TRANSPORTATION MANAGEMENT PLAN

XL-5021 2016 Eastern Region Bridge – Special Repairs Bridge 26/2SP Bridge 195/27

Project Description

This P2 bridge rehab project includes repairs on Bridge 26/2SP (SR 26 MP 133.47 to 133.50) and Bridge 195/27 (MP 38.50 to 38.55), located in the City of Colfax, Washington.

Bridge 26/2SP includes repair of girders and columns, as well as removal and replacement of the existing concrete railing and sidewalk.

Bridge 195/27 requires replacement of the superstructure as well as replacement of the approach slabs and repairs on the columns. A portion of the existing superstructure sits upon earth backfill. This portion of the existing superstructure will be removed and replaced with an HMA and CSBC roadway section.

SR 26 and US 195 are two-lane Principal Arterials. Both are designated as NHS routes. The posted speed on both bridges is 25 mph. The ADT is 3300 with 18% trucks on SR 26 and 6600 ADT with 13% trucks on US 195. The ADT on SR 26 between the bridges is 1600.

Traffic Operations Plan

Project Schedule: The project is anticipated to start construction in June 2017. Daytime work, Monday thru Friday, is anticipated but night work would not be prohibited. The work would be performed one bridge at a time. The duration of the work is anticipated to be 6 months total with approximately one month of work on 26/2SP, four months of work on 195/27 and the remaining month on roadway work. Depending on when the work gets started and which bridge the contractor starts with, the project could span two construction seasons with one bridge being completed each season. If working days are suspended between seasons due to weather, all efforts would be made to suspend after one structure is complete and prior to starting the second structure so that all lanes and movements are open for normal traffic flow.

Traffic Control Strategy:

Bridge 26/2SP

Work on Bridge 26/2SP will require lane closures. When work on the bridge allows it, one lane will be open and used for SR 26 EB to US 195 SB traffic. The US 195 NB to SR 26 WB traffic will be detoured to Bridge 195/27. When both lanes are closed, traffic will be detoured to the other bridge.

A temporary three-way signal will be used at the junction of SR 26 and US 195. The signal was selected in part because the stop line setback distance required to accommodate WB-67 turning movements has a negative effect on the ability to use

2016 Eastern Region Bridge – Special Repairs

February 3, 2017

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multiway stop control. The temporary signals and stop lines will be set back far enough from the intersection for trucks to complete their turning movements. The analysis showed a network performance of 50.3 sec. total delay/vehicle, the longest average queue of 409 ft. (NB), and the 95th percentile queue of 617 ft. (NB). The simulation showed vehicles are expected to get through in one cycle most of the time. The SR 26 approach to the intersection will be restriped to provide for two-way traffic.

US 195 NB will be temporarily restriped south of Bridge 195/27. The existing left turn lane from US 195 NB to SR 26 WB will temporarily be restriped to a two way left turn lane to provide access to First Street on the east and the businesses on the west. South of First St., the two US 195 NB lanes will be merged into one lane to cross Bridge 195/27.

Bridge 195/27

Work on this bridge will require closing both lanes for construction. Traffic will be detoured to Bridge 26/2SP. Multi-way stop control will be implemented for the intersection of SR 26 spur and SR 26. Modeling showed total delay to be less than for signal control. The maximum queue was estimated to be 342 ft., occurring in the NB direction. South of First St., the US 195 NB lanes will be merged to one lane to cross Bridge 26/2SP.

Oversized Vehicles: Commercial Vehicle Services will be notified when the detours will be in place. Oversized loads going through the detour from SR 26 EB to US 195 SB will need special consideration on a case-by-case basis to analyze whether they can be accommodated to make the turn from SR 26 to US 195. Where possible, oversized vehicles should be routed to other State routes. Advance notice of lane width restrictions as well as reroute opportunities will be provided using either static signs or PCMS when practical.

Access Impacts: Access to First Street will be limited to Right in – Right out during closure of 195/27. At least one access to each of the businesses will be kept open. The Project Office will meet with the businesses prior to construction to explain the plan for access and the proposed work schedule.

Pedestrians and Bicycles: Existing pedestrian and bicycles have the use of sidewalks on Bridge 195/27 on the east side, and Bridge 26/2SP has sidewalk on the west side. Pedestrians and bicycles currently use the shoulders of SR 26 as their routes. Pedestrian traffic and bicycles will be detoured the same route as vehicle traffic. A temporary crosswalk will be established at the north end of bridge 195/27, at the temporary signal. Pedestrian and bicycle traffic will cross SR 195 to access the local businesses. Minimum width breaks in the channelization devices will be established to provide access to the shoulders of SR 26 that are utilized now. Pedestrian and bicycle signs will be placed for this route and the crossing of SR 195.

Community Events: The City of Colfax has their Concrete River Festival the 3rd weekend of July. Wheat harvest during July and August is a concern for traffic in Colfax. WSU start/end of school, five WSU home scheduled football games in a row starting in early September 2017, and other events have heavy traffic volumes through Colfax. Due to restrictions with in-water work and scheduling the project to complete paving during the paving season, the work cannot be scheduled to avoid these events.

However, advance notice of impacts will be provided to motorists through media and PCMS.

Public Information Plan: The Project Office plans to hold an Open House in Colfax prior to construction. During construction, the public will be kept informed through the weekly WSDOT Eastern Region Traffic/Construction Update. The City of Colfax will be kept informed of impacts.

Class A Signs with a "Bridge Work In Colfax" message will be placed in the following locations to notify the public so they can take an alternate route if they choose to:

- SR 26 EB west of Airport Rd
- US 195 SB north of SR 271 junction near Rosalia
- US 195 NB south of Colfax

Project Engineer - Chad Simonson Asst. Project Engineer - Becky Spangle Project Manager – Joe Ausband

ER Concurrence:

Eastern Region Traffic Engineer

Date

Attachments:

Preliminary Traffic Control Plans (Not for concurrence)

Email recommendation for temporary signals and stop control configuration

Thomas, Duane

From:

Fouts, Rebecca

Sent:

Tuesday, February 23, 2016 2:58 PM

To:

Thomas, Duane; Cote, Ronald

Cc:

Haveman, Amber; Roberts, Chad; Frostad, Larry; Moorhead, Richard

Subject:

XL5021 Eastern Region Bridge (Colfax) - traffic analysis

Attachments:

 $XL5021\ stop\ -Sim\ Report.pdf;\ XL5021\ stop\ plus\ w\ bridge\ -\ SimReport.pdf;\ XL5021$

portable signal.yield.simtraffic report.pdf; XL5021 portable signal.yield plus w

bridge.SimReport.pdf; NB stopline location.JPG; XL5021 Auto Turn Movements; XL5021

Temp Signal Pk Hr Counts; syn volumes.JPG

Duane,

Our team has completed our traffic modeling analysis for work on the Colfax SR 26 Spur Bridge.

Given:

PM peak hour volumes, 15mph speeds, 20% trucks ~40 day closure Stop bar locations per auto turn files

Scenarios analyzed:

3-way stop

3-way stop plus one lane on west bridge

Actuated portable signal with SBRT yield

Actuated portable signal with SBRT yield plus one lane on west bridge

Scenario highlights:

*3-way stop scenario modeled with a LOS B, a network performance of 18.3sec total delay/vehicle, longest average queue of 206ft (NB), and 95^{th} Queue of 340ft (NB). Model likely does not represent reality \sim there will be confusion with the distance between stop bars of "who got here first" and sight distance issues.

*3-way stop plus one lane on west bridge scenario made no substantial change to LOS or delay. The EBRT volume of 29 is so small, Traffic recommends closing the west bridge totally off for the safety and efficiency of the workers, reduce the confusion of the signing ("OVERSIZED LOADS ^"?), and potentially a nice staging area.

*Actuated portable signal with SBRT yield scenario modeled with a LOS E, a network performance of 50.3sec total delay/vehicle, longest average queue of 409ft (NB), and 95th Queue of 617ft (NB). This is approximately around the Cougar Foodmart Gas Station. Per simulation, vehicles are expected to get through in one cycle most of the time. All other hours of the day we anticipate less delay.

*Actuated portable signal with SBRT yield plus one lane on west bridge scenario made no substantial change to LOS or delay. In fact, the network delay went up. The EBRT volume of 29 is so small, Traffic recommends closing the west bridge totally off for the safety and efficiency of the workers, reduce the confusion of the signing ("OVERSIZED LOADS ^"?), and potentially a nice staging area.

Choosing between stop control and signal control comes down to potential efficiency vs. safety. Our team believes that the safety of the motoring public outweighs the potential efficiency. We recommend proceeding with an actuated portable signal for this construction project and routing all traffic through the SR 26/US 195 intersection.

Please let me know if you have any questions.

Thanks,

ReBecca Fowty

Traffic Design Engineer

WSDOT Eastern Region
foutsr@wsdot.wa.gov
509-324-6559

File: G:\Task Orders\US 195\XL5021 - Eastern Region Bridge (Colfax)

Thomas, Duane

From:

Fouts, Rebecca

Sent:

Wednesday, October 26, 2016 1:45 PM

To:

Thomas, Duane

Cc:

Moorhead, Richard; Bjordahl, Mike; Frostad, Larry; Johnson, Russ

Subject:

RE: XL5021 Eastern Region Bridge (Colfax) - traffic analysis

Attachments:

XL5021 stop plus.using west bridge - SimReport.pdf; XL5021 portable signal.using west

bridge.2 phase - SimReport.pdf; XL5021 portable signal.using west bridge-

SimReport.pdf; XL5021 SH TC1.pdf

Duane,

We recommend <u>stop control</u> for the traffic control configuration on the attached plan sheet (intersection at US 195 & west bridge (spur)). With the good sight distance at this intersection, stop control easily provides for pedestrians and has less delay than an actuated portable signal. That being said, if your project schedule is such that the portable signal will be necessary for different stages of the project and this configuration is a middle stage more conversation is welcomed.

Total Network Performance per Synchro Simulation (see attachments):

Total Delay	Maximum NB Queue	<u>Scenario</u>
3.2 hours	342 ft	Stop Control
7.5 hours	347 ft	2 Phase Portable Signal (permissive westbound US 195 lefts)
12.9 hours	371 ft	Actuated Portable Signal

FYI – I did double check with the Maintenance Area Superintendent Russ. He could not recall maintenance work similar to either stage to assist what this project traffic backups might look like. He concurred with stop control for US 195/west bridge intersection and actuated portable signal for the US 195 east bridge intersection.

Thanks,

ReBecca

From: Fouts, Rebecca

Sent: Thursday, October 20, 2016 11:26 AM

To: Thomas, Duane

Cc: Moorhead, Richard; Bjordahl, Mike; Frostad, Larry

Subject: RE: XL5021 Eastern Region Bridge (Colfax) - traffic analysis

Hi Duane,

Agreeing that the volumes are the same the conditions is slightly different than the other intersection due to better sight distance. I did a quick modeling with three scenarios – stop, signal with split phasing, and signal with permissive phasing. We have started the conversation down here and plan to get you an answer within a couple work days.

ReBecca

From: Thomas, Duane

Sent: Wednesday, October 19, 2016 10:43 AM

To: Fouts, Rebecca

Subject: RE: XL5021 Eastern Region Bridge (Colfax) - traffic analysis

Rebecca,

When the traffic modeling was done, I don't think we looked at modeling it when the 195 bridge is closed and traffic is on the 26 spur bridge. I don't know if it should be analyzed, it would probably be close to the same delays as the modeling done for the other bridge. Let me know if you think it should be modeled and if you see any issues with this plan regarding temporary signals.

Thanks, Duane

From: Fouts, Rebecca

Sent: Tuesday, February 23, 2016 2:58 PM

To: Thomas, Duane; Cote, Ronald

Cc: Haveman, Amber; Roberts, Chad; Frostad, Larry; Moorhead, Richard

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Thanks,

ReBecca Fouts

Traffic Design Engineer

WSDOT Eastern Region

foutsr@wsdot.wa.gov 509-324-6559

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