

# TRANSPORTATION MANAGEMENT PLAN

## XL 5275 – I-90/3<sup>rd</sup> Ave Bridge – Special Repair EB MP 280.80 to MP 282.25

January 25, 2017

### WASHINGTON STATE DEPARTMENT OF TRANSPORTATION EASTERN REGION SPOKANE COUNTY, WASHINGTON

#### **Project Description:**

The project, I-90/3<sup>rd</sup> Ave Bridge – Special Repair, MP 280.80 to MP 282.25 is located in Spokane County within the City of Spokane Corporate Limits. This preservation project will rehabilitate existing structures 90/546 (Spokane Viaduct Lincoln to Division) and 90/562 (3<sup>rd</sup> Ave. Bridge) to preserve the structural integrity.

Rehabilitation work consists of the following expansion joint repairs:

#### **Structure 90/546**

An intermediate expansion joint in the eastbound direction at MP 280.90 will be repaired by removing and reconstructing the headers and the joint material.

The east end expansion joints in both directions at MP 281.32 will be repaired by removing and reconstructing the headers and the joint material.

#### **Structure 90/562**

The east end expansion joint in the eastbound direction at MP 282.24 will be repaired by removing and replacing 5 feet of bridge deck, demolishing and rebuilding a portion of the end diaphragm, installing new expansion joints and header material, constructing a wider pavement seat, and removing and replacing the bridge approach slab.

Additionally, the Portland cement concrete (PCCP) panels adjacent to the bridge approach slabs for both the EB and WB structures will be removed and replaced.

Other work includes restriping the lanes, temporary signage and traffic control items.

#### **Facility Description:**

This section of I-90 is a six lane urban interstate highway, three lanes in each direction with a 10 foot outside shoulder and a four foot inside shoulder through downtown Spokane where there are several on and off ramps. The current Average Daily Traffic (ADT) total volumes on this section of I-90 range from 84,000 to 115,000 vehicles according to the 2015 Annual Traffic Report, and confirmed by the WSDOT Traffic GeoPortal. The number of trucks, measured from the nearest Permanent Traffic Recorder (PTR) locations R113 at MP 278.80 and R036 at MP 285.23 along I-90, total 9 and 6 percent respectively. The posted speed limit is 60 mph.

#### **Traffic Operations Plan:**

#### ***Project Hours & Duration:***

Project construction will begin spring 2017. The project is anticipated to be completed in 45 working days. Construction operations are anticipated to be 24 hours per day and 7 days a week until work is

completed. Eastern Region's analysis of recent traffic patterns reveals construction activities requiring lane closures should be restricted to night-time only; however, due to the need for concrete removal/expansion joint placement, and necessary concrete cure time, it will be necessary to keep lanes closed through the daytime hours and the contractor will be required to work around the clock to minimize the impact to the traveling public.

The contractor will also be allowed to restrict traffic down to one lane to set up and remove the work zones between the hours of 10:00 p.m. to 5:00 a.m. This operation will require a communication plan and outreach to keep the public informed about project progress, current traffic status, and project activities.

The work zones will be protected by temporary barrier. Temporary restriping of I-90 will be necessary to provide 2 lanes of operation in each direction per the requirements above. Staging Plans will detail the temporary striping and shifting of the traffic lanes onto the existing shoulder. Temporary concrete barrier for the work zone will be placed eastbound direction, MP 280.59 to MP 282.68 and westbound direction will be MP 282.68 to MP 282.04 and MP 281.69 to MP 281.21. The barrier locations shown here are approximate and will be refined as the work zone design is finalized. The two-lane configuration will be continuous between the different work zones.

The Project Inspector or the Contractor's Traffic Control Supervisor will notify the Traffic Management Center (TMC) by phone when any construction activity is taking place.

### ***Staging/Reroute Description:***

This operation will be completed in multiple stages. Each stage will shift traffic to half of the roadway while the other half is removed and repaired. Once that half has been completed and ready for traffic, the traffic control barriers, devices, and temporary striping will be shifted to allow for the construction work zone to move to the other lanes. This will be completed through the utilization of pinned temporary concrete barriers, traffic drums/devices, and temporary striping to shift traffic. A minimum of two 10 foot lanes with shy distance of 1 foot to the temporary and permanent traffic barriers will be provided in each direction. Due to the lane restrictions, width and constraints, a speed limit reduction will be proposed. A separate speed limit reduction package has been submitted for approval.

This project is broken into two stages with Stage 2 broken into Stage 2a and Stage 2b. The work zones for each stage will be protected by pinned concrete barrier and traffic will be in 2 10-foot lanes with 1-foot shy distance to barrier. Traffic will be opened back up to all lanes in the EB direction prior to the Thor/Freya exit and in the WB direction just after the Division WB off ramp. The work performed in each stage is as follows:

#### ***Stage 1***

- EB inside lane closures at the Structure 90/562 (3<sup>rd</sup> Ave. Bridge)

#### ***Stage 2***

- EB outside lane closures at the Structure 90/562 (3<sup>rd</sup> Ave. Bridge)

Stage 1 and Stage 2 shall be completed in 45 working days.

#### ***Stage 2a***

- EB and WB inside lane closures on Structure 90/546 (Spokane Viaduct)
- WB inside lane closures at Structure 90/562 (3<sup>rd</sup> Ave. Bridge)

#### ***Stage 2b***

- EB and WB outside lane closures on Structure 90/546 (Spokane Viaduct)

- WB outside lane closures at Structure 90/562 (3<sup>rd</sup> Ave. Bridge)

All Stage 2a and Stage 2b work shall be completed as follows:

The contractor will have 10 consecutive work days to complete all EB work and 10 consecutive work days to complete all WB work. After starting work in one direction, the contractor shall start work no more than 10 days later in the opposite direction. All Stage 2a and Stage 2b work shall be scheduled to avoid Memorial day weekend and Hoopfest weekend, and shall be within the 20 work days allowed for Stage 2.

**Other Work Zone Considerations/Restrictions:**

The Contract Specifications will contain requirements for consideration of and coordination with other construction projects adjacent to this project, such as the ongoing work the City of Spokane is doing on their downtown streets. The City of Spokane Construction projects are listed at the following internet address: <https://my.spokanecity.org/projects/construction/>. Determination and utilization of haul routes will be included in the Contract Specifications.

**Access Impacts:**

The project limits are located along I-90 in the vicinity of downtown Spokane. No access revisions or temporary access points will be utilized for this project.

Access at interchange ramp locations will be evaluated and ramp closures are anticipated because of the reduced capacity of I-90 due to lane reductions. Ramps anticipated for closure are the EB on-ramps at Maple/Walnut, EB off and on ramps at Altamont, and WB on-ramp at Altamont. Alternate route/detour signing will be included in the contract for any ramp closures and any ramp closures allowed will require notice provided to the traveling public as required by law and specified in the contract provisions.

**Delays:**

This project traverses the downtown area of Spokane, a high population density area of eastern Washington where mainline traffic volumes are between 84,000 and 113,000 ADT. WSDOT's Performance Measurement System (PeMS) data indicates that the two lane daytime configuration of the project work zones will not have the capacity to carry these volumes. The PeMS data also indicates that reducing traffic to one-lane can only happen between the hours of 10:00 p.m. and 5:00 a.m. Because the 2-lane work zones do not have the capacity for the traffic volume, there will be congestion in the daytime hours. Volumes decrease during nighttime hours so when contract work requires traffic to be in a single lane, this work will be limited to the hours between 10:00 p.m. and 5:00 a.m. so as not to impose undue delay on the motoring public. This contract will specify liquidated damages for failure to complete the project within the allotted time.

On and off-ramp traffic may affect traffic flow. The ramp traffic volumes (ADT) are as follows:

<b>Eastbound</b>		<b>Westbound</b>	
Maple/Walnut on-ramp	- 11,000	Altamont off-ramp	- 1,900
Monroe on-ramp	- 5,600	Altamont on-ramp	- 1,900
Division off-ramp	- 8,900	2nd Ave. off-ramp	- 3,700
Division on-ramp	- 14,000	Hamilton off-ramp	- 7,500
Hamilton off-ramp	- 6,000	Hamilton on-ramp	- 5,000
Hamilton on-ramp	- 7,600	Division off-ramp	- 9,700
Altamont off-ramp	- 2,700		

In the event of a traffic incident within the work zone, WSDOT's Incident Response Team in conjunction with WSP, the TMC, and other emergency services will respond to the scene to clear the incident as quickly as possible. Coordination between the Contractor, Project Inspectors, and the TMC will ensure that traffic flow is restored quickly if incidents occur within the work zone. Prior to construction, the PEO will meet with the TMC, WSP, and tow truck operator's organization to discuss options available for rapid response to work zone incidents. Additional/targeted WSDOT Incident Response may be considered as an option.

### ***Modifying the Traffic Control Strategy:***

The project traffic control strategies will be continually monitored and evaluated throughout the duration of the project to ensure the traffic control strategies are still applicable and effective. The Project Inspector and Traffic Control Supervisor will work together to update Traffic Control Plans including addressing the changing needs of the work zone. The Project Office will communicate regularly with the TMC to prepare and coordinate messages for the Highway Advisory Radio and Variable Message Signs operated by the TMC.

The delay from the lane reductions will cause some drivers to seek alternate routes and/or adjust their travel schedules. Effects from seeking alternate routes may show up at local intersections. The Project Office has discussed the project with the City of Spokane, which is prepared to modify signal timings to alleviate to the extent possible. Other modifications with the potential to improve network performance include movement restrictions at the intersection of 4<sup>th</sup> and Division to alleviate queuing on the EB off ramp, and if necessary, closure of the WB Division off ramp to utilize the WB off ramp green phase to clear the EB off ramp. Westbound, messaging to encourage use of 2<sup>nd</sup> Avenue as an alternative route to downtown may lessen queuing on mainline at the entrance to the work zone.

### ***Construction Vehicle Ingress/Egress:***

Contractor vehicles, equipment, and materials will be contained either inside the protected work zone, once the temporary concrete barrier is in place, or outside of the clear zone. Access to the protected work zone for construction vehicles will be in a manner that does not affect traffic operations. Contractor staging areas will be the responsibility of the Contractor to determine and will require the approval of the Engineer if within Highway Right of Way.

Construction vehicles will be required to enter and exit the project site with all other vehicles. Signing will be provided at locations where trucks enter or exit a protected work zone within the project limits. At protected work zones, Contractor accesses will be provided to allow ingress/egress. The access locations will be blocked with a movable barricade, gate, or drums to keep the motoring public from entering. Flaggers will not be allowed to impede mainline traffic; but traffic control labor may be allowed to assist the contractors entering and exiting the construction work zone by the moving and resetting of traffic control devices to ensure that the work zone is continuously secure.

### ***Pedestrians and Bicycles:***

Pedestrians and bicyclists are not allowed on this segment of I-90. Changes to surface street travel will not affect pedestrian or cyclist travel other than the possibility of additional delay.

## **Traffic Control Plan**

### ***Signing:***

Class A Construction Signs will be installed at the beginning and end of project and at interchanges within the project limits. Class B Construction Signs will be used within the project limits to warn and

direct travelers through the work zone. Portable Changeable Messages Signs (PCMS) will provide advanced notification of changing Work Zone conditions. Class A & B Construction Signs will be placed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD).

***Plans:***

Typical traffic control plans for lane and shoulder closures, temporary on and off ramp connection modifications, and short duration ramp closures will be included in the Contract Plans.

**Public Information Plan**

***Project Notifications:***

The Project Engineers office will work closely with the Eastern Region Public Information Office to develop an extensive communication plan ahead of the project start date to assist in the information dissemination to assist the traveling public in understanding the extent and potential impact to their commute caused by the project. This communication plan will be coordinated with the local agencies to include any construction projects that will be in the vicinity of this project. Throughout project construction, the Construction PE Office will notify the Eastern Region Public Information Office of construction activities impacting traffic. These activities will be included in the weekly WSDOT Eastern Region Traffic/Construction Update distribution.

**ER Traffic Concurrence:**

\_\_\_\_\_/signed/\_\_\_\_\_  
*Eastern Region Traffic Engineer*

\_\_\_\_\_/1/25/2017\_\_\_\_\_  
*Date*