FY 2022 CITY OF FORT WORTH RAISE GRANT APPLICATION

Heritage Trace Parkway Bridge over the BNSF Railroad

Bridging Barriers & Connecting the Community

Table of Contents

List of Figures

List of Tables

List of Appendices (Located at www.fortworthtexas.gov/department/tpw/raisegrant)

I. Project Description:

The city of Fort Worth is partnering with the Burlington-Northern Santa Fe Railroad (BNSF) and the North Central Texas Council of Governments (NCTCOG) to remove a barrier to mobility by constructing a new bridge along Heritage Trace Parkway over the BNSF railroad line in north Fort Worth. This grade separated crossing will connect the newly constructed section of the Heritage Trace Parkway on the east to the section currently under construction to the west, establishing a safe connection for pedestrians, cyclists, para-transit, and motorists alike, while allowing freight and passenger rail to move more efficiently. This project will be the first major step to the ultimate build-out of the Heritage Trace Parkway, eventually connecting over one thousand residences to I-35W, US-377, and Trinity Metro's Northside Park and Ride.

This section of the BNSF line is utilized by nearly 50 trains a day, and is one the busiest in the region. The section of railroad also carries Amtrak's Heartland Flyer, which carries passengers between Fort Worth and Oklahoma City with one-daily train in each direction. The nearest crossings in this area of the community, both of which are at-grade, are located almost 3 miles apart. Tarrant County's population increased 16.7% between 2010 and 2020, and this rapid residential development in the project vicinity necessitates this new infrastructure and a crossing at this location.

This thriving and growing area in the 4th largest metro region in the nation boasts numerous residential developments, and many activity centers that support and enhance the lives of the residents including schools, parks and retail. Both the city and its railroad partner recognize the importance of this being a grade-separated crossing for both the safety as well as the mobility of the community.

Currently, Heritage Trace Parkway does not connect across this segment of BNSF rail line and it dead ends at both sides. However, as all phases of the residential developments currently under construction are completed, the increased population density necessitates the critical need for a crossing at this location. Therefore, the major challenges this project is trying to address are:

- **Safety**
  The construction of a grade-separated crossing (as opposed to an at-grade) eliminates a conflict point between trains and vehicular traffic. The proposed bridge will also reduce rear-end vehicle crashes due to congestion that often occur at an at-grade crossing. The barrier separated shared-use path will also increase pedestrian and cyclist safety by distancing them from vehicular and train traffic. It will also decrease emergency response times by two minutes, and serve as a lifeline connection during emergency evacuations

- **Connectivity**
  Currently, Heritage Trace Parkway dead-ends on both sides of the BNSF line. This creates a barrier for the local residents, cutting them off from adjacent schools and parks, which causes them to detour several miles. This project will also give more modal choices to residents by providing a bike/ped option, which will connect to newly constructed sidewalks on Heritage Trace Parkway and it will improve access to transit stations and park and ride lots. This improvement will additionally enhance freight and passenger rail movement in this area of the city.

- **Congestion**
  Without this connection over the BNSF line, traffic will only increase on the adjacent roadways and other East-West routes in this area of the city – specifically, West Bonds Ranch Road and Bailey Boswell Road. If an at-grade crossing were constructed instead, there would be significant back-ups due to the delays that would be caused by the heavy train traffic at this location. In addition, the nearest grade separations over this facility are roughly 3 miles to the north and south, US 81/287 and IH 820. Both are freeways meant for regional traffic, and are both congested at peak times.

All these challenges can be addressed with the construction of this grade-separated crossing. It is the safer alternative for vehicular, transit, bicycle, and pedestrian traffic. It will provide greater connectivity for all modes and it will reduce vehicle miles traveled by shifting traffic away from the at-grade crossings in the vicinity. Finally, it will ensure the efficient operation of this BNSF rail line which is vital to the nation's freight and passenger rail network and supply chain operations.

This project is identified in the city's current major thoroughfare plan (MTP) and once completed this bridge will connect an approximate 1.75 mile stretch of Heritage Trace Parkway. Over the past several years developers have partnered with the city to construct the adjacent sections of Heritage Trace Parkway. First the section east of the BNSF line to Blue Mound Road (FM 156) was recently completed and the section west of the BNSF is currently under construction and is scheduled for completion by the Summer of 2022.

Figure I:1- Project Location Photo

Dead-end segment of Heritage Trace Parkway East of proposed grade-separated crossing, the blocked track illustrates the need for the project.

Once the Heritage Trace Parkway corridor is constructed per the city's MTP it will be an 11-mile arterial connecting Boat Club Road (FM 1220) in the west to US 377 at its eastern limits. It will be the longest east-west continuous roadway in north Ft. Worth and the adjacent suburbs. Once this arterial is fully built, it will connect to Business US 287, US 81/287, I-35W and US377, all of which are identified in the TxDOT freight network. Presently, gaps exist in this 11-mile corridor, but this project would complete one of the most vital and difficult gaps, as it would eliminate the railroad as a barrier.

Currently this project is in the conceptual phase and preliminary plans have not been prepared to date. However, adequate estimating has been done to determine approximate cost of design, right-of-way and construction costs. The current project concept consists of a 2,000 linear ft extension of Heritage Trace Parkway, including the approaches and a 600ft to 700ft span bridge which will provide a 25ft vertical clearance above the railroad tracks. The proposed design will be a four-lane divided structure with the potential to increase capacity in the future as the need arises due to development and/or population growth, the conceptual cross-section is shown in Figure I-2.

The bridge will also feature ADA-compliant barrier separated 15ft shared-use paths on both sides of the bridge, the conceptual design consists of a dual-track design for the path demonstrated in Figure I-3. Specific pedestrian lighting and drainage features will be included as well. Safe and efficient connectivity to residential streets will also be accomplished as a part of this project. It should be noted that bridge deck approaches will require earth retaining systems, rather than sloped embankments due to the residential development that's in close-proximity to the project.

Figure I-2: Proposed Conceptual Cross Section

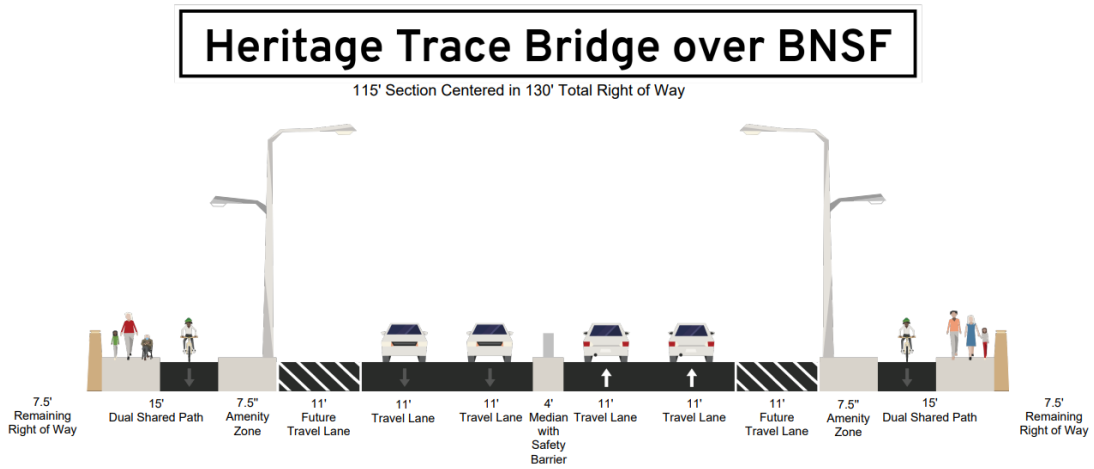

Figure I-3: Proposed Dual Track Concept

II. Project Location:

This project is located in the northwest area Fort Worth, TX in Tarrant County, and would connect the newly constructed sections of the Heritage Trace Parkway over the BNSF railroad line between Wagley-Robertson Road and Blue Mound Road. Once completed, this section of Heritage Trace Parkway would be functionally classified as a minor arterial and it would connect to Wagley-Robertson Road in the west which is a major collector and to Blue Mound Road (FM 156) to the east which is classified as a minor arterial, and is a state facility, both roads are federal aid eligible.

While the project is not located directly in an area of persistent poverty or a historically disadvantaged community, it is in close proximity to several census tracts that are. It is located in a census designated urbanized area, and near to an Opportunity Zone. The nearby Opportunity Zone is located approximately 4 miles to the south of the project area and the BNSF line goes directly through that zone. However, the project does connect to one of the highest areas of housing voucher recipients in the City of Fort Worth. The efficiency of that line, and the movement of goods that this project will enhance, will ensure that freight continues to flow into that zone and improve supply chain operations for businesses located there.

Figure II-1: Location Map

III. Grant Funds, Sources and Use of Project Funds:

The below Table III-1. Shows a breakdown of project components by funding source. This project budget was created by city engineering staff based on a conceptual level of design. The project RAISE grant request is for 80% of the project cost with the non-federal local match being provided by a mix of funding from the city of Fort Worth and the BNSF Railroad. Per 23 CFR §646.210 requires that railroad companies participate 5% on grade separation projects of existing active crossings when federal funds are used.

This project will be completed in one phase, no expenses have been incurred to date, and none are anticipated between the time of award and obligation. Also, no project funds have any specific conditions or particular timeline that would affect implementation of this project.

Table III-1: Project Cost Breakdown by Funding Source

Component	Cost	Funding by Source		
		Non-Federal	RAISE	Other Federal
Preliminary Engineering	$3.0 M	$0.60 M	$2.4 M	$0
Right of Way	$0.54 M	$0.11 M	$0.43 M	$0
Utilities	$1.05 M	$0.21 M	$0.84 M	$0
Construction				
Mobilization	$1.41 M			
Staking & Survey	$0.39 M			
Traffic Control	$0.39 M			
SWPPP	$0.13 M			
Demolition	$0.50 M			
Site Prep	$0.80 M			
Bridge Deck & Structure	$5.57 M			
Bridge Approaches	$2.46 M			
Approach MSE Walls	$2.66 M			
Concrete Pavement	$2.08 M			
Subgrade Stabilization	$0.34 M			
Sidewalks	$0.17 M			
Illumination	$0.80 M			
LID/Green Elements	$0.50 M			
Railroad Coordination	$1.50 M			
Construction Sub-Total	$19.70 M	$3.94 M	$15.76 M	$0
Construction Inspection	$2.0 M	$0.40 M	$1.60 M	$0
5% Contingency	$1.31 M	$0.26 M	$1.05 M	$0
Total	$27.60 M	$5.52 M (20%)	$22.08 M (80%) = RAISE Request	

IV. Merit Criteria:

(a) Safety

This grade-separated crossing will significantly target known safety problems, and protect the community from health and safety risks in several ways. Increased development and population growth along Heritage Trace Parkway necessitates the need for a rail crossing. The only alternative to the proposed grade-separated crossing is an at-grade crossing which presents significantly greater risk to non-motorized and vehicular travelers. An at-grade crossing would create a potentially hazardous conflict point between trains and other users, lead to additional vehicular crashes, and pose a far greater risk for cyclists and pedestrians, including those from lower income communities in the surrounding area. Overall, this project will address a systematic safety issue by creating a grade-separated crossing and diverting traffic away from adjacent at-grade crossings.

For purposes of comparison, we reviewed data from two nearby at-grade crossings along the same BNSF line: one at Bailey Boswell Road 1.2 miles to the south and one at West Bonds Ranch Road 1.6 miles to the north. At grade crossings lead to increased vehicular crashes, particularly, rear-end crashes. Both crossings experience regular crashes, which is illustrated by the below table Table IV-1. There is also a greater risk of crashes due to vehicles hitting railroad gates, signals and other crossing equipment.

Table IV-1: At-Grade Crash Data

Adjacent At-Grade Crossing Crashes 2017-2022			
Location	Property Damage	Injury	Total Crashes
West Bonds Ranch Road	5	1	6
Bailey-Boswell Road	5	0	5

Source: TxDOT-Crash Records Information System (**CRIS**)

The proposed grade-separated crossing will also significantly benefit public safety over the alternative at-grade crossings. At-grade crossings are known to be particularly disruptive to emergency services. The improved street connectivity provided by a grade-separated crossing will increase emergency response access within the impacted area, providing time critical alternative route options when responding to emergencies. Several incidents on the FRA delay report website have noted that EMS crews have been significantly delayed due to "parked" or crossing trains [footnote stats]. Again, comparable at-grade crossings near the proposed grade-separated project site (Bonds Ranch and Bailey Boswell at-grade crossings over the BNSF line), also confirm significant and regular delays in emergency response services.

Without the addition of this grade-separated crossing, the local residents will be put in jeopardy due to slower emergency response times. The City of Fort Worth is constructing a new fire station in the vicinity of the project which will be operational by the Summer of 2022. The below table IV-2: highlights how emergency response times will be improved to the Watersbend South and Ranch C residential areas west of the BNSF line if this railroad bridge is constructed. If Heritage Trace Parkway remains an unfinished thoroughfare, then emergency response units will still need to be dispatched from a fire station approximately one mile farther away to the west. If the at-grade crossing is constructed then those residential areas will be reached about 20-25% faster.

Table IV-2: Emergency Services Response Time

Response times		
Location	With no crossing over BNSF line	With grade-separated crossing
Intersection of Heritage Trace Parkway and Doverglen Drive	8.9 Minutes	6.9 Minutes

Source: Fort Worth Fire Department

The project is also located within an area of the city that is identified as being at a moderate to high risk of wildfires. This grade-separated crossing will serve as a key evacuation route in the event of a wildfire. Additionally, the nearest crossings at Bonds Ranch and Bailey-Boswell are both at-grade and experience multiple, lengthy delays due to train crossings daily. In the event of a wildfire threat those crossings are unreliable evacuation routes putting resident safety at even greater risk.

(b) Environmental Sustainability

The proposed project site is located in a non-attainment area and features by design many improvements that will significantly increase and encourage environmental sustainability within the project area and the community. These deliberate goals are embedded in the design features of the project itself from concept to eventual completion, reducing air pollution and greenhouse gas emissions, increasing the use of lower-carbon travel modes, and improving water quality. The construction of this crossing will significantly reduce greenhouse emissions from idling vehicles and travel times as illustrated in the attached Appendix C.

Air quality will be improved as a part of this project by diverting traffic away from the at-grade crossings on West Bonds Ranch Road and Bailey Boswell Road. Those at-grade crossings experience regular 15 to 30-minute delays caused by either moving or parked trains. The vehicles stopped at those crossings produce greater emissions due to idling, examples of this congestion are shown in Figures IV-1 and IV-2. This project will help alleviate some of those

emissions and prevent the potential for increased emissions if an at-grade crossing were ever constructed along Heritage Trace Parkway instead.

Figure IV-1: West Bonds Ranch Rd. At-Grade

Example of congestion at current at-grade crossing of West Bonds Ranch Road.

Table IV-2: At-Grade Congestion on Bailey Boswell

This project will additionally promote environmental stewardship by providing greater access to lower-carbon travel modes. The inclusion of the shared-use path on the bridge will encourage more active transportation in the area and the connectivity it provides will create better access to transit. This improved access to transit and active transportation will particularly benefit disadvantaged communities, as many disadvantaged individuals come from one or no-car households and rely on alternative modes.

The western limit of this project is located in the current floodplain, but outside the floodway. However, as a part of the current developer project to construct Heritage Trace Parkway adjacent to the proposed bridge a Letter of Map Revision (LOMR) will be submitted which will remove the project area from the floodplain. Acceptance of the LOMR is anticipated as the map revision is needed to be able to obtain building permits for the adjacent development currently being

constructed. Ultimately this project is consistent with the Federal Flood Risk Management Standard as its associated eight-step decision making process will be followed during the design of this project.

Environmental sustainability will also play a key factor in the design of the project. This is particularly true for the drainage and stormwater design as the project is located in close proximity to the Whites Branch of the Big Fossil River watershed. historical water quality sampling of the Big Fossil River by the city, state and the US Geological Survey have shown the presence of contaminants due to de-icing salts, metals and hydrocarbon products.

Since this project is located in the vicinity of this watershed (HUC 120301020503) and near the Big Fossil Creek and its tributaries the design will be guided by Transportation Integrated Stormwater Management (TriSWM) practices. These practices were developed by NCTCOG as part of their regional Integrated Stormwater Management Program. These design practices seek to enhance driver safety while providing erosion control and reducing pollutants from run-off. The TriSWM design process considers preservation of natural features, buffers at sensitive areas such as aquatic habitat, treatment of water quality through Best Management Practices, prevention of erosion during runoff conveyance, and discharge of bridge runoff with treatment. Various drainage alternatives will be considered during design which could include bioswales or rain gardens.

Figure IV-3: Bioswale Example

Example of potential bioswale design

Finally, for this project the city will be seeking green certification from either Envision or the Sustainable Transportation Council. The criteria for the highest certifications will be incorporated into both the design and construction when feasible.

(c) Quality of Life

As a result of the proposed grade-separated crossing, the quality of life for residents of the surrounding area will increase significantly by removing a barrier to social and economic mobility. This project will increase access to public parks and nearby schools for vehicular traffic and will also increase access to Fort Worth's trails and bike friendly roads for cyclists and pedestrians, which will promote active transportation and improve the health of the community overall.

Mobility will increase for all members of the community by the inclusion of the barrier-separated shared-use path. It will be an ADA accessible path that will connect to existing sidewalks on both sides of the bridge. This path will also create a safe route to school as both an elementary school and a middle school are located less than a mile from the project. One of those is Prairie Vista Middle School and its student population is both majority minority and majority low-income.

Overall the shared-use path component will reduce the automobile dependence and make the community more walkable. This is especially important for the disadvantaged population in the community as they often represent a majority of the one or no-car households in a community. As commercial development increases in this area there will be more equitable access to activity centers by the inclusion of other modes along this corridor.

Another benefit of the grade-separated crossing option will be the absence of the noise caused by train horns which would be necessary and prevalent if an at-grade crossing were constructed instead. The installation of an at-grade crossing instead would likely lead to many noise complaints from local residents creating the need for quiet zones or other noise reduction measures.

(d) Improves Mobility and Community Connectivity

This project will significantly improve connectivity and increase mobility in several ways by providing a safe connection over a network barrier. Non-motorized connectivity will greatly improve by providing better access to transit and by the inclusion of the bicycle/pedestrian facility that is a part of this project, this will increase affordable transportation choices for all including disadvantaged communities. Vehicular and freight connectivity will also be enhanced as currently the closest grade-separated crossings along this line are approximately five miles apart. Overall, mobility and community connectivity will be improved in the following ways.

- **Transit**
  Numerous transit services will either be enhanced or become more accessible as a result of this project. The area transit provider Trinity Metro has a North park and ride lot just to the Northeast of this project location and residents to the west of this crossing will now have better access to that lot which will likely increase bus ridership. Trinity Metro's para-transit service "Access" will also be able to operate more efficiently in this area. Access is a door to door transit service for individuals with verified disabilities that prevents them from riding regular city bus service.

Table IV-3: Trinity Metro North Park and Ride Lot Usage

	Average Daily Boardings at North Park and Ride Lot			
	Oct	Nov	Dec	Jan
Pre-COVID (2019-2020)	19.8	15.4	14.9	18.6
Recent (2021-2022)	14.5	12.1	12.1	13.3

Source: Trinity Metro (Tarrant County public transit service)

- **Amtrak**
  This section of the BNSF rail line is also utilized by Amtrak, the 'Heartland Flyer" operates daily between Fort Worth and Oklahoma City. Increased efficiency of this line will reduce travel times for this passenger rail option as well, which will facilitate increased ridership encouraging tourism and taking traffic off of I-35W.

- **Active Transportation**
  Walking, cycling, rolling and transit use will be greatly encouraged in this area by the inclusion of the shared-use path on the bridge. It will be ADA compliant, barrier separated, 10ft wide on each side of the bridge and include specific path lighting. All these design components will increase rider and pedestrian confidence and safety increasing use of these facilities. Additionally, this path will connect to existing sidewalks on Heritage Trace Parkway which connect to existing sidewalks on Blue Mound Road to the east of the project.

This project will also support freight mobility and connectivity through this grad-separated East-West connection. It will provide better system connectivity for freight truck traffic in the local network but also ensure the continuous flow of this BNSF line, which may be impeded due to crashes or at-grade crossing repairs. This sector of town is pivotal to freight movement and the supply chain which is explained in more detail in section I Economic Competitiveness and Opportunity.

(e) Economic Competitiveness and Opportunity

This area of Fort Worth is a major freight center for the city, state and nation boasting numerous facilities that support the multimodal movement of goods by air, rail and roadway. This project will provide a better local network for truck traffic by distributing goods across the region. Even more significantly it will ensure the more efficient operation of the BNSF line that leads directly into several of these local freight facilities. Supply chain operations can improve and succeed through this project by reducing incidents at the nearby at-grade crossings and preventing future delays if an at-grade crossing were constructed along the Heritage Trace Parkway instead.

One of these facilities that are crucial to the movement of freight in the city, state and region lies Just 6.5 miles directly to the North of the project location. Supporting thousands of jobs, the Alliance global logistics hub directly connects to the BNSF rail line and is home to the following facilities:

- **Alliance Airport**
  Sits on 1,200 acres and was considered the world's first purely industrial airport, it's owned by the city of Fort Worth and is operated by Alliance Air Services. Originally it was a joint venture between the city and the Federal Aviation Administration and conducts over 120,000 operations annually. These operations include air cargo, general aviation and military needs.

Figure IV-4: Alliance Airport

- **BNSF Alliance intermodal facility**
  This intermodal facility runs 24/7 and receives freight from all over the country including an estimated 1,500 shipping containers daily from the West coast alone. These goods are then offloaded to the chassis parked amongst the 6,607 parking spaces within this intermodal facility. This facility is serviced directly by the BNSF rail line that this project will cross and in the aftermath of the pandemic BNSF has deployed additional locomotives and rail cars to alleviate shipping backlogs at this facility.

Figure IV-5: BNSF Intermodal Facility

- **Amazon regional air hub**
  One of Amazon's largest regional air hubs is located in the Alliance global logistics hub. This facility opened in 2019, hosts 30 flights daily and supports around 300 jobs. This Amazon operation will continue to thrive and grow as the local road network and BNSF line operate more efficiently as a result of this project.

These facilities and their continuous operation are key to the economic success of the region and restoration of the supply chain. In addition to those facilities the Alliance global logistics hub is home to over 500 other companies. All of which rely on either the local road network or this BNSF rail line to ship goods to warehouses and retail spaces throughout the city and region. This project will enhance the efficiency of both the road and rail system in this freight quadrant of the city.

Another significant economic center within the region is the Mercantile Center located only 4 miles south of the project. It is a 1,300-acre business complex housing office space, warehouse distribution centers and tech sector operations. The center also includes a TEXRail station that connects directly to downtown Fort Worth and the DFW International Airport. This rail crossing project will create better access both by vehicle and transit to this economic center supporting its tenants and their employees.

This area of the city is also home to the Meacham International Airport, it is about 4 and a half miles from the project and is located in one of the six opportunity zones within the city of Fort

Worth. Meacham airport is situated on 900 acres and supports nearly 100,000 operations annually. Its major activities include general aviation for non-commercial flights, military use and it also has a helipad.

The City has a long proactive history of promoting equal opportunity in its project delivery process. The City's Business Equity Ordinance has a goal to remedy past underutilization and provide a fair and level playing field for Business Equity Firms and to encourage the participation of Business Equity Firms to contract with the City.

The city also has vast experience delivering federally funded projects and is knowledgeable of federal requirements. Once funded this project will meet all federal requirements including prevailing wage and the Disadvantaged Enterprise Program. The city would utilize robust DBE and OJT goals that would provide opportunities for minority and female owned prime and/or sub-contractors.

(f) State of Good Repair

The construction of this grade-separated crossing will help preserve pavement and overall system condition on other adjacent East-West routes by diverting traffic from the heavily congested Bailey-Boswell Road and West Bonds Ranch Road. Additional modal options and better access to transit will also help take vehicular traffic off the road and extend the useful life of those road surfaces. This improvement will address current system vulnerabilities by reducing maintenance costs of the adjacent at-grade facilities.

Once built this crossing will be the only grade separated crossing along this rail line between I-820 and US-287 which are an FHWA freight route and a TxDOT freight route respectively. This will alleviate the state and federal system by removing local trips and extending the useful life of those surfaces. The eventual build-out will connect to additional state and federal routes which will further preserve those state and federal assets.

The city currently inspects and maintains 204 at-grade crossings and is required to do so by Federal Railroad Administration regulations. Building a grade-separated crossing will reduce maintenance costs associated with at-grade crossing. Regular surface maintenance and repairs or replacement of damaged equipment like signals and gates are a regular cost of at-grade crossings.

There are two types of maintenance associated with at-grade crossings. One is minor surface repairs like potholes or broken railroad panels. Those types of repairs are typically needed every 3 to 5 years and impede both vehicular and rail traffic due to flagging requirements and closures. The second type of maintenance is a full crossing rehab which needs to be done typically every 5 to 10 years and can cost as much as $200,000. Additional repairs and/or replacements of equipment are needed periodically due to damage from vehicular crashes.

The grade-separated crossing alternative will eliminate the need for the costly equipment and associated repairs and closures due to an at-grade crossing.

(g) Partnership and Collaboration

This project is a true public private partnership between the City of Fort Worth, the BNSF railroad and residential developers as well. Over the last couples of years developers have constructed the new sections of Heritage Trace Parkway on both sides of the proposed railroad bridge. Currently both of these sections dead-end at the BNSF tracks and both the city and BNSF realize the necessity of this project to improve public safety, community connectivity and freight efficiency.

Since this project was conceived it has been a textbook example of collaboration within the region. It's included in both the city's and the regional metropolitan planning organization's (MPO) long-range plan, and was also cited in a TxDOT freight mobility study from 2020 as a needed at-grade crossing. The most important aspect of partnership on this project is that between the city and the BNSF railroad which will include a financial contribution from BNSF, which is evidence of their support. The support of those organizations and others is reflected by the numerous letters that accompany this application in appendix A.

In 2016 this project was incorporated into the city's the Major Thoroughfare Plan, their long-range plan. A robust and targeted public involvement process was undertaken as a part of that plan update. It included public meetings throughout the city including in locations that are defined as areas of persistent poverty and historically disadvantaged communities. The plan was presented to the public and diverse comments were received. Once full design begins on this project the city will hold additional public meetings and engage the local citizens at several touch-points to present the project details, discuss any right-of-way impacts and obtain feedback.

During the project development process the city will conduct several public meetings at key decision points to inform the public of project impacts and to obtain their feedback. This includes reaching-out to any disadvantaged groups affected by the project, and would include project materials translated to prevalent secondary languages as needed.

The city will include robust DBE goals in both the design services solicitation and the construction contract bid advertisement. The city will manage those goals throughout the project doing commercially useful function reviews and reviewing invoices and progress reports. Additionally, the city will ensure that the Uniform Relocation Act is followed during the acquisition of all real property rights acquired as a part of this project.

Many parties will be involved as a part of this project. The City of Fort Worth will be the lead agency, acquiring the necessary right-of-way and administering the design and construction contracts. The BNSF Railroad will make a financial contribution to the project, NCTCOG will

partner with the city to ensure all federal programming requirements related to the TIP and LRTP are met and TxDOT will coordinate with the city on all federally related requirements. Additionally, the city will partner with the other applicable federal agencies including the FRA.

(h) Innovation

i Innovative Technologies

Since conceptual design began on this project city engineering and planning staff have been striving to incorporate innovation into this project. This is being accomplished through design features, financing and partnerships.

This project will include unique lighting features for both the shared-use path and the roadway. The barrier separated path will be designed with dedicated bicycle/pedestrian lights along the path, this will enhance both the safety and aesthetics of the facility. The roadway will be illuminated with motion sensor dimming lights, which have been reported to save up to 40% in energy costs.

Figure IV-6: Pedestrian Lighting Example

The stormwater aspects will be another part of the innovative design of this project. The regional MPO NCTCOG has adopted TriSWM design practices mentioned in more detail in section "b. Environmental Sustainability" of the application.

ii Innovative Project Delivery

The city is open to innovative project delivery but is anticipating to use the traditional design-bid-build delivery method. Innovative delivery methods on this project could include the use of ad-alts or value engineering.

iii Innovative Financing

The innovative financing associated with this project is the public/private partnership between the city and the BNSF railroad. Both entities realize the need for this project and will share in the cost of the local match. Additionally, residential developers have already or are in the

process of constructing the connecting roads and sidewalks to this proposed crossing. The contributions of these private entities to the project and adjacent infrastructure helps alleviate the financial burden from the public sector.

V. Project Readiness:

a. Environmental Risk

The city of Fort Worth has designed and constructed numerous federally funded transportation projects including those utilizing CMAQ, STBG and TA funding. These required full cooperation with TxDOT and adherence to the NEPA process and compliance with federal environmental requirements and permitting for all resource areas. With anticipated limited impacts to right-of-way and resources it is expected that this project will receive a NEPA classification of categorical exclusion. Additionally, all required permitting will be obtained and coordination with applicable state and federal regulatory agencies will occur during the project development process.

Table V-1: Environmental Impacts

Environmental Resources to Review		
Resource	Impact	Next Steps
Historical/cultural	The ground within the project areas is disturbed and no historical or cultural resources are expected but this will be verified	Additional review needed to verify no impacts
Wetland/Streams	The Big Fossil Creek is not located within the project limits but is nearby, minimal or no impacts expected	Additional review needed to verify no impacts
Threatened & Endangered Species	Some T&E species may be present	Additional review needed and consultation with the US Fish & Wildlife Services
Parkland	This project will not negatively impact parkland or recreational facilities but will instead provide better access to adjacent parkland	None expected
Floodplain	The project is located within the floodway	Additional review needed
Hazard Waste	Not Applicable	None expected
Farmland	Not Applicable	None expected
Community Impacts	Minimal right-of-way acquisition and traffic control issues during construction	Uniform Relocation Act will be followed and right-of-way and Maintenance of Traffic Impacts will be communicated at public meetings
Air Quality Impacts	Positive air quality impacts expected	None expected

b. Project Schedule

The below project schedule is conservative with opportunities for streamlining various tasks. The city will be able to complete all activities necessary to obligate all RAISE funds by June 30, 2026 and to expend all RAISE funds by September 30, 2031.

Table V-2: Project Schedule

	2023				2024				2025				2026				2027			
	Quarter																			
Task	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
RAISE Agreement Drafting & Execution	■	■																		
Design Consultant Procurement & Selection		■																		
Environmental Clearance Process			■	■	■															
Preliminary Plans (30%)			■	■	■															
Right-of-Way Acquisition						■	■	■	■											
Utility Coordination								■	■	■	■									
Final Plans								■	■	■	■									
Construction Contract Advertisement												■								
Contract Award													■							
Construction														■	■	■	■	■	■	■

Funding Obligation Deadline – June 30, 2026

c. Required Approvals

The city of Fort Worth has implemented numerous federally-funded projects and is aware of the environmental permitting requirements, as well as the associated timeline to complete them. The city will hire a consultant to design the project, and will likely include the environmental scope in the design contract. If necessary, city staff will begin the environmental work to expedite the process. Obtaining NEPA clearance and the required permits would be a first priority in project development. Based on the anticipated permitting and regulatory agency coordination, the city expects to obtain the required clearances and permits within the first year of the project development process. The city is aware that environmental clearance is required prior to right-of-way acquisition. Based on the city's proposed project schedule the environmental process will not affect the city's ability to achieve the obligation deadline of June 30, 2026.

The city has not started the NEPA process as of yet, but anticipates a Categorical Exclusion (CE) based on the project location and scope. If this project is awarded funds, the city will begin the NEPA process early on in project development. NEPA clearance is expected by Spring of 2024. The city has informed TXDOT regarding the scope of the project and their intent to submit the RAISE grant application.

Limited right-of-way is expected on this project, but a preliminary assessment and estimate for right-of-way cost has been done. A majority of the property rights needed will be temporary construction easements, it may be necessary to acquire small strips of right-of-way adjacent to the bridge approaches. The project design is in the conceptual phase, but the city will conduct public meetings during project and plan development to inform citizens regarding the scope and project impacts.

This project will cross a BNSF rail line, however inclusion in a state freight plan is not an expected requirement. It's a roadway project, although the city has been in discussions with the BNSF railroad regarding the project. BNSF is partnering with the city on this project, and is expected to make a financial contribution as part of the local match. This project has also been discussed with the region's MPO, NCTCOG. It is included in the region's long-range plan and if selected will be promptly added to NCTGOG's Transportation Improvement Program (TIP).

d. Assessment of Project Risks and Mitigation Strategies

Table V-3: Project Risks

Item	Risk	Mitigation
Railroad Coordination	Railroad coordination often can take considerable time and necessitates various agreements, plan reviews and design requirements	The BNSF railroad is a partner on this project and has been in discussions with the city. They are contributing financially to the project and will be engaged often during project development
Cost	The project budget/estimate is based on conceptual design and a more accurate estimate will be developed as design progresses, costs could increase significantly	A conservative estimate has been developed to account for inflation and unknown conditions. The city is prepared to value-engineer the project and cover any cost overruns
Right-of-Way Acquisition	The necessary real property rights are not fully known this early in design and can lead to delays if acquisition is drawn out	Preliminary review indicates a majority of the needed property rights are temporary construction easements. There is also flexibility in the design of approaches and connecting roads to limit right-of-way needs if necessary.

VI. Benefit Cost Analysis

A benefit-cost analysis was done to compare the expected benefits to the costs of the project shown below in Table VI-1. An analysis period of 22 years was utilized for the analysis, considering a two-year construction cost period and a 20-year benefit period. The benefits were monetized using the recommended monetized value tables from the "2022 benefit-cost analysis guidance for discretionary grant programs". The values were discounted by 7% as part of the analysis.

Table VI-1: Cost Benefit Analysis Summary

Metric	Discounted 7%
Total Discounted Benefits	$36.8
Total Discounted Costs	$24.1
Net Present Value	$12.7
Benefit-Cost Ratio	**1.53**

The main benefits of the project are related to time savings and vehicle operating costs. These savings are mainly due to the traffic that is projected to divert away from the adjacent roadways with at-grade crossings to the new Heritage Trace Parkway grade-separated crossing. Using modeling data provided by NCTCOG including traffic volumes and travel times between the build and no build scenarios. A conservative diversion rate was calculated to predict the number of vehicles that would detour to the new grade-separated crossing, this is explained in Table VI-2.

Table VI-2: Project Benefits

Benefit	Discounted 7%
Vehicle Operating Cost	$11.5
Time Saving	$25.2
Crash Reduction	$0.1
Total Estimated Benefits	**$36.8**

- **Time Saving**

A conservative 10% diversion rate was projected from both the daily traffic counts from the adjacent at-grade crossings of Bailey Boswell and Bonds Ranch. A buffering value was also added pre-diversion based on daily delay time due to blocked crossings. Then using the CBA guidance, a 1.48 occupancy rate was applied to the diverted counts and used to estimate annual time savings cost in the build scenario. The average time saved in the build scenario was provided by NCTCOG and multiplied by the $17.80 per hour was time savings benefit value from the guidance.

- **Vehicle Operating Cost**

Travel distance was calculated for the build scenario and the no-build for the two adjacent at-grade crossings. The diversion ratio was applied to the reduced distance for the build scenario, extrapolating an annual mileage savings. Then using the $0.45 vehicle operating cost from the guidance a cost savings was derived.

- **Crash Reduction**

The crash data over the past five years from the adjacent at-grade crossings was analyzed using the values of $4,600.00 and $302,600.00 from the guidance for vehicle and injury crashes respectively. Then applying the same 10% diversion rate an annual savings was determined.

There are additional benefits to this project that are difficult to monetize and have more qualitative benefits. The noise pollution benefits for diverting traffic away from an-at grade crossing under the build scenario is difficult to quantify. There are also health benefits related to the shared-use path in the build scenario, although without accurate pedestrian and bicycle counts and or a comparable facility it is hard to estimate.