

December 5, 2012

**TO:** Paula Hammond, Secretary, Washington State Department of Transportation

**FROM:** Nancy Boyd, CRC Project Director for Washington

**SUBJECT:** Review of Acuity Group correspondence to Washington legislators regarding Columbia River Crossing – Ruby Junction and Steel Bridge Costs

## Introduction

At your request, we have reviewed assertions made by Tiffany Couch about the Columbia River Crossing (CRC) project, that costs for Ruby Junction and Steel Bridge light rail improvements are “irregular.”

Ms. Couch’s comparison of cost estimates does not account for significant differences in cost parameters, methodologies and assumptions. Her claims that the project’s light rail maintenance improvements hide costs for unrelated system benefits are without merit. CRC staff have fulfilled Ms. Couch’s requests for information and documentation related to this matter and have been consistent in the representation of light rail expansion costs with the public, including associated maintenance facilities.

## Background

The transit element of the CRC project extends an existing light rail line to Clark College in Vancouver from the Expo Center in north Portland, where the Yellow Line currently terminates. The light rail extension takes advantage of the existing 52-mile light rail network to key employment, financial, retail and recreation centers in the Portland-Vancouver metro area. To accommodate and complement this addition to the region’s transit system, expansion of the current TriMet light rail maintenance base in Gresham and upgrades to the existing Steel Bridge light rail crossing over the Willamette River in Portland are needed.

Expansion of the existing Ruby Junction Maintenance Facility in Gresham, Oregon is necessary to accommodate the additional light rail vehicles associated with the operations of the CRC project. Storage of train cars will be necessary during off-peak travel times and to conduct regular maintenance, cleaning and repair. Expanding an existing light rail facility rather than building a duplicate facility in Clark County with duplicate maintenance personnel provides a more cost effective solution. The Steel Bridge track and electrical improvements allow all trains in the network to increase their travel speed over the Steel Bridge and reduce travel time to downtown Portland.

## Findings

1. Assertion: The cost of a maintenance facility upgrade for CRC is “irregular” and costs may be disproportionately allocated to this project to perform unrelated system-wide repairs.

**Finding: The comparison of three upgrade projects at the Ruby Junction maintenance facility does not account for significant differences in scope, timing of construction and level of design.**

Ms. Couch compared three different projects: 1) CRC 2) Yellow Line and 3) Portland-Milwaukie Light Rail (PMLR), each of which have or will expand the Ruby Junction maintenance yard. A basic

comparison of project cost estimates is provided in Table 1. Ms. Couch draws conclusions based on these reported estimates, using the number of light rail vehicles as a primary factor to argue that CRC’s cost estimate is disproportionately high. However, cost estimates for each project reported by Ms. Couch were taken from three different data sources at three different stages in the planning process. As a result, each estimate had different cost parameters, including level of project definition and escalation and different estimating methodologies. These differing factors have a profound influence on a cost estimate outcome.

**Table 1. Comparison of Ruby Junction cost estimates for three light rail projects**

| <b>Light Rail Project</b> | <b>Base Year</b>                       | <b># Cars</b> | <b>Data source</b>  |
|---------------------------|--|---------------|---|
| Yellow Line               | 2000                                   | 24            | Full Funding Grant Agreement, at approximately 60% design |
| PMLR                      | 2010                                   | 18            | FEIS, at approximately 25% design                         |
| CRC                       | N/A (escalated to year of expenditure) | 19            | New Starts report, 2011 at approximately 25% design       |

Cost Element Structure

To estimate costs, project requirements must be broken down into specific components to complete the work. Components are further broken down into elements to estimate the cost of the work. In the case of a maintenance facility expansion, these cost elements include, among others, engineering, right-of-way, maintenance buildings, and yard track.

Level of Project Definition and Estimating Approach

Cost estimate information is developed and used for planning purposes and project cost estimates are based on differing levels of project definition, refined throughout project development to reflect greater detail. At earlier stages of project development, the cost estimate may simply be based on simple rules of thumb or an extrapolation from a similar project. At later stages of design, actual plans can be referenced to determine costs.

Escalation

Both the Yellow Line and PMLR costs were reported in base year dollars without escalation whereas the CRC reported base year plus escalation.

Estimating Approach and Assumptions

Additional notes on the estimating approach and assumptions for each project are as follows:

- The \$9.15 million for Yellow Line was included in the FFGA signed on September 22, 2000 and represents the project at 60 percent final design. The final contract cost for the expansion was \$14.306 million which excludes owner furnished materials, engineering and administration and right-of-way costs. Some of these excluded costs are included in the CRC estimate.
- The \$8.10 million for PMLR was included in the FEIS, published in October 2010 and represents the project at 25 percent design. The \$8.1 million estimate excludes insurance, utilities and street construction, track, systems, right-of-way, professional services and contingency (those elements are included in the appropriate categories). The complete Ruby Junction cost, including the excluded costs, is estimated to be about \$36 million.
- The \$50.61million reflected for the CRC was referenced in the 2011 New Starts Report and includes the civil, systems, engineering and other costs referenced above, including contingency. It does not include right-of-way. These costs total to \$37.2 million which was then escalated to year of expenditure (calculated at the mid-point of construction, assumed to be 2017).

2. Assertion: Ms. Couch comments on lack of information about project costs related to Steel Bridge upgrades and questions whether they are unrelated system-wide repairs.

**Finding: Steel Bridge upgrades are triggered by CRC’s added capacity to the regional system; estimates are available and have been provided to Ms. Couch.**

Modifications to the Steel Bridge would improve the existing light rail transit track and electrical system allowing the Yellow Line trains to and from Vancouver, as well as all other MAX line trains that use these tracks, to increase their travel speed and avoid system delays. This provides more reliability for travelers from Clark County and North Portland. Specific improvements include grinding the transit rails within the track bed to remove the lift joint bumps, rail corrugation, and any rough field welds; installation of a vibration pad under the signal case to dissipate vibration; and stiffening of the overhead catenary system brackets to allow for greater impact as the catenary transfers from the fixed to movable span. The estimated Steel Bridge improvement cost, which has been provided to Ms. Couch, is about \$300,000.

3. Assertion: CRC staff testimony before the WA Legislative Oversight Committee regarding light rail maintenance facilities has been inconsistent and misleading.

**Finding: CRC has been forthcoming with cost information about light rail system improvements, including maintenance facilities.**

Ms. Couch cites testimony at the Oct. 9, 2012 Washington Legislative Oversight Committee meeting, stating that it was “misleading.” CRC’s finance plan scenarios anticipate securing New Starts funds to pay the final design and construction costs of the light rail element of the CRC project, including maintenance facilities. Ruby Junction was discussed in the Draft EIS. This fact was confirmed in staff responses to committee questions. Specific cost estimates were not available during the meeting without additional research, but were made available in a response document dated September 27, 2012, as they are in this document.

## Conclusion

Maintenance improvements at Ruby Junction and Steel Bridge are necessary components of light rail expansion. There are no system-wide improvements included in the cost estimate. Differences in project definition, estimating approach and escalation must be considered when drawing conclusions. The cost estimates for Ruby Junction cited by Ms. Couch should be taken in their proper context and reflect the scope of work and the phases of planning in which they were developed.

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cc: Project Controls