

PROJECT DELIVERY AND PROCUREMENT PLAN

Final Report

September 2012



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ACRONYMS

A&E	Architectural and Engineering
BVS	Best Value Selection
CEVP	Cost Estimate Validation Process
CFR	Code of Federal Regulations
COA	Condition of Award
CRB	Columbia River Bridge
CRC	Columbia River Crossing
C-TRAN	Clark County Public Transit Benefit Area Authority
CUF	Commercially Useful Function
DB	Design-Build
DBB	Design-Bid-Build
DBE	Disadvantaged Business Enterprise
DEIS	Draft Environmental Impact Statement
DFI	Design-Furnish-Install
DMWBE	Disadvantaged Minority and Women's Business Enterprise
EEO	Equal Employment Opportunity
FAI	First Article Inspection
FEIS	Final Environmental Impact Statement
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
FHWA	Federal Highway Administration
GC/CM	General Contractor/Construction Manager
GMP	Guaranteed Maximum Price
LONP	Letter of No Prejudice
LPA	Locally Preferred Alternative
LRT	Light Rail Transit

LRV	Light Rail Vehicle
MACC	Maximum Allowable Construction Cost
MWBE	Minority and Women's Business Enterprise
OAR	Oregon Administrative Rules
ODOT	Oregon Department of Transportation
OMWBE	Office of Minority and Women's Business Enterprises
ORS	Oregon Revised Statutes
OTIA	Oregon Transportation Investment Act
PCGA	Project Construction Grant Agreement
PDPP	Project Delivery and Procurement Plan
PE	Preliminary Engineering
QBS	Qualification Based Selection
QC	Quality Control
QCP	Quality Control Plan
QMP	Quality Management Plan
RCW	Revised Code of Washington
RFP	Request for Proposals
RFQ	Request for Qualifications
ROD	Record of Decision
SR	State Route
TriMet	Tri-County Metropolitan Transportation District
TOD	Transit-Oriented Development
UCO	Unilateral Change Order
WAC	Washington Administrative Code
WSDOT	Washington State Department of Transportation

1. Introduction

1.1 Purpose

The purpose of the Project Delivery and Procurement Plan (PDPP) is to describe the major procurements for the final design and construction phases of the Columbia River Crossing Program (“CRC Program”). The plan summarizes:

- The recommended design and construction program packages;
- The recommended delivery methods to perform the design and construction activities of each program package;
- The procurement options to be utilized in combination with the delivery methods;
- The procuring or contracting agencies; and
- References to the procurement schedule.

1.2 Definitions

To minimize possible confusion associated with different terms, it is worth defining key terms as used in this document.

Program Phasing – Phasing is the selection of project elements based on the program schedule and the anticipated availability of funding. As defined in the Final Environmental Impact Statement (FEIS), the CRC Program has two main phases: the Locally Preferred Alternative (LPA) Phase 1 and those elements delayed until later. These distinctions recognize economic conditions, the current funding situation, and anticipated cash flow available for the program’s implementation. Program phasing has been selected to meet key attributes of the program’s purpose and need and to provide independent utility.

Program Sequencing – Sequencing is ordering or arranging of program elements and a construction schedule that provides for reasonable efficiency of implementation; minimizes disruption and inconvenience of the transportation system by users and by those living and working in the affected area; and that fits with the cash flow constraints associated with agency budgets. Based on analyses of program sequencing options, the CRC project team developed the Initial Construction Program (ICP). The ICP seeks to implement the first elements of the overall program by focusing on those that improve mobility and maximize benefits to users and residents while meeting the financial constraints of agencies. The focus of this PDPP is on the implementation of the ICP.

Construction packages – Packages are discrete groupings of program elements likely to be issued as individual contracts. The project packages tend to have similarity of work (e.g., civil construction, structures, or transit components) or similar geographic or location attributes (e.g., Oregon or Washington), or interdependency of project elements (e.g., combining the main river

crossing with the SR 14 interchange and Hayden Island with which it connects). More discussion of construction packages included in the ICP and the potential for further dividing or combining them is discussed in this document.

Project delivery methods – Project delivery methods refer to the overall process by which a project is designed and constructed. The range of project delivery methods includes: Design-Bid-Build (DBB); General Contractor/Construction Manager (GC/CM); Design-Build (DB) and Design-Furnish-Install (DFI).

Project procurement (contracting) methods – Project procurement (contracting) methods refer to the procedures used to evaluate and select designers and contractors. The range of procurement methods includes those that are determined solely by price, solely on qualifications, as well as those based on a combination of clearly defined factors such as price, time, and technical qualifications. Procurements can be done in a single step or as a multi-step process.

1.3 Key Decisions and Assumptions Used for the PDPP

This plan incorporates the following key decisions and assumptions:

- A deck truss bridge type has been selected as the preferred design for the Columbia River Bridge. This selection was announced by the governors of Oregon and Washington in April 2011 and affirmed in the FEIS published in September 2011 and in the Record of Decision (ROD) in December 2011. Earlier studies (including the Draft Environmental Impact Statement) assumed an open web box girder design. In February 2011, the Bridge Review Panel recommended selecting a different bridge type from three options: composite deck truss, cable-stayed and tied arch to reduce schedule and construction risks. The CRC program team conducted an expedited review of the three bridge types and recommended to the governors a deck truss bridge type. The analysis presented to the governors considered cost, schedule, environmental impact, stakeholder commitments, and risk.
- A Design-Build delivery has been selected as the preferred delivery method for the Columbia River Bridge and its touchdowns. In April 2011, the proven deck truss bridge type design was selected as the preferred design based on cost, schedule, environmental impact, stakeholder commitments, and risk. The DB delivery method has been selected as being the best delivery model for the main river crossing and work on the adjacent interchanges to increase schedule certainty, control cost growth, and provide the highest likelihood of timely opening of the bridge to start generation of tolling revenues and minimize impact to follow-on light rail transit (LRT) systems work.

1.4 Basis for Recommendations in the PDPP

The PDPP builds on the work undertaken during the on-going preliminary engineering (PE) phase, including the Bridge Review Panel, the Cost Estimate Validation Process (CEVP), Project Sequencing workshops, Project Packaging and Delivery Method workshops, a Constructability Review, the FEIS, and the Transit Value Engineering Workshop. The latest assumptions and

inputs were from sequencing meetings with CRC program team in August and September of 2011.

The implementation strategy discussed in this plan will be updated on an as needed basis dependent on new information, such as project sequencing, cash flow projections, technical requirements, and risk management.

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2. CRC Procurement - Laws and Policies

2.1 Procurement Laws and Policies Governing CRC Contracting

The CRC Program anticipates procuring Architectural and Engineering (A&E) services through Washington State Department of Transportation (WSDOT), Oregon Department of Transportation (ODOT), and possibly Tri-County Metropolitan Transportation District of Oregon (TriMet). These A&E services would support preparing final construction documents for project packages delivered using the traditional Design-Bid-Build (DBB) or General Contractor/Construction Manager (GC/CM) delivery models, prepare program requirements and specifications that support Design-Build (DB) and Design-Furnish-Install (DFI) procurements, and provide design oversight reviews on construction documents prepared under the DB and DFI delivery models.

Procurement of A&E design and construction services undertaken by the applicable contracting agency (WSDOT, ODOT, or TriMet) will comply with applicable state and Federal procurement rules.

The procurement of construction services, equipment, and materials for the construction packages identified in the PDPP will be divided between WSDOT, ODOT, and TriMet in a manner that best meets the requirements and objectives of the program. Procurements will be governed by applicable WSDOT, ODOT, or TriMet contracting rules, and conducted in a manner that provides maximum open and free competition consistent with Federal Transit Administration (FTA) Circular 4220.1F, Third-Party Contracting Guidelines, and the U.S. Department of Transportation (USDOT) 49 CFR Part 18, Employees' Code of Ethics. The CRC program team will provide administrative oversight on all executed procurement contracts.

The procurements for the ICP and any subsequent construction activities will also conform to applicable statutes and publications listed below:

- Washington Administrative Code (WAC)
<http://apps.leg.wa.gov/wac/>
- WAC 458.20.101 – Tax registration and tax reporting
- Revised Code of Washington (RCW)
<http://apps.leg.wa.gov/rcw/>
- RCW 18 – Business and Professions
- RCW 18.08 – Architects
- RCW 18.43 – Engineers and Land Surveyors

- RCW 18.96 – Landscape Architects
- RCW 39 – Public Contracts and Indebtedness
 - ✓ RCW 39.04 – Public Works
 - ✓ RCW 39.04.250 – Payments Received on Account of Work Performed by Sub-contractor – Disputed Amounts – Remedies. (Prompt Pay Law)
 - ✓ RCW 39.19 – Office of Minority and Women’s Business Enterprises
 - ✓ RCW 39.29 – Personal Service Contracts
 - ✓ RCW 39.76.011 – Interest on Unpaid Public Contracts – When Payment is Considered to Be Made
 - ✓ RCW 39.80 – Contracts for Architectural and Engineering Services
- RCW 48 – Insurance
- RCW 51 – Industrial Insurance
- RCW 81 – Transportation
- RCW 81.104 – High-Capacity Transportation Systems
- RCW 82 – Excise Taxes
 - ✓ RCW 82.32.030 – Registration certificates – Threshold levels
 - ✓ RCW 82.32.045 – Taxes – When due and payable – Reporting periods – Verified annual returns – Relief from filing requirements
- Oregon Revised Statutes (ORS)
<http://www.leg.state.or.us/ors/>
 - ORS 184 – Administrative Services and Transportation Departments
 - ORS 200 – Disadvantaged, Minority, Women and Emerging Small Business Enterprises
 - ORS 267 – Mass Transit Districts
 - ORS 279A – Public Contracting; General Provisions
 - ORS 279B – Public Contracting; Public Procurements
 - ORS 279C – Public Contracting; Public Improvements and Related Contracts
 - ORS 366 – State Highways and State Highway Fund
 - ORS 367 – Transportation Funding; Projects
 - ORS 373 – Roads and Highways Through Cities
 - ORS 374 – Control of Access to Public Highways

- ORS 381 – Interstate Bridges
- ORS 383 – Tollways
- ORS 391 – Mass Transportation
- Oregon Administrative Rules (OAR)
<http://arcweb.sos.state.or.us/pages/rules/access/index.html>
- Washington and Oregon Statutes and case law
- Code of Federal Regulations
- Brooks Act – 40 USC Chapter 10 Subchapter VI – Selection of Architects and Engineers
- Federal Certification, Assurances, and Guidance
- Civil Rights Act of 1964
[42 USC Chapter 21 Subchapter V Section 2000d through 2000d-4a](#) – Federally Assisted Programs
- Federal-aid Highway Act of 1973
[23 USC Chapter 3 Section 324](#) – Prohibition of Discrimination on the Basis of Sex
- Rehabilitation Act of 1973
[29 USC Chapter 16 Subchapter VI Section 794](#) – Nondiscrimination Under Federal Grants and Programs
- Age Discrimination Act of 1975
[42 USC Chapter 76 Sections 6101 et seq](#) – Age Discrimination in Federally Assisted Programs
- Justice System Improvement Act of 1979
42 USC 3701 et seq
- Civil Rights Restoration Act of 1987
Public Law 100-259
- American with Disabilities Act of 1990
[42 USC Chapter 126 Section 12101 et seq.](#) – Equal Opportunity for Individuals with Disabilities
- CFR Title 23, Highways, Approved Alternate Procedures
- Code of Federal Regulations (CFR) Title 48, Federal Acquisitions Regulations
- U.S. Department of Transportation
49 CFR Part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments

- Participation by Disadvantaged Business in Department of Transportation Programs, 49 CFR Part 26
- Department of Transportation's Final Rules on Department of Contractors, Subcontractors Performing Under Grants, 49 CFR Part 29
- Buy America, 49 CFR Part 661
- FTA's Master Grant Agreement
- FTA Circular 4220.1F, Third Party Contracting Guidelines, as revised.
- FTA's Best Practices Procurement Manual

CRC staff involved in procurements will comply with the governing procedures including those referenced above. It is anticipated that FTA will audit WSDOT's compliance at the Triennial Procurement review.

2.2 Grantee's Self-Certification

WSDOT receives FTA funding for the Ferry Division as well as the Public Transportation Programs. Each year the WSDOT Public Transportation Division completes the annual self-certification by completing the certifications and assurances electronically. The certifications and assurances deal with a variety of compliance areas that include procurement. A detailed listing of compliance areas covered under WSDOT's self-certification follows:

- Authority of Applicant
- Standard Assurances
- Intergovernmental Review Assurance
- Assurance of Non-discrimination on the Basis of Disability
- Suspension and Debarment
- US Office of Management and Budget
- Lobbying
- Procurement Compliance
- Protections for Private Transportation
- Public Hearing
- Acquisition of Rolling Stock for Use in Revenue Service
- Acquisition of Capital Assets by Lease
- Bus Testing

- Charter Service Agreement
- Demand Responsive Service
- Alcohol Misuse and Prohibited Drug Use
- Interest and Other Financing Costs
- Intelligent Transportation Systems
- Labor Provisions

2.3 Legal Services

When legal support is needed, the project staff will rely on guidance and/or participation from the Washington State Office of the Attorney General and the Oregon Department of Justice and their construction Special Assistant Attorney General. Other legal resources available include TriMet's in-house legal staff and attorneys under contract to Clark County Public Benefit Area Authority (C-TRAN).

2.4 Authority to Pursue Alternative Delivery Methods

The CRC Project will contain a number of contracts related to transit and highway construction; delivery methods are being identified and may be Design-Bid-Build, Design-Build, Design-Furnish-Install, or General Contractor/Construction manager. The CRC Program is authorized under both Oregon and Washington laws.

For ODOT, see ORS Chapter 279C ODOT Public Contracting – Public Improvements and Related Contracts. This can be found at:

<http://www.leg.state.or.us/ors/279c.html>

Sections of ORS Chapter 279C of particular interest include:

279C.300 Policy on competition.

279C.305 Least-cost policy for public improvements; costs estimates in budget process; use of agency forces; record of costs.

279C.335 Competitive bidding; exceptions; exemptions.

For WSDOT, see RCW 39.10 Alternative public works contracting procedures and RCW 47.20.780 (Competitively Bid) and RCW 47.20.785 (Qualified Projects) address WSDOT's authority when utilizing Design-Build. These can be found at:

<http://apps.leg.wa.gov/rcw/default.aspx?cite=39.10>

<http://apps.leg.wa.gov/rcw/default.aspx?cite=47.20.780>

<http://apps.leg.wa.gov/rcw/default.aspx?cite=47.20.785>

For work in the State of Washington, the General Contractor/Construction Manager (GC/CM) alternative project delivery method has a legal constraint for the General Contractor to perform a maximum of 30 percent of the overall contract work. The current statute was designed for building construction where the General Contractor typically performs less of the overall work on a project.

For TriMet, see ORS 279A.065, which allows government agencies that are not arms of the State to adopt their own contracting rules. TriMet Contracting Rules Section 3.6 and 3.7 allow TriMet to award design-build and CM/GC contracts. OAR 125-249-0610 and 125-249-0620 allow state government to do the same.

TriMet's website includes information on the TriMet Contract Review Board at:

<http://trimet.org/pdfs/departments/contracts/TriMet-Contract-Review-Board-Rules.pdf>

2.5 Implementation of Bi-State Projects

Bi-state contracts are delivered historically with coordination during the planning phase through construction. An agreement is written to describe roles, responsibilities, and funding contributions. Normally, one agency is the lead through each specific phase. In addition, a maintenance and operations agreement is executed. WSDOT and ODOT have historic examples of successful coordination with all of the existing structures across the State lines. Additionally, the Bi-State DOT Project Development Agreement (IGA) will address ownership, project organization, management, administration of funds, tolling, construction, administration, design, and change order decision making.

3. Initial Construction Program

3.1 Overview

Construction of the entire program would require a number of years to complete and would be phased to provide efficient implementation while minimizing impacts on the community and corridor users. Recognizing the changing economic realities, the CRC program team has developed an Initial Construction Program (ICP) that adapts to available resources and fits into today's economic reality.

The CRC project improvements that were described in the NEPA documents are known as the Locally Preferred Alternative (LPA). The construction of the LPA will be phased and the initial phase is referred to as the Initial Construction Program (ICP). The ICP includes highway, transit, and bicycle and pedestrian improvements, as summarized below.

- The new river crossing over the Columbia River and the I-5 highway improvements, including improvements to three interchanges, as well as associated enhancements to the local street network.
- Extension of light rail from the Expo Center in Portland to Clark College in Vancouver, and associated transit improvements, including transit stations, park-and-rides, bus route and station changes, and expansion of a light rail transit (LRT) maintenance facility.
- Upgrades and modifications to the Steel Bridge and transit command center.
- Purchase of 19 light rail vehicles (LRV), public art, and other transit-related procurements.
- Bicycle and pedestrian improvements throughout the project corridor that connect to the transit system.
- Toll system for the river crossing.
- Transportation demand and system management measures to be implemented with the project.

The ICP will require multiple construction contract bundles or packages (see attached figure). The following narrative contains a description of each construction package.

3.2 ICP Construction Packages

3.2.1 River Crossing (RC)

- Construct new northbound and southbound bridges over the Columbia River. The existing Interstate (I-5) Bridge structures will be replaced by two parallel bridges slightly downstream and to the west of the existing crossing. The proposed bridge type is a composite deck truss in which the diagonal steel members allow for an open-sided,

covered passage for the light rail guideway and multi-use path. The southbound bridge will carry highway traffic on the upper bridge deck with a two-way light rail guideway on the lower bridge deck. The northbound bridge will carry highway traffic on the upper bridge deck and a bicycle and pedestrian path on the lower deck.

- Construct LRT approach structures to the Columbia River Bridge from Hayden Island and Vancouver.
- On the lower deck of the southbound bridge, the Oregon LRT approach structure, and the Washington LRT approach structure, construct and install all transit civil, track, and systems components. All track on the main river bridge and approach structures will be direct fixation. The maximum grade will be 6%, on the Washington LRT approach structure from the BNSF crossing to touchdown at 5th Street and Washington Street in Vancouver.
- Construct the I-5 mainline from Columbia River Bridge to North Portland Harbor Bridge.
- Reconstruct ramp connections on the east and west sides of I-5 on Hayden Island in a configuration similar to the existing ramp connections.
- Reconstruct various local roads on Hayden Island.
- Reconstruct SR-14 connections to and from I-5 and downtown Vancouver.
- Construct a C Street entrance ramp to I-5.
- Reconstruct the I-5 mainline from the Columbia River Bridge to Evergreen Boulevard.
- Construct retaining walls on the east and west sides of the I-5 mainline.
- Construct a replacement Evergreen Boulevard Bridge over I-5.
- Construct the community connector over I-5 near the Evergreen Boulevard Bridge.
- Construct a replacement McLoughlin Boulevard Bridge with transitions on I-5 to accommodate the LRT that passes beneath I-5 at this point.
- Reconstruct portions of the Mill Plain Boulevard entrance ramp to I-5 southbound.
- Reconstruct portions of the I-5 northbound exit ramp to Mill Plain Boulevard.
- Reconstruct portions of Columbia Street, Columbia Way, Main Street, and 5th Street.
- Construct a shared-use path from the Columbia River Bridge to Columbia Way.
- Reconstruct portions of the southbound off-ramp to Fourth Plain Boulevard.
- Reconstruct portions of Fourth Plain Boulevard and the ramp terminal intersections on the east side of I-5.
- Construct an off-ramp from I-5 northbound to Fourth Plain Boulevard.
- Construct shared-use path connections from the Columbia River Bridge to connect to new and existing bicycle and pedestrian facilities on Hayden Island.

3.2.2 Columbia River Interstate Bridge Removal (BR)

- Remove the 2 existing structures.

3.2.3 Mainland Connector (MC)

- Elevate, realign, and reconstruct Marine Drive and modify the Marine Drive ramp terminal intersection and connecting ramps. Elevating Marine Drive provides a grade separation of the LRT from the local road mainland connector bridge to Hayden Island.
- Construct a mainland connector bridge to Hayden Island over North Portland Harbor. The North Portland Harbor (NPH) multimodal bridge will accommodate local vehicle traffic, LRT, and bicycle and pedestrian facilities and will connect to a new local street on Hayden Island and to N. Expo Road on the mainland.
- Construct a new driveway on the extension of N. Expo Road as a replacement access point for Diversified Marine Inc. and Ross Island Sand and Gravel.
- Realign the shared-use path adjacent to North Portland Harbor to go over the LRT line and the connecting street between the mainland and Hayden Island, running parallel and adjacent to Marine Drive. On either side of the grade separation, the path will reconnect to the existing path.

3.2.4 Marine Drive (MD)

- Construct a new single point interchange at Marine Drive and I-5 and associated ramps. This will require demolition of the existing structure that crosses I-5 and construction of a new structure over I-5 to carry Marine Drive. The Marine Drive alignment constructed with the mainland connector bridge will be adjusted in grade and alignment to match the new single point interchange. (Note: The MC package will be constructed first. The alignment of Marine Drive in the vicinity of the LRT and the local road will be slightly adjusted in the MD package. The structures constructed in the MC for the LRT and the local road will remain, with no disruption to light rail or traffic operations.)
- Reconstruct the connections from Marine Drive to Union Court and from Vancouver Way to Marine Drive.
- Construct a road on the south end of the Expo Center between North Expo Road and Force Avenue and thus provide a local route between Hayden Island and Marine Drive.
- Widen I-5 southbound from the North Portland Harbor bridge to a point just south of the Victory Boulevard crossing to provide an additional lane.
- Widen I-5 northbound from the Victory Boulevard crossing to the North Portland Harbor Bridge to accommodate the northbound Denver Street entrance ramp as an auxiliary lane.
- Re-stripe I-5 and reallocate the width of the North Portland Harbor bridge to allow for an additional southbound lane.
- Relocate the function of the North Portland Harbor shared-used path to the sidewalk and bike lanes on the new mainland connector multimodal bridge.

3.2.5 Oregon Transit (OT)

- Construct a double-track LRT guideway to extend from the existing Expo Center MAX station to the new multimodal mainland connector bridge over the North Portland Harbor and across Hayden Island. There will be accommodation for an at-grade crossing at Vancouver Way, a new street that is part of the larger Columbia River Crossing Program. This signalized crossing will include a signal gate on both the eastbound and westbound intersection approaches. On Hayden Island, the LRT guideway will be partially on fill and partially on structure. The alignment will be roughly parallel to the I-5 alignment. On the north end of Hayden Island, the light rail alignment will rise in elevation on structure until it transitions onto the lower deck of the new westernmost bridge (southbound I-5) over the Columbia River. The total distance of the LRT guideway between the Expo MAX station and the Columbia River Bridge approach structure is just over a half-mile.
 - The grade of the track upon leaving the Expo MAX Station will be 6%. On the NPH bridge, the grade from the south abutment to the approximate midpoint will be 4.5%, and then the grade will be 2.3% as the alignment descends to Hayden Island, before flattening out through the station and ultimately transitioning to the lower deck of the main river crossing bridge (with a maximum grade of 0.85%).
 - The exclusive (LRV only) guideway is a mix of ballasted track and direct fixation (on structure) from the Expo MAX station to the lower deck of the main river crossing bridge. At Vancouver Way, ballasted track with modular grade crossing panels will be constructed.
- Construct a bridge over the A Street to I-5 South (A-5S) on-ramp and to accommodate the future Tomahawk Island Drive.
- Build the Hayden Island transit station on structure as a center platform station providing the following amenities:
 - Minimum platform length of 200 feet and platform width of ± 20 feet
 - A covered ticket vending machine at each platform access
 - Wind shelter and canopy incorporated into the structure as well as standard amenities, signage, and public art
 - Elevator, ramps, and stairs for access to and from adjacent roadways

3.2.6 Washington Transit (WT)

- At the beginning of the LRT alignment in Washington, at the intersection of Washington Street and 5th Street, install a signal gate for both eastbound and westbound vehicle traffic. The double-track LRT guideway will be in the center of the street between 5th and 7th Streets. The intersections at 6th Street and Washington Street and 7th Street and Washington Street will be signalized (both traffic and LRT). At 7th Street, the light rail alignment will transition to a couplet, with the northbound guideway on the west side of Broadway Street and the southbound guideway on the east side of Washington Street. At

17th Street, the two guideways will join and turn east for approximately nine blocks. At G Street, the guideway on 17th Street will angle north one block to McLoughlin Boulevard. There will be a signal gate on McLoughlin Boulevard for eastbound traffic. The guideway will then cross under I-5 to run down the center of McLoughlin Boulevard to the Central Park terminus station and park-and-ride structure east of I-5.

- Convert 7th Street to one-way traffic eastbound between Washington and Broadway Streets, with traffic and interconnected LRT signals installed at Main Street and Broadway Street. The profile grades along 7th Street will vary from 0% to 5%.
- Convert Broadway Street to two-lane traffic northbound, with traffic and interconnected LRT signals installed at 8th, 9th, Evergreen, 11th, 12th, 13th, Mill Plain, 15th, 16th, and 17th Streets. The LRT guideway will be constructed on the west side of Broadway Street, with the profile grades along Broadway Street varying from 0% to 5%.
- On 17th Street, construct the double-track LRT guideway to run down the center of the street, with eastbound traffic on the south side of the street and westbound traffic on the north side of the street. Profile grades along 17th Street vary from 0% to 5%. Traffic and interconnected LRT signals will be installed at intersections with Washington, Main, C, D, E, and F Streets.
- On McLoughlin Boulevard, roughly in between the I-5 underpass and a new station to the east, construct the double-track LRT guideway to run down the center of the street, with eastbound traffic on the south side of the street and westbound traffic on the north side of the street. Profile grades on McLoughlin Boulevard will vary from 0% to 5%. There will be a traffic and interconnected LRT signal installed at the entrance to the Central Park-and-Ride.
- On Washington Street, construct the guideway on the west side of the street, with traffic and interconnected LRT signals installed at 16th, 15th, Mill Plain, 13th, 12th, 11th, Evergreen, 9th, 8th, and 7th Streets. The profile grades on Washington Street will vary from 0% to 5%.
- All track in Washington will be embedded T-rail.
- Construct LRT stations, designed not to preclude BRT, along the transit guideway at:
 - 6th and Washington Street Station – located within vacated Washington Street between 5th and 6th Streets, and servicing the Columbia Park-and-Ride (see section on park-and-rides, below). This station shall have co-located side platforms with northbound and southbound rail between them. The platforms shall provide:
 - A minimum platform length of 190 feet and a minimum platform width of 12 feet.
 - A covered ticket vending machine at each platform access.
 - Two shelters per platform with standard amenities, signage, and public art.
 - Evergreen and Broadway Platform – located on the west side of Broadway Street between 9th Street and Evergreen Street

- 16th and Broadway Platform – located on the west side of Broadway Street between 15th Street and 16th Street
- 9th and Washington Platform – located on the east side of Washington Street between 9th Street and Evergreen Street
- 15th and Washington Platform – located on the east side of Washington Street between 15th Street and 16th Street. This platform adjoins and provides access to the Mill Park-and-Ride.
- These platforms shall provide:
 - A minimum platform length of 190 feet (200 feet at 15th Street and Washington Street) and a minimum platform width of 12 feet.
 - An adjacent sidewalk of 7.5 feet.
 - A covered ticket vending machine at each platform access.
 - Two shelters per platform with standard amenities, signage, and public art.
- Central Station – located at the end of line on McLoughlin Boulevard. This station provides access to the Central Park-and-Ride and a major bus transfer location and has a center platform. The platform shall provide:
 - A minimum platform length of 200 feet and a minimum platform width of 17.5 feet.
 - A covered ticket vending machine at each platform entrance and accommodation for future covered vending machines at or near the park-and-ride structure.
 - Four shelters per platform with standard amenities, signage, and public art.
- Construct full-block bus stops along the LRT alignment or adjacent to significant developed improvements at the following locations:
 - 7th and Main Streets.
 - Broadway and 9th Streets.
 - Broadway and Evergreen Streets.
 - Broadway and 13th Streets.
 - Broadway and 16th Streets.
 - Main and 15th Streets.
 - Washington and 12th Streets.
 - Washington and 8th Streets.
 - Central Station.
- Construct two surface parking lots, at SR-14 and at 5th Street (Smith Tower). The SR-14 lot will be located within the perimeter of the SR-14 on-ramp to I-5 North and will contain approximately 50 stalls. The 5th Street lot will be located north of 5th Street and

east of the 6th and Washington Street LRT station. This lot is a reconstruction of an existing parking lot at the same location and will contain a minimum of 17 stalls.

3.2.7 Park-and-Rides (PR)

- Construct three park-and-ride garages, distributing a minimum of 2,900 spaces, needed for the project based on ridership demand models, as follows:
 - Columbia Park-and-Ride – located between Columbia Street and Washington Street and between 4th Street and 5th Street, and includes retail/office space frontage facing Columbia Street. Primary ingress and egress is on 5th Street at the north end of the structure. This park-and-ride will provide approximately 570 auto parking spaces and 34 bicycle parking spaces, and will have five floors and an exposed height of 68.5 feet.
 - Mill Park-and-Ride – located between 15th and 16th Streets and between Washington Street and Main Street, and includes retail/office space frontage on both Main Street and Washington Street. Washington Street will also have a C-TRAN Customer Service Center and parking on 16th Street to accommodate paratransit vehicles. Vehicles can enter from 15th and 16th Streets, but can exit only onto 16th Street. This park-and-ride will provide approximately 420 auto parking spaces and 30 bicycle parking spaces, and will have five floors and an exposed height of approximately 60 feet.
 - Central Park-and-Ride – located east of I-5, north of McLoughlin Boulevard, and across from the Marshall Community Center. One access is provided via a loop road, which provides direct access to and from Fourth Plain Boulevard and the I-5 access ramps at the interchange. The loop road wraps around the east side of the building and passes through the south end of the garage before returning north to Fourth Plain Boulevard. The garage can also be accessed via an entrance from McLoughlin Boulevard. This park-and-ride will provide approximately 1,910 auto parking spaces and 81 bicycle parking spaces, and will have five floors and an exposed height of 55.5 feet. A C-TRAN shared safety and security and Vancouver police mini-station will be included at this location as well as an operator break room located outside of the structure near the terminus station.
- Construct access roads and two bridges near the Central Park-and-Ride to grade-separate ingress and egress to the parking facility.

3.2.8 Transit Systems (TS)

- The Transit Systems package will provide power, signalization, and communications capability along the entire light rail alignment and will be composed of the following primary system elements:
 - 2.9 miles of light rail extension (power, signals, and communications infrastructure) of the existing MAX system.

- Three new 1-megawatt substations and three new combined signals/communications buildings at the following locations:
 - Next to Hayden Island Station off Tomahawk Island Drive.
 - Southeast of 6th Street/Washington Avenue Station near the 5th Street parking lot.
 - Near the intersection of 17th and G Streets just south of McLoughlin Boulevard.
- One communications room inside the Mill Park-and-Ride.
- One signals room inside the Mill Park-and-Ride.

3.2.9 Transit Other (TO)

3.2.9.1 Ruby Junction Yard Expansion (see attached plan view)

- To accommodate storage of the 19 additional light rail vehicles (LRVs) associated with the ICP, the Ruby Junction Yard and Maintenance Facility in Gresham, Oregon, will be expanded. This expansion will be in conjunction with an existing expansion project to accommodate additional LRVs as part of the Portland Milwaukie Light Rail (PMLR) project. Improvements include storage for the new LRVs and other maintenance material, expansion of LRV maintenance bays, and expanded parking for additional personnel.

3.2.9.2 Steel Bridge Modifications

- The Steel Bridge, located near the Rose Quarter in downtown Portland, carries all of the light rail transit lines within TriMet's system over the Willamette River. To accommodate the additional LRVs associated with the ICP, the Steel Bridge will be modified to increase throughput over the bridge by raising the maximum crossing speed of LRVs from 10 miles per hour to 15 miles per hour. Specifically, the modifications are as follows:
 - Grind the transit rails within the track bed to remove the lift joint bumps, rail corrugation, and any rough field welds.
 - Install a vibration pad under the existing signal case on the lift span to dissipate vibration.
 - Stiffen the overhead catenary system brackets to allow for greater impact as the catenary transfers from the fixed span to the movable span.
 - Adjust signals for light rail transit and traffic at NW Everett Street and N Interstate Avenue to accommodate higher speeds.

3.2.9.3 Light Rail Vehicle Procurement

- To accommodate the additional passengers that have been identified for the ICP, 19 new LRVs will be procured. This procurement is planned to use an option clause associated with the PMLR project.

3.2.9.4 Command Center Upgrades/Modifications

- The TriMet command center at SE Center Street in Portland will be upgraded and modified to account for the light rail extension to Vancouver. This will include a number of hardware and software upgrades to the existing train control system.

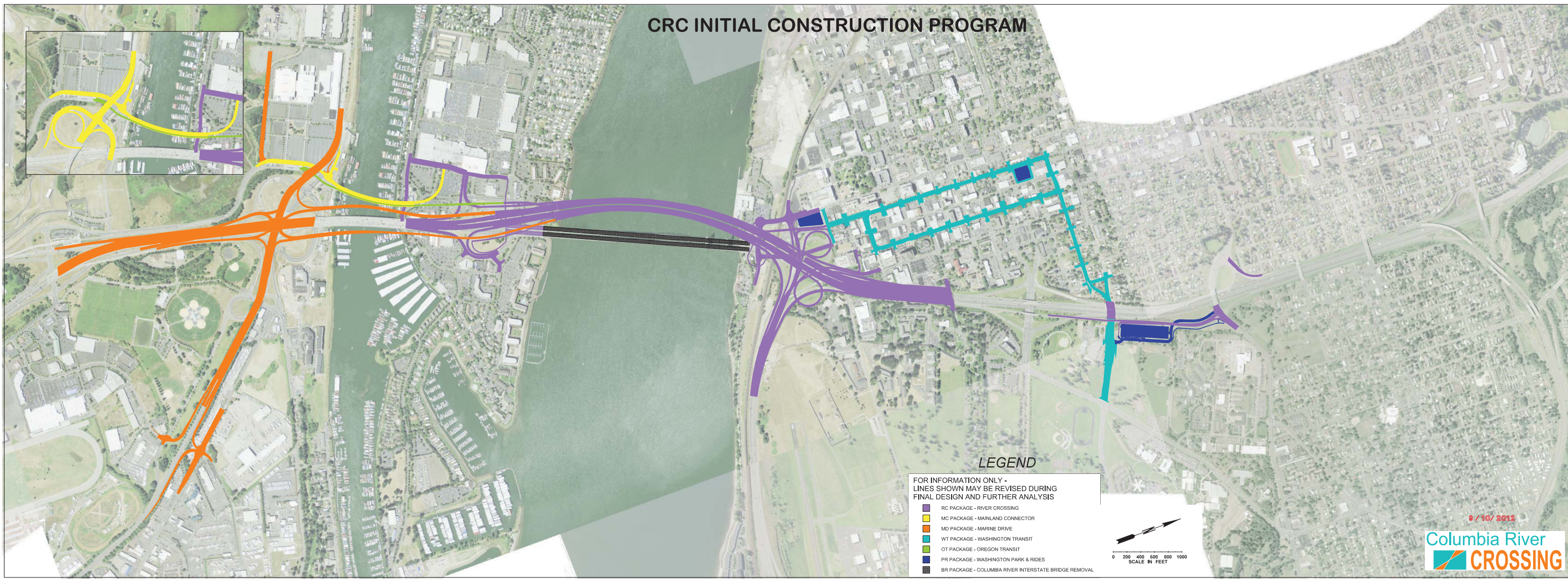
3.3 Tolling

- Tolling cars and trucks that use the I-5 river crossing will be used to help fund the ICP and to encourage the use of alternative modes of transportation. A variable toll will be applied on vehicles using the I-5 crossing. Tolls will vary by time of day, with higher rates during peak travel periods and lower rates during off-peak periods. Medium and heavy trucks will be charged a higher toll than passenger vehicles. Tolls will be collected using an electronic toll collection system, so that toll collection booths will not be required.

3.4 Transportation Demand Management and Transportation System Management

- Implement physical features and operational elements as part of the Columbia River Crossing Program that enhance opportunities for the region to achieve its Transportation Demand Management (TDM) goals by promoting other modes to fulfill more of the travel needs in the project corridor. These include:
 - A new light rail line with connections to express bus and feeder routes operated by C-TRAN and TriMet.
 - Modern bicycle and pedestrian facilities that accommodate more bicyclists and pedestrians, and that improve connectivity, safety, and travel time.
 - Park-and-ride facilities.
 - A variable toll on the highway crossing.
- Implement facilities and equipment that could help existing or expanded Transportation System Management (TSM) programs maximize the capacity and efficiency of the system. These could include:
 - Replacement or expanded variable message signs or other traveler information systems.
 - Continued incident response capabilities.
 - Expanded traveler information systems with additional traffic monitoring equipment and cameras.

CRC INITIAL CONSTRUCTION PROGRAM



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4. Contracting Agency, Delivery Methods, and Procurement Methods

4.1 Overview

The project packaging strategy divides the CRC program into separate and distinct functional construction packages.

Key factors informing the program's framework for project packaging include:

- The project sequencing strategy described in Section 3 of this plan;
- Interdependencies of project components;
- Jurisdictional changes and urban features along the alignment;
- Schedule criticality;
- Financial cash flow projection;
- Inherent risks;
- Oversight required for multiple interfaces among packages;
- Lead times;
- Specialty work;
- Optimizing opportunities for competition and for participation by DBEs.

The project packaging strategy and the assignment of project packages accounts for:

- The contracting or procuring agency;
- The preferred delivery method; and
- The procurement strategy.

Sections 4.2, 4.3 and 4.4 provide background information about the contracting/procuring agency, delivery methods, and procurement methods, respectively. Section 5 presents information on the packages with summary information about the contracting agency and delivery method for each.

4.2 Contracting/Procuring Agency

WSDOT was the main agency to procure contracts with consultants during the environmental phase of the program and is the grantee for FTA federal funding. WSDOT is the grantee and principal contracting/procuring agency as the program proceeds through construction.

Two other agencies – ODOT and TriMet – are expected to play a major role in the contracting and procurement process. Both ODOT and TriMet will become operators of major components of the completed project and both have special skills to contribute to the contracting and procurement process. The basic division of responsibilities for contracting and procurement of general categories is summarized in Table 4-1.

Table 4-1. Contracting/Procuring Agency

General Package Category	Contracting Agency
Columbia River Bridge & approaches (and necessary components)	WSDOT
Transit civil components in Washington	WSDOT
Transit civil components in Oregon	TriMet
Transit system components in WA and OR	TriMet
Highway components located in Oregon	ODOT
Highway components located in Washington	WSDOT

The selections identified in Table 4-1 consider the agencies’ past experience and expertise. Before or during the final design phase any issues related to the ability of an agency to contract in a different state will be investigated and resolved. The selections also considered TriMet’s successes in light rail transit delivery, ODOT’s bridge and highway delivery, such as the Oregon Transportation Investment Act (OTIA) program, and WSDOT’s experience in delivering large programs such as I-90, I-405, and the Alaskan Way Viaduct.

Further identification of the agency assignments is contained in the project packaging summary in Section 5.

4.3 Delivery Methods

As explained in Section 1.2, project delivery methods refer to the overall process by which a project is designed, constructed, and/or operated and maintained. The range of project delivery methods includes:

- Design-Bid-Build (DBB);
- General Contractor/Construction Manager (GC/CM);
- Design-Build (DB); and

- Design-Furnish-Install (DFI)

Information about the attributes of each of these delivery methods is provided below. For the CRC Program the following delivery methods are likely to be used.

4.3.1.1 Design-Bid-Build (DBB)

Design-Bid-Build (DBB) is often considered to be the “traditional” method for delivery of public works projects. With this delivery method, an owner develops or engages others to develop a complete design package and specifications. The owner uses this package to award a separate construction contract that is based on the designer’s completed construction documents. The usual procedure involves the owner advertising for bids or proposals and the selection of the construction contractor based on specific performance criteria, typically the price of the work. In developing the construction documents, the owner may choose to do the design work “in-house” utilizing the owner’s own personnel or by retaining an outside designer to prepare the documents. In either case, the owner is responsible for the details of the design and warrants the quality of the construction design documents to the construction contractor.

4.3.1.2 General Contractor/Construction Manager (GC/CM)

General Contractor/Construction Manager (GC/CM) – Under this delivery method, an owner would initially advance a design, using either “in-house” personnel or an outside designer working under contract, to a point where the scope of the project is sufficiently defined. The owner would then enter into a separate contract with a GC/CM to provide preconstruction services during design, working closely with the designer and other owner representatives, and subsequently serve as the general contractor during construction. The second phase of the GC/CM delivery method includes negotiation of a guaranteed maximum price (GMP) for the construction phase. If the owner and contractor are unable to agree on a GMP, the owner can opt to proceed using a competitive bid as in the DBB delivery method. The owner retains control of the design process and is responsible for the quality of the construction design documents, but gains the added value of a collaborative construction professional on the program team at a stage in the design process in which definitive input can have a positive impact on the project.

4.3.1.3 Design-Build (DB)

Design-Build (DB) is a project delivery method in which the owner procures design and construction services in the same contract from a single legal entity referred to as the design-builder. The DB entity is liable for the outcome of the project and is obligated to complete the project while meeting the specified contract price, completion schedule, and design or performance parameters. The owner’s relationship with the DB contractor must be based on a strong degree of mutual professional trust. The DB contractor has a greater degree of flexibility to execute the project under this delivery method.

4.3.1.4 Design-Furnish-Install (DFI)

Similar to the DB method, the Design-Furnish-Install (DFI) is a project delivery method in which the owner procures design, manufacturing or furnishing of items, and installation or construction under the same contract from a single legal entity. The DFI method is typically used when the principal activity is the manufacture of a product with installation as a relatively minor

portion of the activity. Examples could include procurement of light rail vehicles or ticket vending machines. The DFI entity is liable for the outcome of the project and is obligated to complete the project while meeting the specified contract price, completion schedule, and design or performance parameters. The relationship with the DFI contractor and the owner must be based on a strong degree of mutual professional trust.

4.4 Procurement Methods for A&E Services

The CRC Program's procurement strategy recognizes three contract categories:

1. A&E and Personal Services contracts
2. Construction contracts
3. Equipment, Material, and Supplies contracts

A&E services are procured following the specific requirements applicable to Oregon and Washington. Professional services are typically qualifications-based selection. The Brooks Act requires qualification based selection for federally funded contracts.

Procurement of A&E and Personal Services contracts is discussed in detail in the WSDOT Consultant Services Manual M 27-50. It can be found at:

<http://www.wsdot.wa.gov/Publications/Manuals/M27-50.htm>

Information on procurement of A&E and Personal Services contracts through ODOT can be found on the ODOT Procurement Office website, including the following:

<http://www.odot.state.or.us/ffp/hwy/opd/consultant.html>

<http://www.oregon.gov/ODOT/CS/OPO/procurement/business.shtml>

<http://www.oregon.gov/ODOT/CS/OPO/AE.shtml>

4.5 Procurement Methods

The primary procurement methods used to evaluate and select designers and construction contractors fall into two broad categories:

- Competitive Low Bid Procurements – This is the most common procurement method for selecting the construction contractor under the DBB delivery method, but it is rarely used for procuring designers for projects. Award is based on lowest bid price from a responsive contractor. To avoid bids from unqualified construction contractors, contractors may be required to go through a prequalification process prior to competitive bidding.
- Negotiated Procurements – This procurement method is used primarily for selecting the designers for DBB and GC/CM delivery methods and the designer-construction

contractor team for DB delivery methods. Selection could be based solely on qualifications (Qualification-Based Selection or QBS) or a combination of qualifications and price, such as a Best Value Selection (BVS), or selection criteria based on the proposed schedule and approach to the project. The final price for the work is arrived at through a negotiation process between the owner and contractor.

The procurement strategy for each project package will be the most suitable in combination with the delivery method assigned to that package, meets the project schedule and budget, satisfies applicable federal and state procurement requirements, and results in the best value to the program.

The CRC Program's procurement strategy recognizes three contract categories as mentioned above:

- A&E and Personal Services contracts
- Construction contracts
- Equipment, Material, and Supplies contracts

Procurement of contracts in the two categories of Construction and Equipment, Material and Supplies varies according to the type of goods or services, the estimated dollar value of the contract, market conditions, or other factors. The CRC program team will choose the method of procurement that will maximize competition and will result in the best value to the CRC program.

4.5.1 Competitive Low Bid Procurement Methods

There are two types of competitive low bid procurement methods:

- Traditional Low Bid: All responsive and responsible bids are considered.
- Two-Step Low Bid: Step one is a solicitation of bidder qualifications to prequalify bidders based upon stated, objective criteria. Step two is the award of the construction contract to the lowest bidder from the prequalified list.

There are variations on the two types of competitive low bidding that would include using a combination of the price "A," schedule "B" with incentive/disincentives "I/D," qualifications "C," and approach to the project "D," as a basis of award (A+B, A+C, A+B+C, and A+B+C+D contracts). The A+B I/D offers a quantitative analyses, and C and D offer qualitative analyses to be used during the contractor selection process. The two-step low bid, described above, is similar to the A+C, except that for the A+C procurement approach, the price (A) and qualifications (C) are submitted at the same time.

4.5.2 Negotiated Procurement Methods

There are generally five types of negotiated procurement methods:

- Request for Proposals (RFP): RFP procurement bases the selection of the construction contractor on relevant technical criteria, which are defined and weighted

- in the RFP. Price is normally one of the criteria. Final design is completed under separate contract to the owner, before the issuance of the RFP solicitation.
- Request for Qualifications/Request for Proposals (RFQ/RFP): RFQ/RFP procurements are similar to RFP procurements, except that the process involves two steps: a first step in which proposals are reviewed for qualifications only, followed by a second step in which proposers deemed qualified in step one submit pricing information. Final selection is made using a predefined mix of price and qualification data. (See also the discussion of the two-step procurement approach in Section 4.4.1, above.)
 - General Contractor/Construction Manager (GC/CM) approach: During the design process, a construction contractor is selected based upon clearly defined technical and price criteria. Since final design details are not yet known, fixed construction cost is not available as a selection criterion. However, a fixed contractor's fee percentage, which will be applied to the future cost of construction, and the price for pre-construction services are included as selection criteria.
 - The GC/CM contract is awarded sometime during the design phase and initially includes the proposal price for pre-construction services. The design work is completed under a separate contract to the owner. The actual construction is priced sometime near the end of the design phase and includes negotiated amounts for field overhead and general conditions. Competitive pricing is obtained from:
 - The fixed fee percentage committed in the proposal.
 - An "open book" requirement for all contractor pricing, with comparison to independent owner estimates.
 - Competitive subcontracts to the GC/CM that are awarded based upon low bid or value-based selection criteria.
 - The ability of the owner to put out the project for a low-bid procurement if the GC/CM price is unacceptable.
 - Design-Build (DB): The construction and design are part of one contract. Selection of the DB contractor is based upon clearly defined technical and price criteria. Contract award may include a not-to-exceed or lump sum price, based upon a well-defined scope.
 - Design-Furnish-Install (DFI): The manufacturing or furnishing, installation or construction and design are part of one contract. Selection of the DFI contractor is based upon clearly defined technical and price criteria. Contract award may include a not-to-exceed or lump sum price, based upon a well-defined scope.

4.5.3 Procurement Option Analysis: Competitive Low Bid

4.5.3.1 Traditional Low Bid

The advantages and disadvantages of DBB traditional lump sum, low bid are:

4.5.3.2 Advantages:

- Competitive bidding ensures the lowest contract award price (but not necessarily the lowest project price).
- The owner may benefit from "checks and balances" between the designer and the contractor.
- The owner controls the preliminary engineering and final design.
- The rights and obligations of the parties are generally well understood.
- No public hearing or record findings are required to execute the contract award.

4.5.3.3 Disadvantages:

- Risk to the owner may increase if the low bidder is an unqualified or marginally qualified contractor.
- The contractors have an incentive to price the work too optimistically to improve their chances of getting the work, which increases the likelihood of claims and reduced performance with regard to both schedule and quality of work.
- Before award, there is no opportunity for the owner to work with the contractor regarding technical complexities, constructability, work plans, and change order mitigation.
- Because the contract award is based upon lowest bid, the contractor may not budget enough money for adequate quality control, safety management, scheduling control, jurisdictional requirements, and coordination with the public.
- Significant amounts of owner staff time are usually required to administer the contract, thus adding to the overall project cost.

4.5.3.4 Two-Step Low Bid

The two-step approach (RFQ to shortlist prequalified contractors with a subsequent bid) is intended to increase the likelihood that a contractor with a record of proven performance in similarly complex work is awarded the contract.

4.5.3.5 Advantages:

- The owner lessens its risk that the contract will be awarded to an unqualified or marginally qualified contractor.

4.5.3.6 Disadvantages:

- The reduced competition could reduce the cost advantage of the traditional low bid approach. However, for the reasons cited above, this is not necessarily a significant disadvantage.

All other advantages and disadvantages of the traditional low-bid procurement remain.

4.5.3.7 General Guidelines on When to Consider a Two-Step Low-Bid Process:

- Owner findings do not justify exemption from traditional low bid.
- The contractor's understanding of project complexity is key to successful performance.
- Owner concern over public impacts, working relationships, and jurisdictional matters is high.
- For specialty construction activities (e.g., underground or marine construction).

4.5.4 Procurement Option Analysis: RFP and RFQ/RFP for DBB Procurements

In negotiated procurements, the owner has the opportunity to evaluate each construction contractor or designer-building contractor based upon experience, work plan, proven performance, scheduling capability, safety program, subcontracting program, quality control, cost control, technical expertise, and other critical criteria. This process is designed to produce a good contractor match to the requirements of the project and, ultimately, to result in timely performance at a final cost (cost at completion) that is reasonable or lower than the traditional low bid based procurement cost. The negotiated procurements differ, however, in their relative advantages and disadvantages.

4.5.4.1 RFP and RFQ/RFP Procurements (for DBB)

The RFP and RFQ/RFP procurements require the contractor to submit a proposal that addresses evaluation criteria established by the owner. One of the criteria is the cost to perform the construction work.

4.5.4.2 Advantages:

- Owner has the opportunity to weight the criteria to match the demands of the project.
- The owner controls preliminary engineering and final design.
- The owner lessens the risk of award to a contractor that lacks the experience, expertise, or capacity to perform successfully.
- Following award, and before notice to proceed, the owner may negotiate the final contract price, incorporating recommendations that clarify the intent of the parties.
- Competitive pricing is retained.

4.5.4.3 Disadvantages:

- An unrealistically low bid price, even when weighted, may effectively nullify the weight given to the other criteria. The result is an award to the lowest bidder, negating the contractor performance evaluation, and potentially increasing cost risk.
- The contractor/owner commercial relationship is the same as in a traditional low bid contract.
- No opportunity exists for the successful construction contractor to provide input during design regarding matters such as value engineering, constructability, scheduling, work plan, and public impact mitigation.
- Depending upon the jurisdiction, an RFP exemption may need to be justified and be evaluated in a public hearing.

4.5.4.4 General Guidelines on When to Consider an RFP or RFP/RFQ Process:

- Quality, safety, and public interface demands of the project exceed those usually anticipated with typical low bid.
- Owner desires to handle design and construction management in a traditional manner and is staffed accordingly.
- Early construction contractor involvement is not considered important.
- If required, owner findings justify an exemption from traditional low bid.

4.5.5 Procurement Option Analysis: GC/CM Approach Procurements

In the GC/CM approach, the owner awards a contract to a general contractor following evaluation against criteria. The general contractor assumes construction management responsibilities as part of the owner's team.

The procurement for a GC/CM contract includes two steps: (1) the request for proposals (RFP), and (2) negotiation of a Guaranteed Maximum Price (GMP) or Maximum Allowable Construction Cost (MACC). The proposal step is to select a contractor based on a demonstrated ability to perform the required work, and a percent fee on the estimated maximum allowable construction cost and the fixed fee amount for the general conditions work specified in the request for proposal for the life of the project. The negotiation step is based preferably on a 100% completed design reducing the estimation involved in developing the GMP and to allow the contractor to lock in subcontractors. If the CRC Program is unable to negotiate a satisfactory GMP with the selected contractor, negotiations will be formally terminated and the CRC Program will solicit competitive bids based on the completed design. In essence, this becomes a DBB if the owner and GC/CM are unable to negotiate an acceptable GMP.

4.5.5.1 Advantages:

- Owner has the opportunity to weight selection criteria to match the demands of the project.

- The owner controls preliminary engineering and final design.
- The contractor is brought on board during design. Working with the successful contractor, the owner maximizes opportunities for value engineering, constructability review, technical compatibility, and realistic cost projections.
- Owner may fix a guaranteed maximum price for construction.
- Owner can significantly influence the contractor's performance as it relates to quality control, safety, cost control, schedule, and mitigation of impacts to the public.
- Competitive pricing is obtained through low bid subcontracts and open-book estimating and the ability to bid all the work out if the GC/CM price is unacceptable.
- Risk of claims is reduced because of early contractor involvement.
- Allows flexibility to schedule adequate process time to resolve design, public, and jurisdictional issues before locking down the periods for performance of construction.
- Teamwork is developed during design, making relationships less adverse, and is likely to carry through construction.

4.5.5.2 Disadvantages:

- There is less competitive leverage on the general contractor when pricing the construction beyond that imposed by the GC/CM agreement.
- Although the risk of claims is significantly less than with the traditional low bid approach, claims may occur especially at the subcontractor level.
- The guaranteed maximum price (GMP) agreement must be clearly defined.
- Generally, work added outside of the original scope does not fall within the GMP.
- Depending on jurisdiction, a GC/CM exemption may need to be justified and be evaluated in a public hearing.

4.5.5.3 General Guidelines on When to Consider GC/CM Process:

- Construction contractor input is needed during design to identify cost and schedule savings opportunities.
- Public expectations that impacts will be mitigated are high.
- Owner desires to retain control of preliminary engineering and final design because of in-house expertise, evolving jurisdictional and public requirements, quality and aesthetic requirements, and critical technical compatibility issues.
- If necessary, owner findings justify an exemption from traditional low bid.

4.5.6 Procurement Option Analysis: Design-Build (DB)

Under these procurement methods, the contractor performs both the design and construction. The contractor assumes responsibility for the design. The actual agreement determines the degree of owner involvement.

The procurement for a DB contract would include two steps: (1) the request for qualifications (RFQ), and (2) the request for proposals (RFP). The qualifications are basic in nature and are intended to confirm that a contractor has demonstrated ability to perform the required work. The proposals require greater focus on schedule, design innovation, project price and other selection factors. The RFP phase typically includes instructions to proposers, conceptual design and reports, general specifications and performance standards. Once selected based on best value (highest score), the Design-Builder will advance the design with allowance to start early construction on select work elements concurrent with other design activities.

4.5.6.1 Advantages:

- Owner has the opportunity to weight selection criteria to match the demands of the project.
- There is single-point accountability to the owner for design and construction.
- Owner coordination and administration burden and risk are reduced.
- There is less claim risk to owner because of the designer-contractor relationship.
- Overall design-construct schedule may be shortened by fast-tracking construction elements. Also, fewer procurements result in less schedule impact for the public procurement process.
- Owner may fix a not-to-exceed design-construct price, based upon known scope.
- DB contractor has an inherent incentive to consider the constructability of the design and to identify value engineering opportunities.
- DB contractor is responsible for timely resolution of design issues and for errors and omissions.

4.5.6.2 Disadvantages:

- Stakeholders may be unable to break the "business as usual" attitude. This may offset certain advantages of the DB approach.
- The owner has less control over final design, including aesthetics.
- Definition of scope is critical. A poorly defined scope, or a scope that is still evolving, may result in significant cost increases or sacrifices in project quality or function.

- Great care is required to select a DB contractor. The owner generally does not evaluate key subcontractors and designers, thereby increasing the reliance upon the DB contractor with regard to quality and performance assurances.
- Lack of checks and balances may expose the owner to shortcomings in design and construction.
- The DB agreement is complex. Special attention should be given to allocation of risks, because traditional understandings may not apply.
- The time allotted for the process to resolve public, jurisdictional, and design matters is likely to be squeezed by the DB contractor's desire to build quickly.
- For some jurisdictions, the DB exemption may need to be justified and be evaluated in a public hearing.

4.5.6.3 General Guidelines on When to Consider a DB Process:

- Owner lacks in-house expertise to manage design and construction.
- Owner desires to transfer risk of on-time, on-budget delivery of design and construction to a single entity.
- Owner is able to clearly define scope and functionality at the time of the agreement.
- Jurisdictional and public expectations are settled at the time of the agreement.
- Required product quality and technical compatibility with existing systems can be accomplished without direct owner control over design.
- If required, owner findings justify exemption from traditional low bid.

4.5.7 Procurement Option Analysis: Design-Furnish-Install (DFI)

The Design, Furnish and Install (DFI) is a competitive multi-step procurement process in which the successful proposer completes design concurrently with component selection, then procures, installs and tests, to ensure conformance with contract specifications. TriMet considers DFI procurement in situations that require specific expertise to be employed during the design, fabrication, and installation of an item or system of components. Often DFI procurements involve complex integration of hardware and software components such as LRT traction power control systems and ticket vending machines. TriMet, however, also uses DFI for procurements with aesthetic standards such as passenger shelters and works of public art.

CRC will solicit and select DFI contractors through a two-step procurement process: the first step (RFQ) establishes a list of qualified proposers; the second step (RFP) consists of evaluating and ranking qualified proposals. The highest ranked proposer will be selected. DFI RFPs typically include instructions to proposers, conceptual designs and reports, technical specifications and performance standards.

With respect to contract law, the DFI process does not result in a construction contract; but rather a procurement of installed items. As such, DFI contracts are not subject to Buy America regulations.

4.5.7.1 Advantages:

- Provides a criteria-based procurement for highly specialized and technical items or systems. Cost is usually only one of the criteria.
- Leverages the expertise of the contractor to meet performance standards in a cost-effective manner.
- Potential to ensure compatibility with existing systems
- Incentivizes DFI contractor to consider the constructability of the design and to identify value engineering opportunities.
- Transfers responsibility for timely resolution of design issues, errors, and omissions to the DFI contractor.
- Shortens overall procurement duration due to the vertical integration of DFI contractor.
- Allows owner to establish an overall not-to-exceed price.

4.5.7.2 Disadvantages:

- A DFI contract is complex. Special attention should be given to allocation of risks, because traditional understandings may not apply.
- Installation logistics, especially scheduling and staging needs, must be carefully defined and coordinated to avoid claim risks between the general construction contractor and the DFI contractor.
- Definition of clear and considered performance standards is critical. Poorly-defined standards will almost certainly result in expensive change orders, unnecessarily low quality, or both.
- Great care is required to select a DFI contractor. The owner will not generally evaluate key subcontractors and designers, thereby increasing the reliance upon the DFI contractor with regard to quality and performance assurances.
- The owner has less control over final design, including aesthetics.
- Lack of checks and balances may expose the owner to shortcomings in design and installation.

4.5.7.3 General Guidelines on When to Consider a DFI Process:

- Owner desires to transfer risk of on-time, on-budget delivery of design and construction to a single entity.
- Owner is able to clearly define scope and functionality in advance of the procurement process.
- Required product quality and technical compatibility with existing systems is desired, but direct owner control over the details of the design is not.
- Owner findings justify exemption from traditional low bid procurement.

5. Transit Interfaces

5.1 Transit Interfaces

For the purpose of this discussion, there are two types of interface definitions. The first are functional interfaces which are discrete project elements whose construction directly impacts the ability of the transit project to function as intended. The majority of functional interfaces are bridges that serve both transit and highway needs. For example, the southbound bridge of the River Crossing Package (designated LL), is the largest functional interface within the ICP.

The second are construction interfaces. Construction interfaces can be either specific project elements or general geographic areas. Construction interfaces will require contractors from different delivery packages to coordinate work temporally and/or spatially in order to keep construction activities on schedule and budget. One of the largest construction interfaces is in the vicinity of Station 486+00 of the LRT alignment. This area involves construction of the LRT approach to the Columbia River Bridge, SR 14 interchange ramps, surface roadways, the Columbia Park-and-Ride, traction power and sig/com buildings as well as the installation of special track and utility relocation work.

The naming convention for bridges is as follows: **[Alignment using the bridge] ([alignment being bridged])**

Additionally, if the bridge connects one alignment to another, a hyphen is used between the origin alignment and destination alignment. For example, LRT (A-5S) indicates the LRT Bridge over the ramp connecting A-Street on Hayden Island to I-5 south.

Table 5-1 provides a summary of transit-related functional interfaces. Table 5-2 provides a summary of construction interfaces. In both tables, the heading “Transit Segment” refers to the geographic location of the interface with respect to the entire transit alignment; as such “corridor wide” is used to describe interfaces types that occur in multiple locations along the LRT alignment. The column heading “Package Delivering Interface” means the contract package(s) under which an interface is constructed.

Table 5-1 Summary of Functional Interfaces Related to Transit

Transit Segment	LRT Alignment Station (approximate)	Interface structure	Interface Name	Package delivering interface	Notes
OT	410 + 00	bridge	MD (MC), MD (LRT)	MC	Provides grade separation between multimodal MC and Marine Drive.
OT	420 + 00	bridge	LRT (NPH)	MC	Multi-modal span over North Portland Harbor.
OT	433 + 00	bridge	LRT (A-5S)	TO	Two span structure on Hayden Island over the southbound on-ramp to I-5.
TS	443 + 00	bridge	OR LRT Approach	RC	Construction of approach structure to the LL bridge includes transit civil, track and systems infrastructure.
TS	461 + 00	bridge	LL	RC	Multi-modal composite deck truss bridge over the Columbia River. Southbound I-5 on upper deck, LRT on lower deck. RC package includes transit civil, track and transit systems infrastructure.
TS	480 + 00	bridge	WA LRT Approach	RC	Construction of approach structure to the LL bridge includes transit civil, track and systems infrastructure.
WT	545 + 00	bridge	5S (MCL), 5N (MCL)	RC	Replacement of existing interstate McLoughlin Blvd overpass to accommodate LRT and to accommodate northbound and southbound auxiliary lanes for LPA phase 1.
WT	546 + 00	bridge	CDN-4P (MCL),	RC	Bridge segment of I-5 Northbound Ramp to 4 th Plain over the McLoughlin Blvd. LRT alignment.
PR	546 + 00	bridge	CDN-4P (P&R)	PR	Provides grade separation between CDN-4P and Central Park-and-Ride access.
PR	548 + 50	roadway, bridge	Central P&R Loop Road 4P-P&R	PR	Interfaces provide direct park-and-ride access to and from Fourth Plain Boulevard and I-5 access ramps.

Table 5-2 Summary of Construction Interfaces Related to Transit

Transit Segment	LRT Alignment Station (approximate)	Interface Structure	Interface Name	Package Delivering Interface	Notes
RJ	n/a	various	Ruby Junction	RJ, PMLR, LRV	Ruby Junction Expansion Phase II needs to be coordinated with construction of Phase I and the delivery of CRC Type IV LRVs.
OT	420+00	bridge	5S-MLK (JD) 5S-MLK (NPH)	MD	Construction of I-5S off-ramp in close proximity to multi-modal LRT (NPH) bridge.
WT	486+00	various	Vancouver Bridgehead	RC, PR, TS	This area involves construction of the LRT approach to the Columbia River bridge, SR 14 ramps, surface roadways, the Columbia Park-and-Ride, traction power and sig/com buildings, installation of special track, and utility relocation.
PR	n/a	various	Park-and-Rides	RC, WT, TS	All three park-and-rides are being constructed in close proximity to other packages and within same timeframe.
Corridor wide	n/a	various	Utility Relocation	OT, WT, PR	Relocation work not the responsibility of specific package contractors will need to be closely coordinated so as not to affect the critical path, increase cost or schedule risk, and disrupt local businesses more than necessary.
Corridor wide	n/a	various	Owner Furnished Materials	RC, MD, MC, RC, OT, WT	Inter-package coordination required for the storage, staging and installation of owner furnished materials
Corridor wide	n/a	various	Station Furnishings	OT, WT, PR	While the foundations and sub-platforms of stations will be constructed by the OR, WT, and PR contractors. Furnishings - shelters, amenities, and signage -- are planned to be installed by a separate contractors.
Corridor wide	n/a	various	Transit Systems Installation	OT, WT, PR, RC, MD, MC	Installation and testing of transit system requires long durations of exclusive access and control of the ROW. Close coordination of the systems contractors with any other package within 25 ft. of the track centerline will have to be carefully coordinated.
Corridor wide	n/a	various	Start up, Revenue Service	RC, MD	Any construction occurring within 25 feet of a LRT centerline once trains start operating will be required to coordinate with Central Control, and practice active ROW safety procedures such as track access training and flagging.

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6. Proposed Packaging

6.1 Overview

The Proposed Packaging presented in this section accounts for the Project Sequencing described in Section 3.

As described in the preceding sections, the packages are of different sizes and complexities, cover different geographic areas, and will have different procuring and contracting agencies. This section summarizes the packages and presents the rationale for the choices that led to the selection of agencies, delivery methods, and procurement methods.

The advantages and disadvantages of DBB, DB, DFI, and GC/CM were taken into account for each specific package. The recommendations for the proposed delivery method are based on the information available at this time.

Some of the advantages for DB include more innovation for design and construction, increased flexibility during construction allowing for greater efficiency, less owner resources required to deliver the project in both the design and construction phase, and earlier project completion. On the other hand, some of the disadvantages are that full funding is required early to award a large contract such as the Columbia River Crossing Package, and right-of-way purchases are based on a conceptual design for the footprint.

For DBB some of the advantages include slower cash flow rate, more owner control, potential for further design refinement prior to funding, the availability of a skilled and experienced agency workforce since this is a traditional delivery method, and more detailed and accurate information that can be used for permits, agreements, and right-of-way purchases. Some disadvantages for DBB are longer schedule for completion, increased owner risk, and a need for fund commitments to continue the present design effort.

DFI is typically used where manufacture of an item is the principal part of the procurement with installation secondary. DFI takes advantage of the in-house design, manufacture, and testing provided by the contractor. Examples of DFI procurement could include acquisition of light rail vehicles or ticket vending machines.

GC/CM is advantageous when the owner can bring the construction contractor on early in the process. This allows the GC/CM to have input during the design effort and can be used whether the design is undertaken by the owner's in-house staff or a design consultant. The advantage of including a GC/CM for the project diminishes as the level of design increases prior to engaging the contractor. The CRC program team is considering bringing a GC/CM on board to help identify opportunities after the 60 percent design.

Discussion of procurement strategies focused on the Columbia River Crossing Package because the construction of the bridge is the longest duration project element; it is on the critical path; and it is vital to the highway, transit, and tolling operations for the project. The package and procurement method was developed over the course of numerous discussions over the past years.

Table 6-1 summarizes the proposed packages and provides agency and package delivery information.

Table 6-1. Proposed Packaging - Summary

Package Title	Procuring Agency	Delivery Method
River Crossing (RC) Package	WSDOT	DB
Columbia River Interstate Bridge Removal (BR) Package	WSDOT	DBB
Mainland Connector (MC) Package	ODOT or TriMet	DBB
Marine Drive (MD) Package	ODOT	DBB
Oregon Transit (OT) Package	TriMet	DBB
Washington Transit (WT) Package	WSDOT	DBB or GC/CM
Park-and-Ride (PR) Package	WSDOT	DB
Transit Systems (TS) Package	TriMet	DFI
Transit Other (TO) Package		
Ruby Junction Maintenance Facility Modifications	TriMet	DBB
Steel Bridge Modifications	TriMet	DBB
Light Rail Vehicle Procurement	TriMet	DFI
Command Center Upgrades/Modification	TriMet	DFI

For a description of packages, refer to Section 3 of this document.

6.2 Potential Minor/Specialty Project Packages

During workshops conducted on project packaging, workshop participants identified several possible categories of projects that could lend themselves toward contracting by small local contractors or Disadvantaged Business Enterprises (DBEs). Factors that led to their identification included: relatively small contract size, potential for close owner control during the design phase, and the potential for executing contracts to advance the schedule of the overall project.

Some potential packages are included in Table 6-2.

Table 6-2. Potential Minor or Specialty Project Packages

Project Packages
Stormwater Ponds/Drainage
HAZMAT
I-5 Retaining Walls
Utility Relocation
Sound Walls in Washington
Landscaping
Wetland Mitigation
Building Demolition
Transit Station Finishes
Transit Station Public Art
LRT Ticket Vending Machines
Transit Owner Furnished Materials
Transit Station Signage and Graphics

6.3 Delivery Method Selection Background

The following lists reasons on why the delivery method was chosen for the major contract packages.

River Crossing (RC) Package - DB was chosen to take advantage of potential time savings due to combining final design and construction, opportunities for innovation on construction sequencing and staging, risk transfer for the in-water work to the party with the best opportunity to mitigate, and overall construction time savings to release the bridge to subsequent transit construction, and open to tolling.

Columbia River Interstate Bridge Removal (BR) Package – Consideration was given to include as part of the River Crossing Package or leave as a standalone project. Specific reasoning weighed the type of contractor to perform this work which is different than the RC package, even though some of the large equipment may be the same. Considering the cost of the removal, the timing of the removal, and the cash flow, the present assumption is the delivery method will be DBB. The removal for the ends of the structures on land will be included in the River Crossing Package to facilitate I-5 traffic switch to the new structures.

Mainland Connector (MC) Package – Initially this package was identified as a good candidate for DB due to potential for innovation and schedule advantages. The 408 levee permit requires advancing design to near 100% for all levee and near-levee zone impacts. With this advanced level of design, most advantages of DB, particularly opportunities for innovation are lost. It is now assumed to be a DBB contract. If it the level of design required to obtain the 408 permit is significantly less than anticipated, DB could be reconsidered as a procurement method.

Oregon Transit (OT) Package – Procurement options considered were GC/CM or DBB. DB was not considered due to reduced owner control over construction impacts. This package was identified as relatively straight forward without the typical coordination issues that would be

expected if this were a densely developed downtown urban area. Advantages in coordination from GC/CM were viewed as minimal and the potential additional cost was not justified. DBB is recommended at this time.

Washington Transit (WT) Package – Procurement options considered were GC/CM or DBB. DB was not considered due to reduced owner control over construction impacts in this developed downtown area. Earlier work and discussions with City of Vancouver and C-TRAN had identified a preference for GC/CM due to advantages in the coordination of construction impacts. Washington State law currently limits prime contractor self performed work to a maximum of 30% for GC/CM projects. This low percentage was not viewed as feasible for this project. Increasing the allowable percentage of self performed work would require project specific legislative action. The recommended procurement methods are CM/GC or DBB. As design is advanced beyond preliminary to final design the advantages of CM/GC are lost. At some point in the design phase, the decision may be DBB by default.

Washington Park-and-Rides (PR) Package – DB as the delivery method for the three park-and-rides on the Washington side can take advantage of efficiency of design and schedule. There is flexibility for this package to be one, two, or three contracts depending on cash flow. There is also potential to construct one or more facilities early as traffic mitigation if cash flow allows.

Transit Systems (TS) Package – The systems procurement is DFI. The successful proposer will complete the design concurrently with equipment selection, then procure, install and test the systems to ensure systems meet technical specifications. TriMet will solicit and select a contractor through a two-step procurement process: the first step establishes a list of qualified firms; the second step consists of evaluating and ranking the qualified proposals. The highest-ranked proposer is selected. With respect to contract law, the DFI process does not result in a construction contract; but rather a procurement of installed equipment. As such, the TS contract is not subject to Buy America regulations.

Transit Other (TO) Package Light Rail Vehicle Procurement – Procurement is expected to occur using the option for the PMLR project that provides for an additional 19 vehicles to be procured at a fixed price and delivery schedule for the CRC program.

Transit Other (TO) Package Ruby Junction Maintenance Facility Modifications, Central Control, and Steel Bridge Modifications – Because of the time available, the owner control required and knowledge the owner has over these facilities, DBB is the best for these packages.

Transit Signage and Graphics, and Owner Furnished Materials – Mainline track, specialty track – These manufactured goods are commodities that are typically purchased through a competitive, low-bid procurement process.

7. Sequencing Construction Schedule

The current program schedule, including the construction sequencing schedule, is found in the CRC master schedule.

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8. Support and References to other Project Disciplines

Additional information on staffing for the program during the final design and construction phases can be found in the Technical Capacity and Capability Plan (TCCP), which is an appendix to the PMP. Some of the important support functions are summarized below.

8.1 Real Estate Services

The CRC Delivery Team coordinates with the CRC Real Estate Team to ensure properties are available for the contractor. Contract sequencing and cash flow drive the real estate schedule. Refer to Chapter 6 of the Project Management Plan (PMP) and to the Real Estate Acquisition Management Plan, which is designated as Appendix F of the PMP.

8.2 Community Outreach Services

The CRC Delivery Team coordinates with the CRC Communication Team to continue to receive input on design issues and keep the community informed of construction activities. Refer to Community Relations, Chapter 7 of the Project Management Plan.

Additional detail about the construction schedule and potential impacts on the community will be developed as the project moves toward construction. Various commitments, including a construction phase community outreach program, are specified in the ROD, which is included as an appendix to the PMP. The project will rely heavily on the past experience and best practices developed by TriMet for transit projects and by ODOT, WSDOT and C-TRAN from their projects. For packages undertaken using DB, the contractor may be utilized for community outreach.

8.3 Program Management Services and Information System Services

The CRC Delivery Team coordinates with the CRC Program Management Team, who in turn coordinates with agency program management as needed. Refer to Organization and Key Staffing, Management Control, and Program Funding, Chapter 2, Chapter 3, and Chapter 4, respectively, of the Project Management Plan.

The CRC team will use the existing computer systems in the CRC office and will coordinate with other agency staffs who utilize specific agency systems. Contract 8078, I-5/CRC-Test Piling Contract is an example of a WSDOT construction contract that utilized the existing systems for all tasks from advertisement through contract closure. Similar process will be utilized for TriMet and ODOT procured contracts.

Currently, the Project Controls group is reviewing software to receive inputs from agency software to create a reporting system for multiple contracts administered by the resident engineers/project engineers that will be procured for the CRC program. This will be developed

further in Final Design and described in updates to PMP Chapters 2, 3, and 4. The CRC team will coordinate with the WSDOT Assistant Director of Public Transit Division for FTA grant-related issues and documentation. FTA's Transportation Electronic Award Management (TEAM) system will be utilized.

8.4 Work by own Forces including Design Services

In general, the work for design will continue using resources from TriMet, WSDOT, C-TRAN, and ODOT, in addition to consultants. This is similar to how the project has progressed to this point. Consultants under contract to WSDOT were used during preparation of documents under the NEPA process and during the PE Phase. WSDOT's current plan is to continue with the general engineering contractor currently under contract.

DB contracts will rely on the contractor's design firms for design, with oversight by the agencies. Depending on cash flow, it is possible to use agency resources for highway design for Washington contracts.

Architectural and engineering firms' employees will be used to augment the CRC team as needed. WSDOT will contract with an architect for assistance in writing the specifications pertaining to the aesthetic framework for the RFP for the Columbia River Crossing Package.

Agency personnel have also been used for certain services, including geotechnical services, and traffic control from maintenance, and survey work.

Agency forces will also be used for administering and overseeing the construction and purchasing contracts.

See the Force Account Plan for additional detail. Refer to Chapters 10-2, 12, 13, and 14 of the PMP.

8.5 Work by Third Parties

Work by third parties such as utility companies, BNSF Railway Company, and others will be detailed and agreed upon during final design. The work by others will be coordinated and included as needed in the plans and special provisions in the construction contracts or RFPs. Refer to Chapter 10 of the PMP.

9. Construction

Additional information on staffing related to the construction phase can be found in the TCCP, which is an appendix to the PMP.

9.1 Construction Management Services

The construction management function for the program is designed to maximize safety, quality and cost efficiency of all construction activities. Construction management practices will conform to all federal and state regulations, including quality assurance, quantity control, materials testing, structural and architectural inspection, and compliance with county, state, and federal requirements covering contract procedures and fair employment. Contracts will comply with all regulations, such as “Buy America” provisions applicable according to the funding source for each package.

Construction of the program will be implemented through individual construction contracts administered by WSDOT, ODOT, and TriMet. The CRC program team will be responsible for overall coordination for program implementation but with extensive coordination with WSDOT, ODOT, and TriMet.

The CRC’s Project Delivery team is composed of agency staff assigned to the program and augmented by consultants, as necessary. WSDOT, ODOT, TriMet, and C-TRAN staff assigned to the CRC program provides overall management and serves in most construction management positions. Consultants provide unique expertise or supplemental resources that are not available from agencies.

A project engineer or resident engineer will be assigned to each construction contract. One engineer may be assigned to multiple contracts, depending upon the complexity and resources available to him. The engineer is responsible for enforcement of the contract specifications and provisions and the completion of all work according to the plans. The engineer supervises the work of personnel assigned to the project and ensures that they perform their work in accordance with the plans and specifications, and all applicable polices. The engineer is responsible for keeping complete and accurate records necessary for complete documentation of the project.

As described previously, WSDOT, ODOT, and TriMet are expected to administer contracts. In cooperation with WSDOT, ODOT, and TriMet, the CRC program team will develop special contract provisions necessary to address any conditions, specifications, timing, and coordination issues not normally included in an agency’s typical contract documents. Information will be coordinated and reported through the CRC program, although each agency will follow their procedures and policies. See also the General Conditions paper, December 2011.

Staffing information for each contract will be developed and included in the Technical Capability Plan (TCCP). The River Crossing (RC) Package, described in Section 3, is the first package anticipated to be let. When construction funds become available the staffing plan will be solidified. Because it is a DB contract, the owner staffing will be lighter than usual and will

consist of inspectors, several design reviewers and a construction support/administration staff. It is anticipated to use existing staff as much as possible to keep the continuity of historical knowledge of the project, in addition to augmenting with agency and consultant staff.

9.2 Construction Materials Testing Program

Contract specifications will include standards for materials and corresponding tests to ensure compliance with contract requirements. Qualified personnel will accomplish materials testing during construction in accordance with approved testing practices and procedures, as outlined in Chapter 9 of the WSDOT Construction Manual (Publication M 41-01, July 2011) on contracts procured by WSDOT, in TriMet Design Criteria (Revision 10.2, January 2010) on contracts procured by TriMet, and in the ODOT Construction Manual (October 2010) and Manual of Field Test Procedures (2010 Update) on contracts procured by ODOT. Requirements for materials are described in Section 1-06 and Division 9 of the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction (M 41-10). The construction contractor will have primary responsibility for testing of materials according to WSDOT, ODOT or TriMet specifications. WSDOT performs testing for project undertaken using DBB procurement. Under a DB procurement, the construction contractor is to prepare and submit a Quality Management Plan (QMP) that includes a testing plan, containing a list of tests that references each specification section required by the contract. It is anticipated that the construction contractor will obtain the services of an independent materials testing laboratory to actually perform the materials quality control tests. Laboratory qualifications shall also be submitted as part of the QMP. The construction contractor will submit the results of quality control tests to the engineer. The engineer's office will review and maintain test reports and direct any actions to be taken for nonconforming items. CRC's agency staff (WSDOT, ODOT, and TriMet) is responsible for verification testing and inspection of prefabricated materials on construction contracts, and also material procurement contracts by their respective agency. They will perform quality assurance confidence tests to verify that the construction contractor's quality control testing is satisfactory. The engineer, the inspector, or the quality assurance/quality control manager will coordinate quality assurance confidence testing by CRC's agency staff.

9.3 Construction Inspection

The construction contractor will be responsible for the quality of all work performed by its own employees, as well as by any manufacturers, subcontractors, or suppliers, to meet contract requirements and as detailed in its approved QMP. The construction contractor will develop and submit to the engineer for approval a Quality Control Plan (QCP) that addresses all testing requirements, including the type of tests, frequency of tests, minimum qualifications of those performing the tests, and required quality documentation.

The engineer and inspectors will be deployed to ensure that construction quality control (QC) procedures are in place and effective, ensuring that quality standards are acceptable. The engineer and inspector activities will include:

- Verifying the construction contractor's material certifications and samples.
- Inspecting materials and equipment delivered to the job site(s).

- Performing inspections of specialty equipment and fabricated construction materials.
- Participating in First Article Inspections (FAIs), or witness and hold point activities, as delineated in the contract specifications and established in the construction contractor's approved QMP.
- Inspecting construction and installation work in progress.
- Documenting the results of inspections and tests, and specifically noting any failed tests, retesting, or re-certification required.
- Monitoring construction operations and field-testing of construction material.
- Reviewing the construction contractor's QC documentation.

9.4 Inspection of Manufactured Items

As indicated in Section 3, the CRC program will likely include procurement of certain manufactured items under the DFI delivery mode. Examples include possible procurement of light rail vehicles, ticket vending machines, and track. The inspection and quality control process will rely heavily on the process established and documented in the manufacturer's quality control plan, which will be a requirement in the contract. Specifications and requirements will be prescribed in the contract documents prepared by the contracting agency in cooperation with the CRC program team.

If procurement of the light rail vehicles is done under the option for the PMLR light rail vehicle contract, procedures in that contract will be used.

The Project Delivery Director or TriMet Quality Assurance Manager may assign a full-time on-site inspector to the vehicle manufacturing facility to ensure ongoing compliance with the manufacturer's QMP. The TriMet Quality Assurance Manager will also perform audits and surveillances of the manufacturer's facilities on an as-needed basis.

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10. Disadvantaged Business Enterprise Opportunities, State WBE & MBE, Plans and Goals

10.1 Overview

WSDOT, ODOT, and TriMet have well established programs that recognize the importance of providing opportunities for disadvantaged persons and entities. For the CRC program, the contracting agency that is administering the contract package will follow their particular program requirements. That agency will ensure the programs intent and goals are followed. Requirements of the funding programs utilized for individual contracts will be followed.

An overall goal for the CRC program is not currently in place. The CRC staff is currently evaluating and developing a program in collaboration with each agency's DBE representatives to improve opportunities for meaningful participation in the program by disadvantaged persons and entities that meets or exceeds goals of the individual agencies. An outreach program is anticipated to assure opportunities for appropriate contractors through the contracting agencies' staff or as a coordinated effort.

10.2 ODOT DBE Program

The Oregon Department of Transportation is committed to a Civil Rights Program to encourage participation of Disadvantaged Business Enterprise (DBE's) in ODOT contracting opportunities in accordance with the Code of Federal Regulations (CFR).

It is the policy of ODOT to ensure nondiscrimination on the basis of race, color, sex, or national origin in the award and administration of the U.S. Department of Transportation (USDOT) assisted work.

The Director of ODOT is responsible for establishing the DBE policy for the department. The manager of the Office of Civil Rights is responsible for the development, implementation and monitoring of the DBE Program for contracts in accordance with the ODOT's nondiscrimination policy. It is the expectation of the Director that all ODOT personnel shall adhere to the intent, as well as the provisions and procedures of the DBE program.

The policy will be available to all ODOT personnel involved with USDOT assisted work and to members of the community that perform or are interested in performing work on such ODOT contracts. Further information on the ODOT DBE program can be found at:

http://www.oregon.gov/ODOT/CS/CIVILRIGHTS/sbe/dbe/dbe_program.shtml

10.3 WSDOT DBE/MWBE Program

The Disadvantaged Minority and Women's Business Enterprise (DMWBE) Unit administers the USDOT DBE Program and the Washington State's Minority and Women Business Enterprise (MWBE) program. The purpose of the DBE program is to ensure a level playing field and foster equal opportunity for firms owned and operated by disadvantaged individuals on USDOT-assisted contracts and procurements. The purpose of the MWBE program is to provide maximum practicable opportunity for firms owned and operated by minorities and women in public works projects and procurement.

The primary functions of this unit include:

- Setting Condition of Award (COA) or Voluntary goals on applicable projects.
- Assist the construction office in the administration of project advertising and awards as it relates to DMWBE participation.
- Monitoring DMWBE participation levels on contracts.
- Conducting Commercially Useful Function (CUF) reviews of DBE subcontractors and contract compliance reviews of prime contractors and DBE subcontractors on WSDOT USDOT-assisted contracts.
- Providing assistance in resolving DBE compliance disputes and complaints.
- Providing program guidance to Regional Equal Employment Opportunity (EEO) Officers and Project Engineers.
- Providing DMWBE program training for WSDOT personnel, local agencies, contractors, and other interested parties.
- Monitoring the administration of consultant contracts as it relates to equal opportunity and the participation levels of DMWBE firms.
- Assisting in the management of certification and supportive services contracts and in conducting program management reviews.

In order to fulfill its responsibilities for properly certifying firms as DBEs, WSDOT has an Interagency Agreement with the Office of Minority and Women's Business Enterprises (OMWBE) to provide certification and recertification of eligible firms wishing to participate or continue to participate on USDOT-assisted projects and procurements as DBE firms. OMWBE also conducts on-site certification reviews prior to the issuance of DBE certification for all firms applying for DBE status. As a result of a third party challenge or complaint, following the normal administrative process, OMWBE can also deny, render a firm ineligible, or administratively close a firm's DBE status in accordance with USDOT regulations.

For more information regarding DBE Certification please refer to: www.omwbe.wa.gov

10.4 TriMet DBE program

TriMet has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the USDOT and 49 CFR Part 26. As a condition of receiving federal financial assistance from the USDOT, TriMet will comply with 49 CFR Part 26. TriMet is responsible for coordinating with the local community of DBE firms to achieve maximum participation of eligible DBE firms. TriMet will establish an agency-wide aspirational goal achieved through solely race-and-gender-neutral means.

TriMet's policy is to ensure that DBEs, as defined in 49 CFR Part 26, have an equal opportunity to receive and participate in USDOT-assisted contracts. It is also TriMet's policy to ensure nondiscrimination in the award and administration of USDOT-assisted contracts; to help remove barriers to the participation of DBE's in USDOT-assisted contracts; and to assist in the development of firms that can compete successfully in the marketplace outside of the DBE Program. Eligible firms are defined in the applicable USDOT regulations.

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11. Contracting Strategy for Transit-Oriented Development and Joint Development

11.1 TOD and Joint Development

At this time, the CRC program is not including or pursuing any Transit-Oriented Development (TOD) and/or Joint Development.

The program supports City of Portland's Hayden Island Plan, but is not responsible for implementing the plan. The program supports the Vancouver City Center Vision plan and has written a letter of support for the City of Vancouver's pursuit of a transit-oriented development grant.

The program is open to partnering opportunities and will continue to support of efforts by Metro, City of Portland, City of Vancouver, the Southwest Washington Regional Transportation Council or other agencies that wish to pursue TOD opportunities, but the program itself is not actively working to deliver a TOD or Joint Development.

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12. Letter of No Prejudice

12.1 Letter of No Prejudice (LONP)

The requirement or possibility of an LONP is specific to transit or transit related activities. The CRC program recognizes the importance of following this FTA process. The LONP really derives from the FTA process and hold points at FD, FFGA, and Approval to Bid Construction.

The CRC program is not currently anticipating awarding transit-related construction contract work before the FFGA is approved nor are we anticipating requiring an LONP, but team members have developed a list of items that could potentially require an LONP. As the project continues to proceed through preliminary engineering and final design towards construction, team members will monitor our internal list and identify any opportunities that might require an LONP or changes in project funding or schedules that might also trigger a request.

Potential Letter of No Prejudice (LONP) Items:

- Design Build on Main River Bridge
- Park-and-Rides
- Approach Structures
- Ruby Junction Expansion
- Central Control
- Special Track Work
- North Portland Harbor Bridge
- Steel Bridge modifications

This is a list of potential LONPs for the CRC Program but doesn't preclude additional items as identified through project advancement.

Outlined below are a general overview; policy; requirements; and table of LONP activities:

LONP Overview

- Applicable to project activities not covered by automatic pre-award authority
- Allows a grantee to incur costs on a project using non-Federal funds, with the understanding that the costs incurred subsequent to the issuance of the LONP may be reimbursable should FTA approve the project for a grant at a later date.

LONP Policy

- Will not be approved until NEPA is complete
- Receipt of Federal funding for the project is not implied or guaranteed by an LONP
- Should not be considered an indication by FTA that the project is a promising candidate for an Full Funding Grant Agreement (FFGA) or Project Construction Grant Agreement (PCGA)
- Approval determined on a case-by-case basis by the Administrator

An LONP request should include but is not limited to the following:

- Description of the activities to be covered
- Justification for advancing the activities, including consequences to the project scope, schedule and budget
- Allocated level of risk and contingency for the activities
- Status of procurement progress, including submittals of bids for the activities covered by the LONP
- Financial plan – funding for the activities
- Adequacy of the Project Management Plan
- Resolution of any readiness issues

Table 12-1. Award Extension Summary

Activity	Point when automatic pre-award authority is extended		
	Preliminary Engineering	Completion of NEPA	Final Design
Preliminary Engineering	X		
ROW Acquisition		X	
Utility Relocation		X	
Procurement of Vehicles		X	
Final Design			X
Non-Construction Activities			X