

Columbia River Crossing Project Technical Analysis will:

- **Assemble policy decision and technical information for concepts to be presented during scoping**
- **Compile information re: tolling options that should be presented in DEIS**
- **Analyze/determine administrative & regulatory issues affecting project**
- **Determine financial options that should be explored in DEIS**

This work will allow this project to advance as quickly as possible through the NEPA process, potentially reducing schedule and cost for the EIS process by:

- *Reaching consensus on travel demand forecasting assumptions for DEIS*
- *Reaching agreement on funding assumptions to include in DEIS*
- *Developing and refining organizational structures*
- *Identifying and resolving procedural issues*
- *Identifying and resolving intergovernmental issues*

Below are the questions that the technical analysis will answer prior to starting a DEIS process. Some questions cross over into multiple categories and may appear more than once.

Scoping/DEIS process**Process/Structure**

1. Will there be one process or two for transit and highway elements? If there is a single process, how will the DEIS meet both FHWA and FTA requirements?
2. Will the EIS process be "one-tier" or "two-tier"?
3. What should be the process and schedule for analyzing financial alternatives in the DEIS?

Purpose

1. Is there a concise statement that describes the Purpose and Need for the project?
2. Project Justification: Why is this project being proposed? What options have been considered and how have they been analyzed?
3. What regional problems are this project designed to address; what is the status of those problems; what are future projections?

Options

1. What options are proposed to be carried forward into Scoping and the DEIS and why? What information is currently missing that is needed to answer these questions?
2. Which options are proposed to be carried into Scoping, which are not, and why?
3. What is the history of this project planning; what analysis was done prior to 2004; what options were developed and evaluated; what review criteria were applied; what were the results and recommendations of prior evaluation?
4. What promising options are under consideration; what analysis is now being done; how will these options be analyzed prior to the DEIS and preliminary engineering?
5. What reasonable options not discussed in the Strategic Plan phase may need study now? Which options were not carried forward and why?
6. Which freeway and interchange improvements are associated with each of the bridge options?
7. In the Contractor's judgment, which freeway/bridge concepts and design options constitute a reasonable range of alternatives for the DEIS?
8. What toll rate structures should be carried forward for evaluation in the DEIS?

Post Scoping

1. Post-Scoping, which alternatives are proposed to be evaluated in the DEIS and why?
2. Post-Scoping, which alternatives will be evaluated in the DEIS?

Conceptual Engineering/Environmental**Strategic Plan**

1. To what extent does previous work provide adequate technical information to analyze bridge alternatives prior to Scoping?
2. Which options discussed in the Strategic Plan need further study? What other options (not in the Strategic Plan) should be addressed?

Design/Engineering

1. What are the design requirements imposed on the I-5 bridge design by the various design manuals that apply to the project? How do they affect project design? Do any design requirements conflict with each other? If so, how can the conflicting requirements be reconciled?
2. For each of the bridge options, what additional freeway or interchange improvements need further refinement?
3. What refinements in concept drawings and cost estimates are required to ensure consistent analysis of options?
4. What revisions are required in previous conceptual designs to consider toll collection, vertical clearance and channel issues?
5. What are the key engineering considerations related to construction and how do they affect design options?

Environmental

1. What environmental issues need to be addressed to complete NEPA scoping?

Products/Deliverables

TM 2.4 Summary of Design Impacts

TM 2.3 Evaluation of Design Guidelines & Criteria

TM 3.4 Required Design Refinements

TM 3.5 Engineering considerations

TM 3.6 Description of New Concepts

WP 4.3.1 Summary of design-spec document

WP 4.3.2.1 Concept Design Drawings

WP 4.3.2.2 Schematic Drawings

TM 4.1 Design, specifications and costing approach

TM 4.2 Capital costing methodology

TM 6.2.2 Significant Environmental Concerns

TM 6.2.3 Environmental Criteria & Measures

TM 6.2.4 Environmental Considerations

Finance/Tolling**Assumptions**

1. What are the baseline assumptions regarding highway costs and revenues that should be used in early analysis of project options? In particular, what costs can the project support without tolling or with 'partial-tolling'?

2. What assumptions should be used for each transit agency's share of capital and operating costs for this project?
3. What assumptions should be used in the project analysis about future year transit networks, service levels, costs and revenues?
4. What assumptions should be used in the project analysis regarding capital and operating costs for an HCT project across the Columbia River? What revenue sources are available to meet these costs? How might funds be obtained?

Options

1. What tolling options could likely be implemented for this project?
2. What tolling options should be considered in Scoping and the DEIS and why?
3. How do Strategic Plan options compare to the No Build and Baseline with respect to:
 - Revenues?
 - Traffic volumes and diversion?
 - Traffic characteristics such as vehicle type and trip type?
 - Transit and HOV use?
 - Electronic versus manual toll payers?
 - Toll rate structures proposed to be carried into the DEIS and those not proposed to be?
 - Toll rates that can optimize revenues?
 - Elasticity of toll rates?

Technology/Operations

1. Should the existing VISSIM model, as it is, or modified, be used to evaluate toll plaza designs and configurations? If not, what model should be used, and why?
2. What are the operational, revenue and traffic impacts of collecting tolls in Oregon only (northbound), in Washington only (southbound), or in both directions?
3. What approaches to electronic toll collection should be evaluated in the DEIS and why?

Regulatory

1. Do Washington and Oregon statutes support the use of toll revenues as local matching funds and, if not, how would they have to be changed to do so?
2. Can tolls allowed under federal statute be collected under state statutes?
3. What conditions must be met to allow toll revenues be used as local match dollars for federal funds?
4. Can toll revenues be used as local match dollars for I-5 and non-I-5 project elements?

Financial

1. What revenue sources other than tolls are likely to be available to support the project, how much and when?
2. Would there be cost savings (and if so, how much) if all or part of an HCT project were built without federal funds?
3. What project financial strategies should be considered during Scoping and why?
4. Which set of financial strategies should be evaluated in the DEIS and why?
5. What toll rate structures should be carried forward for evaluation in the DEIS?
6. Which Tolling Authority options could support broad project objectives of CRC project, how and why?
7. What conditions must be met to allow toll revenues be used as local match dollars for federal funds?
8. Can toll revenues be used as local match dollars for I-5 and non-I-5 project elements?

Products/Deliverables

TM 8.2 Tolling Authority Options for Columbia River Bridges

TM 8.3 Evaluation of Potential Use of Toll Revenues

TM 8.4 Use of Toll Revenues as Local Match

TM 8.5 Effect of Washington Statutory and Regulatory Provisions

TM 8.6 Effect of Oregon Statutory and Regulatory Provisions

TM 6.3 Evaluation of Tolling Options for Columbia River Crossing

TM 7.2 Potential Federal, State and Local Funding Sources for Highway/Bridge

TM 7.4 Evaluation of Capital and Operating Requirements for Transit

Traffic/Transit

Assumptions

1. What basic travel forecasting assumptions will be used in the DEIS analysis?
2. What are the critical traffic and transit problems in the corridor that will be addressed by this project?

Options

1. What range of physical design options should form the basis for tolling analysis?
2. Based on historic traffic data, which tolling options should be evaluated for the CRC?
3. Of the reasonable options, is their performance similar enough that a single option can be studied in the DEIS, or must multiple options be carried forward?
4. How do Strategic Plan options compare to the No Build and Baseline with respect to:
 - Revenues?
 - Traffic volumes and diversion?
 - Traffic characteristics such as vehicle type and trip type?
 - Transit and HOV use?
 - Electronic versus manual toll payers?
 - Toll rate structures proposed to be carried into the DEIS and those not proposed to be?
 - Toll rates that can optimize revenues?
 - Elasticity of toll rates?

Data/Analysis

1. Can the existing traffic analyses and forecasts be used to identify, evaluate and screen tolling options and road/bridge improvements, or must additional work be done?
2. What additional traffic analysis and engineering work is needed to analyze options?
3. What data and analysis is needed to analyze I-205 river crossing options?
4. What are the strengths and weaknesses of travel demand forecasting models relative to evaluating alternative tolling concepts for the CRC?
5. What model does the Contractor recommend be used in this project?
6. What are the 2020 projected traffic volumes, speeds and delay for major facilities within the Bridge Improvement Area?
7. What are the forecast Columbia River crossings by vehicle type and trip purpose?
8. What are the crossing forecasts for interim years between the start-up of tolls and 2025?
9. What are the operational, revenue and traffic impacts of collecting tolls in Oregon only (northbound), in Washington only (southbound), or in both directions?

Operation/Physical Design

1. What would be the impacts of operating HOV lane(s) with respect to travel time and congestion, and numbers of HOVs?
2. Could trucks use an HOV lane?
3. How do HOV performance and impacts change with different bridge options and different tolling options?

4. What are the benefits and impacts of operating a truck-only lane in each direction, or one reversible truck-only lane?
5. What are the physical requirements of different toll plaza options and how many vehicles per hour can each accommodate?
6. What are the operational, revenue and traffic impacts of collecting tolls in Oregon only (northbound), in Washington only (southbound), or in both directions?

Technology

1. How do different tolling technologies, hardware, and software products perform relative to each other?

Tolling

1. Looking at bridge and freeway options, toll rate structures, toll system options, and toll facility design, what are the toll revenues associated with each? What are the traffic diversion patterns? What are the overall traffic impacts?
2. What are the impacts of toll options on traffic and on user types?
3. How do toll option impacts differ between those options proposed to be carried into the DEIS and other options?
4. What toll rate structures should be carried forward for evaluation in the DEIS?
5. What are the operational, revenue and traffic impacts of collecting tolls in Oregon only (northbound), in Washington only (southbound), or in both directions?
6. What approaches to electronic toll collection should be evaluated in the DEIS and why?

Performance – based on options

7. Looking at the freeway/bridge operating options (i.e. HOV, truck-only), what are the traffic, diversion, travel times, delay and service levels for each forecasted option?
 - What are the impacts on user types?
 - How do options proposed to be carried forward into the DEIS perform relative to those that are not?
8. Looking at the toll facility design and configuration options, what are the traffic, diversion, travel times, delay and service levels for each forecasted option?
 - What are the impacts on user types?
 - How do options proposed to be carried forward into the DEIS perform relative to those that are not?
9. Looking at the bridge/freeway improvements, what are the traffic, diversion, travel times, delay and service levels for each forecasted option?
 - What are the impacts on user types?
 - How do options proposed to be carried forward into the DEIS perform relative to those that are not?

Products/Deliverables

TM 6.3 Evaluation of Tolling Options for Columbia River Crossing

TM 6.3.1 Summary of Impacts

TM 7.4

Environmental Justice

1. Does the work of the technical contractors meet the intent of the Federal Environmental Justice Executive Order?

Regulatory

General

1. Which options will be carried into Scoping?
2. How are, or are not, existing plans consistent with recommendations of I-5 Trade and Transportation Partnership?

Federal

1. What are key project issues of concern to federal agencies?
2. Are FHWA and FTA in agreement on how the DEIS will be prepared?
3. Is there a "Project Development Agreement" between the DOTs and the Feds describing how project will go forward through DEIS and PE?
4. Have the federal and state CSD requirements been met for this project? What issues have been identified (Procedural, Scheduling, Technical, Funding, Regulatory) for each option?
5. How must a CRC project be defined so that it can be tolled, under federal statutes?
6. How do the federal statutes regarding tolling apply to each of the bridges, I-5 and I-205?
7. How do federal tolling statutes specifically apply to multi-modal and two-bridge alternatives?

State

1. What are key project issues of concern to state agencies?
2. Is there a "Project Development Agreement" between the DOTs and the Feds describing how project will go forward through DEIS and PE?
3. Have the federal and state CSD requirements been met for this project? What issues have been identified (Procedural, Scheduling, Technical, Funding, Regulatory) for each option?
4. What changes, additions or amendments are needed in each of the local, regional and state plans and policies to ensure that they are consistent with the project alternatives to be evaluated in the DEIS?
5. What are potential legislative or procedural remedies to identified issues?
6. Do Washington and Oregon statutes support the use of toll revenues as local matching funds and, if not, how would they have to be changed to do so?
7. How must state statutes be amended to provide maximum and/or desired flexibility with regards to collection and use of toll revenues?
8. Under Washington statutes:
 - Can light rail elements be funded as part of a toll bridge project?
 - Can a replacement bridge be tolled (or must the project be a 'supplemental' bridge)?
 - Can ODOT operate the bridges and impose tolls?
 - Can the I-205 bridge be tolled as part of an I-5 project?
 - What are the other bi-state, funding, procedural and allowable alternatives limitations imposed?
 - What are potential legislative or procedural remedies to identified issues?
9. Under Oregon statutes:
 - What project alternatives can be financed by toll revenues?
 - How can toll revenue from both bridges be used to finance project alternatives?

Regional/Local

1. What are key project issues of concern to regional and local agencies?
2. What changes, additions or amendments are needed in each of the local, regional and state plans and policies to ensure that they are consistent with the project options to be evaluated in the DEIS?

Products/ Deliverables

TM 8.1 Analysis of Federal Tolling Statutes

TM 8.5 Effect of Washington Statutory and Regulatory Provisions

TM 8.6 Effect of Oregon Statutory and Regulatory Provisions

Bi-State

1. What are the DOTs' requirements to manage a bi-state project?
2. What project options can be implemented under a Bi-State Compact (agreement) approach?
3. What project organizational options should be carried forward as practical alternatives?

Products/ Deliverables

TM 8.8 Bi-State Coordination requirements

TM 8.9 Assessment of the Merits and Requirements of a Bi-State Compact

Communications

1. What is the initial Intergovernmental working structure that will undertake this project, review work products, and make incremental decisions to move forward?