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TECHNICAL MEMORANDUM

DATE: July 24, 2019

TO: Regional North-South Travel Capacity Study Technical Advisory Committee

CC:

FROM: Spencer D. Montgomery, Project Manager 

SUBJECT: Evaluation Criteria

INTRODUCTION

In preparation for our Technical Advisory Committee Meeting (TAC) on Thursday July 25, 2019, we want to give you an opportunity to think about potential evaluation criteria that will be discussed to help facilitate the dialogue at the meeting. We know that there are a lot of interests among the community that we are trying to serve with this study, and the future capacity improvements that will be recommended by the study process. We hope to be able to come up with criteria that will be meaningful and represent community interests to prioritize projects that address north-south travel capacity issues.

Below you will find some information regarding evaluation criteria that we have used on three other studies just to help you to understand the types of criteria that might be considered. Each study has a different purpose, and criteria are applied somewhat differently on each study. We expect that at the meeting we may discuss these in a little more detail as needed, and let the group offer ideas on other potential criteria that are important to them. The TAC can then debate whether they want to add or subtract. If it will be helpful to expedite the discussion, our team will offer a set of criteria that our project team believes would help to assess and prioritize the alternatives being considered and the TAC adjust accordingly.

Also below we will explain a little about some of the data that will be available to us, as envisioned in our proposal to the city, and discussed at the first TAC meeting. We'll also suggest some ways that this data could be incorporated into some evaluation criteria.

We also understand that different people value different criteria differently and we have a fairly simple exercise that will help each person to individually weight the criteria and we will consolidate the weighting into a single weight, representing the entire TAC, for each criterion that will be applied to the score for that criterion for each alternative being evaluated.

CRITERIA USED IN OTHER STUDIES

Rachel Road Alignment Study – City of Richland (2017)

The project purpose was to identify a suitable alignment for a new roadway that could impact an environmentally sensitive area valued by nearby neighborhoods. Criteria (alphabetical) used is summarized below:

- **Bicycle/Pedestrian Accommodations** – considered connections to existing paths, school students crossings streets, percent of neighborhood within certain distance of new school.
- **Cost** – considered costs for engineering, construction, change in number of school buses, off-site mitigation.
- **Ease of Implementation** – considered property impacts, environmental issues requiring wetlands mitigation public opposition, poor scores in other categories.
- **Emergency Response Access** – considered reduced travel time to school, provision of alternative routes for emergency response.
- **Extent of Impact to Wetlands and Habitat** – considered habitat remaining contiguous, wetlands impacted.
- **Mobility – Connectivity for Vehicle Traffic** – considered total travel time from three origin-destination pairs, transportation network connectivity.
- **Opportunities for Environmental Enhancement/Mitigation** – considered potential to restore wetlands, ability to span wetlands.
- **Property Impacts/Neighborhood Impacts** – considered impacts to BPA, ability to avoid neighborhood impacts, minimization of decreased value to the natural preserve.
- **Traffic Safety** – compared conflict points, conflict types and traffic volumes across alternatives as well as sight distance issues, proximity of intersections and left turn storage.

Columbia River Crossing Study – Tri-Cities – Benton Franklin Council of Governments (2011)

The project purpose was to evaluate up to 10 alternatives for the next potential Columbia River Crossing in the region, and narrow that down to three alternatives that could move to the environmental and design phase. The process considered three main objectives 1) determine how congestion relief can be provided at the Blue Bridge, 2) consider crossing options that address increased capacity and improved Level of Service as well as improved connectivity between the cities in the study area, and 3) analyze the economic impact of the various crossing alternatives.

Two phases were used to evaluate the Columbia River Crossings. Phase I Criteria included:

- Improves Capacity and Provides Congestion Relief
- Increases System Connectivity
- Provides Positive Economic Impacts

Phase 2 Criteria included:

- Traffic Volume to Capacity Ratio across the Blue Bridge by direction
- Projected percentage of system-wide Vehicle Miles Traveled on links below Level of Service “D”
- Number of links worse than LOS “D” of the 35 Regional Critical Congestion links evaluated
- Estimated amount of Developable or Redevelopable Land Urban
- Estimated amount of Developable or Redevelopable Land Rural
- Projected Regional Vehicle Miles Savings
- Project Cost
- Environmental Impacts considered: Wetlands impacts, cultural/archeological site areas, parks, endangered species, unstable soils
- Community support

Airport Drive Couplet at Spotted Road – Spokane International Airport (2015)

This study was initiated due to high accident rates and had a concurrent goal of minimizing delay for travelers to the airport while considering other planned roadway and airport improvements. Criteria for the study included (in order of weighting):

Safety – compared conflict points, conflict types and traffic volumes across alternatives

Airport Drive Inbound Mobility – travel time from point A to point B

Driver Consistency/Expectation – considered features such as one-way pairs, discontinuous roads, large U-turns and roundabouts

Peak Hour Level of Service – fewer points for various intersections with lower LOS

Public/Agency Support – considered scores from the criteria that were identified as the most important by the public

Spotted Road Mobility – travel time from point A to point B

Cost – engineering, right-of-way and construction

Airport Drive Outbound Mobility – travel time from point A to point B

21st Avenue Mobility – travel time from point A to point B

Phasing Ability – considered the number of possible separate components that could be constructed with the alternative

INFORMATION FOR THE NORTH SOUTH STUDY ALTERNATIVES EVALUATION

For the Regional North-South Travel Capacity Study we will have the information described below available to assist in our evaluation of the transportation network, as envisioned in our Scope of Work for this project. How this information will be used in the evaluation process will be defined through working with the TAC as to what things are most meaningful and which things should be given more weighting in the process. If there are other pieces of information that the TAC feels would be useful in the evaluation and prioritization of the alternatives, we will do our best to provide such data. Please remember however, that it is best to use resources on information that will help to differentiate between the alternatives. Some possibilities of uses of the data are presented below. We will also have a fairly simple exercise for individual TAC members to use to weight the criteria once a set of criteria has been agreed upon.

1. Roadway segment volumes, and intersection turning movement volumes (at the 5 study intersections) for existing conditions, future (year 2040) No-Build Conditions and Build Conditions for the 6 alternatives being evaluated. (Both of these lists were discussed at the first TAC and included with the Agenda).
2. Forecast intersection delay based on the traffic volumes identified in item #1. This average vehicle delay comes from various software and is reported by movement, roadway approach and overall intersection.
3. Travel time estimates from the regional travel demand model for eight origin-destination pairs, two northern “origin” points and four southern “destination” points (list provided with Agenda), for the future (year 2040) No-Build Conditions and Build Conditions for the 6 alternatives being evaluated. This data should include travel time for multiple routes that could be used between O-D pairs when applicable.
4. Cost of the project including right-of-way, engineering and construction.

Some potential ways of using this data are summarized below:

- Total southbound traffic volume served on all facilities combined.

- Total intersection delay for each of the five study intersections separately, and weighted by importance of each intersection.
- Total intersection delay at all five study intersections combined.
- Total southbound delay at all study intersections. Could also summarize total northbound delay as well as side-street delay, and weight each separately.

NOTE: Average vehicle delay could be used, however, total vehicle delay will help account for different volumes on the various facilities, making it more of an overall north-south-analysis.

- Total vehicles served by the eight origin-destination pairs.
- Average travel time individually for each of the eight origin-destination pairs, and weighted by importance of each pair.
- Total travel time for all of the origin-destination pairs combined.

DISCUSSION OF ADDITIONAL EVALUATION CRITERIA FOR CONSIDERATION

As all the above information shows, there are many criteria that could be considered when evaluating the benefits (and impacts) of various alternatives for transportation improvements in choosing a preferred alternative. In each case, the purpose of the project is important. In the case of this study, short-term capacity for north-south travel is the primary purpose. Secondary purposes of the study include long-term solutions and safety. It is also recognized that other solutions should influence the way that north-south travel functions in the region, namely Travel Demand Management (travel mode such as transit or bicycling, commute time changes, etc.). As important as these solutions are, they will be addressed through different forums. Below are some additional discussion about other potential evaluation criteria that should be considered.

- **Safety:** Safety is always important and is typically considered. Safety features are always included in the design of transportation improvements. For this study it is felt that much of the safety benefits will be provided through reduced congestion. Thus those alternatives that reduce congestion the most are more likely to reduce accident rates as well. Where conflict points are eliminated, traffic volumes are significantly reduced or congestion significantly reduced there may be a differentiator between alternatives.
- **Environmental Issues:** Alternatives that have significant environmental issues could result in higher costs and longer times to implement.
- **Right-of Way:** Alternatives that require right-of-way purchase could result in higher costs and longer times to implement.
- **HOV Lanes:** At the first TAC meeting it was suggested to have a criterion that considers whether each alternative negatively impacts the ability to implement HOV in the future.
- **Emergency Response:** Similar to Safety much of the benefit will be realized in reduced travel times. However some alternatives will provide alternative facilities that could provide benefits during a large event that closes one of the two existing north-south facilities.
- **Phasing Ability:** For some of the larger alternatives there may be benefits to identify those that can be reasonably phased.