Funding Application

**Competition**  Regional FHWA
**Application Type**  Corridors Serving Centers
**Status**  submitted
**Submitted:**  April 11th, 2022 4:10 PM
**Prepopulated with screening form?**  No

**Project Information**

1. **Project Title**
   I-5/SR 161/SR 18 Triangle Interchange Vicinity - Improvements

2. **Regional Transportation Plan ID**
   5535

3. **Sponsoring Agency**
   WSDOT Northwest Region in King County

4. **Cosponsors**
   N/A

5. **Does the sponsoring agency have "Certification Acceptance" status from WSDOT?**
   Yes

6. **If not, which agency will serve as your CA sponsor?**
   N/A

**Contact Information**

1. **Contact name**
   Azim Sheikh-Taheri

2. **Contact phone**
   206-440-4761

3. **Contact email**
   sheikaz@wsdot.wa.gov

**Project Description**

1. **Project Scope**
   This project will reconstruct the southbound I-5 to westbound SR 18 off-ramp to improve capacity and serve both eastbound and westbound SR 18 traffic, removing the existing southbound I-5 to eastbound SR 18 loop ramp, and construct the southbound I-5 to SR 161 off-ramp. In addition, the project will upgrade intersections by replacing the S 356th St./SR 161/16th Ave. S intersections with roundabouts and by widening and realigning the east leg of the SR 161/Milton Rd. S intersection. Work will include updating illumination, drainage, stormwater, pedestrian and bicycle facilities and constructing seven fish passable structures, with environmental impacts being mitigated as needed.

2. **Project Justification, Need, or Purpose**
   The I-5 SR 161/SR 18 “triangle” interchange experiences severe traffic congestion. This project is the second stage of a multi-stage project to improve mobility and safety in the interchange vicinity. The project will improve traffic flow and reduce congestion by reducing possible collision points and replacing two signalized intersections with a two-lane
### Project Location

1. **Project Location**  
   I-5 / SR 161 / SR 18 Vicinity

2. **Please identify the county(ies) in which the project is located. (Select all that apply.)**  
   King

3. **Crossroad/landmark nearest the beginning of the project**  
   I-5 MP 141.25

4. **Crossroad/landmark nearest the end of the project**  
   I-5 MP 142.78

5. **Map and project graphics**  
   - I-5_SR_161_SR_18_Triangle_Fish_Barrier_Removal_Locations.pdf,  
   - SR_161_S_356th_Roundabout_Design_Layout.pdf,  
   - I-5_SR_161_SR_18_Triangle_Vicinity_Map.pdf,  
   - I-5_SB_Off-Ramps_to_SR_18_Design_Layout.pdf,  
   - SR_161_Milton_Rd_Intersection_Design_Layout.pdf

### Plan Consistency

1. **Is the project specifically identified in a local comprehensive plan?**  
   Yes

2. **If yes, please indicate the (1) plan name, (2) relevant section(s), and (3) page number where it can be found.**  
   Yes, Federal Way's 2015 Comprehensive Plan, Chapter 3 Transportation, Page III-64

3. **If no, please describe how the project is consistent with the applicable local comprehensive plan, including specific local policies and provisions the project supports. In addition, please describe how the project is consistent with a transit agency plan or state plan, if applicable.**  
   N/A

### Federal Functional Classification

1. **Functional class name**  
   11 Urban Interstate

### Support for Centers

1. **Describe the relationship of the project to the center(s) it is intended to support. Identify the designated regional growth or manufacturing/industrial center(s) and whether or not the project is located within the center or along a corridor connecting to the center(s).**  
   This project will make improvements to I-5, which serves as a key regional connection to the Federal Way Regional Growth Center (RGC), which is located approximately 1.5 miles to the north of the project area.

   The 2013 PSRC Regional Centers Monitoring Report indicated that over half of the trips made from the Federal Way RGC are regional in nature, with destinations outside of the City of Federal Way. I-5 serves as the primary regional connection to and from the Federal Way RGC, connecting the center to employment and population centers including downtown Seattle, downtown Tacoma, SeaTac, and Tukwila. It also provides connections to major east-west regional routes including I-90 and SR 18.

   In its current condition, I-5 in the vicinity of the Triangle Interchange experiences significant AM and PM peak congestion primarily due to interchange weaving movements, and limited ramp capacity. This project, and subsequent phases will eliminate weaving movements and expand ramp capacity, addressing a key bottleneck and improving regional access to the Federal Way RGC and beyond.

### Criteria: Benefit to Regional Growth or Manufacturing/Industrial Center
1. **Describe how this project will benefit or support the housing and employment development in a regional growth center(s) and/or employment growth in a manufacturing/industrial center(s).** Does it support multiple centers? Please provide a citation of the relevant policies and/or specific project references in a subarea plan or in the comprehensive plan.

The improvements proposed as part of this application are consistent with many of the goals and policies of the City Center Element of the City of Federal Way Comprehensive Plan. These goals and policies were established to guide decision making about growth and development within Federal Way's City Center. Relevant goals include:

**CCG9:** Provide a balanced transportation network that accommodates public transportation, high occupancy vehicles, pedestrians, bicyclists, automobiles, and integrated parking.

Relevance: Improved conditions along I-5 will better accommodate both automobiles, and the high-capacity express bus routes that operate along I-5 and stop at the Federal Way Transit Center within the City Center. These routes include the Sound Transit 574, 577, 578, and 586 lines. This project has also been coordinated with Sound Transit to ensure consistency with future light rail expansion.

**CP39:** Continue to build a multimodal transportation system, as described in Chapter 3, "Transportation,"

Relevance: The City of Federal Way’s Comprehensive Plan Transportation Element referenced above, specifically includes the Triangle Interchange Project as a State led action that is supported by the City.

The PSRC profile for the Federal Way RGC also lists traffic congestion as one of the area’s key challenges. This project will improve congestion along I-5 and reduce stress on key parallel road networks identified within the City Center Plan including SR 99.

2. **Describe how the project will support the development/redevelopment plans and activities (objectives and aims) of the center.**

In addition to the policies and goals highlighted above, this project will specifically address the below development goal from City Center Element:

**CCP4:** Continue to develop a City Center that is the primary commercial area providing local goods and services to the surrounding neighborhoods and region, and to residents and employees within the center.

Relevance: I-5 serves as the primary regional connection linking the Federal Way City Center to other regional population and employment centers including Seattle, Downtown Tacoma, Sea Tac, and Tukwila. It also runs alongside many neighborhoods within the City of Federal Way, providing a direct connection to the City Center. By improving conditions along I-5, this project will increase regional and local access to businesses and services within the City Center.

3. **Describe how the project will benefit a variety of user groups, including commuters, residents, and/or commercial users.**

As described above, most trips within the Federal Way RGC are regional in nature, with many of these trips likely using the I-5 corridor. This is also true of commuter trips, which are over 11 miles on average according to the 2013 PSRC Regional Centers Monitoring Report. Of these work trips 79% are made by single occupancy vehicle (SOV), 9% by HOV, and 9% by transit. The improvements proposed in this project will improve congestion and travel time reliability along I-5, will improve regional travel to and from the Federal Way RGC for all these modes, including those driving in SOVs, those using I-5 HOV lanes, and those riding regional express buses.

As of 2010 there were no residents living within the Federal Way RGC, but Federal Way’s Urban Center Plan Element has established a goal of 2,521 new residential units to be constructed by 2040. Although many of these new residents may choose to work within the RGC, many will also likely rely on I-5 to access jobs across the region. The improvements proposed as part of this project will improve commute times on I-5, improving future resident’s access to regional employment opportunities and making living in the RGC more desirable.

This project will also benefit freight users. I-5 is a designated T-1 truck corridor, and is identified as the most important north-south interstate corridor in Washington by the WSDOT Freight System Plan. The section of I-5 within the project areas carries nearly 75 million tons of truck traffic per year, making it one of the busiest truck routes in the state. South 320th Street, the primary commercial corridor of the Federal Way RGC, is also classified as a T-3 truck Corridor, and improved conditions along I-5 will help freight to serve the RGC’s many commercial uses. This project will also improve connections from I-5 to SR 18, a T-1 classified freight route that provides connections to the Auburn Regional Growth Center and other regional freight destinations.
4. **Describe how the project will support the establishment of new jobs/businesses or the retention of existing jobs/businesses including those in the industry clusters identified in the adopted regional economic strategy.**

Over 90% of employment within the Federal Way RGC are within the Services and Retail sectors. Given the trip characteristics discussed above, most people patronizing these businesses are coming from outside of the City of Federal Way. This project will improve regional access to the RGC, ensuring that congestion is not a barrier for existing visitors and helping to attract new regional customers for local businesses. Improved regional access will also help to keep the RGC an attractive employment option for those already working within the center, most of whom are commuting from other places within the region.

**Criteria: Circulation, Mobility, and Accessibility**

1. **Describe how this project supports a long-term strategy to maximize the efficiency of the corridor, including TDM and activities and ITS improvements that use advanced technologies or innovative approaches to improve traffic flow. Describe the problem and how this project will remedy it.**

The "Triangle I-5/SR 18/SR 161" improvements have long been planned within the Washington Highway System Plan (HSP). Improvements to this system interchange have been in development for almost two decades and investments have been phased as funding was allocated. The Phase 2A project elements would improve safety, mobility, and reduce recurring congestion in one of the most congested segments of I-5. The planned improvements at the I-5/SR 18/SR 161 interchange in Federal Way build on safety improvements implemented in previous phases that removed high collision weaving sections of the legacy cloverleaf interchange. Phase 2A planned for construction in 2024 removes the remaining tight loop/weave sections. It provides new southbound exit to South 356th Street, rebuilds the existing exit to SR 18, and realigns the SR 161 intersection with Milton Road South/20th Avenue South. The I-5 corridor is part of the HOV System plan that is being extended through Tacoma. The HOV system includes Transportation System Management and Operations/ITS investments including cameras, detection, and weigh in motion that help manage and optimize the use of the corridor. SR 18, a T-1 freight classification and limited access freeway, terminates at I-5. These investments improve smooth traffic flow to and from I-5, continue to remove high volume weave and conflict sections, and calm traffic connections to city streets in Federal Way through the use of roundabouts.

2. **Describe how this project provides a “logical segment” that links to a regional growth or manufacturing/industrial center.**

Within the Washington State Freight plan (2017), SR 18 is rated as a T1 freight corridor providing a connection from the Ports of Tacoma and Seattle to the major east-west I-90 Corridor. Both I-5 and I-90 are transnational critical freight corridors. SR 18 provides access from these transnational corridors to regional growth centers and Manufacturing Industrial Centers in the Kent Valley along SR 167. Improvements to SR 18 will improve access to these centers specifically for freight. SR 18 provides a key connection or enhances access to the following PSRC centers:

- Port of Tacoma Manufacturing Industrial Center
- Kent Manufacturing Industrial Center
- Federal Way Region Growth Center
- Auburn Regional Growth Center
- Kent Regional Growth Center

3. **Describe how the project fills in a missing link or removes barriers to/from a center.**

The project improvements for Phase 2A will enhance I-5 access from SR 18 and improve travel time reliability by reducing recurring congestion and non-recurring congestion caused by collisions at the system interchange. The Phase 2A improvements reduce congestion for the large volume of freight using the T-1 route. SR 18 provides a direct limited access connection between transnational traffic east-west on I-90 and north-south on I-5 and avoids congestion experienced in the Puget Sound urban area. Additionally, the Triangle improvements enhance and better manage access from this SR 18 freeway terminus to the Federal Way Regional Growth Center local roadways. Proposed roundabouts slow traffic and eliminate angle collisions that can result in serious injuries.

4. **Describe how this project will relieve pressure or remove a bottleneck on the regional transportation system and how this will positively impact overall system performance.**

These Phase 2A improvements will organize and smooth high volume and higher velocity connections at the I-5/SR 18 system interchange. These improvements are designed to redistribute traffic to South 356th Street and SR 161 reducing stress on critical bottleneck intersections along SR 18 and South 348th Street. Improved flow on southbound I-5 would be realized along with reduced congestion for the freeway-to-freeway ramp from westbound SR 18 to southbound I-5.

5. **Describe how the project provides opportunities for active transportation that can lead to public health benefits.**
The Phase 2A elements would improve ramp terminals eliminating free flow movements at South 348th St. and SR 161 resulting in enhanced safety for pedestrians using these corridors. New roundabouts on South 356th Street between the I-5 off ramp and 16th Ave South will slow traffic considerably thus reducing impacts for vulnerable users such as pedestrians and bicyclists.

6. **Describe how the project provides or benefits a range of travel modes to users traveling to/from centers, or if it provides a missing mode.**

As a T-1 Freight Corridor, SR 18 provides a critical link in the supply chain in Washington State for agricultural and manufactured products crossing the state and connecting with the Ports of Tacoma and Seattle. The Phase 2A improvements will enhance circulation and access for freight and are coordinated with other regional investments along I-5. Implementation of roundabouts as part of the project will slow traffic accessing city streets in Federal Way, a Regional Growth Center. In addition to eliminating angle collisions for vehicles, roundabouts slow traffic and enhance safety for the most vulnerable users including bicyclists and pedestrians.

**Criteria: Equity**

1. **Identify the population groups to be served by the project.**

This project serves population groups of low income, people of color, people with disabilities, and people with limited English proficiency. The regional threshold of people with low income is 20.7%. The project area has populations of people with low income that exceed that threshold. The regional threshold of people of color is 35.9% and more than 50% of people in the project area are people of color. The regional threshold of persons with disabilities is 11%. The project area has populations of people with disabilities that exceed that threshold. The regional threshold of people with limited English proficiency is 8.5%. The project area has populations of people that exceed that threshold. Higher densities of these groups are to the west of I-5.

2. **Identify the disparities or gaps in the transportation system / services for these populations that need to be addressed.**

Currently communities to the west of I-5 are separated due to limited pedestrian and road access. Populations in this area are separated from safe access routes for leisure activities, shopping, grocery stores and emergency care facilities. Vulnerable populations have a higher tendency to walk or bike and currently those methods of transportation are not supported due to lack of sidewalks and protected bike lanes. Congested roadways lead to a feeling of decreased safety for pedestrians and bicyclists because of lack of designated space for those modes of transportation.

3. **Describe how the project is addressing those disparities or gaps and providing a benefit to the population groups identified under question 1 above.**

This project will reconstruct the SB I-5 to WB SR 18 off-ramp to improve capacity and serve both EB and WB SR 18 traffic, remove the existing SB I-5 to EB SR 18 loop ramp, and construct the SB I-5 to SR 161 off-ramp. In addition, the project will upgrade intersections by replacing the S 356th St/SR 161/16th Ave S intersections with roundabouts and by widening and realign the east leg of the SR 161/Milton Rd. S intersection.

SR 161 runs through the areas with the highest population of people with disadvantages and the terminus of SR 18 is on the border of this population area. I-5 serves as the divider of the populations. Connecting SR 161 to I-5 and SR 18 will better serve the communities in the project area. Upgrading pedestrian facilities to current ADA Standards will help persons with disabilities. Removing congestion in this area improves safety by providing pedestrians and bicyclists dedicated areas for travel. Improved connections to I-5 and SR 18 will provide residents with easier access to regionally significant places of employment including the nearby Federal Way and Auburn Regional Growth Centers. SR 18, SR 161 and I-5 will be better connected through this project.

4. **Describe the public outreach process that led to the development of the project.**

In 2015 a list of local and regional projects that are within the Triangle Project area was compiled by WSDOT and considerations and coordination were given to see how each project would influence this project’s design, schedule, and performance. Ongoing close coordination between the City of Federal Way and WSDOT (including presentations to the City of Federal Way Council as well as Project public open houses) have helped to integrate the planning and design of the Proposal with other relevant project schedules. To address the concerns of all population groups, notification was sent to all the residents potentially affected by this project inviting them to attend the Project public open houses. In April of 2016, an Interchange Justification Report (IJR) Amendment was completed, amending the original IJR completed in July 2008. This amendment discusses each project that this project is likely to impact or could be impacted by.

5. **Describe how this outreach influenced the development of the project.**

When this project was initially developed back in 2008 it was determined that there was not the available funding to be able to construct the entire project as it was originally scoped. Through the conversations with the City of Federal Way and local organizations it was...
determined that the project could be split into phases to have the most positive impact with the available budget. It was decided to split the project into multiple phases: Phase I (EB SR18 to NB I-5 ramp, WB SR18 to NB I-5 ramp, and WB SR18 to SB I-5 ramp) completed in 2012, Phase II (SB I-5 to WB 18 ramp, SB I-5 to SR 161 ramp, and NB I-5 to EB SR18 ramp) this current project, and Phase III (Weyerhaeuser Way to WB SR18 ramp, SR 161 crossing of I-5 bridge rebuild, and an added SB I-5 auxiliary lane at the WB SR18 to SB I-5 merge point) construction to be determined. In phasing this project, WSDOT has been able to work on procuring the necessary funds needed to build each part of the project while accounting for local projects’ impacts.

6. **Is the project in an area of low, medium, or high displacement risk?**
   This project is an area of low displacement risk.

7. **If the project is in an area of medium or high displacement risk, identify the broader mitigation strategies in place by the jurisdiction to address those risks.**
   Not Applicable.

**Criteria: Safety and Security**

1. **Describe how the project addresses safety and security.**
   The study area for determining safety impacts of this project include I-5 southbound, from just south of the S 320th Street southbound on-ramp to 1 mile south of the SR 18 westbound to southbound I-5 merge point; SR 18 westbound, from east of the I-5 northbound off-ramp to SR 99; SR 18 eastbound, from SR 99 to the eastbound off-ramp to Weyerhaeuser Way S; SR 161, from S 348th Street to Milton Road S; S 356th Street, from 16th Avenue S to the new I-5 southbound off-ramp terminal.

   Over the three-year analysis period following construction of Phase 1 (2012-2015), a total of 444 incidents were observed on I-5, including 1 fatality and 149 resulting in injury. There were 63 incidents on SR 18, with 23 resulting in injury, and an additional 19 incidents on SR 161, with 9 resulting in injury. An additional 95 incidents were observed on the ramps, with 28 resulting in injury, and 212 incidents at the intersections within the study area, with 64 resulting in injury.

   The project is expected to improve safety and reduce the number of crashes within the project area, particularly on the existing road facilities. Several segments within the project area show a projected decrease in volume which would also decrease the predicted crash frequency. Other project elements such as the removal of the southbound I-5 loop ramp and the replacement of two existing signalized intersections with a roundabout further contribute to an overall improvement in safety. Removal of the loop ramp improves safety by eliminating the tight turn radius and limited capacity of the ramp. Roundabouts typically reduce collisions by 37 percent when compared to traditional stop or signal-controlled intersections. There is a further 75 percent reduction in collisions resulting in injury and 90 percent reduction in fatal collisions. This is due to several factors including lower travel speeds, no speeding up to beat a traffic signal, and one-way travel which eliminates the possibility of both side impact and head-on collisions.

2. **Describe how the project helps protect vulnerable users of the transportation system, by improving pedestrian safety and addressing existing risks or conditions for pedestrian injuries and fatalities, and/or adding or improving facilities for pedestrian and bicycle safety and comfort.**
   Nonmotorized access is prohibited along the connections to and from I-5. However, the project does provide bike lanes, shared use paths and sidewalks along SR 161, 16th Avenue S and S 356th Street converging at a new roundabout. The roundabout replaces two existing signalized intersections at SR 161/S 356th Street and 16th Avenue S/S 356th Street.

   Pedestrian safety is improved by the design of the new roundabout. Refuge islands are provided on each approach allowing pedestrians to cross no more than two lanes of traffic at a time. The horizontal curvature of the approaches to the roundabout will also force vehicles to travel at lower speeds while in the vicinity of the marked crosswalks, further improving pedestrian safety.

   Bicyclist safety and comfort will also be improved by the new roundabout. The existing roadway does not provide marked bicycle facilities on the SR 161 approaches or through the existing intersections. The project includes designated bike lanes leading to shared use paths on the approach to the roundabout. Bicyclists and pedestrians will both utilize the shared use paths and marked crossings to navigate their way around the roundabout.

3. **Describe how the project reduces reliance on enforcement and/or designs for decreased speeds.**
   The project utilizes horizontal curvature as well as roundabouts to lower vehicular speeds. The off-ramp to S 365th Street, which terminates at a tear-drop roundabout, includes a painted chicane at the ramp divergence as an additional traffic calming measure. The SR 161/S 356th Street/16th Avenue S roundabout also incorporates additional design measures aimed at reducing speed. This includes grades of 4 percent or less for at least 100 feet on all
Does your agency have an adopted safety policy (e.g., Vision Zero, Target Zero, etc.)? How did these policies inform the development of the project?

WSDOT has adopted Target Zero, a goal of zero deaths and serious injuries on Washington’s roadways by 2030. To help address Target Zero goals, WSDOT takes a Practical Solutions approach. The project considered all reasonable alternatives to improve both safety and traffic circulation in the project area. A total of twelve build alternatives and twenty-two no-build/limited construction alternatives were developed and evaluated in a detailed screening process. The screening process included a two-level screening, a value analysis study, and further refinement of the Proposed Alternative.

Criteria: Air Quality and Climate Change

1. Please select one or more elements in the list below that are included in the project’s scope of work, and provide the requested information in the pages to follow.
   Bicycle and Pedestrian Facilities, Intelligent Transportation Systems

Air Quality and Climate Change: Bicycle and Pedestrian Facilities

1. Describe the facilities being added or improved
   The project provides improved connections for non-motorized users. New non-motorized facilities include bike lanes, shared use paths and sidewalks along SR 161, 16th Avenue S and S 356th Street converging at a new roundabout. The roundabout replaces two existing signalized intersections at SR 161/S 356th Street and 16th Avenue S/S 356th Street.

   The existing roadway does not provide marked bicycle facilities on the SR 161 approaches or through the existing intersections. The new bicycle facilities include designated bike lanes on four of the five approaches to the new SR 161/16th Avenue S/S 356th Street roundabout. Bicyclists will be directed to new shared use paths on the approach to the roundabout. Bicyclists and pedestrians will both utilize the shared use paths and marked crossings to safely navigate their way around the roundabout.

   For pedestrians, the project replaces existing sidewalks with new sidewalks or shared use paths. At the new roundabout, refuge islands are provided on each approach allowing pedestrians to cross no more than two lanes of traffic at a time.

2. What is the length of the proposed facility?
   The proposed bicycle/pedestrian facilities are approximately 4,000 feet in length.

3. Describe the connections to existing bicycle/pedestrian facilities and transit.
   There are existing bicycle facilities along 16th Avenue S, south of S 356th Street, and on the west leg of S 356th Street. The project will connect new bike lanes to the existing 16th Avenue S facility approximately 650 feet south of the roundabout. It connects to the S 356th Street facility approximately 250 feet west of the roundabout.

   Existing pedestrian facilities include sidewalks on both sides of SR 161, S 356th Street and 16th Avenue S. The project will tie-in to each of these existing facilities and maintain a seamless pedestrian connection through the corridor.

   Pierce Transit Route 402 – Meridian operates along SR 161 with four existing stops, two northbound and two southbound, within the project area. The first pair of stops are located at Milton Road S/20th Avenue S. The northbound stop is located on the near-side of the intersection while the southbound stop is located on the far-side. The second pair of stops are located at S 356th Street. Both are located on the far-side of the intersection. Route 402 connects Pierce County Airport in the south to the Federal Way Transit Center in the north. Pedestrian access is provided to each stop via sidewalks on both sides of SR 161.

   A Sound Transit Link light rail station is also scheduled to be constructed within the project vicinity as part of the Tacoma Dome Link Extension project. The current conceptual design places the future South Federal Way Station just north of the S 352nd Street intersection. Sidewalks on both sides of SR 161 will provide pedestrian access to the future station.

4. Describe the current bicycle/pedestrian usage in the project area. If known, provide information on the shift from single occupancy vehicles.
   Use regional default data.

5. What is the expected increase in bicycle/pedestrian usage from the project? If known, provide information on the shift from single occupancy vehicles
   Use regional default data.

6. What is the average bicycle trip length?
7. **What is the average pedestrian trip length?**
   Use regional default data.

8. **Please describe the source of the project data provided above (e.g., Environmental Impact Statement, EPA/DOE data, traffic study, survey, previous projects, etc.)**
   WSDOT’s 2019 Ramp and Roadway Report, which uses data collected from WSDOT traffic loops.

---

**Air Quality and Climate Change: Intelligent Transportation Systems and Corridor Efficiency**

1. **What is the existing level of service?**
   The current level of service (LOS) on southbound I-5 during the most congested weekday period (PM peak) is “F” based on known average vehicle speeds and segment densities within the interchange influence area.

2. **What are the existing number of lanes (in one direction)?**
   On southbound I-5 approaching the SR 18 interchange, total of five travel lanes are provided – four general purpose traffic lanes and one high-occupancy vehicle (HOV) lane. The I-5 southbound off-ramp to westbound SR 18 is a single-lane ramp that widens to three (3) lanes at its connection to SR 18. The I-5 southbound off-ramp to eastbound SR 18 is a single-lane ramp. The freeway-to.freeway ramp from westbound SR 18 to southbound I-5 is a two-lane ramp that splits with one lane to S 356th Street and the other lane to southbound I-5.

3. **What is the existing average daily traffic?**
   Based on WSDOT’s 2019 Ramp and Roadway traffic database, the weekday average daily traffic (ADT) volume on southbound I-5 approaching the SR 18 interchange is approximately 95,000 vehicles per day (general purpose plus HOV). Within the interchange area itself, significant on and off ramp traffic to/from SR 18 and S 356th Street adds to or reduces the southbound mainline ADT volume. However, south of SR 18 interchange the overall southbound weekday ADT volume remains similar to the northern (interchange approach) segment at approximately at 97,000 vehicles per day.

4. **What is the existing average speed?**
   Average vehicle speeds on southbound I-5 through the interchange study area (south of S 336th Street) can reach as low as 5 mph during the most congested weekday periods (specifically the PM peak period). This would translate to a peak period directional corridor level of service on I-5 (LOS) of “F”. Similar speeds (< 10 mph) exist on the freeway-to.freeway ramp from westbound SR 18 to southbound I-5 during the PM peak period as well as the I-5 southbound off ramp to SR 18.

5. **What are the ITS improvements being provided?**
   ITS elements will include speed/queue detection infrastructure for the reconstructed southbound I-5 off-ramp to SR 18 and the new southbound off-ramp connection to S 356th Street. In addition, new CCTV equipment would be installed for the new off-ramp S 356th Street to monitor traffic conditions for at the various arterial/freeway interfaces.

6. **How many intersections are being improved?**
   A total of five (5) intersections are either being modified or newly constructed.

7. **What is the length of the project?**
   The project covers an approximately 2.4-mile segment of I-5 between S 372nd Street in the south to S 336th Street in the north that includes the I-5/SR 18 interchange ramps.

8. **What is the percentage of freight truck traffic in the project area?**
   As described in the Interchange Justification Report (IJR) for the I-5/SR 18 Triangle interchange area, large freight vehicles along the segment of I-5 between SR 161 and SR 18 comprise approximately 7-10 percent of total traffic during a typical weekday. A similar proportion of trucks is found on SR 18 east of I-5. This high level of truck activity is due to trips originating or destined to the nearby manufacturing and industrial centers in Kent/Auburn, Tacoma and Seattle as well as interstate freight demands connecting to/from I-90.

9. **What is the expected improvement to level of service?**
   Use regional default data.

10. **What is the expected improvement to average speed?**
    Use regional default data.

11. **What is the expected improvement to average vehicle delay?**
    Use regional default data.
12. Please describe the source of the project data provided above (e.g., Environmental Impact Statement, EPA/DOE data, traffic study, survey, previous projects, etc.)
   WSDOT's 2019 Ramp and Roadway Report, which uses data collected from WSDOT traffic loops.

Air Quality and Climate Change: CMAQ Questions

1. For CMAQ projects: PSRC will utilize the “Useful Life” table included in the “Air Quality Guidance” document contained in the Call for Projects. If you have an alternate useful life figure for your project, please explain and provide the appropriate documentation supporting the deviation from the approved Useful Life table.
   N/A

2. For CMAQ projects: Is the project located as a 7 of 10 for diesel pollution and disproportionate impacts in the Washington Environmental Health Disparities map?
   N/A

Criteria: Project Readiness and Financial Plan

1. What is the PSRC funding source being requested?
   STP

2. Has this project received PSRC funds previously?
   No

3. If yes, please provide the project's PSRC TIP ID
   N/A

<table>
<thead>
<tr>
<th>Phase</th>
<th>Year</th>
<th>Alternate Year</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>construction</td>
<td>2025</td>
<td></td>
<td>$5,480,000.00</td>
</tr>
</tbody>
</table>

Total Request: $5,480,000.00

Total Estimated Project Cost and Schedule

PE

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Secured/Unsecured</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWA</td>
<td>Secured</td>
<td>$7,900,000.00</td>
</tr>
</tbody>
</table>

Expected year of completion for this phase: 2024

ROW

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Secured/Unsecured</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWA</td>
<td>Secured</td>
<td>$14,300,000.00</td>
</tr>
</tbody>
</table>

Expected year of completion for this phase: 2024

Construction

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Secured/Unsecured</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP</td>
<td>Secured</td>
<td>$5,480,000.00</td>
</tr>
<tr>
<td>CWA</td>
<td>Secured</td>
<td>$62,800,000.00</td>
</tr>
</tbody>
</table>

Expected year of completion for this phase: 2027
Summary

1. **Estimated project completion date**
   June 2027

2. **Total project cost**
   $90,480,000.00

Funding Documentation

1. **Documents**
   Funding_-_I-5SR_161SR_18_Triangle_Interchange_Vicinity_-_Improvements.pdf

2. Please enter your description of your financial documentation in the text box below.
   2015 Connecting Washington (CWA) funding package included this project.

Project Readiness: PE

1. Are you requesting funds for ONLY a planning study or preliminary engineering? 
   No

2. What is the actual or estimated start date for preliminary engineering/design? 
   5/1/2022

3. Is preliminary engineering complete? 
   No

4. What was the date of completion (month and year)? 
   N/A

5. Have preliminary plans been submitted to WSDOT for approval? 
   No

6. Are there any other PE/Design milestones associated with the project? Please identify and provide dates of completion. You may also use this space to explain any dates above.
   There are no other design milestones.

7. When are preliminary plans expected to be complete? 
   May 2024

Project Readiness: NEPA

1. What is the current or anticipated level of environmental documentation under the National Environmental Policy Act (NEPA) for this project? 
   Categorical Exclusion (CE)

2. Has the NEPA documentation been approved? 
   No

3. Please provide the date of NEPA approval, or the anticipated date of completion (month and year). 
   October 2022

Project Readiness: Right of Way

1. Will Right of Way be required for this project? 
   Yes

2. What is the actual or estimated start date for right of way? 
   11/8/2022

3. What is the estimated (or achieved) completion date for the right of way plan and funding estimate (month and year)? 
   October 2022

4. Please describe the right of way needs of the project, including property acquisitions, temporary construction easements, and/or permits.
   Anticipated Property Acquisition over six parcels with a combined total area of approximately 37,000 SF.
Twenty 20 temporary easements are anticipated.

Street Use Permits: Federal Way, King County.
Noise Variances: Federal Way, King County.

5. **What is the zoning in the project area?**
   Federal Way zoning -- Commercial Zones: CE – Commercial Enterprise and Multi-Family
   Zones: RM2400 – 1 Unit/2,400 SF
   King County zoning -- Multi-Family Residential and Single-Family Residential

6. **Discuss the extent to which your schedule reflects the possibility of condemnation and the actions needed to pursue this.**
   This project is currently planned to be delivered as a Design-Build project. The Right of Way (ROW) phase to start in late 2022 and Construction expected to start in Summer of 2024. The construction scheduling is to allow time for possible need for property condemnation.

   Potential affected property owners have been made aware of project impacts during the public outreach phase, which included a project Open House event. The design team will continue to refine the project selected alternative to minimize the projected ROW impacts.

7. **Does your agency have experience in conducting right of way acquisitions of similar size and complexity?**
   Yes

8. **If not, when do you expect a consultant to be selected, under contract, and ready to start (month and year)?**
   N/A

9. **In the box below, please identify all relevant right of way milestones, including the current status and estimated completion date of each.**
   - Right of Way Phase Start: 11/8/22
   - Right of Way Certification: 11/6/23
   - Right of Way Phase End: 5/28/24

**Project Readiness: Construction**

1. **Are funds being requested for construction?**
   Yes

2. **Do you have an engineer's estimate?**
   Yes

3. **Engineers estimate document**
   I-5_SR_161_SR_18_Triangle_Estimate.pdf

4. **Identify the environmental permits needed for the project and when they are scheduled to be acquired.**
   - 404 US Army Corps of Engineers -- July 2023
   - Coastal Zone Management Certification (CZM) -- July 2023
   - 401 Water Quality Certification -- July 2023
   - 402 NPDES Construction Stormwater General Permit -- July 2023
   - Hydraulic Project Approval (HPA) -- July 2023
   - Federal Way Local Critical Areas Permit -- July 2023
   - Federal Way Noise Variances -- July 2023

5. **Are Plans, Specifications & Estimates (PS&E) approved?**
   No

6. **Please provide the date of approval, or the date when PS&E is scheduled to be submitted for approval (month and year).**
   May 2024

7. **When is the project scheduled to go to ad (month and year)?**
   This is a Design-Build delivered project with a Request for Qualifications (RFQ) date in August 2023 and a Request for Proposal (RFP) date in December 2023 (Obligation of funds).

**Other Considerations**

1. **Describe any additional aspects of your project not requested in the evaluation criteria that could be relevant to the final project recommendation and decision-making process.**
   The Interchange Justification Report (IJR) for this project was approved in 2008 and amended in 2016. For the IJR’s approval and for other decisions made since that time, the City of
Federal Way has been an integral partner, providing comments as the project progressed to its current stage. The City of Federal Way has included this project in their Comprehensive Plan, most recently updated in 2015. They have been a strong supporter of the project through the public outreach process including multiple open houses (held for the entire project prior to 2008 and held for phase II in 2015) and stakeholder interviews (held in 2004). The City of Federal Way continues to support the improvements being made to the I-5 / SR 161 / SR 18 Triangle Interchange.

The I-5/SR 161/SR 18 Triangle Interchange Vicinity project, in conjunction with the Puget Sound Gateway Program, will support national and regional economies. By improving safety and reliability and reducing travel times, the project will improve the movement of goods throughout the region. It helps address regional inefficiencies in traffic flow and freight delivery that reduce the value of billions in prior investments. The requested grant has direct benefit to local cities, counties and Ports, and the entire region.

Project employs Design-Build contracting to obtain scale economies and streamline the project schedule.

2. Describe any innovative components included in your project: these could include design elements, cost saving measures, or other innovations.

The project will construct two roundabouts at the new S 356th Street off-ramp. One of the roundabouts replaces two existing signalized intersections at S 356th Street/16th Avenue S and S 356th Street/SR 161 which are approximately 125 feet apart. Roundabouts are shown to move traffic through an intersection quicker and with less congestion on approaching roads than signalized intersections. In addition to the safety benefits mentioned in previous sections, roundabouts also have lower long-term costs than signalized intersections. Typical hardware, maintenance and electrical costs for signalized intersections are roughly $5,000 to $10,000 per year, which are eliminated by the installation of the roundabout.

3. Describe the process that your agency uses to determine the benefits of projects; this could include formal cost-benefit analysis, practical design, or some other process by which the benefits of projects are determined.

A PreDesign study which includes a cost benefit analysis of alternative, Practical Solutions framework and the Basis of Design are used to confirm appropriate project scope and size. The Basis of Design is a practical decision making philosophy that considers each situation, aligns with WSDOT’s financially constrained budget environment, and encourages incremental, flexible, and sustainable investments by focusing on identified performance needs and engaging stakeholders at the right time. A component of the Basis of Design is an alternative analysis that weighs the benefits of costs of each alternative.

In respect to this project, a Value Engineering/Practical Design (VE/PD) study was conducted from December 2-4, 2014, with the findings presented at a workshop on December 8, 2014. The VE/PD team developed 48 ideas for the project that were then compared against the baseline concept developed by the project team. Those that were rated highest were further developed by the VE/PD team which resulted in a final list of 7 VE/PD recommendations. Following the VE/PD workshop, the project team reviewed the recommendations and incorporated them into the design.

4. Describe the jurisdiction’s Apprenticeship Utilization Program / Ordinance in place for projects over $1 million with at least 15% Apprenticeship Utilization or programs that prioritize the use of local hire and the diversification of the workforce.

All WSDOT contracts estimated to cost $2 million or more that were advertised on or after July 1, 2020 contain a 15% apprentice utilization requirement. Apprentice utilization requirements for WSDOT projects are tracked using L&I’s Prevailing Wage Intents and Affidavits (PWIA) system.

The threshold for including the apprentice utilization requirement is established in accordance with RCWs 39.04.300, 39.04.310 & 39.04.320.

WSDOT Apprentice Utilization Program Special Provision

Definitions

For the purposes of this specification the following definitions apply:

1. Apprentice is a person enrolled in a State-approved Apprenticeship Training Program.
2. Apprentice Utilization Requirement is the Apprentice labor hours expressed as a percentage of the project Labor Hours.
3. Good Faith Effort (GFE) is used if the Contractor doesn’t meet the Apprentice Utilization Requirement. It describes the Contractor’s efforts to meet the Apprentice Utilization Requirement including but not necessarily limited to the specific steps as described elsewhere in this specification.
4. Labor Hours are the total hours performed by all workers receiving an hourly wage who are directly employed upon the project including hours performed by workers employed by the Contractor and all Subcontractors. Labor Hours do not include hours performed by foremen, superintendents, owners, and workers who are not subject to prevailing wage requirements.
Electronic Reporting

The Contractor shall use the application available at https://RemoteApps.wsdot.wa.gov/Construction/Training/Apprenticeship/ to submit the “Apprentice Utilization Plan”, “Statement of Apprentice/Journeyman Participation” and to submit “Good Faith Effort” documentation. After execution of the Contract, the Contractor shall send an e-mail to apprenticeship@wsdot.wa.gov containing the following information: the first and last name, e-mail address, title and phone number of the person that will be submitting the above documents for their company. The e-mail shall include the WSDOT contract number they will be reporting on. After receipt of this information by WSDOT, the Contractor will receive an e-mail containing their username and password for the application and a link to the application. Reporting instructions are available in the application.

Apprentice Utilization Plan

The Contractor shall submit an “Apprentice Utilization Plan” by filling out the Apprentice Utilization Plan template in the electronic reporting application within 30 calendar days of execution, demonstrating how and when they intend to achieve the Apprentice Utilization Requirement. The Plan shall be in sufficient detail for the Engineer to track the Contractor’s progress in meeting the utilization requirements and be updated and resubmitted as the Work progresses or when ordered by the Engineer.

If the Contractor is unable to demonstrate ability to meet the Apprentice Utilization Requirement in their Apprentice Utilization Plan, they must submit GFE documentation to the Engineer for review and comment with their Apprentice Utilization Plan. The GFE shall be sent to the Engineer and also uploaded into the electronic reporting application. The Contractor shall actively seek out opportunities to meet the Apprentice Utilization Requirement during the construction Work.

Reporting

The Contractor shall submit a “Statement of Apprentice /Journeyman Participation” on a monthly basis. The report shall be submitted to the Engineer by the last day of the subsequent month, until the Physical Completion Date. The data reported shall include the Contractor and all Subcontractors. At the Contractor’s request, the Engineer may suspend this reporting requirement during periods of minimal or no applicable work activities on the project.

Compliance

In the event that the Contractor is unable to achieve the Apprentice Utilization Requirement, the Contractor shall submit to the Engineer GFE documentation for review and approval. The GFE documentation shall be sent to the Engineer and also uploaded into the electronic reporting application. The GFE documentation shall be submitted after Substantial Completion but no later than 30 days after Physical Completion. If GFE documentation was previously submitted as part of the Apprentice Utilization Plan, it shall be updated and resubmitted after Substantial Completion but no later than 30 days after Physical Completion.

If the Contractor fails to submit GFE documentation or if the Engineer does not approve the GFE, the Contractor will be subject to disciplinary actions as allowed under WAC 468-16-180.

Good Faith Efforts

The GFE shall describe in detail why the Contractor is not or was not able to attain the Apprentice Utilization Requirement. The GFE documentation shall address one or more of the following areas:

1. Correspondence on solicitation of Apprentices from a State-approved Apprenticeship Training Program(s), and the response from the solicited State-Approved Apprenticeship Training Program(s) when there is a lack of availability of Apprentices.

2. Provide documentation that shows Contract requirements for TERO, Special Training or Disadvantage Business Enterprise requirements affect the ability to obtain Apprentice Labor Hours on the Contract.

3. Provide documentation demonstrating what efforts the Contractor has taken to require Subcontractors to solicit and employ Apprentices. Documentation could be posters placed on site, emphasis in subcontracts about employing Apprentices, letters, memos or other correspondence from Contractor to Subcontractor that put an emphasis on employing Apprentices.

Contractors may receive a GFE credit for graduated Apprentice hours through the end of the calendar year for all projects worked on as long as the Apprentice remains continuously employed.
employed with the same Contractor they were working for when they graduated. If an Apprentice graduates during employment on a project of significant duration, they may be counted towards a GFE credit for up to one year after their graduation or until the end of the project (whichever comes first). Determination of whether or not Contract requirements were met in good faith will be made by subtracting the hours from the journeyman total reported hours for the project and adding them to the apprentice hour total. If the new utilization percentage meets the Contract requirement, the Contractor will be reported as meeting the requirement in good faith.

5. **Final documents**

   N/A
### Executive TEIS - Capital Projects System
### Project Detail With Fund Types

#### I-5/SR 161/SR 18 Triangle Interchange Vicinity - Improvements

<table>
<thead>
<tr>
<th>ProjectID(PIN):</th>
<th>100501K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description:</td>
<td>Interchange Improvements</td>
</tr>
<tr>
<td>Book Description:</td>
<td>Construct improvements to the interchange which may include a NB auxiliary lane on I-5, a two lane ramp from NB I-5 to SR 18 and new access ramps to SR 161 from SB I-5.</td>
</tr>
<tr>
<td>Route:</td>
<td>Interstate 5</td>
</tr>
<tr>
<td>Mile Posts:</td>
<td>141.25 - 142.78</td>
</tr>
<tr>
<td>DOT Region:</td>
<td>Northwest</td>
</tr>
<tr>
<td>County:</td>
<td>King</td>
</tr>
<tr>
<td>Congressional District(s):</td>
<td>09</td>
</tr>
<tr>
<td>Legislative Districts(s):</td>
<td>30</td>
</tr>
<tr>
<td>Major Corridor:</td>
<td>I-5, Puget Sound Area - Improvements</td>
</tr>
<tr>
<td>Project Origin:</td>
<td>Unassigned</td>
</tr>
<tr>
<td>Location:</td>
<td>Federal Way</td>
</tr>
</tbody>
</table>

#### PROJECT STATUS

<table>
<thead>
<tr>
<th>Phase</th>
<th>Start Date</th>
<th>End Date</th>
<th>Phase Status</th>
<th>Actl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Engineering</td>
<td>09/01/2022</td>
<td>05/28/2024</td>
<td>Active Delivery Project</td>
<td></td>
</tr>
<tr>
<td>Right of Way</td>
<td>11/08/2022</td>
<td>05/28/2024</td>
<td>Program in STIP</td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>04/16/2024</td>
<td>06/30/2027</td>
<td>Program in STIP</td>
<td></td>
</tr>
</tbody>
</table>

#### PROJECT COSTS

<table>
<thead>
<tr>
<th>Phase/Fund Type</th>
<th>Prior</th>
<th>19 - 21</th>
<th>21 - 23</th>
<th>23 - 25</th>
<th>25 - 27</th>
<th>27 - 29</th>
<th>29 - 31</th>
<th>31 - 33</th>
<th>33 - 35</th>
<th>35 - 37</th>
<th>Future</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary Engineering</td>
<td></td>
<td>0</td>
<td>4,579,759</td>
<td>3,320,241</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7,900,000</td>
</tr>
<tr>
<td>State - CWA</td>
<td>0</td>
<td>0</td>
<td>4,579,759</td>
<td>3,320,241</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7,900,000</td>
</tr>
<tr>
<td>Right of Way</td>
<td>0</td>
<td>0</td>
<td>5,000,000</td>
<td>9,300,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14,300,000</td>
</tr>
<tr>
<td>State - CWA</td>
<td>0</td>
<td>0</td>
<td>5,000,000</td>
<td>9,300,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14,300,000</td>
</tr>
<tr>
<td>Construction</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17,800,000</td>
<td>45,000,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>62,800,000</td>
</tr>
<tr>
<td>State - CWA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17,800,000</td>
<td>45,000,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>62,800,000</td>
</tr>
</tbody>
</table>

<p>| Project Totals  | 0     | 0       | 9,579,759 | 30,420,241 | 45,000,000 | 0       | 0       | 0       | 0       | 0       | 0       | 85,000,000 |
| State - CWA     | 0     | 0       | 9,579,759 | 30,420,241 | 45,000,000 | 0       | 0       | 0       | 0       | 0       | 0       | 85,000,000 |</p>
<table>
<thead>
<tr>
<th>Bid Item No.</th>
<th>Work Item</th>
<th>Unit Price</th>
<th>Unit</th>
<th>Qty</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>0025</td>
<td>Clearing and Grubbing</td>
<td>$30,000.00</td>
<td>ACRE</td>
<td>15</td>
<td>$444,000</td>
</tr>
<tr>
<td>0050</td>
<td>Removal of Structures and Obstructions</td>
<td>$</td>
<td>L.S.</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>0100</td>
<td>Removing Cement Conc. Sidewalk</td>
<td>$30.00</td>
<td>S.Y.</td>
<td>3,110</td>
<td>$93,300</td>
</tr>
<tr>
<td>0108</td>
<td>Removing Cement Conc. Curb and Gutter</td>
<td>$10.00</td>
<td>L.F.</td>
<td>2,555</td>
<td>$25,550</td>
</tr>
<tr>
<td>0120</td>
<td>Removing Asphalt Conc. Pavement</td>
<td>$7.50</td>
<td>S.Y.</td>
<td>28,307</td>
<td>$212,303</td>
</tr>
<tr>
<td>0145</td>
<td>Removing Conc. Barrier</td>
<td>$15.00</td>
<td>L.F.</td>
<td>228</td>
<td>$3,420</td>
</tr>
<tr>
<td>0170</td>
<td>Removing Guardrail</td>
<td>$10.00</td>
<td>L.F.</td>
<td>4,838</td>
<td>$48,380</td>
</tr>
<tr>
<td>0182</td>
<td>Removing Guardrail Anchor</td>
<td>$500.00</td>
<td>EACH</td>
<td>7</td>
<td>$3,500</td>
</tr>
<tr>
<td>0230</td>
<td>Removing Wire Fence</td>
<td>$10.00</td>
<td>L.F.</td>
<td>2,818</td>
<td>$28,180</td>
</tr>
<tr>
<td>0310</td>
<td>Roadway Excavation Incl Haul</td>
<td>$45.00</td>
<td>C.Y.</td>
<td>65,987</td>
<td>$2,969,402</td>
</tr>
<tr>
<td>0431</td>
<td>Gravel Borrow Incl Haul</td>
<td>$25.00</td>
<td>TON</td>
<td>61,041</td>
<td>$1,526,024</td>
</tr>
<tr>
<td>0470</td>
<td>Embankment Compaction</td>
<td>$5.00</td>
<td>C.Y.</td>
<td>24,947</td>
<td>$124,734</td>
</tr>
<tr>
<td>4119</td>
<td>SEW Traffic Barrier</td>
<td>$450.00</td>
<td>L.F.</td>
<td>3,040</td>
<td>$1,368,000</td>
</tr>
<tr>
<td>xxxx</td>
<td>Bridge Lump Sum (including bridge approach slabs, curtain walls, and wingwalls)</td>
<td>$3,900,000.00</td>
<td>L.S.</td>
<td>1</td>
<td>$3,900,000</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - LW_W (Wire Mesh Wall)</td>
<td>$50.00</td>
<td>S.F.</td>
<td>9,020</td>
<td>$451,000</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - NS-01_W (Wire Mesh Wall)</td>
<td>$50.00</td>
<td>S.F.</td>
<td>440</td>
<td>$22,000</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - NS-04_E1 (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>5,223</td>
<td>$365,610</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - NS-04_ABU (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>128</td>
<td>$8,960</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - NS-04_E2 [east wingwalls at northern end of bridge] - included in bridge lump sum</td>
<td>$</td>
<td>S.F.</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - NS-04_W1 (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>9,039</td>
<td>$632,730</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - NS-04_W2 (west wingwalls at northern end of bridge) - included in bridge lump sum</td>
<td>$</td>
<td>S.F.</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - R-SW_W1 (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>325</td>
<td>$22,750</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - R-SW_W2 (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>3,991</td>
<td>$279,370</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - R-SW_E1 (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>1,427</td>
<td>$99,890</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - R-SW_E2 (SEW Wall)</td>
<td>$70.00</td>
<td>S.F.</td>
<td>3,991</td>
<td>$237,860</td>
</tr>
<tr>
<td>xxxx</td>
<td>Retaining Wall - R-SW_E2 (Soldier Pile Wall)</td>
<td>$350.00</td>
<td>S.F.</td>
<td>1,091</td>
<td>$381,850</td>
</tr>
<tr>
<td>5100</td>
<td>Crushed Surfacing Base Course</td>
<td>$50.00</td>
<td>TON</td>
<td>14,734</td>
<td>$736,682</td>
</tr>
<tr>
<td></td>
<td><strong>Cement Concrete Pavement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5625</td>
<td>Cement Conc. Pavement</td>
<td>$250.00</td>
<td>C.Y.</td>
<td>1,966</td>
<td>$491,500</td>
</tr>
<tr>
<td></td>
<td><strong>Liquid Asphalt</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>xxxx</td>
<td>Anti-Stripping Additive</td>
<td>$1.00</td>
<td>EST.</td>
<td>1</td>
<td>$1</td>
</tr>
<tr>
<td>Bid Item No.</td>
<td>Work Item</td>
<td>Unit Price</td>
<td>Unit</td>
<td>Qty</td>
<td>Cost</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------</td>
<td>--------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>5767</td>
<td>Hot Mix Asphalt</td>
<td>$145.00</td>
<td>TON</td>
<td>18,258</td>
<td>$2,647,466</td>
</tr>
<tr>
<td>5830</td>
<td>Job Mix Compliance Price Adjustment</td>
<td>$1.00</td>
<td>CALC</td>
<td>132,373</td>
<td>$132,373</td>
</tr>
<tr>
<td>5835</td>
<td>Compaction Price Adjustment</td>
<td>$1.00</td>
<td>CALC</td>
<td>132,373</td>
<td>$132,373</td>
</tr>
<tr>
<td>xxx</td>
<td>Erosion Control &amp; Planting</td>
<td>$2,000,000</td>
<td>L.S.</td>
<td>1</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>xxx</td>
<td>TESC Lump Sum</td>
<td>$657,500</td>
<td>L.S.</td>
<td>1</td>
<td>$657,500</td>
</tr>
<tr>
<td>6698</td>
<td>Roundabout Splitter Island Nosing Curb</td>
<td>$200.00</td>
<td>EACH</td>
<td>6</td>
<td>$1,200</td>
</tr>
<tr>
<td>6699</td>
<td>Roundabout Cement Concrete Curb and Gutter (Curb 2)</td>
<td>$35.00</td>
<td>L.F.</td>
<td>2,697</td>
<td>$94,395</td>
</tr>
<tr>
<td>6700</td>
<td>Cement Conc. Traffic Curb and Gutter</td>
<td>$30.00</td>
<td>L.F.</td>
<td>5,082</td>
<td>$152,460</td>
</tr>
<tr>
<td>6708</td>
<td>Roundabout Central Island Cement Concrete Curb (Curb 3)</td>
<td>$30.00</td>
<td>L.F.</td>
<td>637</td>
<td>$19,110</td>
</tr>
<tr>
<td>6709</td>
<td>Roundabout Truck Apron Outer Cem. Conc. Curb And Gutter (Curb 1)</td>
<td>$30.00</td>
<td>L.F.</td>
<td>909</td>
<td>$27,270</td>
</tr>
<tr>
<td>6757</td>
<td>Beam Guardrail Type 31</td>
<td>$35.00</td>
<td>L.F.</td>
<td>1,583</td>
<td>$55,405</td>
</tr>
<tr>
<td>6760</td>
<td>Beam Guardrail Transition Section Type 21</td>
<td>$7,500.00</td>
<td>EACH</td>
<td>2</td>
<td>$15,000</td>
</tr>
<tr>
<td>6716</td>
<td>Beam Guardrail Type 31 Flared Terminal</td>
<td>$3,500.00</td>
<td>EACH</td>
<td>3</td>
<td>$10,500</td>
</tr>
<tr>
<td>6774</td>
<td>Beam Guardrail Anchor Type 4</td>
<td>$750.00</td>
<td>EACH</td>
<td>3</td>
<td>$2,250</td>
</tr>
<tr>
<td>6807</td>
<td>Cast-In-Place Conc. Barrier</td>
<td>$125.00</td>
<td>L.F.</td>
<td>986</td>
<td>$123,250</td>
</tr>
<tr>
<td>6828</td>
<td>Plastic Line (White Edge Line)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>14,272</td>
<td>$61,948</td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Yellow Edge Line)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>7,062</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Lane Line)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>5,939</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Solid Lane Line)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>816</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Double Yellow Centerline)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>1,621</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Two-Way Left-Turn Centerline)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>850</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Dotted Lane Line)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>291</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Line (Dotted Extension Line)</td>
<td>$2.00</td>
<td>L.F.</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>6857</td>
<td>Plastic Wide Lane Line (Wide Dotted Circulating Lane Line)</td>
<td>$4.00</td>
<td>L.F.</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td>6859</td>
<td>Plastic Wide Lane Line (Wide Dotted Extension Lane Line)</td>
<td>$4.00</td>
<td>L.F.</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>6867</td>
<td>Plastic Wide Lane Line (Wide Dotted Lane Line)</td>
<td>$4.00</td>
<td>L.F.</td>
<td>1,620</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Wide Lane Line (Wide Lane Line)</td>
<td>$4.00</td>
<td>L.F.</td>
<td>4,787</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plastic Wide Lane Line (Wide Solid Circulating Lane Line)</td>
<td>$4.00</td>
<td>L.F.</td>
<td>390</td>
<td></td>
</tr>
<tr>
<td>6857</td>
<td>Plastic Crosswalk Line</td>
<td>$9.00</td>
<td>S.F.</td>
<td>868</td>
<td>$7,812</td>
</tr>
<tr>
<td>6859</td>
<td>Plastic Stop Line</td>
<td>$8.00</td>
<td>L.F.</td>
<td>112</td>
<td>$896</td>
</tr>
<tr>
<td>6833</td>
<td>Plastic Traffic Arrow</td>
<td>$300.00</td>
<td>EACH</td>
<td>29</td>
<td>$8,700</td>
</tr>
<tr>
<td>6867</td>
<td>Plastic Bicycle Lane Symbol</td>
<td>$350.00</td>
<td>EACH</td>
<td>14</td>
<td>$4,900</td>
</tr>
<tr>
<td>9238</td>
<td>Plastic Yield Line Symbol</td>
<td>$95.00</td>
<td>EACH</td>
<td>56</td>
<td>$5,320</td>
</tr>
<tr>
<td>xxx</td>
<td>Signing Lump Sum</td>
<td>$532,500.00</td>
<td>L.S.</td>
<td>1</td>
<td>$532,500</td>
</tr>
<tr>
<td>xxx</td>
<td>ITS Lump Sum</td>
<td>$192,000.00</td>
<td>L.S.</td>
<td>1</td>
<td>$192,000</td>
</tr>
<tr>
<td>xxx</td>
<td>Illumination Lump Sum</td>
<td>$422,500.00</td>
<td>L.S.</td>
<td>1</td>
<td>$422,500</td>
</tr>
<tr>
<td>6847</td>
<td>Plastic Wide Dotted Entry Line</td>
<td>$6.00</td>
<td>L.F.</td>
<td>295</td>
<td>$1,770</td>
</tr>
<tr>
<td>6822</td>
<td>Plastic Crosshatch Marking (Yellow Diagonal Crosshatch Line)</td>
<td>$6.00</td>
<td>L.F.</td>
<td>440</td>
<td>$4,362</td>
</tr>
<tr>
<td></td>
<td>Plastic Crosshatch Marking (White Chevron Crosshatch Line)</td>
<td>$6.00</td>
<td>L.F.</td>
<td>287</td>
<td></td>
</tr>
<tr>
<td>Bid Item No.</td>
<td>Work Item</td>
<td>Unit Price</td>
<td>Unit</td>
<td>Qty</td>
<td>Cost</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------------------------------------</td>
<td>------------</td>
<td>------</td>
<td>-----</td>
<td>--------------</td>
</tr>
<tr>
<td>7003</td>
<td>Type B Progress Schedule</td>
<td>$15,000.00</td>
<td>L.S.</td>
<td>1</td>
<td>$15,000.00</td>
</tr>
<tr>
<td>7055</td>
<td>Cement Conc. Sidewalk</td>
<td>$50.00</td>
<td>S.Y.</td>
<td>3,643</td>
<td>$182,150</td>
</tr>
<tr>
<td>7059</td>
<td>Cement Conc. Driveway Entrance Type 1</td>
<td>$70.00</td>
<td>S.Y.</td>
<td>418</td>
<td>$29,260</td>
</tr>
<tr>
<td>7059</td>
<td>Cement Conc. Driveway Entrance Type 3</td>
<td>$60.00</td>
<td>S.Y.</td>
<td>239</td>
<td>$14,340</td>
</tr>
<tr>
<td>7058</td>
<td>Cement Conc. Curb Ramp Type - Combination</td>
<td>$6,500.00</td>
<td>EACH</td>
<td>10</td>
<td>$65,000</td>
</tr>
<tr>
<td>7480</td>
<td>Roadside Cleanup</td>
<td>$160,000.00</td>
<td>L.S.</td>
<td>1</td>
<td>$160,000</td>
</tr>
<tr>
<td>7725</td>
<td>Reimbursement for Third Party Damage</td>
<td>$10,000.00</td>
<td>EST.</td>
<td>1</td>
<td>$10,000</td>
</tr>
<tr>
<td>7736</td>
<td>SPCC Plan</td>
<td>$10,000.00</td>
<td>L.S.</td>
<td>1</td>
<td>$10,000</td>
</tr>
<tr>
<td>xxxx</td>
<td>Increased Sensitive Area Impacts</td>
<td>$1,140,000.00</td>
<td>L.S.</td>
<td>1</td>
<td>$1,140,000</td>
</tr>
</tbody>
</table>

**Subtotal for Percentages**

<table>
<thead>
<tr>
<th>Item</th>
<th>Percentage</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drainage</td>
<td>15%</td>
<td>$3,516,657</td>
</tr>
<tr>
<td>Construction Traffic Control</td>
<td>35%</td>
<td>$8,205,534</td>
</tr>
<tr>
<td><strong>Construction Subtotal:</strong></td>
<td></td>
<td><strong>$35,166,574</strong></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>30%</td>
<td>$10,549,972</td>
</tr>
<tr>
<td>Construction Subtotal:</td>
<td></td>
<td><strong>$45,716,546</strong></td>
</tr>
<tr>
<td>Mobilization</td>
<td>10%</td>
<td>$4,571,655</td>
</tr>
<tr>
<td><strong>Subtotal:</strong></td>
<td></td>
<td><strong>$50,288,200</strong></td>
</tr>
<tr>
<td>Sales Tax</td>
<td>9.5%</td>
<td>$4,777,379</td>
</tr>
<tr>
<td><strong>Subtotal:</strong></td>
<td></td>
<td><strong>$55,065,579</strong></td>
</tr>
<tr>
<td>Construction Engineering</td>
<td>20%</td>
<td>$11,013,116</td>
</tr>
<tr>
<td>and Contingencies</td>
<td>4%</td>
<td>$2,202,623</td>
</tr>
<tr>
<td><strong>Construction Total:</strong></td>
<td></td>
<td><strong>$68,281,318</strong></td>
</tr>
<tr>
<td>R/W</td>
<td>EST.</td>
<td>$14,300,000</td>
</tr>
<tr>
<td><strong>R/W Total:</strong></td>
<td></td>
<td><strong>$14,300,000</strong></td>
</tr>
<tr>
<td>Preliminary Engineering:</td>
<td></td>
<td><strong>$7,900,149</strong></td>
</tr>
<tr>
<td><strong>Total Preliminary Engineering:</strong></td>
<td></td>
<td><strong>$7,900,149</strong></td>
</tr>
</tbody>
</table>

**Project Costs:**

| Total                  | $90,482,000 |

---

3 of 3 4/8/2022
Figure 1. Project Vicinity Map

I-5: SR 161 / SR 18 Interchange Improvements Phase II
I-5 SB Off-Ramps to SR 18
Proposed Design
I-5/SR 161/SR 18 Triangle Fish Barrier Locations

Construct 7 Fish Passable Structures

ID# 935271
ID# 995293
ID# 995298
ID# 995297
ID# 935292
ID# 995295
ID# 995296