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SPOKANE INTERNATIONAL AIRPORT Multimodal transportation infrastructure safety improvement project Spokane, WA

Project Sponsor: Spokane Airport Board Project Type: Multimodal Transportation Infrastructure Location: Spokane International Airport Spokane, Washington Area: Urban Total Project Cost: \$20,907,000

TIGER GRANT REQUEST: \$5,000,000

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PROJECT WEBSITE: http://business.spokaneairports.net/2017-tiger-grant/





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I. PROJECT DESCRIPTION

The Spokane Airport Board requests \$5,000,000 in TIGER Discretionary Grant Funding to provide matching funds to complete a multimodal transportation infrastructure safety improvement project at Spokane International Airport. TIGER Grant funding will be utilized to fund design and construction services for the proposed improvements. Planning and formulation services have been previously completed for the project with funding provided by the Sponsor as well as project partners and stakeholders. The total cost of the project is estimated at \$20,907,000.

This project's primary objective is to improve safety.

Just this year, airlines have added five new nonstop destinations which has accelerated year-to-date growth in passenger activity by 10%. To compliment this success, two additional nonstop flights will be added to in early 2018. In addition, air cargo tonnage has increased 8% compared to 2016. All these factors demonstrate a strong economic recovery for the Spokane region, which can be further supported through this important multimodal infrastructure project.

The Airport's growth correlates to additional traffic including personal vehicles, shuttles, ride-share, and taxis, as well as truck and freight traffic transiting on the Airport's inbound and outbound roadways and crossing Spotted Road to access U.S. Highway 2 and Interstate 90. **Spotted Road is a part of the Critical Urban Freight Corridor** and also provides access to the Airport Industrial Park with two very busy inbound and outbound airport access roads known as Airport Drive. The Spotted Road/Airport Drive intersections and geometry are dangerous and improvements are necessary to improve safety. The combination of lower speed traffic trying to cross the inbound airport access roads with higher speed traffic at two intersecting points has led to multiple routine accidents many of which are serious injury accidents and even some fatalities. These problems continue despite installation of additional traffic safety measures.

Given the increasing commercial and freight traffic associated with the Airport's growth, the most prudent safety and efficiency solution available is to grade-separate Spotted Road from the Airport inbound and outbound access roads. This grade-separation project will separate the Critical Urban Freight Corridor route from traffic traveling to the Airport, improve the level of service, create a safer connectivity between different modes, and reduce freight mode conflicts. **The realignment will continue to connect with the Primary Highway Freight Network, which is important to maintain and is valuable to the region's freight modes.**



Spotted Road looking south at Airport Drive Inbound



The Airport's annual economic impact of over \$750 million is testimony to the integral role it plays in regional economy. The project will be an investment in improved traffic safety and modal connectivity while also supporting continued passenger and freight growth essential to the regional economy.

This project is an opportunity to address a well-documented necessity for improvements to a multimodal transportation system consisting of pedestrian, bicycle, motorist, shuttle, ride-share, taxi, bus traffic, and freight accessing the Spokane International Airport and the surrounding region. Over the past 14 years, multiple planning formulation and preliminary design studies have been conducted to address the development of the transportation corridor in and around the Airport. All recommended improvements to enhance safety with the currently alignment and intersections have been fully implemented and constructed, yet have resulted in little to no change in collisions. **Each of these reports has concluded that providing safer and more efficient access on this corridor is vital to the region's economic success and development.**

To address the project's primary goal of safety, the project will utilize an innovative design by constructing the first grade separated interchanges at the Airport in an effort to provide separation between the multiple modes of transportation operating in and around the Airport. The project's first improvement will relocate the Airport Drive/Spotted Road interchange to the east with a new grade separated overpass interchange above and across Airport Drive. This shift to the east will result in another significant safety improvement with the realignment of Spotted Road outside of the Airport's Runway Protection Zone. The Runway Protection Zone is a clear zone designated by the Federal Aviation Administration (FAA) to prevent air navigation hazards as well as to reduce hazards and increase safety to people on the ground.

The overpass will incorporate on and off-ramps for Airport Drive in the traditional diamond configuration to merge traffic at speed providing significant safety improvements. The interchange will also accommodate existing off ramps to Sunset Boulevard. The new interchange would function as a key collector-distributor system providing access to the regions principal arterials to the north and south in U.S. Highway 2 and Interstate 90.



The project's other improvement includes a second grade separate interchange developed to significantly impact safety and efficiency of the Airport's shuttle bus transportation system. The construction of the vehicle tunnel beneath Airport Drive just east of the Flint Road interchange will allow shuttle bus traffic to cross safely beneath Airport Drive without negotiating the four lanes of traffic, including one bicycle lane, on Airport Drive.

The tunnel will also eliminate shuttle traffic along Flint Road where freight traffic enters on the airfield to transfer cargo onto aircraft.

These infrastructure improvements will address future traffic demands placed on the transportation system as a result of the continued high rate of development and growth at the Airport and surrounding areas. The Airport is currently experiencing 10% annual growth in commercial air traffic and 8% annual growth in cargo air traffic resulting in significant increases in traffic volume on Airport Drive. Vehicle traffic volumes along this corridor are expected to grow by 20% over the next decade as a result of future



development and an increase in air traffic at the Airport which is modeled to exceed 2.6 million enplanements by 2025. This airside and landside growth has led the Spokane International Airport to initiate a \$130 Million Terminal Renovation project which will result in further demand placed on the transportation corridor.

In addition to the Spokane International Airport, this transportation corridor is utilized by several other major employers in the region including the Spokane Transit Authority, U.S. Postal Service Regional facility, United Postal Service, FedEx, Fairchild Airforce Base, rental car agencies, taxis as well as restaurants and hotels. The project corridor is located along both inbound and outbound sections of Airport Drive. Airport Drive is a looping 5 mile long route and is the sole access corridor for traffic to and from the Spokane International Airport Terminal as well as surrounding business, commercial and industrial parks. A series of previous planning studies have identified the intersections of Inbound and Outbound Airport Drive at Spotted Road as a high accident severity location resulting in fatalities. In recent years, multiple safety improvements have been completed at the intersections in an effort to reduce crash frequencies and their severity, however collisions continue. An overview of the project area is provided in **Figure 1**.

This infrastructure safety project is imperative to improving access and providing safe, efficient travel to and from one the Inland Northwest's busiest transportation hubs, the Spokane International Airport; as well as the surrounding industrial and business developments. This project addresses the current and future demands of a multi-modal transportation network that supports employment, freight, aerospace and manufacturing industries, tourism and the overall economic development of the region.

The overall goals for the project are safety improvements for pedestrian, bicycle, motorist, shuttle, ride-share, taxi, bus, and freight traffic:

- Provide safe pedestrian, bicycle, shuttle, ride-share, taxi, bus, motorist, and freight traffic for passengers and workers.
- Disconnect freight, passenger and shuttle traffic through the use of innovative grade separated interchanges to improve safety.
- Accommodate current and future multimodal traffic demands with efficient connections and access to the region transportation hub.
- Reconstruct aging infrastructure.
- Create attractive, welcoming and cohesive access to the Spokane International Airport and adjacent business industries.
 - Stimulate economic growth by accommodating increased freight, aerospace and manufacturing industries, industrial and passenger traffic.





II. PROJECT LOCATION

The project site is located in Spokane County, Washington within Spokane City limits. Portions of the project site are located within the Spokane, WA 83764 Urbanized Area (UA) (U.S. Census Bureau) however a large majority of the Spotted Road realignment and overpass are located in Rural Areas adjacent to the UA. Airport Drive accesses the Spokane International Airport from the northeast providing access from Interstate 90 and U.S. Highway 2.

The Spokane Airports, is jointly owned by Spokane County and the City of Spokane. The City and County operate the airports under provisions of Washington State RCW 14.08, which establishes the operation of airports by more than one municipality under joint agreement. The operating authority of Spokane Airports is the Spokane Airport Board, consisting of seven appointees from the two governmental bodies. The Board annually invests approximately \$30 million in capital improvements utilizing various funding sources.

The Board operates three facilities: Spokane International Airport, Felts Field Airport, and the Airport Business Park, as well as, has a Grant of Authority to operate Foreign-Trade Zone #224. All three facilities are financially self-sufficient from revenues generated from fees, leases and concession agreements. None of the three entities receive, nor are operated with, appropriated tax dollars.





Spokane International Airport is a 7,000 acre commercial service airport served by six airlines and two air cargo carriers. The Airport processed over 3.2 million passengers and 67,680 U.S. air cargo tons in 2016. It is the second largest airport in the State of Washington and recognized by the FAA as a small hub. The Airport is an employment center for over 3,000 people and has an important and expanding airfield aerospace industry cluster.

A. PROJECT DETAILS

Airport Drive is an east-west arterial and the primary roadway access to the Spokane International Airport. The corridor is also a principal arterial of the regional transportation system. The arterial extends from an interchange with US 2 east of Spotted Road to the Spokane International Airport Terminal to the west with speed limits at 50 MPH. In the vicinity of Spotted Road the two directions of travel split and are separated by nearly 700 foot as the roadway provides a loop to and from the Airport. Known as Airport Drive Inbound and Airport Drive Outbound, each direction of travel has two 12 foot lanes with 8 foot shoulders on both sides with street lighting. There is no curb, gutter or sidewalk, except immediately adjacent to the airport terminal. At Spotted Road there are short deceleration lanes for both directions of travel. There are real time speed indicator devices located at two locations along Airport Drive Inbound; east of Spotted Road and east of Flint Road. Airport Drive Outbound also has a speed indicator east of Flint Road.



Spotted Road is a north-south major collector roadway with a single lane in each direction. The speed limit along Spotted Road is 30 MPH south of Airport Drive and 45 MPH to the north of Airport Drive. Spotted Road provides access from Interstate 90 from the south, US 2 to the north and to industrial and commercial developments along the corridor. The roadway has 4 foot shoulders on each side used by pedestrians, with curb and gutter along a small portion of the route. North of Airport Drive, Spotted Road is identified as a Critical Urban Freight Corridor T-3 facility on the Washington State Freight and Goods Transportation System

Multimodal Transportation Infrastructure Safety Improvements



FIGURE 4: SPOTTED ROAD LOOKING NORTH ACROSS AIRPORT DRIVE OUTBOUND



(FGTS) designating that annually freight weighing between 300,000 tons to 4 million tons is transported. **Figure 4** shows the current geometric layout of the Airport Drive/Spotted Road Interchange.

Average Daily Traffic (ADT) volume on Airport Drive is between 5,500 – 6,000 vehicles per day. On Spotted Road traffic volume averages between 2,000 and 3,000 vehicles per day. The areas north and south of Airport Drive are industrial and commercial developments. Planning studies completed for the project estimate that commercial and industrial development along this corridor will add an additional 1,000 vehicles per day to the corridor as its growth continues. The project corridor is also impacted by U.S. Highway 2 from the north, a principal arterial and a Primary Highway Freight Network (PHFN) with nearly 30,000 vehicles per day including 4-10 million tons of freight annually.

Airport Drive also serves as a fixed bus route for the Spokane Transit Authority providing bus service every 30 minutes with stops east and west of Spotted Road and at the Airport terminal. These scheduled stops insert pedestrian traffic at the Spotted Road interchange whom then access places of employment both north and south of Airport Drive on foot. Other than roadway shoulders no pedestrian facilities exists at the current interchange creating a safety hazard to transit users.

FIGURE 5: AIRPORT DRIVE INBOUND LOOKING WEST AT SPOTTED ROAD NORTH INTERSECTION



Airport Drive Overpass:

The Spotted Road overpass will consist of a 230 foot span supporting two 14 foot wide traffic lane in each direction with 2 foot paved shoulders and pedestrian access via a sidewalk. The overpass will span five lanes of traffic on Airport Drive consisting of two lanes in each direction as well as an exit lane for Sunset Boulevard.



The overpass will provide 12 foot wide on and off ramps with 4 foot wide shoulders for both inbound and outbound traffic. The overpass will be located approximately 1,900 feet east of the existing interchange. North of Airport Drive, the overpass will connect to the future 21st Avenue extension which will be a primary access route to future commercial developments in the area. This project and application does not include the future 21st Avenue extension.

This location serves multiple needs including siting the overpass along an undivided portion of Airport Drive reducing the required overpass span required. The relocated interchange also allows for the relocation of Spotted Road to the east and south outside of the Runway Protection Zone further improving safety for both the Airport and corridor traffic. This \$20.9 million dollar component of the infrastructure improvement project is critical to reducing collisions along the corridor and improving efficiency to meet future traffic demands.

Airport Drive Tunnel:

The tunnel beneath Airport Drive will cost an estimated \$3.5 Million and require a 13 foot high by 34 foot wide by 61 foot long tunnel beneath Airport Drive to accommodate bus shuttle traffic. The construction will be completed with an innovative use of precast engineered concrete units and headwalls to expedite construction and minimize delays to traffic on Airport Drive. To accommodate vehicle and shuttle access without adjustments to Airport Drive's existing grade, the tunnel site will be excavated 13 feet below grade and accessed via ramps. Following completion of the project, airport shuttle traffic will be rerouted south of and beneath Airport Drive avoiding congestion on Airport Drive Outbound. This improvement will increase safety for shuttle users as well as other motorist and freight traffic in the transportation system.

FIGURE 6: AIRPORT DRIVE TUNNEL RENDERING/SHUTTLE BUS ROUTE REALIGNMENT/TUNNEL PLAN VIEW





NEW BUS SHUTTLE ROUTE





B. DEMOGRAPHIC SUMMARY:

Research of the 2010 Census report, shows that the population of the area in an around the Spokane International Airport grew by nearly 19% from 2000 to 2010. A combination of inexpensive and largely undeveloped land, efficient transportation options, and close proximity to major employment destinations caused the immediate area to grow at a faster rate than both Spokane County and the City of Spokane. The area supports a combined 10,343 jobs with the majority of those comprised of transportation and manufacturing. The median household income of the area was reported at \$47,620 in 2010; below the Spokane County, Washington State and United States median incomes.

C. PROJECT FORMULATION & PLANNING:

Several planning studies have been previously completed that address the current and future needs of the Airport Drive/Spotted Road interchange. These studies have been performed either in anticipation of potential impacts of development, as a result of accident history, or as part of a larger transportation study or planning effort. The following is a brief summary of pertinent aspects and findings of these studies.

Transportation Impact Analysis - 2004

In 2004 a Transportation Impact Analysis (TIA) was conducted to evaluate the three intersections of Spotted Road at Inbound Airport Drive, Outbound Airport Drive and US 2 upon build-out of a Technology Park situated between US 2 and Airport Drive east of Spotted Road. The study identified that the 2003 Level of Service at the two intersections of Spotted Road at Airport Drive were LOS "B" for both the AM and the PM peak hours while the intersection of Spotted Road at US 2 functioned at LOS "D" and "F" during the AM and PM peak hours.

This study evaluated available collision histories from 1998 – 2002. During those 5 years there had been 12 collisions at the intersection of US Highway 2/Spotted Road, with 3 of those being fatalities. However the study revealed that the Airport Drive/Spotted Road intersections had 35 collisions over the same period, 10 collisions at the Inbound intersection and 25 collisions at the Outbound Intersection. Accident Severity Rate calculations were performed that considered fatalities and injury collisions along with the traffic volumes and rates for the 3 intersections were 0.59 at US 2, 1.91 at Inbound Airport Drive and 4.4 at Outbound Airport Drive.







Based on the results of this study, Outbound Airport Drive intersection was identified as a **"High Accident** Location" because the rate was above the Washington Department of Transportation upper critical limit for intersections in the same category.

Spotted Road Safety Improvement Construction Project – 2005

Following the 2004 analysis of Spotted Road and Airport Drive, design documents were prepared to address immediate safety issues with the intersections. Construction occurred in 2005 and included wide solid stop bars, painted islands to designate turn lanes, yield signage, through and turn lane arrows, wrong way and one way signage, and rumble strips.

Spotted Road and Airport Drive Safety Improvements Study – 2006

This study was a result of the findings from the 2004 TIA Study and mitigation efforts implemented in 2005. This study relied heavily on the traffic analysis and collision summary of the previous study and focused on Short and Long-range improvements to address safety issues. A geotechnical report was completed to assist in evaluation of alternatives and preparation of cost estimates. An initial list of 26 infrastructure improvement alternatives was developed. These alternatives were sorted into 5 categories for a pre-screening analysis;

- Do Nothing/Limited Changes Alternatives
- U-turn Route Alternatives
- Roundabout Alternatives
- Signalization Alternatives
- Grade Separation Alternatives

Design issue feasibility and considerations were also discussed in the report and are briefly described below.

• **Couplet Considerations:** combining the inbound and outbound Airport Drive couplet in the vicinity of Spotted Road allows for a more efficient and standardized application of improvement options and



Source: Spokane Transit Authority

would provide value to the Airport by providing additional land for development.

- Airport Access Road Considerations: The Federal Aviation Administration's Ground Access Planning Guide was consulted for geometric design alternatives, which states that "...burgeoning traffic demands through a critical at-grade intersection may warrant consideration of a grade-separated interchange". The Guide also states that "Access highways to large airports should have full control of access with no crossings at grade", and that "most airports that serve more than 2.5 million annual originating passengers are served by fully controlled access facilities." According to the then most recent Spokane International Airport Master Plan Update, it was projected that there would be more than 2.5 million enplanements in the year 2010, increasing to 3.3 million by 2020. Therefore it was indicated that the Spotted Road and Airport Drive at-grade intersections should be mitigated and a highway grade separation should be constructed.
- Intersection Safety Considerations: A brief discussion of the conflicting crossing and turning movements that occur within a limited area of at-grade intersections and that by separating the grades of intersecting roadways crashes caused by these conflicting movements can be reduced.



- **Right-of-Way Considerations:** Spotted Road currently has 80 foot Right of Way except at the intersections with Airport Drive where it becomes 100 foot wide. Right of way was not considered a factor as all land is owned by the Spokane International Airport.
- **Posted Speed Limit Considerations:** A reduction in the current speed limit on Airport Drive was considered, but it was felt that because of roadway geometrics drivers would often exceed the speed limit and the desired safety level would not be achieved.
- A Sight Distance Analysis: This analysis was performed for the minimum Washington Department of Transportation (WSDOT) setback and for the stop bar locations for cars and trucks. It was determined that multiple evergreen trees obstructing views at the stop bar locations at Inbound Airport Drive and northbound and southbound Spotted Road. Other minor sight triangle obstructions exist for trucks at all intersection locations.

A selection matrix was prepared that ranked the alternatives for safety, mobility, development benefits, and cost. As a result of this study, several short-term improvements were recommended to address sight distance and other safety issues. A preferred long range alternative to address capacity issues was also recommended that included the relocation of Airport Drive Outbound next to Inbound and a partial grade separated cloverleaf interchange constructed at Spotted Road.

Spotted Road Lane Reconstruction Project – 2008

Following the conclusion of the 2006 study of Spotted Road and Airport Drive, design documents were prepared to address safety issues with the addition of turn lanes. Construction occurred in 2008 and included the reconstruction of acceleration and deceleration lanes.

Spotted Road Lane Reconstruction Project – 2013

In an effort to further enhance safety on Spotted Road and Airport Drive, design documents were prepared to address safety issues with traffic not stopping at the intersections. Construction occurred in 2013 and consisted of adding overhead flashing red lights and illuminated "Stop" signage at both intersections.

West Plains – Spokane International Airport Transportation Study - 2014

In 2014 the Spokane Regional Transportation Council (SRTC) completed a 2-year process of preparing a multimodal transportation study of the area north and west of I-90. Partners of the transportation study included Spokane International Airport, City of Airway heights, City of Medical Lake, City of Cheney, Spokane County, Washington Department of Transportation, Spokane Tribe, Kalispel Tribe, SRTC, Spokane Transit Authority (STA), Inland Power & Light, the Cheney School District and Fairchild Airforce Base and the surrounding developing areas. The study was performed to address long-term transportation needs of the "West Plains" area and to facilitate coordination and cooperation at the local, regional and statewide levels.

Forecasted development in the study area is significant and a considerable amount of effort was performed to review proposed development which combined, would far exceed historic growth rates. A primary factor of the study was likelihood of development which considered official actions taken such as platting, permitting, TIA's, EIS's, property purchases and groundbreaking which increase the likelihood of actual development. This review was used to update the SRTC regional model demographics and test the benefits of several alternatives that were developed.





Source: West Plains Transportation Subarea Plain

The study acknowledged that safety improvements would be needed as well as transit and non-motorized improvements. The public noted the lack of north-south and east-west arterial roadways in the study area. Nine alternatives were developed to address long-range solutions to congestion in the study area. Some of the 9 alternatives, although they would not provide benefits to the entire study area, were recognized to provide benefits to a specific area, such as Geiger Interchange Improvements or the Medical Lake Interchange Improvements. Other alternatives proposed widening of existing facilities or new facilities. The most effective alternative to reducing congestion was a new minor arterial connecting to and paralleling US Highway 2 along the 21st Avenue alignment from west of the City of Airway Heights to the vicinity of the Airport Drive/US 2 interchange. The alignment of this roadway would cross Spotted Road between Inbound Airport Drive and US 2. Both a 3-lane roadway and a 5-lane roadway were evaluated The study indicated that although the capacity provided by a 5-lane roadway was more than what is needed for the next twenty years, reserving right-of way for a 5 lane facility should be discussed amongst local transportation decision-makers.

Spokane International Airport Master Plan - 2014

The Spokane International Airport completed a Master Plan for the airport's future development and operation. The Master Plan identifies that in 2010, passenger Enplanements were at nearly 1.6 million and by 2025 were expected to rise to more than 2.6 million. The forecasted growth rate for enplanements was a 3.42% compounded annual growth rate.

The Spokane International Airport Master Plan recognizes the safety issues at the Spotted Road intersections at Inbound and Outbound Airport Drive. It mentions that safety improvement being considered is an overpass of Spotted Road at Airport Drive to eliminate the intersections. It was recommended that both directions of Airport Drive be co-located so that an interchange could be built with a single bridge structure instead of two. The Spokane International Airport Master Plan discusses Land Use Compatibility and the Runway Protection Zones (RPZ) and their importance for both aircraft and people and development on the ground. Areas within the Runway Protection Zones (RPZ) are to be kept as clear as possible.

Horizon 2040 Transportation Plan

The Spokane Metropolitan Transportation Plan (MTP), Horizon 2040, prepared by the Spokane Regional Transportation Council (SRTC) was adopted in 2013. A Long-Range Regional Transportation Plan is required to be prepared by each Metropolitan Transportation Planning Organization in the United States and updated every 5 years. This process is undertaken to identify both needs based transportation improvements as well as fiscally constrained improvements or those improvements that can be reasonably expected to be afforded within the available financial resources of the planning area. This study was primarily utilized to forecast Multimodal Transportation Infrastructure Safety Improvements



growth in the region. This project is consistent with SRTC's Regional Long Range Transportation Plan.

Airport Drive Couplet Traffic Study – 2015

In 2013, Spokane International Airport, in partnership with SRTC and the Washington State Department of Transportation, secured funding to perform a current traffic study specific to the Spotted Road/Airport Drive intersections and determine appropriate improvements to provide safe and efficient access to the Airport and the surrounding area. This was part of an ongoing effort to increase safety at this intersection.

This study evaluated the intersection for additional safety and capacity improvements for short, intermediate and long term needs. Other improvements in the region will influence traffic patterns in and around the area and appropriate coordination with these studies as well as the Airport Master Plan was conducted as part of this study.

A Technical Advisory Committee (TAC) was created to assist in the study process and provide important historical perspective, technical review and suggestions. The TAC consisted of SRTC, WSDOT, City of Spokane Public Works, City of Spokane Fired Department and Spokane Airport Staff. In-person interviews were held with stakeholders near the study area. A public open house was held at the Irv Reed Center in close proximity to the Airport Terminal Building, and over 1,100 invitations were mailed directly to property owners in close proximity to the project as well as airport tenants. These efforts allowed users of the Airport an opportunity to review the alternatives and provide comments.

TABLE 1 - ACCIDENTS AT AIRPORT DRIVE/SPOTTED ROAD													
INJURY TYPE	1998-2001	2002	2003	2004	2005	2006	2007	2008	2009-2013	Total			
Fatality						1			1	2			
Incapacitating		3		1				1	2	7			
Non-Incapacitating		1				3			6	10			
Possible Injury		1	1		2		4	2	5	15			
Injury Unknown	35	1								36			
No Injury		1	2	2	4	4	4 3 4		13	33			
Total	35	7	3	3	6	8	7	7	27	103			

Traffic counts were collected for the mid-day and evening peak hours. Traffic on Airport Drive does not have typical traffic patterns, with peaks on that facility occurring mid-day rather than in the evening. Currently both periods operate with acceptable Levels of Service (LOS) with the mid-day having slightly more delay. 20 year traffic forecasts were prepared using historical growth rates. The study determined that future traffic operations will be acceptable until 2025, but sometime between 2025 and 2035 delays will increase to below LOS "E" and "F".

Several alternatives were developed and discussed with the TAC with 5 alternatives being selected for final evaluation purposes. Each alternative included the removal of Spotted Road from the RPZ as well as the extension of 21st Avenue from Flint Road to the east to Spotted Road or Airport Drive. Alternatives included roundabouts, grade separated interchanges and continuous Green-T intersections. Minimizing delay on Inbound Airport Drive was a priority. It was recognized that roundabouts may not be the preferred form of traffic control since they slow traffic and free-flow conditions are preferred.

Multimodal Transportation Infrastructure Safety Improvements



The Alternatives evaluated were:

- Alternative A: Partial Cloverleaf Interchange
- Alternative B: Two Roundabouts with Continuous Green-T Intersection
- Alternative C: Interchange at Airport Drive/21st Avenue Extension/Spotted Road
- Alternative D: Roundabout at Airport Drive/21st Avenue Extension/Spotted Road
- Alternative E: Continuous Green-T Intersection and Overpass for Spotted Road at Inbound Airport Drive



The TAC developed evaluation criteria to prioritize each alternative. Of these criteria, safety was considered the most important factor and carried over 25% of each alternatives overall score. Based on evaluation criteria developed by the TAC, Alternatives C and D were considered nearly equal and were both considered able to address the safety and capacity issues documented in the report. Based on Alternative C's higher safety score and more efficient movement of through traffic and unimpeded access to the Airport Terminal, Alternative C was selected as the preferred alternative. The complete 2015 Airport Drive Couplet Traffic Study is available as **Appendix D** at http://business.spokaneairports.net/2017-tiger-grant/

III. PROJECT PARTIES

The culmination of this project is a result of several long standing partnerships and collaboration between government entities and stakeholders to address a public safety issue. The Spokane International Airport has partnered with multiple entities in the planning and development of this essential safety improvement project including;

- City of Spokane
- Spokane County
- Spokane Regional Transportation Council
- Washington Department of Transportation
- National Highway Freight Program
- Federal Aviation Administration





IV. GRANT FUNDS AND SOURCES/USES OF PROJECT FUNDS

The total cost for the Spokane International Airport Multimodal Transportation Infrastructure Safety Improvements is \$20.9 million. The Airport has established a diverse funding partnership for this project and anticipates four main parties consisting of the Federal Aviation Administration (FAA), National Highway Freight Program (NHFP), Washington Department of Transportation and TIGER with the remaining funding provided by the Spokane Airport Board. The Spokane Airport Board responded to a Call for Freight Projects with NHFP in 2016 and was notified it ranked in the top TEIR 1 priority of projects for the FY 2017/2019 biennium. The application requested



\$8 Million for a portion of the Spotted Road construction. Current validation process is underway and the Airport will be notified of the funding schedule in December 2017.

TIGER funding will provide 24% of the project funds thereby leveraging the grant funding at a rate of 4.2. TIGER funding will not be utilized to fund the previously completed planning services for the project, rather TIGER funds will be used as matching funds to supplement other obligated funding partners of the projects design and construction. Further, the TIGER Grant funding will expedite the completion of these critical safety improvements as without this supplemental funding the project is expected to be delayed another 5-7 years due to lack of available funding. **Figure 7** summarizes financing for the project.



<u>V. MERIT CRITERIA</u>

Long-Term Benefits:

Spokane International Airport Multimodal Transportation Infrastructure Safety Improvement project meets all TIGER program primary and secondary criteria, as explained in the application and summarized below:

 Safety – Grade separated interchanges proposed in the Spokane International Airport Multimodal Transportation Infrastructure Safety Improvement project will provide safe buffers from commuter, transit and freight traffic, thereby significantly improving safety in an area plagued by high numbers of vehicular accidents and will provide a safe efficient transportation corridor to serve residents, employees and visitors to the area and region.



- State of Good Repair Spotted Road is a part of the Critical Urban Freight. The existing infrastructure in the project vicinity, while receiving recent improvements and safety upgrades, continues to age and require additional maintenance and upgrades. New infrastructure along this corridor will reduce overall maintenance costs. The realignment will continue to connect with the Primary Highway Freight Network, which is important to maintain and is valuable to the region's freight modes.
- Economic Competitiveness TThe Airport's annual economic impact of over \$750 million is testimony to the integral role it plays in regional economy. The project will be an investment in improved traffic safety and modal connectivity while also supporting continued passenger, freight, aerospace and manufacturing growth essential to the regional economy. The project will strongly enhance the multimodal transportation system at the Spokane International Airport for residents of the City and County of Spokane. The project will also promote economic development opportunities, stimulate development and increase property values along the transportation corridor.
- Quality of Life In addition to providing safe and cost effective transportation alternatives for the millions of annual visitors and employees at the Spokane International Airport, the Multimodal Transportation Infrastructure Safety Improvement project will improve efficiency and safety for the transit network and the state's freight system.
- Environmental Sustainability The project will improve environmental sustainability by reducing environmental impacts and costs from pollution by reducing traffic congestion, travel time and air pollution from automobiles, and will incorporate green infrastructure and construction practices to reduce storm water runoff and pollution.
- Innovation The project demonstrates innovation to reduce freight mode conflicts by separating the Critical Urban Freight Corridor route from traffic traveling to the Airport through the integration of grade separated interchanges to the Airport's multimodal transportation system.
- **Partnership** The Spokane International Airport Multimodal Transportation Infrastructure Safety Improvement project builds on a long-term partnership with the City of Spokane, Spokane County, Washington Department of Transportation, Spokane Regional Transportation Council, and the Federal Aviation Administration.

<u>A. SAFETY</u>

Increased safety, through improvements to airport accessibility and a reduction in vehicle crashes in the Airport's multi-modal transportation system, is the primary goal of the project. When analyzing the safety impacts of this project, it is paramount to note that Airport Drive is the only access route to and from the Spokane International Airport Terminal with Spotted Road as a primary collector route feeding freight and commuter traffic into the corridor. Multiple studies have previously identified the intersection as an intersection with a high accident severity rate resulting in fatalities. The Airport's multimodal transportation network includes bus,



Source: Vanessa Bogensberger

pedestrian, passenger vehicles, and freight. The improvements completed during this project will provide safe and efficient access for both freight, passenger, and pedestrian traffic to and from the Spokane International Airport. The Spotted Road intersection is a convergent point between visitor, passenger and employee traffic accessing the Airport along Airport Drive and cargo/freight traffic accessing the Airport's developments from Spotted Road. The increase traffic flow in combination with the existing geometric layout of the intersection has culminated in substantiated safety concerns as a result of fatalities, serious injury collisions, and line-of-sight limitations that occur at the site. These safety impacts are expected to increase based on the anticipated growth at the Spokane International Airport and the region leading to increase vehicle traffic along the corridor. The 2015 Airport Drive and Spotted Road Study collected sixteen (16) years of data and identified the following: 103 total collisions resulting in 2 fatalities, 17 serious/disabling collisions.

Adding a grade separate interchange on Spotted Road would separate the Critical Urban Freight Corridor route traffic traveling to the Airport leading to an 80% overall reduction in accidents at the interchange through improved level of service, safer connectivity between different modes of transportation, and reduced freight mode conflicts. The realignment of Spotted Road would continue to connect with the Primary Highway Freight Network, Highway 2, to the north which is important to maintain and is valuable to our freight modes.

Recent Improvements:

Primarily as a result of the 2004 and 2006 study previously discussed, several improvements were implemented along the corridor to reduce accidents at Spotted Road/Airport Drive. These improvements include the following:

- Stop bars on Spotted Road were moved closer to Airport Drive to improve sight distance.
- Painted arrows for lane use were added.
- Stop Ahead Signs with flashing lights were added.
- Landscaping was removed to improve sight distance.
- Acceleration and deceleration lanes were constructed for turn lanes.
- Rumble strips on all Spotted Road approaches were added to warn traffic to stop.
- Overhead flashing beacons were added.
- Real Time speed notification signs have been placed on Inbound east of Spotted Road and east of Flint Road and on Outbound east of Flint Road.



FIGURE 8: AIRPORT DRIVE TUNNEL RENDERING





These improvements had minimal success in decreasing accident occurrences at the intersections. **Studies show a grade separate interchange at the site would reduce overall accidents at the interchange by 80% resulting in a reduction in fatalities, injuries, and property damage.**

B. STATE OF GOOD REPAIR

This project will correct existing safety hazards on the Airport's vehicle transportation system.

The existing infrastructure is in need of safety improvements to provide safe access to and from the Spokane International Airport. Upon completion of these improvement projects, the multimodal transportation system at the Airport will increase in level of service, efficiency, and safety. Studies show that the overpass and tunnel are the most effective alternatives for reducing traffic accidents on Airport Drive through the removal multilane intersection operations. If left unimproved, the infrastructure will continue to threaten public safety, transportation and economic growth. These improvements incorporate the capacity required to support future demand and growth of the area.

The 2015 Airport Pavement Management Plan identified sections of Spotted Road within these project limits as having a PCI ranging from 25 to 85. These PCI values reflect a roadway in need of significant maintenance and in some areas reconstruction. In a no-build scenario these roadways will continue to require significant funding for maintenance and rehabilitation resulting in substantial costs with no improvement to the corridors safety or quality of life. Realigning Spotted Road would create new pavement and infrastructure and therefore would improve the pavement condition for freight infrastructure. The condition of the asphalt would remain in preventative maintenance for the next 15 to 20 years, in which the Airport would see reduced maintenance costs when compared to the existing infrastructure. The Spokane International Airport is committed to the long term maintenance of the new infrastructure and committing annual budget appropriations to these means.

The rehabilitation of the project corridor will include facilities for multiple modes of transportation benefiting the Airport's entire transportation system and further enhancing the local and regional economy. Without rehabilitation, the future economic growth of the area will be hindered due to aging infrastructure within the project corridor. These safety improvements will ultimately reduce household spending on vehicle repairs and medical bills allowing these households to have a better quality of life.

C. ECONOMIC COMPETITIVENESS

The proposed Project includes \$20.9 million in infrastructure investment which will not only generate significant construction-related jobs but will have an indirect impact on the local and state economies as a whole due to improving direct routes and reducing freight mode conflicts.

Multimodal Transportation Infrastructure Safety Improvements

FIGURE 9: NEW SCENARIO ONE-TIME ESTIMATED ECONOMIC IMPACTS (From Construction)											
	DIRECT	INDIRECT/ INDUCED	TOTAL IMPACT								
Jobs	90.0	92.0	182.0								
Labor Income	\$5,550,540	\$3,919,152	\$9,469,691								
Total Output	\$13,244,804	\$11,013,980	\$24,258,784								

Source: WSDOT Aviation Economic Impact Calculator





TABLE 2: BENEFIT COST SUMMARY												
BENEFITS	Present-Worth Value	7% Discount	3% Discount									
Personal Travel Time	\$4,823,806	\$2,588,799	\$3,607,562									
Truck Travel Time	\$5,547,651	\$2,977,266	\$4,148,901									
Fuel Savings	\$4,990,808	\$2,678,424	\$3,732,457									
Emissions Reductions	\$2,071,642	\$1,111,791	\$1,549,311									
Safety	\$37,743,374	\$20,255,788	\$28,226,997									
Deferred Maintenance	\$484.500	\$288,494	\$380,379									
TOTAL BENEFITS	\$55,661,780	\$29,900,561	\$41,645,606									
COSTS	Present-Worth Value	7% Discount	3% Discount									
Capital	\$(20,907,000)	\$(20,907,000)	\$(20,907,000)									
Maintenance	\$(259,095)	\$(122,891)	\$(184,550)									
TOTAL COSTS	\$(21,166,095)	\$(21,029,891)	\$(21,091,550)									
Net Present Value (NPV)	\$34,495,685	\$8,870,670	\$20,554,056									
Benefit Costs Ratio	2.63	1.42	1.97									

The following table provides direct and indirect economic impacts along with short and long-term job projections. Overall, the project will have a significant impact on the greater Spokane economy.

Providing long term safe and effective access to and from the Spokane International Airport will enhance the wide spread impacts to economic development that the Spokane International Airport currently provides. These improvements will increase the movement of goods through increase freight traffic and reduce local expenditures from accidents, emergency services and safety improvements.

This project will support local, regional, and state economies as well as employment through improvements to public safety and improve freight movement to domestic and international markets. The estimated regional economic impact from Spokane International Airport's businesses results in 4,612 jobs (2,020 direct and 2,592 indirect/induced); a total of \$222,100,000 in labor income (\$111,900,000 direct and \$110,200,000 indirect/ induced); and a total of \$708,500,000 of output spending (\$391,400,000 direct and \$317,100,000 indirect/ induced). Specifically, the Airport generates (through its cargo tenants) over 93,000 tons in cargo volume.

In addition to benefiting this critical regional economic engine, these infrastructure improvements will provide economic benefits through reductions in traffic congestion, travel time and vehicle emissions. Further, new infrastructure costs less to maintain allowing the Spokane International Airport to allocate these savings to other needed development and infrastructure. The new infrastructure will improve the long term efficiency, reliability, and economic competitiveness of the transportation system as it continues to support additional



traffic due to regional growth. These improvements will support multiple modes of transportation including freight, commuter, and public transit.

D. ENVIRONMENTAL SUSTAINABILITY

The Spokane International Airport recognizes the importance of utilizing sustainable practices during the development of transportation infrastructure that will protect the environment and ecosystems impacted by the project. These improvements will reduce traffic congestion at the critical intersections improving air quality and reducing greenhouse gas emissions. The improvements will also reduce travel time through the corridor. Construction of the infrastructure will utilize design standards and low impact practices that protect and enhance environmental sustainability through the use of recycled materials and stormwater collection systems. The project will incorporate large open landscaped areas that utilize native grasses and plant species that mirrors the surrounding ecosystem.



E. QUALITY OF LIFE

Currently, traffic on Spotted Road introduces Airport passenger traffic with cargo/industrial traffic. This combination has led to fatalities, collisions, and safety concerns. Adding an overpass interchange on Spotted Road will separate the critical urban freight corridor route from commuter and passenger traffic traveling to the Airport, reducing conflicts, improving the level of service, and creating a safer connectivity between different modes of traffic. The Spotted Road realignment will continue to connect with the primary highway freight network which is important to maintain and is valuable to our freight modes.

Multimodal Transportation Infrastructure Safety Improvements



Spokane International Airport is one of the premier transportation hubs for the inland northwest region of the United States. Creating a positive and safe environment to access this transportation hub will promote the region as a whole through tourism, commercial development. The project will also enhance freight and cargo traffic in and around the Airport by improving connectivity.

This increases quality of life and makes the Spokane International Airport and the region a more viable location by alleviating a significant safety hazard.

Developing and enhancing the multimodal transportation system and corridor provides benefit to local transit districts, businesses, and the community as a whole. New multimodal transit infrastructure will complement existing services provided at the Spokane International Airport attracting new development and economic growth. These infrastructure improvements will have a significant impact on traffic safety along this busy corridor of which these benefits will be scaled as vehicle traffic and development continues to grow in this area, improving the local quality of life.

F. INNOVATIONS

These infrastructure improvements incorporates several innovative approaches and designs to improving safety and transportation of the Airport and region by constructing traffic infrastructure previously never utilized at the Airport.



- The project will incorporate an innovative design to provide tunnel access below the existing Airport Drive to allow shuttle bus traffic to safely transport passengers to and from the airport terminal. This innovative design provides a cost effective option to improve traffic efficiency at the Airport without relocating or raising the existing roadway.
- The Spotted Road overpass will be the first and only overpass at the Airport. In addition, the project uses an innovative approach to address two hazardous intersections by combining the intersections; completely relocating the intersections; and then vertically separating bisecting traffic flows.
- The project also demonstrates innovation through integrating pedestrian and bicycle options that will connect to a trails link system at the Airport that separates pedestrian and bike traffic from vehicle traffic.

FIGURE 12: AIRPORT PEDESTRIAN AND BIKE TRAIL SYSTEM





• Innovative low impact, green infrastructure construction techniques will be incorporated throughout the project to help reduce impacts to the environment.

G. PARTNERSHIPS

This project is the result of collaboration and partnership with several government partners. These partnerships are a key, fundamental corner stone for the overall success and feasibility of these improvements. The City of Spokane, Spokane County, Washington Department of Transportation and Federal Highway Administration have all participated in the planning of this important project. The project contains numerous partners and stakeholders as documented by the letters of support which are attached as **Appendix A** and are available at http://business.spokaneairports.net/2017-tiger-grant/



The importance of these safety improvements is the driving force

behind the development of the project and is a testament to funding and investment already provided by the projects partners in an effort to provide safer transportation infrastructure to one of the regions key transportation hubs.

VI. PROJECT READINESS

A. TECHNICAL FEASIBILITY

The Spokane International Airport has been managing a multimodal transportation system efficiently and effectively providing a gateway from the Inland Northwest to the world. The Spokane International Airport has a team of design professionals with the design and management experience and expertise to complete the improvements on time and within budget. The Airport's engineering department personally directs and oversees all planning, engineering, construction and operations at the facility. Formulation studies previously completed have concluded that all aspects of the project are technically feasible.

As planning studies and preliminary engineering have largely been completed for the project, this project is on schedule and ready to complete all pre-construction services and obligate all grant funding by June 30, 2020. The Airport Board has mechanisms in place to allow the project to proceed immediately and expeditiously upon grant award to complete design and engineering phases.



B. FINANCIAL FEASIBILITY

The Spokane International Airport has an immense amount of experience and expertise in efficiently administering Federal grants for infrastructure projects as well as managing cash flow for Federally funded projects. The Spokane International Airport is completely aware of the need to expend all grant funding by September 30, 2025 and currently has the project scheduled for completion a full three years prior to that deadline. There are no legal, technical, or financial issues with the Spokane International Airport that would make this a high-risk project.

Cost estimates developed for the project were created by local engineering professionals with a substantial amount of experience in the industry, who utilized recent and local unit pricing to provide an accurate, confident assessment of anticipated project costs. In addition, sufficient contingencies were added to each element along with estimates for industry inflation to coincide with the project schedule.

TABLE 3 - PROJECT COSTS													
PROJECT ITEM	NHFP GRANT	FAA GRANT	WSDOT GRANT	OT LOCAL MATCH TIGER GRANT		COST	TIGER % OF TOTAL COST						
SPOTTED ROAD OVERPASS													
Planning Studies			\$150,000	\$2,870,000		\$437,000	0.0%						
Enviro/Design		\$1,000,000			\$1,500,000	\$2,500,000	60.0%						
Construction	\$8,000,000	\$2,000,000		\$1,500,000	\$3,000,000	\$14,500,000	20.7%						
AIRPORT DRIVE TUNNE	L												
Planning Studies				\$20,000	,000 \$20,0		0.0%						
Enviro/Design				\$450,000		\$450,000	0.0%						
Construction		\$2,000,000		\$500,000	\$500,000	\$3,000,000	16.7%						
TOTAL	\$8,000,000	\$5,000,000	\$150,000	\$2,757,000	\$5,000,000	\$20,907,000	23.9%						



FIGURE 13 - PROJECT SCHEDULE																														
Task		2004				2015			2016			2017			2018				2019			2020			2021			2022		
		Q2	Q3 (Q4	Q1	Q2 (Q3 Q	4 Q1	1 Q2	Q3 (Q4 C	1 Q2	Q3 (Q4 Q1	1 Q2	Q3	Q4	Q1	Q2 (23 Q	4 Q1	Q2	Q3	Q4	Q1 (22 Q	3 Q4	Q1	Q2 C	23 Q4
Planning Studies	2			>		\rightarrow					┼			╞							╞							-		
Preliminary Design					F		_						>			-														
Environmental Documents (NEPA)	_			-	E		_	-			+		>								-		_		_					
Consultant Selection	-			-	F		_	+			+			+	7	k				_	-				_		_	-		
Final Design	_			-	F			+			+			+		2														
Construction Authorization	-			-	F		_	-			+			+						_	F		7	k	-		-			
Construction Contract Advertised and Bidding	_			-	F		_	-			+			-							-			->	>					
Construction Contract Awarded				-	F			Ŧ			+			+							F				+	-		F		
Construction	-				E			-			-			-							F									

<u>C. Project Schedule</u>

The following exhibit provides a project schedule for both completed and upcoming project phases and tasks. Planning services for the project were completed in 2015. Preliminary design of the shuttle bus tunnel was completed in August 2017. Most improvements are located on property owned by the Spokane International Airport and therefore the project will not require any right-of-way acquisition, however will require coordination with WSDOT, as Airport Drive connects from Airport to State property. Overall the project schedule depicted depends on the award of grant funding. This project will be ready for TIGER FY 2017 funding obligation in June 2020.

D. Assessments of Risks and Mitigation Strategies

Overall risks associated with the project are minimal due to the financial strength and experience of the Spokane International Airport; minimal environmental concerns; no right of way; and no legislative approvals required for the project to proceed successfully. In addition, the project has strong support from local and state officials as documented in the Letters of Support. The Spokane International Airport has the financial strength and experience to provide all matching funds and effectively manage and implement the project. The Spokane International Airport has a long history and solid reputation for administration of grants across the spectrum of Federal, State, and private sources, including Federal projects in full compliance with National Environmental Policy Act (NEPA) and other Federal requirements. Spokane International Airport regularly develops, bids, and manages multi-million dollar construction projects using a professional staff and private consultants specializing in civil engineers, landscape architects, architects, surveyors, GIS specialists, and planners. No real estate acquisition is required for this project as all property is currently owned by the Spokane International Airport.

E. ENVIRONMENTAL APPROVALS

All Federal, State and local environmental approvals will be obtained prior to commencement of construction. This project is expected to obtain all environmental approvals through an Environmental Assessment to comply



with NEPA, with FAA being the Lead Agency. In coordination with FAA, the Environmental Assessment is anticipated to be quite straight forward which will expedite the project schedule. This project will not impact

any wetlands or other 4(f) lands. All land is currently owned and controlled by the Spokane International Airport. All environmental approvals are scheduled to be approved in August of 2018 prior to beginning design phases of the project.

F. LEGISLATIVE APPROVALS

The Spokane International Airport Multimodal Transportation Infrastructure Safety Improvement project is highly supported by legislators, government entities, local businesses, community groups and agencies as noted in **Appendix A**, Letters of Support. No legislative approvals are required for the project to proceed.

G. STATE AND LOCAL PLANNING APPROVALS

The Spokane International Airport Multimodal Transportation Infrastructure Safety Improvement project has already been developed and refined through multiple planning studies over the past 13 years. These studies included detailed public and stakeholder involvement. The Airport Drive overpass at Spotted Road will be added to the Spokane County Transportation Improvement Plan (TIP) by March of 2018 which will ensure that project funding is obligated by June 2020 and the project receives the support necessary from local and regional government entities to be successfully completed.

VII. BENEFIT-COST ANALYSIS

A detailed benefit-cost analysis (BCA) was performed on the project to examine the project as a whole in terms of net benefits and costs. The results of the BCA demonstrates that the quantifiable benefits are \$55.566 million based on a total project cost of \$20.907 million, or 2.63:1 ratio of benefits to costs in present dollars or 1.42 at a 7 percent discount rate, as shown in **Table 4.**

The analysis estimates the economic value that the proposed project will create from the following:

- Reduction in traffic injuries and fatalities.
- Reduction in property damage.
- Enhancements to a multimodal transportation system.
- Reduced auto use contributing to reduced congestion.
- Reduce fuel usage.
- Reduced emissions pollution.
- Improved health through reduced health care costs.
- Improved access to an international multimodal transportation hub.

Multimodal Transportation Infrastructure Safety Improvements





Source: FedEX



pokane International Airport

TABLE 4 -BENEFIT COST ANALYSIS MATRIX												
MERIT CRITERIA	DESCRIPTION	FACTORS	MONETIZED VALUE	MONETIZED VALUE DISCOUNT RATE (7%)	MONETIZED VALUE DISCOUNT RATE (3%)							
Economic Competitiveness	 Reduction in Travel Time (personal vehicle) Reduction in Travel Time (truck/freight) Fuel Cost Savings 	 342,000 hours saved in personal travel time 203,000 hours saved in truck travel time 1,650,000 gallons of fuel saved 	\$15,362,265	\$8,244,488	\$11,488,920							
Safety	Accident Reduction Savings	 Fatality and accident cost savings Safety Measures: Two Grade Separated Interchanges 	\$37,743,374	\$20,255,788	\$28,226,997							
State of Good Repair	Deferred Maintenance	Reduced maintenance costs. Maintenance costs for new infrastructure included in construction costs summary.	\$484,500	\$288,494	\$380,379							
Environmental Sustainability	Reduce Pollution	 13.1 reduced short tons of VOC 277.5 reduced short tons of NOx 	\$2,071,642	\$1,111,791	\$1,549,311							
Total Cost			\$(21,166,095)	\$(21,029,891)	\$(21,091,550)							
Total Benefits			\$55,661,780	\$29,900,561	\$41,645,606							
Net Present Value			\$37,267,685	\$11,642,670	\$23,326,056							
Benefit Cost Ratio)		2.63	1.42	1.197							

As depicted in the table, the most significant benefits are improvements in overall safety at \$37.7 million. Additional benefits anticipated, such as enhanced property values, economic stimulus, and tourism, are more difficult to qualify and where not quantified in the benefit cost analysis calculations. A detailed BCA narrative and spreadsheet documenting all calculations and methodology is available as **Appendix B** at: http://business.spokaneairports.net/2017-tiger-grant/

VIII. COST SHARE

The Spokane International Airport has developed a strong partnership with diverse funding, including local and state government entities to ensure this project has the local support and the financial strength to ensure the project's success. TIGER Grant funding, at nearly 24% of the total project costs, is a key element to the project's efficient and timely success. Without TIGER Grant funding, this critical safety improvement project will be delayed until additional funds are secured to proceed with design and construction. Once funding is obligated, the Airport's financial strength will allow it to provide all non-Federal and matching funds while



administering and managing the project efficiently. The Airport anticipates notification from the NHFP in December of 2017 regarding its obligation of funding. As a Tier 1 project, the Airport is confident this funding will be secured in time to keep the project on schedule. As previously discussed, the Spokane International Airport is a regular recipient of Federal grant transportation funding and has the experience to manage cash flow and administer the funding according to Federal requirements. Maintenance costs over the life of the new infrastructure will be provided by both the Spokane International Airport and WSDOT through a joint agreement. The Airport currently manages and maintains its existing transportation system and will utilize this strength and experience to incorporate the new improvements.

IX. FEDERAL WAGE REQUIREMENT

The Spokane International Airport complies with all Federal provisions, including the Davis Bacon Wage Act. All contractors and subcontractors on projects funded, in whole or in part, by TIGER or other Federal grant funds shall be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by the Secretary of Labor in accordance with United States Code Subchapter IV, Chapter 31, Title 40. The Federal Wage Rate Certification is attached to the grant application as **Appendix C** and available at: http://business.spokaneairports.net/2017-tiger-grant/

<u>X. NEPA</u>

The National Environmental Policy Act (NEPA) process, including historic and archaeological reviews will be conducted during the Environmental Assessment and is anticipated to be completed by August 2018. Based on preliminary planning studies completed for the project, no major issues are anticipated for the project. Any issues that do arise will be addressed in ample time prior to the obligation of TIGER Discretionary Grant funding.

