026 – City of Flagstaff \$846,000 - In-lieu contributions \$200,000 - Northern Arizona Intergovernmental Public Transportation Authority
NEPA Status	Environmental Assessment - Finding of No Significant Impact: May 2017
Project Milestone Completion Dates	Final Design (PS&E): December 2016 ROW Acquisition: December 2017 Construction Phase 1: October 2019 Construction Phase 2: October 2020
Project Outcomes	<p>State of Good Repair: Project will bring a deteriorating interstate bridge crossing to a state of good repair, mitigate congestion along a critical bottleneck, and reduce pavement wear and tear through provision of transportation alternatives.</p> <p>Economic Competitiveness: Project will yield 1.4 million annual hours of travel time savings for drivers, enhance connection to a corridor of economic opportunity, create ladders of opportunity for underserved low-income communities, generate 240 person-year construction jobs, and allow for the widening of I-40, a key freight corridor, beneath the Fourth Street Corridor Bridge.</p> <p>Quality of Life: Project will complete a key missing link in the city's multi-use trail network, facilitate introduction of new transit service, support local plans to foster a balanced and sustainable transportation network, and realize benefits across nearly all of HUD's livability principles.</p> <p>Environmental Sustainability: Project's VMT reduction of over 29.7 million in the life of the Project will substantially reduce vehicle emissions and noise pollution. Project will also mitigate routine flooding of a drainage system and employ stormwater best management practices.</p> <p>Safety: Project will mitigate 35 crashes per year, resulting in a cost savings of \$2.5 million over the life of the Project, and provide safe accommodations for multi-modal users along the corridor.</p>
BCA Results	7% discount rate: 16.62; 3% discount rate: 35.88

FOURTH STREET CORRIDOR Complete Street Project

Table of Contents

1. Project Description.....	1
1.1. Introduction.....	1
1.2. Transportation Challenges to be addressed by Project	2
1.3. Project Scope.....	4
1.4. Ladders of Opportunity.....	7
2. Project Location.....	9
2.1. Project Context.....	9
2.2. Project Connections.....	10
3. Project Parties.....	11
4. Grant Funds and Sources/Uses of Project Funds.....	12
4.1. Sources of Funds.....	12
4.2. Uses of Funds.....	13
5. Selection Criteria.....	14
5.1. Primary Selection Criteria.....	14
State of Good Repair	14
Economic Competitiveness	16
Quality of Life.....	18
Environmental Sustainability.....	20
Safety.....	21
5.2. Secondary Selection Criteria.....	21
Innovation.....	21
Partnership.....	21
6. Benefit-Cost Analysis Results.....	22
7. Project Readiness.....	24
8. Federal Wage Rate Certification.....	29
Appendices	
Appendix A – Fourth Street Corridor Complete Street Project Location Map	
Appendix B – Letters of Commitment and Support	
Appendix C – Benefit-Cost Analysis Results	
Appendix D – Single Audit Report and Schedule of Expenditures of Federal Awards from June 30, 2014	
Appendix E – Planning and Environmental Linkages (PEL) Checklist	
Appendix F – Short Term Economic Impacts Attributed to Construction Expenditure	

FOURTH STREET CORRIDOR Complete Street Project

1. PROJECT DESCRIPTION

1.1. Introduction

Flagstaff is a unique mountain community at the foot of the San Francisco Peaks in Northern Arizona. It is home to Northern Arizona University and is one of the state's most popular recreation centers as it is situated within relative proximity to seven national parks and monuments and just 80 miles southeast of the Grand Canyon. Since 1990, the city has added more than 25,000 residents, now totaling 70,000, an increase of over 60 percent; by 2040, the total population is expected to continue to grow at approximately one (1) percent per year, increasing to 88,000 by 2040. A major employment center, the City is home to several major regional employers, including Northern Arizona University, WL Gore, Nestle Purina and SCA Tissue.

Flagstaff's Fourth Street Corridor is a multi-modal arterial traversing the heart of the city's residential, employment, education, and recreational destinations. It is one of only three north-south arterials that offer unrestricted access across Interstate 40 (I-40), a formidable physical barrier to north-south travel within Flagstaff's growing community. Fourth Street is also one of only three roadways that span the BNSF transcontinental railroad within the City of Flagstaff. Given its strategic access and central location, Fourth Street is one the most heavily used crossings of I-40. The corridor provides direct connections to major employers, including W.L. Gore & Associates, the largest private employer in the city, as well as various education, recreation and residential developments.

In recent years traffic on the two-lane Fourth Street corridor has grown substantially to 19,000 vehicles a day. By 2040, as the City realizes planned growth south of I-40, traffic levels are anticipated to more than double to 39,000 vehicles a day. The added traffic on Fourth Street as growth continues will cause major congestion and safety problems at the intersection of Fourth Street with Butler Avenue, substantially increase activity at all intersections in the corridor, overwhelm the



Figure 1 - Fourth Street Bridge over I-40 (looking north from Soliere Avenue)

capacity of the existing two-lane bridge over I-40 and make travel uncomfortable and less safe for bicyclists and pedestrians, including students who walk or ride in the corridor each day.

Of particular concern is the Fourth Street crossing of I-40, which consists of a two-lane bridge, one lane in each direction, without any accommodations for the pedestrians and bicyclists who continue to utilize the bridge despite the absence of sidewalks and designated bike lanes. The narrow bridge also inhibits continuity of the Flagstaff Urban Trail System, which runs along Fourth Street and currently does not extend over I-40. Further, the bridge is nearing capacity and becoming a chokepoint for through-traffic across Fourth Street. Notably, clearances on the current structure are also hampering a much needed widening of the heavily travelled I-40 that runs below the Fourth Street Bridge.

This Project will transform the Fourth Street Corridor into a complete street that accommodates automobile, bicyclists, pedestrian, and transit safely and efficiently through a program of five broad improvements:

FOURTH STREET CORRIDOR

Complete Street Project

- Replacement of Fourth Street Bridge over I-40
- Reconfiguration of Fourth Street and Butler Avenue Intersection
- Completion of the Flagstaff Urban Trails System
- Widening of Fourth Street to a uniform four-lane width
- Incorporation of Complete Street elements along the Fourth Street Corridor

The program is an outgrowth of regional planning efforts dating back 20 years in response to growing travel demand in the face of rapid growth. The Fourth Street Corridor Project will move Flagstaff towards realizing its broader goal of a sustainable, multimodal street network that boasts a wide variety of choice for moving a diverse population and goods.

1.2. Transportation Challenges to be addressed by Project

Roadway Capacity Limitations

The current Fourth Street Corridor consists of a variable width roadway (between two and four lanes) that includes a two-lane bridge crossing of I-40. The constriction across the bridge limits the functionality of the crossing, impedes safe bicycle and pedestrian traffic, and discourages installation of a viable bus route within the corridor. High volumes of traffic, which includes truck traffic, pose both safety and capacity concerns as growth in the area adds more vehicles and activity to the corridor.

Average daily traffic on the Fourth Street Bridge was 19,000 vehicles in 2013 at Level of Service F and is anticipated to grow to over 25,000 vehicles by 2030 even without improvements, substantially worsening associated energy and air quality conditions. With the improvements, the volume is expected to increase to 39,000 vehicles per day. Absent any improvements, many motorists will continue to make longer trips that rely on the use of adjacent interstate highway interchanges about a mile and one-half on either side of the Fourth Street crossing of I-40.

FOURTH STREET CORRIDOR Complete Street Project

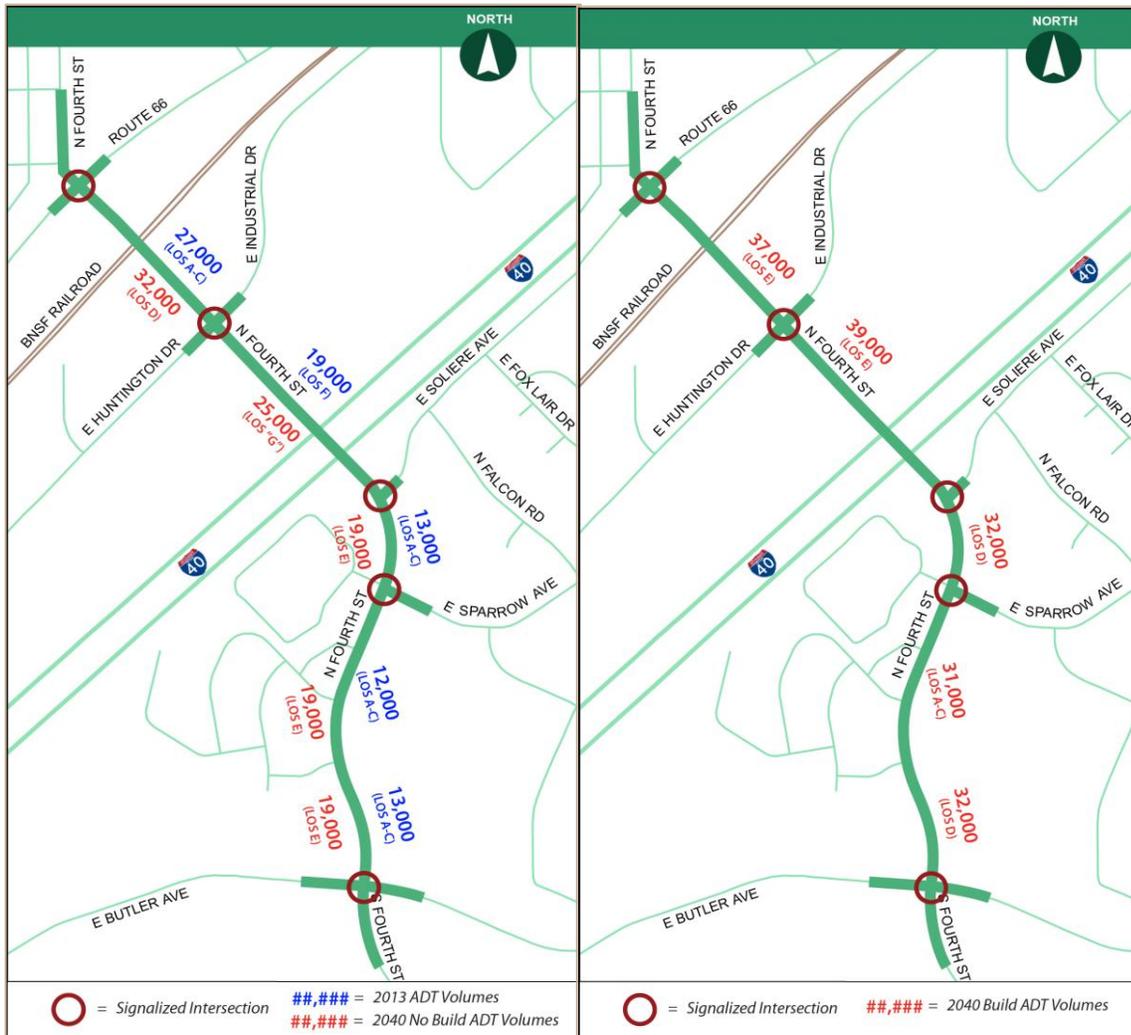


Figure 2 Existing and 2040 No-Build ADT (left) and 2040 Build ADT (right)

Poor Connectivity and Safety for all Users

North of the Fourth Street I-40 bridge, between I-40 and Huntington/Industrial Drive, the roadway carries two through lanes, a bike lane, and a sidewalk in each direction, but they all stop about 170 feet north of the I-40 Bridge. South of the bridge, between Butler Avenue and I-40, some sections are already widened with the equivalent of three or four travel lanes of travel and sidewalks and bicycle facilities on both sides of the roadway. The roadway largely consists of narrow two-lane segments. The Fourth Street Bridge itself is a narrow two-lane chokepoint with no accommodations for bicycle or pedestrian traffic.



Figure 3 Students walking across Fourth Street Bridge using Unprotected Shoulder

FOURTH STREET CORRIDOR

Complete Street Project

This stark contrast in the cross-section along the Fourth Street Corridor limits the roadway's ability to serve the varied modal demands of the corridor and poses a risk for users on foot or on a bicycle. Currently, there are two schools, Northland Preparatory Academy (ranked 66th in the nation among charter schools) and the Sinagua Middle School, for which no provisions are made for students who walk or ride their bikes to school. It also results in a gap in the Flagstaff Urban Trails System through the portion of the Fourth Street Corridor that is the subject of this TIGER application.

The geometry of the intersection at Butler and Fourth Street at the south end of the corridor poses potential risks for vehicles. Between 2010 and 2012, there were 26 crashes at the intersection. Most of the collisions were rear-end and angle collisions.

Weak Transportation-Land Use Connections

Flagstaff is a growing community in Northern Arizona that has limited access to some of its key employment areas. The Fourth Street Corridor Project would streamline access from residential development south of the freeway to the Huntington/Industrial employment area, the North Fourth Street Commercial Corridor, and the Flagstaff Medical Center, which are among the largest employment centers in the region.

Roadway Width that Discourages Transit Service

The Northern Arizona Intergovernmental Public Transportation Agency (NAIPTA), which operates the Mountain Line, Mountain Link and Mountain Lift, is the region's rapidly growing and national award-winning transit system. NAIPTA operates extensive service on Fourth Street north of Industrial Drive, just north of this Fourth Street Corridor project. There is currently no bus service across the freeway on Fourth Street. However, there is an increasing need to extend services south into the corridor to serve a growing population and employment base as well as the disadvantaged populations that reside in this neighborhood. Today, transit cannot currently be effectively offered because, in addition to the congestion challenges of maintaining transit schedules on a narrow roadway, the narrow sections do not allow for necessary bus amenities (e.g., shelters to protect users from severe weather) to be installed.

1.3. Project Scope

The construction Project that is the subject of this application includes completing a continuous four-lane arterial on the three-quarter mile segment of Fourth Street between Butler Avenue and Huntington/Industrial Drive. The "Complete Street" will transform the entire length between Butler Avenue and Industrial Drive into a full four-lane cross-section with provisions for a continuous bicycle lane in each direction, a full sidewalk to accommodate pedestrians, modifications to traffic controls, and preservation of safe access locations to local land uses. The Flagstaff Urban Trail System in this segment of Fourth Street will also be completed, linking a number of recreational and commuter routes for bikes and pedestrians. These improvements will provide the basis for a comprehensive Complete Street consistent with the City's guidelines.

The improvements are depicted in Figure 4 and described in detail following the map (a larger version of the map is in Appendix A).

FOURTH STREET CORRIDOR Complete Street Project

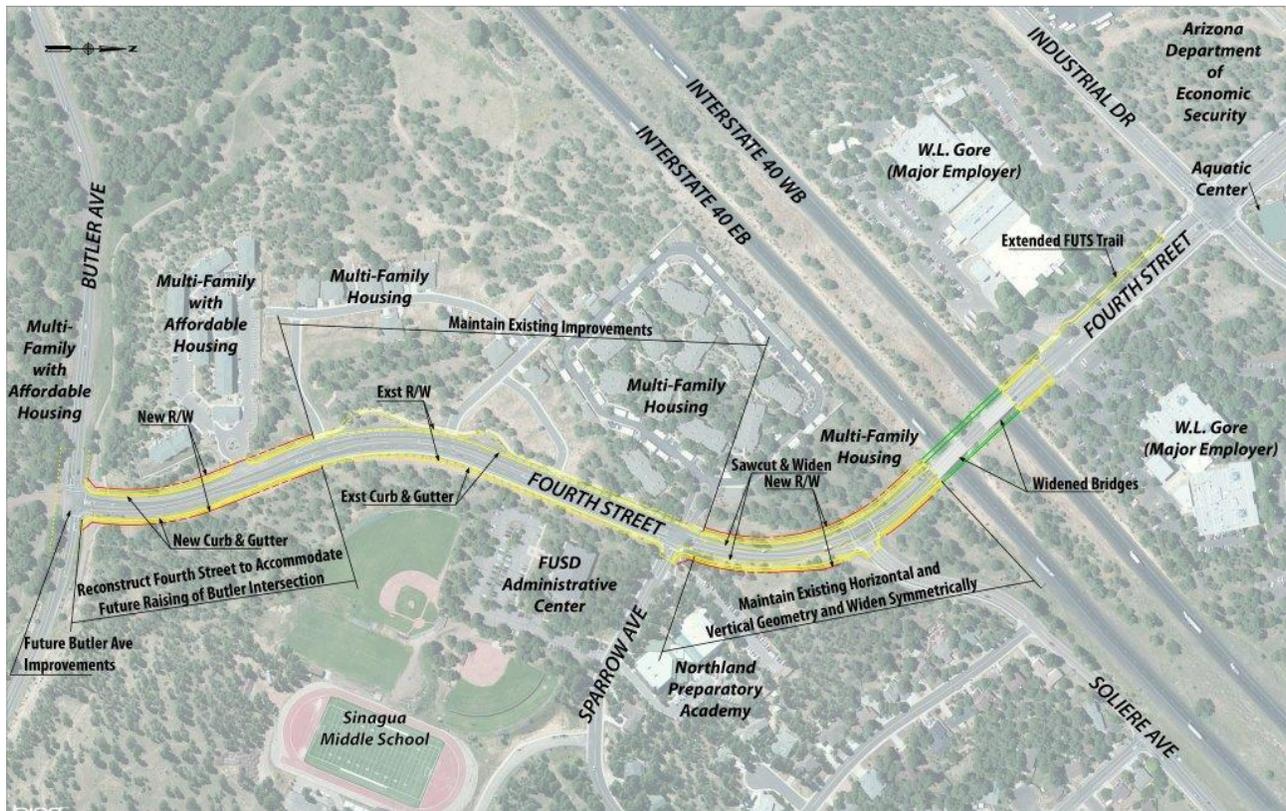


Figure 4 Project context and details

Replacement of Fourth Street over I-40 Bridge

The Project includes replacement of the bridge over a below grade segment of I-40 within the City of Flagstaff. The existing bridge is a steel beam structure consisting of two spans, the Fourth Street Underpass (UP) Eastbound (EB) spanning I-40 EB and the Fourth Street UP Westbound (WB) spanning I-40 WB. The structures were constructed as simple-span bridges in 1968 and are separated longitudinally by 75 feet.

The proposed bridge replacement that is part of the Fourth Street Corridor Complete Street Project consists of a new three-span precast pre-stressed AASHTO Type IV girder bridge to span a widened I-40. To avoid impacting the adjacent commercial and residential developments, the new abutments will be placed at the same location as the existing abutments. The new bridge will have three equal span lengths of 105'-0" and require a structure depth of 5'-4". By using a three span layout, the profile of Fourth Street will not be impacted as the structure depth will be reduced by the shorter span. This takes into account the additional depth needed to accommodate the cross-slope of a wider Fourth Street as well as the additional depth due to the cross-slope of the I-40 widening. Typical sections for the Project are provided in Figure 5, Figure 6, and Figure 7.

The approaches to the new Fourth Street Bridge will not be substantially affected by the new bridge, but will be designed to preserve access to business on the north side of the freeway and to residential access streets and driveways on the south side. These will require enhanced signing, striping, and signalization to maintain circulation and safety once Fourth Street is widened. The new wider Fourth Street Bridge will also accommodate pedestrian and bicycle access over I-40 by including a sidewalk along the east side and the Flagstaff Urban Trail System (FUTS) trail on the west side of the structure as well as a 6'-6" bike lane on either side of the two outside travel lanes.

FOURTH STREET CORRIDOR Complete Street Project

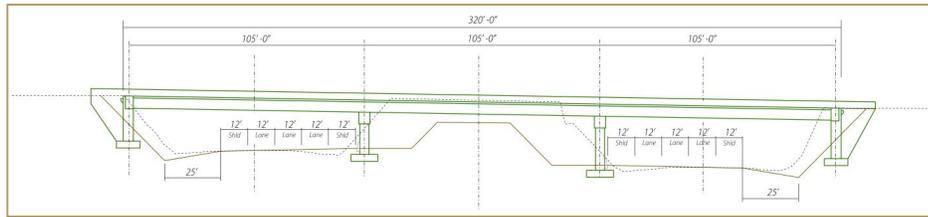


Figure 5 Fourth Street Bridge replacement typical section (from I-40)

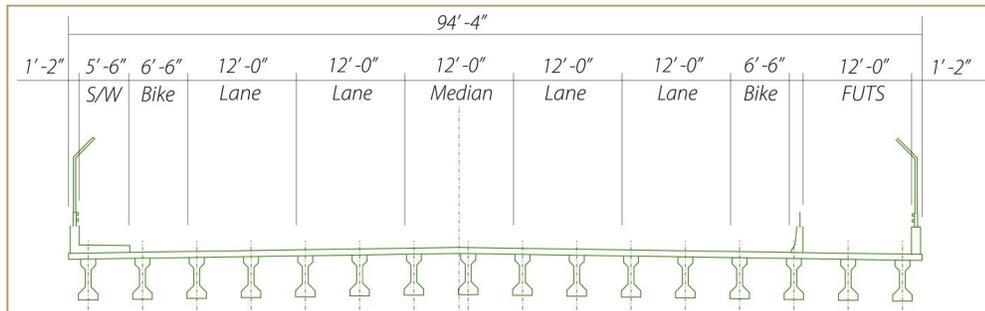


Figure 6 Fourth Street Bridge replacement typical section (looking south on Fourth Street)

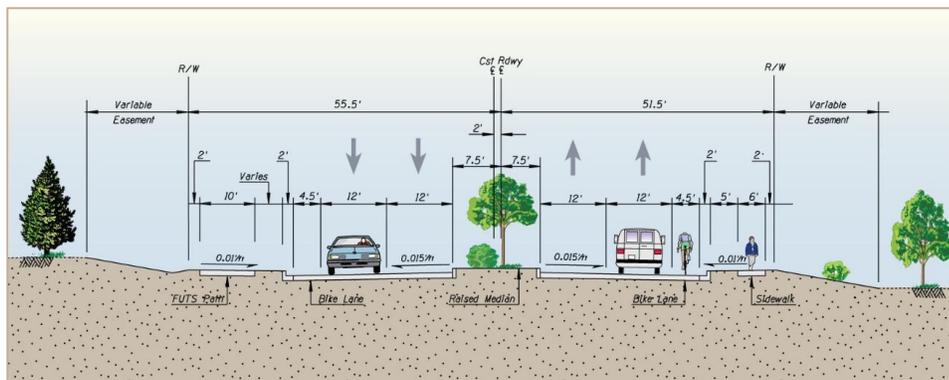


Figure 7 Fourth Street Corridor Complete Street typical cross-section

Reconfiguration of Fourth Street and Butler Avenue Intersection

New development taking place immediately south of Butler Avenue and the anticipated growth in traffic on both Butler Avenue and Fourth Street have made it necessary to improve the safety performance of the intersection and address a persistent drainage issue at the intersection by raising the profile of Butler Avenue about 10 feet. Improvements to the geometry of the intersection will add through lanes and turn lanes to address growing congestion as well as address the crash history of the location. The redesign of the intersection will reduce the severity of the approach slope on Fourth Street and help lengthen pavement life. These changes will facilitate not only automobile movement, but bicycle, pedestrian, and transit movements as well anchor the Complete Street improvements from the south end of the corridor.

FOURTH STREET CORRIDOR Complete Street Project

Completion of Flagstaff Urban Trails System

This component entails the completion of a critical portion of the citywide network of non-motorized, shared-use pathways used by bicyclists, walkers, hikers, runners, and other users for both recreation and transportation. Surveys have shown that over three quarters of the population use the Flagstaff Urban Trail System per year. Flagstaff has, in fact, been awarded Bronze “Walkable Community” status by the Pedestrian and Bicycle Information Center. The completion of the Fourth Street Trail

as an element of this Project will expand the recreational and transportation options for which the City of Flagstaff is known. The link between the Switzer Wash Trail and the Route 66 Trail will provide a major cross-freeway connection over I-40 for the heavily used system.

Incorporation of Complete Street Elements along Fourth Street Corridor

Flagstaff prides itself on being a bicycle friendly city and has earned a Silver rating by the League of American Bicyclists, offering an extensive network of trails and bike lanes that offer direct access to any location in the city. In the context of a complete street, the improvement of Fourth Street will include both bike lanes for expeditious travel on the roadway and a separate sidewalk for safe pedestrian passage. These are in addition to the Flagstaff Urban Trail System link described above.

1.4. Ladders of Opportunity

The communities of Sunnyside, Upper Greenlaw, and Lower Greenlaw in the vicinity of the Project have high concentrations of low-income populations, exceeding the average for the region as a whole by a factor of two or more. As part of this project, these communities will be more efficiently linked to employment, education and healthcare resources, particularly in light of the enhanced connectivity across I-40. A new NAIPTA transit service, in particular, that would be implemented with the improved corridor, will provide identified affordable housing residents in the Pinehurst Apartments and future affordable housing residents in the Canyon del Rio development south of Butler Avenue with access to employment, education, and health care north of the freeway.



Figure 8 View of intersection at Fourth Street and Butler Avenue



Figure 9 Fourth Street trail context within FUTS

FOURTH STREET CORRIDOR Complete Street Project

Support Workforce Development

The proposed Fourth Street Corridor Project will improve north-south connectivity between the less advantaged populations in the neighborhoods north of the freeway and employment and neighborhoods south of the freeway. Current traffic volumes across the bridge are 19,000 daily and are projected to be substantially higher in the future (39,000 daily in 2040), exceeding the ability of the existing two-lane bridge to handle the demand. This limits the ability of the affected communities to gain access to major employers (e.g., NAU, WL Gore, SCA Tissue, etc.) without resorting to a personal vehicle and, often, a circuitous route. The new bridge, with bicycle and pedestrian improvements, in addition to the proposed bus route, will significantly improve access between population centers (including disadvantaged populations) and employment opportunities.

A new office of the Arizona Department of Economic Security (DES) which provides assistance and access to healthcare for temporarily unemployed and vulnerable populations is building a new complex at the intersection of Fourth Street and Industrial Drive. This will generate substantial activity by disadvantaged groups and foster transit and bicycle usage in the area and within the corridor. The Fourth Street Corridor provides direct access to this critical facility and will require the proposed improvements to serve the needs of the community effectively.

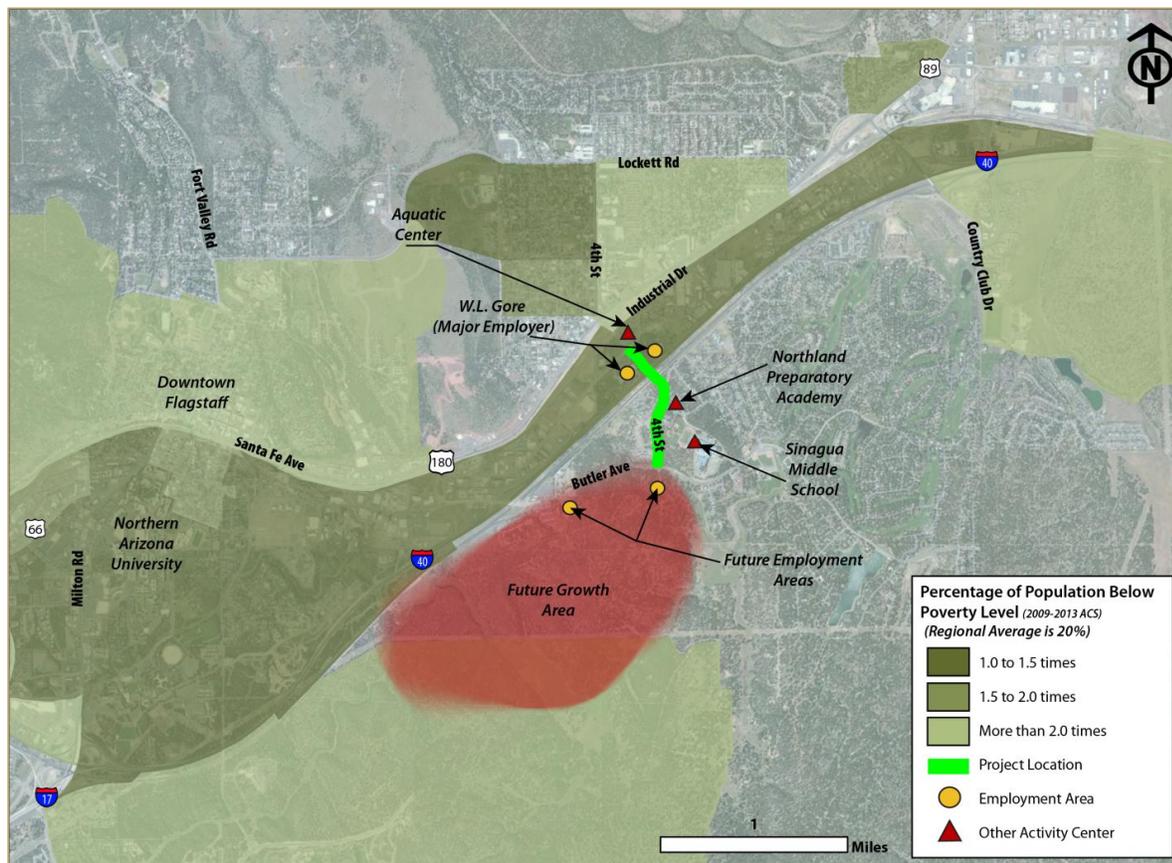


Figure 10 Location map with key population characteristics

FOURTH STREET CORRIDOR Complete Street Project

Community Revitalization

The Fourth Street Corridor improvements will open multimodal access to a variety of existing and new employment, education, retail and recreation opportunities along Fourth Street. The proposed new NAIPTA bus service will offer an affordable travel option in the vicinity of the largest private employer in the region (WL Gore). It will also provide alternative mode access to the new Department of Economic Security facility and easy access to a new Walmart located about a quarter of a mile west of Fourth Street on Huntington Drive. The new Canyon del Rio project south of the intersection of Butler Avenue and Fourth Street, with multiple retail and employment opportunities as well as an affordable housing element, will also be served by the enhanced Fourth Street. The North Fourth Street Commercial Corridor will also gain greatly improved access to residents south and east of the project.

2. PROJECT LOCATION

2.1. Project Context

The proposed Project is located within the City of Flagstaff in Coconino County within the State of Arizona. The Project is within Arizona's 1st Congressional District, represented by Ann Kirkpatrick. As shown in Figure 11, Flagstaff is centered upon Interstate 40 and the BNSF Intercontinental Railroad, which are major passenger and freight movement corridors within the western US. Fourth Street crosses both I-40 and the BNSF corridor, extending from just south of the BNSF tracks at Industrial Drive to Butler Avenue south of I-40.

The City of Flagstaff has a population of 70,000 within the city limits. NAU houses a student population of over 20,000 and is the largest employer in the region. The Flagstaff MPO area holds a population of 90,300 and Coconino County is home to 137,000 residents. Median income in Flagstaff in 2010 was \$47,289 with many of those located within the influence area of the bridge below that level.

The Flagstaff Metropolitan area provides educational, recreational, cultural, medical and shopping services to most of Northern Arizona, an area extending north to the Utah border, east and west along the I-40 corridor to Holbrook (80 miles) and Seligman (75 miles), respectively, and south to the communities in the Verde Valley. This area encompasses all of the Hopi Reservation and much of the Navajo Reservation.

Flagstaff is a governmental, educational, transportation, cultural, and commercial center. Government is one of the largest employment sectors. Tourism is also a large employer as the City receives over 5,000,000 visitors per year. In addition, the City houses Northern Arizona University (NAU) and other scientific and high tech research and development industries. Economic activity, in addition to abundant tourism, centers on NAU, the US Forest Service, other government employers and private employers such as WL Gore, Nestle Purina and SCA Tissue. Other employment areas in the vicinity of the corridor include the existing Huntington/Industrial Employment Corridor, the North Fourth Street Commercial Corridor and future developments of Canyon del Rio and the expansion of the Little America Resort community.

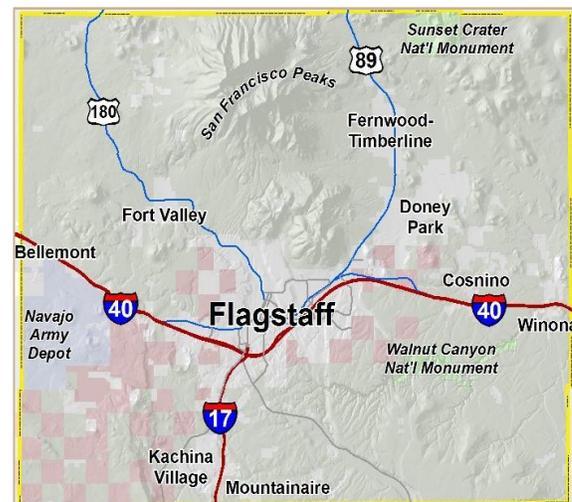


Figure 11 Flagstaff Vicinity Map

FOURTH STREET CORRIDOR Complete Street Project

Residential single and multi-family communities are located both north and south of the proposed Fourth Street Bridge over I-40. Residential neighborhoods to the south are growing in an area of major expansion within the Flagstaff community. Neighborhoods to the north include some of the less advantaged areas of the region: Sunnyside, Upper Greenlaw and Lower Greenlaw.

Immediately adjacent to the corridor on the east are both multi-family and single family developments as well as the Northland Preparatory Academy and the Sinagua Middle School. In the project corridor's north end is WL Gore, the largest private employer in the region, the Flagstaff Aquatic Center which provides recreation opportunities to local residents, and a new Department of Economic Security complex. Walmart has a new store about a quarter of a mile west of the Fourth Street Corridor on Huntington Drive that provides employment and retail opportunities for a large cross-section of the population.

2.2. Project Connections

The Fourth Street Corridor ties Flagstaff north of I-40 and Flagstaff south of I-40 together. It is a popular connection because it is one of only three freeway crossings that does not interface with the freeway at an interchange. There is no bus service along much of the Fourth Street Corridor and none across I-40 which makes it difficult for people south of I-40 to access jobs and retail opportunities north of I-40. The improved Fourth Street will greatly facilitate a bus connection (NAIPTA will provide a new route on Fourth Street) and make it possible for residents and employees south of I-40 to access multiple bus routes that run north of I-40 on Industrial Drive and Fourth Street north of the project area. The connection across I-40 will provide enhanced access in both directions for minority populations north of the BNSF Railroad line to new employment opportunities south of I-40.

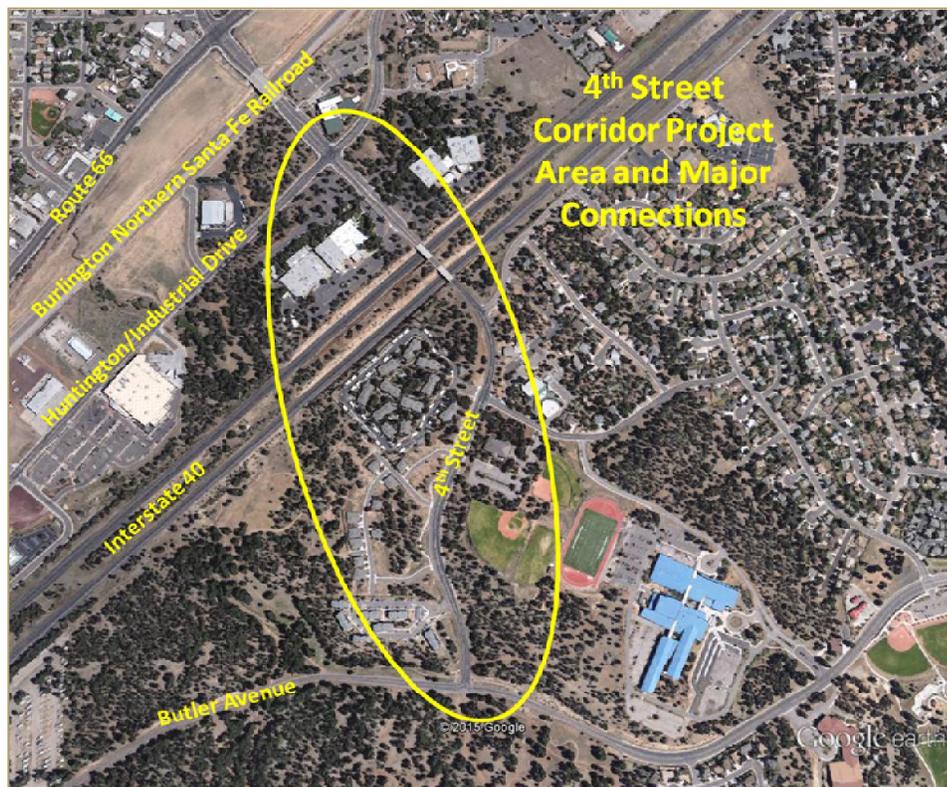


Figure 12 Project location map and major connections

FOURTH STREET CORRIDOR Complete Street Project

3. PROJECT PARTIES

The Project is a joint effort among the City of Flagstaff, the Flagstaff Metropolitan Planning Organization (MPO), Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA), and the Arizona Department of Transportation (ADOT). The Project is located within the City limits of Flagstaff, within the funding jurisdiction of the Flagstaff Metropolitan Planning Organization (Flagstaff MPO). The bridge over I-40 is within the operational jurisdiction of ADOT. Specific roles of the Project parties are described in Table 1. The Project has support from both private and public parties as evidenced by the letters of commitment included in Appendix B and as discussed in Section 5.2 Secondary Selection Criteria - Partnership.

Table 1 Project partners

Agency/Partner	Role	Fourth Street Involvement
City of Flagstaff	Builds transportation system in city. Maintains roadway surface on Fourth Street and access to nearby employment and community destinations	Complete Street on Fourth Street with widened bridge over I-40 including sidewalk, bike lanes and FUTS trail will improve circulation and access for the citizens of Flagstaff
Flagstaff Metropolitan Planning Organization (MPO)	Plans transportation for the region and allocates funds through the TIP process	Maintains the Regional Transportation Plan and coordinates planning and funding elements of the project
Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA)	NAIPTA is a regional organization, including Coconino County, the City of Flagstaff, and Northern Arizona University, formed to coordinate the planning of public transportation services for the region.	Introduction of a continuous transit route and supporting amenities on Fourth Street. Contributing funding towards specific bus stop improvements.
Arizona Department of Transportation (ADOT)	Operates and maintains the I-40 freeway and inspects and maintains the Fourth Street bridge structure	Bridge Management System shows a need to replace or rehabilitate Fourth Street Bridge. A widened bridge also affords ADOT opportunity to widen I-40 without impinging on freeway clearances
Arizona Department of Economic Security	Establishing a new building within the corridor to provide for unemployed and those in need of healthcare	Contributing in kind improvements at the Fourth Street /Industrial Drive intersection
Canyon del Rio and Pinehurst Apartments	Developers of major projects at Butler Avenue/Fourth Street intersection	Contributing in lieu funds towards the Fourth Street/Butler Ave intersection

FOURTH STREET CORRIDOR Complete Street Project

4. GRANT FUNDS AND SOURCES/USES OF PROJECT FUNDS

Directly demonstrative of the critical need for this project, the funding plan engages a diverse array of agencies and interests. Committed funding partners include the City of Flagstaff, NAIPTA, ADOT, Arizona Department of Economic Security, and private in-lieu contributions. Federal funding from the Transportation Alternatives Program is also included. The TIGER request of \$10 million is the final piece needed to complete the comprehensive funding package.

4.1. Sources of Funds

As shown in Table 2, Federal Highway Administration (FHWA) Transportation Alternatives Program (TAP) grant funding awarded to the City of Flagstaff for completion of the Flagstaff Urban Trail System (FUTS) will cover approximately three (3) percent of the Project cost (\$462,000).

In terms of local match for the proposed Fourth Street Corridor Project, the City of Flagstaff is contributing \$4.4 million, approximately 28 percent of the project's \$15.9 million capital cost. This consists of sales tax revenues programmed in the City's Capital Improvement Program for segments of the Fourth Street Corridor Project as well as the City's local share of the FHWA TAP grant awarded for completion of the Flagstaff Urban Trail System (FUTS). NAIPTA, the region's transit agency, is contributing \$200,000 from its annual operating budget, accounting for roughly one (1) percent of the overall cost, towards bus stop improvements that will be implemented in portions of the corridor as part of this project.

The remaining five (5) percent of the local funding share will come from in-lieu contributions from the Arizona Department of Economic Security and two private developments (Canyon del Rio and Pinehurst Apartments). The in-lieu contributions are for specific corridor improvements that have been planned to offset impacts that would result from planned development projects.

TIGER funds are being requested to cover the remaining 63 percent of the total cost of \$15,917,000.

Letters of commitment for the various match sources are provided in Appendix B.

Table 2 Fourth Street Corridor Project sources of funds

Source	Share (\$)	Share (%)
FHWA Transportation Alternatives Program (TAP) – FUTS (Federal share)	\$462,000	3%
City of Flagstaff	\$4,409,026	28%
<i>City of Flagstaff Sales Tax Revenue - \$4,327,100</i>		
<i>City of Flagstaff (Local) Share of Federal TAP Grant – FUTS - \$81,926</i>		
NAIPTA	\$200,000	1%
Arizona Department of Economic Security	\$150,000	1%
Private In-Lieu Contributions	\$696,000	4%
<i>Canyon del Rio - \$150,000</i>		
<i>Pinehurst Apartments - \$546,000</i>		
TIGER Request (Federal)	\$10,000,000	63%
TOTAL	\$15,917,026	100%

FOURTH STREET CORRIDOR

Complete Street Project

4.2. Uses of Funds

The \$15.9 million cost of the Project is divided into the following categories of work: construction, right-of-way acquisition, utilities, design, construction administration, and contingency, as shown in Table 3. TIGER funds will be used to match construction and associated construction management activities.

Table 3 Capital cost estimate for Fourth Street Corridor Project

Item Description	Unit	Quantity	Unit Cost	Total
Community Relations	Lump Sum	1	\$17,000	\$17,000
Roadway Excavation	C YD	54,300	\$9	\$461,550
Borrow	C YD	39,240	\$10	\$392,400
Subgrade Preparation	SQ YD	21,972	\$6	\$131,832
Pavement Structural Section	SQ YD	28,218	\$25	\$705,455
1 1/2" Overlay (Existing Roadway)	TON	998	\$35	\$34,915
Concrete Curb & Gutter	LF	6,530	\$16	\$104,480
Single Curb	LF	5,794	\$16	\$92,704
Concrete Sidewalk Ramp	EA	12	\$2,500	\$30,000
Concrete Sidewalk Std	SQ YD	5,110	\$35	\$178,850
Traffic Signing & Striping - 5 lanes	LF	4,470	\$9	\$37,995
Traffic Signal, Full Intersection	EA	3	\$150,000	\$450,000
Interconnect/Traffic Signals	LF	4,000	\$17	\$68,000
Drainage	Lump Sum	1	\$1,195,218	\$1,195,218
Bridges	Lump Sum	1	\$4,250,000	\$4,250,000
Landscape	Lump Sum	1	\$200,000	\$200,000
Lighting	Lump Sum	1	\$63,800	\$63,800
Transit	Lump Sum	1	\$200,000	\$200,000
Subtotal Roadway & Structures				\$8,614,199
Removal of Existing Improvements @ 4%	Lump Sum	1	\$344,568	\$344,568
Mobilization/Demobilization @ 10%	Lump Sum	1	\$861,420	\$861,420
Traffic Control @ 3%	Lump Sum	1	\$258,426	\$258,426
Contingency @ 20%	Lump Sum	1	\$1,722,840	\$1,722,840
Contractor's Bid Total				\$11,801,453
Construction Management @ 14% of Construction Cost			14%	\$1,652,203
Utility Relocations @ 4% of Construction Cost			4%	\$472,058
Total Construction Project				\$13,925,714
Right-of-Way	SQ FT	38,922	\$10	\$389,220
Slope Easement	SQ FT	20,952	\$10	\$209,520
Engineering Design @ 10% of Construction Cost			10%	\$1,392,571
PROJECT TOTAL				\$15,917,026

FOURTH STREET CORRIDOR Complete Street Project

Distribution of Funding Sources across Capital Costs

Pre-construction activities such as design and right-of-way acquisition will be funded locally. Construction will be funded by all available funding sources, as shown in the Table 4.

Table 4 Distribution of costs across sources

Activity	Capital Cost	TIGER	FHWA TAP	City of Flagstaff	Other Local
Professional Services	\$3,044,774			\$3,044,774	
ROW Acquisition	\$598,740			\$598,740	
Utilities	\$472,058			\$472,058	
Construction	\$10,078,613	\$9,000,000	\$462,000	\$198,213	\$418,400
Contingency	\$1,722,840	\$1,000,000		\$95,241	\$627,600
TOTAL CAPITAL SHARE (\$)	\$15,917,026	\$10,000,000	\$462,000	\$4,409,026	\$1,046,000
TOTAL CAPITAL SHARE (%)		63%	3%	28%	7%

5. SELECTION CRITERIA

5.1. Primary Selection Criteria

State of Good Repair

Fourth Street is identified as a minor arterial in the Flagstaff MPO's "Flagstaff Pathways 2030" Regional Transportation Plan. The proposed collection of improvements will bring the entirety of the Project corridor into a state of good repair while also enhancing system efficiency and reliability.

Brings existing transportation assets into a state of good repair

Along the Fourth Street Corridor, pavement has worn in an uneven fashion. Signs of deterioration are most visible in the narrow sections such as near the I-40 Bridge as shown in Figure 13. The Overall Condition Index for the portion of the corridor south of I-40 (Section 4004 in the City's system) rates a 44.3 in the 2013 condition report compared to a target rating of 70 for the system as a whole. North of I-40, a shorter stretch of the road, rates a 75.7 where there is less severe wear and the roadway is uniformly constructed.



Figure 13 Deteriorated roadway conditions near the Fourth Street Bridge over I-40

FOURTH STREET CORRIDOR Complete Street Project

In addition to the pavement in the corridor, the substructure of the Fourth Street Bridge over I-40 is in need of significant rehabilitation or replacement. Existing conditions of the corridor are shown in Figure 14. The Fourth Street Bridge spans over I-40 have good sufficiency ratings, but while the superstructure is in good shape and the deck is satisfactory, the substructure is rated as fair and is in need of major work to restore it to prime condition.



Figure 14 Existing bridge conditions

Addresses priority bottleneck will reduce pavement damage costs along parallel roadways

The Project will also correct a priority bottleneck in the City of Flagstaff, lending to reduced travel time delay and vehicle miles traveled on parallel crossings of I-40 and adjacent streets. Reductions in VMT lead to societal benefits in the form of reduced costs of pavement damage. Fewer vehicle-miles lead to a lower need of maintenance on roads. The reduction in pavement damage equates to between \$14,000 and \$26,000 in savings over the project's first 21 years in operation.¹

Mode shift to transit and non-motorized transportation will reduce wear and tear on Fourth Street

The widening of the Fourth Street Bridge not only improves travel by automobile but also creates a safe environment for pedestrians and bicyclists and enhances the opportunity for NAIPTA to introduce currently unavailable bus transit service along Fourth Street. The introduction of bicycle and transit facilities will help shift demand from single occupant drivers to alternative modes. Longer term, an improved Complete Street corridor with a wider bridge over I-40 will allow for accommodation of bus amenities (e.g., stops and shelters) that will encourage more people to ride the bus in lieu of driving a car. Those without access to a car within the corridor will have access to parts of Flagstaff they cannot currently reach. Over time, these improvements will result in some reduction in the wear and tear on the Fourth Street Corridor and, potentially, other roadways in the vicinity of the project.

Fourth Street Corridor Project has a stable and reliable O&M funding source

Operations and maintenance (O&M) for the Fourth Street Corridor is currently funded through Flagstaff's ongoing maintenance program as part of the City's annual operating budget and no change is anticipated for the proposed project.

¹ Savings discounted at 7% and 3%. See Appendix C (Benefit-Cost Analysis Results) for detail on how the savings were derived.

FOURTH STREET CORRIDOR

Complete Street Project

Fourth Street Corridor Project will be maintained in a state of good repair using proven city and state processes

Ensuring a state of good repair for all assets is a priority of the City of Flagstaff. The City's Road Repair and Safety Tax was passed in November 2014 to ensure adequate funding to maintain all roads at an average Overall Condition Index of 70. The tax includes ongoing maintenance support for 20 years. Currently, the City maintains a condition inventory for all its roads and uses Cartegraph Pavement View to manage its pavement and facilities. The City and County have released a Request for Proposals for a Roads and Streets Operations & Maintenance Study that will help them to institute a program of best practices. Findings from this study will be incorporated into the Fourth Street Corridor Complete Street Project.

O&M for the bridge structure over I-40 will be funded through statewide bridge maintenance funds. ADOT will be the responsible party regarding the maintenance and inspection of the bridge over I-40, as it is today. ADOT is also developing a statewide Asset Management Program that will encompass all assets under state control. Currently, however, ADOT utilizes its fully functioning and effective Bridge Management System (BMS) that includes the existing Fourth Street Bridge. Under the BMS, the Fourth Street bridge over I-40 is scheduled for scoping of "repair or replacement" within the next year. Given the demands on I-40, a replacement of the Fourth Street Bridge would make it possible for ADOT to widen the I-40 freeway. I-40 is also congested, carries 40 percent freight traffic, and is in need of at least another lane in each direction. If the freeway is widened, the existing bridge cannot meet freeway overhead clearance requirements. This finding was corroborated by an Initial Design Concept Report prepared by ADOT in 2012 to assess the needs of such a widening.

Economic Competitiveness

Fourth Street Corridor Project will generate travel time savings for users

As noted previously, the Project will address a priority bottleneck in the City of Flagstaff that will alleviate current and forecast congestion on Fourth Street and help reduce travel time delay for automobiles and trucks not only in the immediate corridor but also parallel crossings of I-40 and adjacent streets. Notably, overall population and employment growth in Flagstaff through 2040 is expected to result in severe or very congested conditions, LOS G – above 1.1 volume to capacity, for both of the primary crossings of I-40, Butler and Fourth Street. In the specific Fourth Street project area the Bridge over I-40 is anticipated to reach near capacity at 25,000 vehicles per day, which carries down to the intersection of Butler Avenue and Fourth Street which also deteriorates to a LOS G. With the proposed improvements significant improvements to the network are generated and improve the Fourth Street Bridge to a LOS E while the intersection at Butler Avenue and Fourth Street improves to a LOS D. Even with the inclusion of the currently unfunded improvements on Butler Avenue under I-40 the facility remains at a LOS of F and G, resulting in higher volumes being maintained on Fourth Street.

The travel time savings will be through added capacity for autos and viable alternative transportation options. A reduction in travel time translates into more time available for work, leisure, or other activities. In total, the Project is estimated to save, on average, 1.4 million personal hours of travel time per year for drivers of cars or trucks. The value of this reduces congestion and wait time translates into a savings of at least \$160 million over the life of the project.²

² At the 7% discount rate. Please see Appendix C (Benefit-Cost Analysis Results) for details on methodology.

FOURTH STREET CORRIDOR

Complete Street Project

Fourth Street Corridor Project will enhance connections to employment

The Fourth Street Corridor Project will improve a path to a corridor of economic opportunity south of I-40 where much of the current growth in Flagstaff is taking place. The link will shorten the connection between the worker population centers and other employment north of I-40 and offer a variety of alternative modes as travel choices. This fits into the long-term plan the City of Flagstaff has for economic expansion, balancing jobs and housing throughout the city and fostering a broad-based transportation network that supports and encourages sustainable travel options.

The Project will improve access to employment for people who are either unemployed or must travel long distances for employment. The Project will allow the City to take advantage of the improving economy to help foster economic growth and jobs that make up for losses incurred during the less favorable period between 2008 and 2013. During the 2008 and 2013 period, Flagstaff's unemployment rate rose from 4.3% to 10.3%. Aided in part by infrastructure projects such as the Fourth Street Corridor, the current unemployment level in Flagstaff has dropped back down to 5.9%.

Fourth Street Corridor Project will create ladders of opportunity

The Project will enhance transportation options for low-income communities currently underserved by the existing corridor. Additional detail on how the Project will support ladders of opportunity is discussed in Section 1.4.

Fourth Street Corridor Project will allow for the widening of I-40

While only an ancillary benefit, the rebuilding of the bridge will accommodate the widening of the I-40 freeway. I-40 is one of the primary east-west freight trucking routes through the Southwest. Without the I-40 widening, the freeway will affect the efficiency of travel through Flagstaff and without modifications to the bridge, the widening will not meet clearance requirements for many freight trucks. The preservation of long term freight flows along I-40 by designing a new bridge to allow for freeway widening is critical to the region's economic productivity.

Construction of the Project will generate economic benefits for the region beginning in 2016

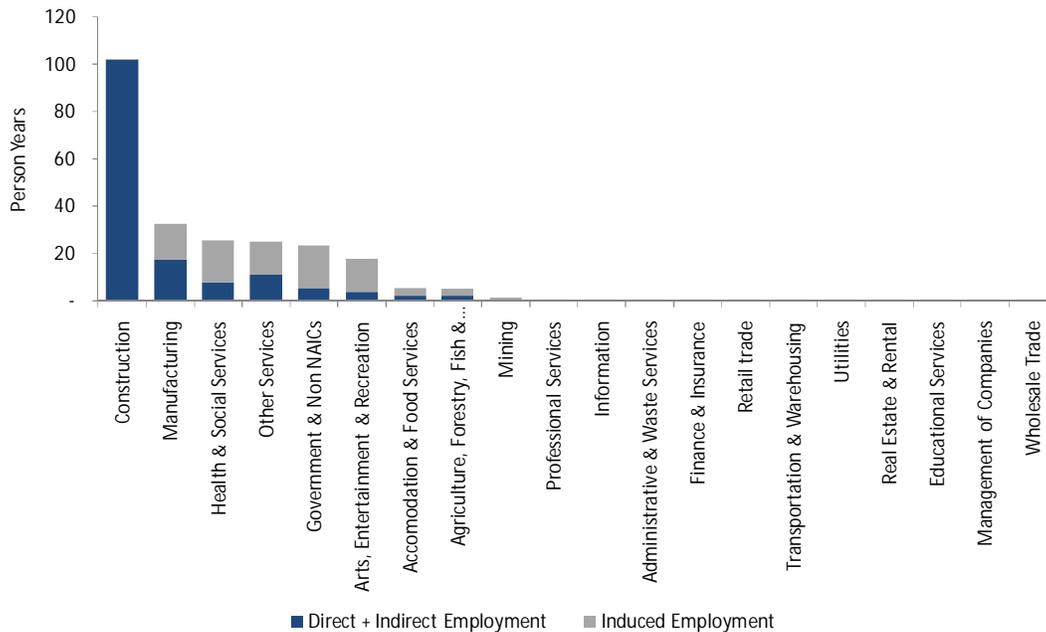
In addition to enhancing access to permanent employment opportunities, the Fourth Street Corridor Project is projected to create 240 person-year jobs, including 153 direct/indirect person-year jobs, beginning in 2016. The Project will generate an estimated average of 80 direct, indirect, and induced jobs per year. This includes 51 direct and indirect jobs, and 29 induced jobs

As shown in Figure 15 (on the next page), the civil works construction sector is estimated to receive the largest increase in employment from the Project (102 person-year jobs), almost all of which are direct jobs created. The other industries that will see the largest number of jobs created include manufacturing (33 person-year jobs), healthcare and social services (25 person-year jobs), other services (25 person-year jobs), government (23 person-year jobs), and arts, entertainment, and recreation (18 person-year jobs).

In total, the Project would generate \$43.2 million in gross real economic output or activity (measured in 2014 dollars), with \$3.9 million dollars of economic output generated in 2016 and \$19.7 million output generated in 2019 and 2020.

FOURTH STREET CORRIDOR Complete Street Project

Figure 15 Breakdown of job creation by industry sector and type of impact



Source: Parsons Brinckerhoff, 2015

Quality of Life

Livability Principle: "Provide more affordable and convenient transportation choices"

The Project will make walking and biking a viable option in the Fourth Street Corridor. The Project will transform the corridor into a complete street and complete an important segment of the City's bicycle system and a key segment of the Flagstaff Urban Trail System (FUTS) trail system that will connect neighborhoods to employment and recreation opportunities. This will encourage some commuters to switch from driving to cycling/walking and use a more direct route for current auto trips. It is estimated that, on average, the Project will generate more than 500 bike trips per year and more than 50 pedestrian trips annually. Auto drivers and passengers switching from auto to cycling or walking are estimated to save \$2.9 million dollars over the life of the project.³ In addition, the added capacity will eliminate the need for circuitous routing by motorists seeking to avoid congestion on the Fourth Street Bridge.

As noted in the Ladders of Opportunity in Section 1.4, the widened bridge within the Fourth Street Corridor will facilitate the introduction of new transit service that is not currently available. This new transit connection will expand accessibility throughout Flagstaff and link currently unserved neighborhoods of lower income, elderly, non-drivers and other disadvantaged populations with employment, healthcare, job and life training, and recreation.

Livability Principle: "Promotion of equitable housing"

With a large student population and NAU located in the middle of the City, the availability of income-appropriate housing within reasonable proximity to the campus and employment centers is limited. Many people must live at great distances from their jobs which limits their ability to take alternative modes and imposes the cost of a vehicle. Projects within the Fourth Street Corridor (e.g., Canyon del Rio and Pinehurst Apartments) include affordable housing elements designed to provide housing to less affluent populations.

³ At 7% discount rate. For details on methodology, please see Appendix C (Benefit-Cost Analysis Results).

FOURTH STREET CORRIDOR

Complete Street Project

The connection to disadvantaged populations north of the Fourth Street Corridor will also provide substantially improved accessibility to opportunities for employment south of I-40 in the Canyon del Rio and Little America developments. The reduction of travel distances and times such as afforded by the Fourth Street Corridor improvements will help balance housing and transportation costs by broadening the reach of multimodal options within the City and opening opportunities for transit or bicycle use on most local trips.

Livability Principle: "Enhancement of economic competitiveness"

The improvement of travel connections contributes to economic competitiveness, but the preservation of long term freight flows along I-40 by designing a new bridge to allow for freeway widening is an ancillary benefit for Flagstaff and Arizona going forward. Project enhancements will allow the City of Flagstaff to shape economic development opportunities around a more sustainable transportation plan. Additional detail on how the Project will enhance economic competitiveness can be found under the "Economic Competitiveness" criterion.

Livability Principle: "Support of existing communities"

The neighborhoods most directly affected by the Project are the Summit Park, Flowing Springs, Sunnyside, Upper and Lower Greenlaw residential neighborhoods. They will benefit from the Project with the introduction of a new transit service and the provision of bicycle and pedestrian facilities that are part of the long term plan for the City of Flagstaff as would the Northland Preparatory Academy, Sinagua Middle School, and major employers along the corridor, including WL Gore, the largest private employer in the region.

The Fourth Street Corridor project and the introduction of bus service along Fourth Street would greatly expand the reach of the school beyond Route 66 and help broaden the makeup of the student population to include a wider range of economic and social backgrounds, including many disadvantaged populations.

- Robert Lombardi,
Superintendent,
Northland Preparatory Academy

The Project will also introduce health benefits for new cyclists and pedestrians who would otherwise not be able to use a facility under existing conditions. Cyclists and pedestrians realize benefits by increased daily physical activity, which has been shown to improve the health of users and reduce future medical costs.

Recreational users of the Project will also benefit, particularly with the completion of the Flagstaff Urban Trail System. The Fourth Street Corridor Project will provide numerous recreational benefits as it will provide a direct connection to the Route 66 trail for communities southeast of I-40 and numerous trails including the Switzer Wash Trail and Foxglenn Trail for communities north and northwest of I-40, some of the most popular trails in the region. Over time, the benefits for recreational cyclist users, will equate to reduced costs of \$13,000.⁴ These benefits result from the time spent performing recreational activity, since this represents a revealed preference in how recreational cyclists choose to spend their time.

Livability Principle: "The value of communities and neighborhoods"

The Fourth Street Corridor Project will improve connectivity of neighborhoods in Flagstaff and will help strengthen neighborhoods by improving their access to the community resources that sustain them such as jobs, retail, education and healthcare. The Fourth Street Corridor provides much improved bicycle and pedestrian connections and supports a new transit connection that will link new employment and housing for all economic levels to existing employment and housing. As discussed under the Environmental Sustainability criterion, the Project will also reduce noise pollution for surrounding communities and neighborhoods as drivers shift to non-motorized transportation options, and longer term, transit.

⁴ At 7% discount rate. Details on methodology may be found in Appendix C (Benefit-Cost Analysis Results).

FOURTH STREET CORRIDOR

Complete Street Project

Fourth Street Corridor Project is consistent with local efforts to foster a balanced and sustainable transportation network

The City of Flagstaff General Plan and Flagstaff MPO Regional Transportation Plan emphasize reduced automobile travel by providing better transit, bicycle and pedestrian services and amenities. It builds on the fact that it is a university town with a large contingent of active transportation and transit users. This also speaks to the trend among younger populations who eschew driving in favor of transit and other modes. While a portion of the Fourth Street Corridor Project includes roadway and bridge widening, those improvements make possible the elements that support a commitment to sustainable growth and redevelopment in the construction of sidewalks, bicycle lanes and the Flagstaff Urban Trail System trail, in addition to facilitating a new transit route to serve north-south travel in the City. Even development projects currently seeking approval within the corridor are expected to participate in fostering a sustainable transportation environment. A number of those developments (e.g., Canyon del Rio, DES, etc.) are located within the Fourth Street Corridor and will contribute to the Project with in-lieu contributions for improvements.

Environmental Sustainability

Project will reduce harmful vehicle emissions

In addition to improving automobile travel quality and efficiency and the associated environmental benefits to be derived from those, the Fourth Street Corridor Project provides alternatives to driving. The Project will design pedestrian facilities which encourage circulation and activity within the vicinity of the Project and afford new transit service opportunities and improving transit speeds and reliability from the local area to jobs, employment and healthcare as well as into Downtown Flagstaff and NAU. Moreover, it preserves needed opportunities for freeway improvements.

By encouraging and promoting the use of alternatives to the automobile as well as shortening many trips within the area, the Fourth Street Corridor Project will contribute to a reduction of vehicle emissions and reliance on foreign oil. The Project is also consistent with City, regional, and statewide initiatives to improve the environment, reduce energy consumption, and create a more sustainable environment.

As noted previously, the Project is expected to decrease VMT by 29.7 million over the life of the project. This will result in reductions in nitrous oxide (NO_x), particulate matter (PM¹⁰), sulfur dioxide (SO_x), volatile organic compounds (VOC), and carbon dioxide (CO₂), as shown in Table 5.

Table 5 Total estimated reduction in emissions

Category	Quantity
CO ₂ Emissions (tons)	▼ 6,984
NO _x emissions (tons)	▼ 2
PM ¹⁰ (tons)	▼ 0.07
SO _x (tons)	▼ 0.11
VOC (tons)	▼ 1.16

Source: Parsons Brinckerhoff, 2015

Fourth Street Corridor Project will reduce noise pollution

Reducing VMT, creates environmental benefits to society in the form of noise reduction for communities surrounding the Fourth Street Corridor. Over the life of the project, the overall noise reduction is valued at \$16,000.⁵ These savings are based on a combination of auto users switching to biking and walking and auto and truck drivers taking more direct routes.

Fourth Street Corridor Project will improve drainage

The Project raises the intersection at Fourth Street and Butler Avenue to improve the Switzer Wash drainage which regularly floods out the intersection during the region's monsoonal storms. The City also employs low

⁵ At 7% discount rate. Details on methodology may be found in Appendix C (Benefit-Cost Analysis Results).

FOURTH STREET CORRIDOR Complete Street Project

impact development stormwater standards and the medians and parkways in the design represent opportunities to manage stormwater in a more sustainable fashion.

Safety

Based on the latest crash information available (2010 through 2012), the Fourth Street Corridor experiences 35 crashes each year, some of which are the result of the inconsistent configuration of the road. The widening of the short remaining two-lane segment across the I-40 freeway will improve the consistency of driver behavior, reducing accidents and related fatalities and injuries. That would result in a cost savings of \$2.5



Figure 16 Students walk across Fourth Street Bridge in unprotected environment

million, which includes direct savings (e.g., reduced personal medical expenses, lost wages, and lower individual insurance premiums), as well as significant avoided costs to society (e.g., second party medical and litigation fees, emergency response costs, incident congestion costs, and litigation costs).⁶

In order to ensure safety, the Flagstaff Urban Trail System trail will be separated from the automobile travel lanes by a protective barrier on the bridge which will prevent vehicles from infringing upon the Flagstaff Urban Trail System environment. The installation of a sidewalk will also be a significant addition to the corridor as many students in the Northland Preparatory Academy and the Sinagua Middle School must

walk in an unprotected environment when walking to and from school, as shown in Figure 16.

5.2. Secondary Selection Criteria

Innovation

The Fourth Street Bridge over I-40 is at an elevation of approximately 6,875 feet. Winter storms and below freezing temperatures often lead to ice formation on bridges in this mountainous region of Arizona. Use of anti-icing technology would improve safety on the bridge which carries a high volume of vehicles and is frequently used by school-aged children commuting to school, recreational users enjoying the multi-use Flagstaff Urban Trail System (FUTS) trail, and vehicular traffic commuting to and from work and a future bus route. There are several anti-icing methods available ranging from fixed anti-icing spray technology to manual chemical application to thermal and electrical applications. Use of electrically conductive concrete in bridge decks can generate enough heat to prevent ice formation when connected to a power source. The proposed Fourth Street Bridge will consider these technologies to ensure the bridge is open to all modes of transportation throughout all four seasons in Northern Arizona.

Partnership

As discussed in Section 4, this Project has firm commitments of a diverse set of public and private stakeholder. This broad support is evidenced by the multiple letters of support included in Appendix B, including letters from:

⁶ At 7% discount rate. Details on methodology may be found in Appendix C (Benefit-Cost Analysis Results).

FOURTH STREET CORRIDOR

Complete Street Project

- Arizona Department of Transportation (ADOT)
- Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA)
- Mayor of Flagstaff
- Northland Preparatory Academy
- Flagstaff Metropolitan Planning Organization (Flagstaff MPO)
- James Harrison of Harrison Properties developer of the Department of Economic Security Campus at Fourth Street and Industrial Drive
- Flagstaff Chamber of Commerce
- Economic Collaborative of Northern Arizona
- Canyon del Rio Investors

The surrounding communities engaged in the development of the Fourth Street Corridor project in 2010 during which the improvements proposed in this application were identified and developed. The corridor improvements have also been coordinated with the City of Flagstaff economic development and land use plans and polices and are consistent with goals articulated in the Flagstaff MPO's Regional Transportation Plan.

6. BENEFIT-COST ANALYSIS RESULTS

A benefit-cost analysis (BCA) was conducted for the Fourth Street Corridor Project for submission to the U.S. Department of Transportation (U.S. DOT) as a requirement of this discretionary grant application for the 2015 TIGER program. The analysis was conducted in accordance with the benefit-cost methodology as recommended by the U.S. DOT in the Federal Register (80 FR 18283) and conducted for four (4) years of pre-completion and construction and a 20-year analysis period after operations are assumed to begin in late 2020.

The overall cost of the Project is expected to be \$15.9 million in undiscounted 2014 dollars through October 2020 (Table 6 on the next page). However, a portion of these costs are economic transfer costs in the form of real assets; for BCA purposes, these costs are excluded, and the effective capital costs used in this BCA are \$15.6 million without real estate. At a seven (7) percent discount rate, the total costs are \$10.1 million in total, or \$10.4 million after excluding real-estate. While at a three (3) percent discount rate, the total costs are \$8.7 million in total, or \$8.4 million after excluding real-estate.

Travel time savings and reductions in vehicle miles traveled are a key component in monetizing the benefits associated to the Fourth Street Corridor improvements, which currently experiences significant congestion with a level of service F. Even with conservative socio-economic growth factors applied to the travel demand model, the Fourth Street Corridor project will provide a significant improvement to travel flow across I-40 and allow for a safe route for active transportation options including cycling and walking. Output from the travel demand model was validated and is explained in greater detail in the Benefit Cost Analysis appendix.

FOURTH STREET CORRIDOR

Complete Street Project

Table 6 Fourth Street Corridor construction project costs

Capital Cost Category	Costs (2014 \$)	Costs (2014 \$ discounted at 7 %)	Costs (2014 \$ discounted at 3 %)
Construction Costs*	\$15,917,000	\$12,063,800	\$14,090,500
O&M Costs (2020-39)	\$181,200	\$70,800	\$118,200
R&R Costs (2020-39)	\$857,500	\$231,700	\$482,700
Residual Value (2039)	(\$12,173,600)	(\$2,245,200)	(\$5,988,600)
Total	\$4,033,900	\$10,121,200	\$8,702,900

*Construction costs inclusive of: bridge replacement, drainage, landscaping, lighting, sidewalk and bicycle infrastructure improvement on the bridge facility, FUTS trail and adjacent roadways and intersections, removal of existing facilities, construction management, utility relocation, right-of-way, slope easement, engineering design, and contingency of 20 percent.
Source: City of Flagstaff and Parsons Brinckerhoff Estimates

Incremental operations and maintenance costs are projected to average \$9,454 per year in 2014 dollars over the life of the project. Over the entire 21-year analysis period, which includes two months of operations in 2020, these costs accumulate to \$181,207 in undiscounted 2014 dollars, or \$70,793 when discounted at 7 percent and \$118,175 when discounted at 3 percent. Rehabilitation and replacement costs are expected to total \$857,480 in 2014 dollars over this same period, or \$231,732 when discounted at 7 percent and \$482,738 when discounted at 3 percent. Finally, the residual value of the capital improvements and right-of-way land acquisition in 2039, at the end of the forecast period, are expected to be \$12.2 million in 2014 dollars, or \$2.2 million when discounted at 7 percent and \$6.0 million when discounted at 3 percent. In real 2014 dollars, the Fourth Street Corridor Project creates benefits of \$518.3 million, or \$168.2 million when discounted at 7 percent and \$312.2 million when discounted at 3 percent. These benefits are primarily achieved through travel time savings, reductions in vehicle miles traveled and livability factors like commuter mobility, recreation, and health benefits, and improvements in safety, as shown in the table.

Table 7: Project benefit impacts, cumulative 2020-2039

Category	Quantity
Vehicle-miles traveled (VMT)	▼ 29,747,099
Person-hours traveled (PHT)	▼ 29,447,899
Fuel consumed (gal.)	▼ 945,131
Fatalities (number)	▼ 0.4
Injury accidents (number)	▼ 2.0
Property damage only accidents (number)	▼ 0.40
CO ₂ Emissions (tons)	▼ 6,984
NO _x emissions (tons)	▼ 2
PM ¹⁰ (tons)	▼ 0.07
SO _x (tons)	▼ 0.11
VOC (tons)	▼ 1.16
Annual health benefits (new bicyclists)	▲ 4,957
Commuter Mobility Benefits - Bicyclists (person hours of travel time)	▲ 178,469
Commuter Mobility Benefits - Pedestrians (pedestrian miles)	▲ 20,230
Recreational Benefits – Bicyclists (new recreational bicyclists)	▲ 2,855

Source: Parsons Brinckerhoff, 2015

FOURTH STREET CORRIDOR

Complete Street Project

Table 8 below shows the overall results of the BCA. At a 7 percent discount rate, the Fourth Street Corridor Project yields a benefit-cost ratio of 16.64 over a 24 year analysis period and using a 3 percent discount rate a benefit-cost ratio of 35.88.

Table 8 Benefit-Cost Analysis summary results

Scenario	Net Present Value (2014 \$ millions discounted to 2015)	Benefit Cost Ratio
Case A (7 percent discount rate)	\$158,073,853	16.62
Case B (3 percent discount rate)	\$303,515,069	35.88

Source: Parsons Brinckerhoff, 2015

Sensitivity tests were conducted utilizing a range of valuations for benefit categories and impacts for low and high unit values and reductions in network benefits. While the results displayed are the baseline and most likely numbers, further statistical analysis was conducted to meet the U.S. DOT's recommendations of a thorough sensitivity analysis, and in all cases the B/C ratio remains above 1.0.

7. PROJECT READINESS

7.1. Technical Feasibility

The Fourth Street Corridor was initially evaluated by the City of Flagstaff for widening and improved access in 2010. An Initial Design Concept Report (DCR) to identify modifications needed to accommodate a wider I-40 freeway was completed by ADOT in 2012. The new replacement bridge proposed will be designed based on the analysis completed to date regarding the needs of the Fourth Street Corridor and the freeway. The proposed corridor Complete Street design has been reviewed with the City of Flagstaff staff, and the bridge has been reviewed by ADOT. A Planning and Environmental Linkages (PEL) checklist has been prepared to identify the environmental needs of the corridor Project and an Environmental Assessment has been determined as the probable class of action. Estimated costs have been calculated using the latest unit costs from recent bid openings on similar projects within Arizona and the Flagstaff region. These costs will be further refined prior to any Project construction scheduling. At this stage, an unallocated contingency amount of 20% has been included in the estimate to account for unforeseen or complex elements of work.

7.2. Financial Feasibility

Funding for the local share of the Project costs is committed from City of Flagstaff sources (i.e., transportation sales tax), private development in lieu and in-kind contributions, and ADOT. A detailed project budget is included in Section 4 Sources and Uses of Funds that breaks down how the funds will be spent. The funding is programmed and will be available from local sources in the Flagstaff CIP at the time it is needed for the project.

The City imposes a voter-approved sales tax of 0.266 percent that is dedicated to capital transportation, bicycle/pedestrian, and school safety projects and extends through 2020. A \$3.2 million allocation for the Butler Avenue/Fourth Street intersection improvements has been made from the local sales tax for the 2019 fiscal year, the first year of construction. Funding is also available from the Major Roadway Fund for any costs that exceed the capital cost estimate. Both programmed funding amounts will be part of the City's local match for the TIGER grant. Private development near the Butler intersection with Fourth Street has contributed

FOURTH STREET CORRIDOR

Complete Street Project

nearly \$700,000 in in-lieu of construction funding that will help defray the cost of improvements in the Fourth Street Corridor as well as complete their frontages.

Operations and Maintenance

Flagstaff has its own maintenance program for its street system which will include the improved Fourth Street Corridor. Flagstaff will maintain the roadway surface within the corridor, including the bridge surface, within their current maintenance budget. The ADOT bridge maintenance program handles bridges over the freeway system in Arizona and any costs above current operating and maintenance expenses will be covered by ADOT's annual bridge maintenance budget.

Availability of Contingency Reserves

A 20% unallocated contingency is included in the Project cost estimate pending a final design and refinement of the cost estimate. This amount will be available to address unforeseen or unusual elements that could arise in the course of project construction. Furthermore, Flagstaff has over \$600,000 available for major projects in their five year program above and beyond funds committed to this project.

City Financial Condition

The City current bond rating is Aa2 from Moody's and AA from Standard and Poor's. The City's bonding capacity at present exceeds \$118 million. The City maintains very high standards of fiscal responsibility and has consistently managed its finances within available resources and subject state and federal requirements. Most importantly, it has maintained the finances of the community consistent with the expectations of its citizens.

Grant Experience

The City of Flagstaff Grants Management Team is composed of the Grants Manager, Financial Officer/Accountant, Project Representative, Legal, Purchasing and other staff as needed. This team approach has assured the city's success in grant compliance from award to closeout. The team ensures all terms and conditions of the grant agreement are followed, provides the necessary financial and performance reports, monitors the grant and contract performance, and that all evaluation, audit and closeout procedures are met.

The Grants Manager is the central coordinator for all grants, which may involve internal auditing and holding others accountable for proper grant compliance. The Accountants assigned to the grants have a high level of technical expertise in governmental budgeting and accounting. In addition, the Project Representatives have extensive knowledge in the targeted areas in which they are seeking funds and administering the funded programs. The City receives numerous federal grants, which are audited yearly by an Independent Auditor on compliance with requirements applicable to each major program and on internal control over compliance in accordance with the Code of Federal Regulations Title 2, Part 200. Single Audit Report and Schedule of Expenditures of Federal Awards from June 30, 2014 is included in the appendix.

7.3. Project Schedule

Pre-construction activities including environmental clearance, design, and right-of-way acquisition will be completed prior to June 2017. TIGER funds will be used for construction activities and associated activities such as construction management and administration. TIGER funds will be obligated in advance of September 30, 2017 and grant funds will be spent steadily and expeditiously once construction starts. Unexpected delays will not put the funds at risk of expiring before they are obligated.

FOURTH STREET CORRIDOR

Complete Street Project

Environmental Clearance

The project will require completion of a categorical exclusion under NEPA. A PEL has already been completed that will expedite the preparation of an Environmental Assessment (EA). An EA would be completed by May 2017. More detail is provided under Section 7.4 - Required Approvals.

Rights-of-Way

Additional right-of-way will be needed for this Project and will be acquired by 2017. Much of the needed property will be obtained by dedication from development or acquisition from willing partners who support the Fourth Street Corridor project. This is shown in the letters of support from the primary private interests in the corridor.

Design

The design of the Project has a number of elements, but is preceded by the completion of a previous corridor study (Fourth Street Corridor Study – South) that defines many of the Project features and offers insights into the critical aspects of the design. Design will be complete by December 2016.

Construction

The Project would start construction in 2018 and complete by 2020 based on obtaining all clearances and the availability of funding from all sources. In order to maintain traffic on Fourth Street and to avoid an excessively long detour if the Bridge were closed, phased construction of the new bridge will be required. These two phases will extend evenly over two construction seasons (May through October). The first phase of construction will require removal of the easternmost exterior girder which still allows for two 11-foot lanes plus 1-foot shy distance to the barriers plus a 4-foot walk on the existing structures. Phase one construction will build 38'-2" of the eastern most bridge replacement. Phase two construction will shift traffic onto the newly built structure and complete the demolition of the remaining structures along with construction of the remaining portion of the new bridge.

Table 9 Milestone project schedule

Task	Start and End Date
TIGER Award	October 2015
Preliminary Engineering / Environmental Assessment	October 2015 - May 2017
Design (P,S &E)	October 2015 – December 2016
TIGER Grant Obligation	June 2017
ROW Acquisition	May 2017 – December 2017
Construction – Phase 1	May 2019 – October 2019
Construction – Phase 2	May 2020 – October 2020

7.4. Required Approvals

National Environmental Policy Act

The Fourth Street Corridor Project and the associated bridge replacement would not have any significant environmental impacts with respect to adjacent land uses, traffic patterns, or sensitive environmental resources. A search of records at the Arizona State Museum indicated the cultural sensitivity in the area of the Fourth Street Corridor is low and the likelihood of sensitive resources is minimal. In addition, there are no waters of the U.S. or floodplains within the Project limits, the Project will occur almost entirely within existing

FOURTH STREET CORRIDOR

Complete Street Project

ROW, access to adjacent land uses will be retained, and no displacements will be necessary. As design of the project advances, the project team will continue to seek to minimize impacts to visual quality and consider vegetation management and reduction of invasive and noxious plant species. All disturbed soils that will not be landscaped or otherwise permanently stabilized will be seeded using species native to the Project vicinity.

However, the Project is expected to require considerable ground disturbance near I-40 and some right-of-way acquisition. Thus, an Environmental Assessment (EA) has been determined to be the appropriate NEPA class of action for the overall Project. FHWA is anticipated to be the lead agency with close coordination with ADOT. The City of Flagstaff will retain a consultant to prepare the EA and a Finding of No Significant Impact (FONSI) would be secured by May 2017. The cost to prepare the EA is included in the estimate for completion of the Fourth Street Corridor Project.

As noted previously, a PEL has been prepared for the Fourth Street Corridor (Appendix E) using information from the Fourth Street Corridor – South study, the DCR for I-40 from Bellemont to Winona, and preliminary investigation of the existing condition of the corridor. It should be noted that ADOT is currently reviewing the PEL to finalize the class of action determination. While a FONSI is the anticipated level of clearance required, ADOT will also be considering applicability of a Group 2 CE checklist, which, if determined appropriate, would ultimately expedite the schedule presented in this application.

Related Environmental Permits and Reviews by Other Agencies

ADOT will approve the bridge design over I-40. Geotechnical investigations will be needed early in the design stage relative to bridge abutment siting and a geotechnical environmental clearance will also be needed prior to securing a FONSI concurrent to the EA. The geotechnical clearance will be completed within 6 months.

State and Local Planning

The Project is included in the RTP of the Flagstaff MPO and in the City of Flagstaff CIP. Minor arterials have a typical four-lane section. Fourth Street is identified as a minor arterial in the following plans and documents:

- [Flagstaff MPO Regional Transportation Plan](#) (c. 2009)
- [ADOT Building a Quality Arizona](#) (c. 2010)
- [City of Flagstaff Fourth Street South Corridor Study](#) (c. 2010)
- [Flagstaff MPO Fourth Street Traffic Interchange Feasibility Study](#) (c. 2007)
- City of Flagstaff Capital Improvement Program (c. 2015)

Assessment of Risks and Mitigation Strategies

Financial

The cost estimate includes a 20% unallocated contingency to address any higher-than-anticipated costs at the time the Project is bid. In addition, the City can cover unforeseen elements with the budgeted Major Road Reconstruction fund in the City's CIP (which would also increase the local share of the project).

Right-of-Way

A small amount of additional right-of-way will be required (about $\frac{3}{4}$ of an acre in total). In the event of an unexpectedly difficult acquisition, condemnation proceedings will be considered. Even with condemnation, the schedule is still obtainable within the timeframe identified for right-of-way acquisition in the schedule.

FOURTH STREET CORRIDOR

Complete Street Project

Other Risks

Depending on the final design, another potential risk is procurement delay. Getting the design, environmental and construction work underway will require time out of the available grant period. This step can be mitigated with streamlined processing and a cooperative partnering approach among the local participants in the City of Flagstaff and between ADOT and the local Flagstaff team for the Fourth Street bridge component. Materials acquisition procurement can be mitigated by defining procurement needs early in design and requisitioning materials early.

FOURTH STREET CORRIDOR Complete Street Project

8. FEDERAL WAGE RATE CERTIFICATION



City of Flagstaff

FEDERAL WAGE RATE CERTIFICATION

The City of Flagstaff hereby certifies that it will comply with 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.

Signed:



Name:

Jeff Meilbeck

Title:

Interim City Manager

Date:

5/26/15