

**REVIEW DRAFT**

*I-5 Columbia River Crossing Partnership*

---

Project Development Issues  
Related to the Transit  
(New Starts) Component  
of the Columbia River  
Crossing Project

**Working Paper 1.2.2**

**Prepared by**

Steven M. Siegel

**Date**

Review Draft April 4, 2005

**Working Paper 1.2.2**  
**Project Development Issues Related to the Transit (New Starts) Component**  
**of the Columbia River Crossing Project**

**Table of Contents**

<b>1</b>	<b>Introduction</b>
1	
.1	Purpose of Report
1	
.2	Organization of Report
<b>2</b>	<b>Overview of New Starts Process</b>
<b>3</b>	<b>Evaluation and Rating Process</b>
3	
.1	Introduction
3	
.2	Rating Process Background
3	
.3	Project Justification Evaluation
3	
.4	Financial Ratings
<b>4</b>	<b>Alternatives Analysis</b>
4	
.1	Introduction
4	Factors Involved in the Definition of
.2	Alternatives
4	
.3	Development of Alternatives
4	
.4	Baseline Alternative
<b>5</b>	<b>Preliminary Engineering</b>
<b>6</b>	<b>Final Design</b>
<b>7</b>	<b>Full Funding Grant Agreements</b>
8	Miscellaneous Products and Requirements
8.1	Before and After Study
8.2	Project Management Plan
8.3	New Starts Submittals
<b>9</b>	<b>Issues for Columbia River Crossing Project</b>
9	
.1	Need to Preserve Eligibility for 5309 Funds
9	Status of AA; Options on How to Proceed

.2	
9	
.3	Transit Operator Issues
9	
.4	Funding Commitment Issues
9	
.5	Project Justification Rating Issues
9	
.6	Impact of Reauthorization Bills
9	
.7	Need to Have Project "Authorized"

**Working Paper 1.2.2**  
**Project Development Issues Related to the Transit (New Starts) Component**  
**of the Columbia River Crossing Project**

**1. Introduction**

**1.1 Purpose of Report**

The *Strategic Plan* for the Columbia River Crossing Project (the “Project”) calls for a multi-modal project, including a major transit element. Subject to the results of project scoping, High Capacity Transit options, including light rail, may be considered in the environmental impact statement. To maintain the option of seeking discretionary Federal funds<sup>1</sup> for such options, the Project must follow the Federal Transit Administration’s (FTA) “New Starts” policies and procedures.

The New Starts process brings into the project development process a large array of complexities, technical and procedural requirements, and federal review beyond that required of the highway/bridge component. Also, the New Starts process contains certain project approvals or certifications that must be done by the transit agencies and MPOs, which must be integrated into the overall decision-making framework for the Project. Further, New Starts procedures and the impacts of such procedures on the project development schedule will significantly impact the process and schedule for the highway/bridge component of the Project. These impacts may be minimized by carefully structuring the project development process to simultaneously address both processes, but the impacts cannot be completely eliminated. Thus, while ODOT and WSDOT may rely on TriMet, Metro, C-TRAN and RTC to perform transit-related technical tasks and to coordinate with FTA, these activities cannot be divorced from the overall project management strategy provided by the DOTs.

Given this context, this report fulfills two objectives. First, it provides the ODOT and WSDOT project managers with an overview of the New Starts process. Second, it provides analysis and recommendations regarding several key issues the DOT’s will encounter while implementing an integrated bridge/highway-New Starts project development process.

**1.2 Organization of Report**

Sections 2 through 8 of this Working Paper outline FTA’s New Starts policies, procedures, and guidance. This overview emphasizes the evaluation and ratings process required to advance the project through the project development stages, and ultimately, to receive a Full Funding Grant Agreement for Section 5309 New Start Funds. Section 9 of this report identifies and assesses key project development issues affecting the Columbia River Crossing Project that result from the New Starts process and procedures.

---

<sup>1</sup> Section 5309 New Start Funds

## 2. Overview of New Starts Process

FTA's planning and project development process for New Starts investments requires four distinct steps:

- Alternatives Analysis (AA)
- Preliminary Engineering (PE)
- Final Design
- Full Funding Grant Agreement for construction (FFGA)

The execution of the Full Funding Grant Agreement (FFGA) represents FTA's final approval of Federal discretionary transit funds for the project.

Prior to each of these steps, except for Alternatives Analysis, FTA requires data prepared in compliance with FTA procedures to be used for FTA's rating of the project. 49 USC 5309(e)(1)(A) requires that the rating process to be based on measures of:

- Project Justification
- Project Finance Plan (capital and operating)

FTA uses very detailed and very specific measures of these criteria, which are documented in their rules and guidance, and are summarized below. Based on these rules and procedures, FTA must approve entrance into PE and Final Design based on these measures and the resultant overall rating of the project. All projects seeking discretionary New Starts funding must follow this process.

There are two basic variations on the process, which are outline below:

### Option 1

- Alternatives Analysis
- Project Rating for Entering PE
- If PE Approved, DEIS and PE
- FEIS and PE
- Record of Decision (ROD)
- Project Rating for Entering Final Design
- If Approved, Final Design
- Project Rating for FFGA (may not be required if rating for Final Design is sufficient)
- FFGA Preparation
- Congressional Review of FFGA
- Execute FFGA

### Option 2

- Alternatives Analysis/DEIS
- Project Rating for Entering PE
- If PE Approved, FEIS and PE
- Record of Decision (ROD)
- Project Rating for Entering Final Design
- If Approved, Final Design
- Project Rating for FFGA (if required)
- FFGA Preparation
- Congressional Review of FFGA
- Execute FFGA

The difference between Option 1 and Option 2, above, is the relationship between Alternatives Analysis (AA) and preparation of the DEIS. In this region, light rail projects have customarily followed Option 1, wherein AA is completed before the DEIS is initiated. Since AA is a pre-requisite for receiving approval for PE, Option 1 allows for PE to be done as part of the DEIS process. In comparison, Option 2 integrates AA into the preparation of the DEIS. Because AA has not been performed, PE is not permitted until the FEIS stage. From that point forward, Option 1 and Option 2 are the same. The decision on how the Columbia River Crossing Project should proceed with AA (i.e. Option 1 versus Option 2), is discussed in Section 9 this report.

### **3. Evaluation and Ratings Process**

#### **3.1 Introduction**

The key differences between FHWA's project development process for road/bridges and FTA's process for transit are highlighted in the evaluation and ratings procedures required for transit projects. Thus, this report focuses first on the evaluation/ratings process.

One word of warning, FTA has been continually refining and modifying its evaluations/ratings process. This has been primarily done through announcements and procedural guidance, rather than rule changes or statutory changes. Also, the transportation reauthorization bills include slightly different language regarding the measures, perhaps signaling further changes to the process or measures. Thus, the process, or more likely the measures, facing the Columbia River Project may somewhat differ from those discussed herein, but it does not currently appear that the basic concepts will change significantly.

#### **3.2 Rating Process Background**

Under 49 USC 5309(e) and 49 CFR Part 611, allocations of 5309 "New Start" Funds must be:

- Based on the results of alternatives analysis and preliminary engineering;
- Justified based on a comprehensive review of mobility improvements, environmental benefits, cost effectiveness, and operating efficiencies ("Project Justification"); and
- Supported by an acceptable degree of local financial commitment, including evidence of stable and dependable financing sources to construct, maintain, and operate the system or extension ("Finance Plan").

Based on the results of an evaluation and consistent with these statutes and rules, summary ratings of "*Highly Recommended*," "*Recommended*," or "*Not Recommended*" are assigned to each proposed project. FTA relies on a multiple-measure approach to assign ratings, which are updated throughout preliminary engineering and final design. An "*overall*" rating of at least "Recommended" is necessary for a project to proceed from

one phase to the next. The “overall” project ratings are determined in accordance with the following decision rules:

- **Highly Recommended** For a proposed project to be "Highly Recommended," it must be rated at least "Medium-High" for both Finance and Project Justification.
- **Recommended** For a proposed project to be rated as "Recommended," it must be rated at least "Medium" in terms of both Finance and Project Justification.
- **Not Recommended** Proposed projects not rated at least "Medium" in both Finance and Project Justification will be rated as "Not Recommended"

The threshold for receiving a Medium or Medium-High rating for Finance Plan and Project Justification rises as a project advances through the project development process. This is described in the sections that follow.

### 3.3 Project Justification Evaluation

As required by 49 CFR Part 611, “Project Justification” is evaluated based on the following criteria:

#### Project Justification Criteria

Criterion	Measure(s)
Mobility Improvements	<ul style="list-style-type: none"> <li>• Normalized Travel Time Savings (Transportation System User Benefits per Project Passenger Mile)</li> <li>• Low-Income Households Served</li> <li>• Employment Near Stations</li> </ul>
Environmental Benefits	<ul style="list-style-type: none"> <li>• Change in Regional Pollutant Emissions</li> <li>• Change in Regional Energy Consumption</li> <li>• EPA Air Quality Designation</li> </ul>
Operating Efficiencies	<ul style="list-style-type: none"> <li>• System Operating Cost per Passenger Mile</li> </ul>
Cost Effectiveness	<ul style="list-style-type: none"> <li>• Incremental Cost per Hour of Transportation System User Benefit</li> </ul>
Transit Supportive Land Use and Future Patterns	<ul style="list-style-type: none"> <li>• Existing Land Use</li> <li>• Transit Supportive Plans and Policies</li> <li>• Performance and Impacts of Policies</li> </ul>
Other Factors	<ul style="list-style-type: none"> <li>• Number of optional factors, including economic impact of the project.</li> </ul>

Of these criteria, two largely determine a project's overall rating: (i) cost effectiveness (sometimes referred to as "TUSB") and (ii) land use. Of these two key criteria, TSUB is the most critical. TSUB is a measure of the amount of time saved by transit travelers under a Build Alternative compared to transit travel times under the Baseline Alternative (the Baseline Alternative is discussed later in this report). In the past, TSUB also included the travel time savings of auto users, but that factor is not currently included in the measure. In the FTA process, cost effectiveness is calculated by dividing the TSUB by the combined annualized capital and operations cost of the Build Alternative compared to the Baseline Alternative. A cost-effectiveness<sup>2</sup> of under \$25.00 is need to receive a "low-medium" cost-effectiveness rating, the lowest rating under the rules that may still allow a project to proceed to the next phase. A project must have a cost effectiveness of under \$20.00 to receive a "medium" cost-effectiveness rating. FTA has recently indicated that it will not advance projects to construction unless they have at least a "medium" cost-effectiveness rating, even though FTA's rules require only a "low-medium" cost effectiveness rating.

In its evaluation of "land use," FTA considers the following land use measures:

- Existing land use
- Containment of sprawl
- Transit-supportive corridor policies
- Supportive zoning regulations near transit stations
- Tools to implement land use policies
- Performance of land use policies
- "Other" land use factors

FTA assigns an overall land use rating of "high," "medium-high," "medium," "low-medium," or "low" to each project following consideration of the seven factors listed above. FTA places a strong weight on existing conditions, including existing station area development, existing zoning, and major trip generators along the corridor. However, for some proposed projects not necessarily rated highly for existing conditions, the local efforts at encouraging future transit-supportive development can improve the overall land use rating.

Under the rules, the overall "Project Justification" rating is primarily based on the "cost-effectiveness" rating and "land use" rating. The other criteria under Project Justification are only relevant for projects that are at the margin of acceptability. Under the rules a project can receive a "Medium" Project Justification rating by having both Land Use and Cost Effectiveness rated Medium or higher, or by having one or the other of Land Use and Cost Effectiveness rated Medium-High or higher, and the other rated at least Low-Medium. However, given FTA's recent position, the rating will not matter if Cost-Effectiveness is not at least "Medium."

---

<sup>2</sup> Confusingly, the term "TSUB" is frequently used to refer to the cost-effectiveness measure in addition to the actual measure of user benefit, which is an input into the cost-effectiveness calculation.



### 3.4 Financial Ratings

FTA assigns a rating of High, Medium-High, Medium, Low-Medium, or Low to each of the following: (i) non-Section 5309 New Starts share, (ii) stability and reliability of capital plan, and (iii) stability and reliability of operating plan. Based on these individual criteria ratings, FTA assigns an overall financial rating of High, Medium-High, Medium, Low-Medium, or Low to a project based on to the weights identified below:

#### Weightings Used in Overall Financial Rating

<b>Factor</b>	<b>Weight in Overall Rating</b>
Non-Section 5309 New Starts Share of Project Costs	20%
Stability and Reliability of Capital Plan	50%
Stability and Reliability of Operating Plan	30%
<b>Total</b>	<b>100%</b>

In addition to these weights, FTA imposes the following decision rules:

- If a proposed project’s capital or operating plan receives a “low-medium” or “low” rating, the summary financial rating for the project cannot be higher than a “low-medium.”
- If the New Starts share is greater than 60 percent, the rating for the non-New Starts share factor is “low,” and the overall financial rating is “low” regardless of the capital and operating plan ratings.
- If the New Starts share is greater than 50 percent but less than 60 percent, the overall financial rating cannot be higher than “medium”.
- To receive an overall financial rating of “medium-high” or “high”, both the capital and operating funding plans must be rated “medium-high” (and the project must have a New Starts share of less than or equal to 50 percent of total project costs).

#### 3.4.1 Evaluating Non-Section 5309 New Starts Share

Current Federal law allows up to 80 percent Section 5309 New Starts funding. The non-Section 5309 New Starts share (i.e. the percent of project costs paid by other than Section 5309 “New Start” funds) of project funding is rated to reward projects that propose higher non-New Starts funding shares. The term “non-New Starts share (or funding)” includes all local funds plus all federal funds that are not Section 5309 Funds (such as STP funds, Section 5307 transit funds, etc.). FTA rates projects according to the Non-Section 5309 New Starts shares listed below:

### Ratings for Non-Section 5309 New Starts Funding Shares

Rating	New Starts Share	Non-New Starts Share
<b>High</b>	< 35%	>65%
<b>Medium-High</b>	35% - 49%	51% - 65%
<b>Medium</b>	50% - 60%	40% - 50%
<b>Low</b>	> 60%	< 40%

### 3.4.2 Evaluating the Capital Plan

The stability and reliability of the capital plan is evaluated based on the factors and thresholds shown below. While not shown to facilitate readability, “Low” and “High” ratings are also possible. However, a project will not receive an overall rating of “Recommended” if the stability and reliability of the capital plan is rate “Low.” “High” ratings are exceedingly difficult and rare, and probably are not achievable for the Columbia River Crossing Project for reasons explained later in this report. Thus, the table below only shows the standards for Medium-High, Medium, and Low-Medium ratings. As shown, the standards differ depending on whether the rating is being used to enter PE or to enter Final Design/FFGA.

#### Capital Plan Rating Standards (FTA Instructions to its Contractors)

	Medium-High	Medium	Low-Medium
Current capital condition	<ul style="list-style-type: none"> <li>- Average bus fleet age under 6 years.</li> <li>- Bond ratings less than 2 years old (if any) of A (Fitch/S&amp;P) or A2 (Moody’s) or better</li> </ul>	<ul style="list-style-type: none"> <li>- Average bus fleet age under 8 years.</li> <li>- Bond ratings less than 2 years old (if any) of A - (Fitch/S&amp;P) or A3 (Moody’s) or better</li> </ul>	<ul style="list-style-type: none"> <li>- Average bus fleet age under 12.</li> <li>- Bond ratings less than 2 years old (if any) of BBB+ (Fitch/S&amp;P) or Baa (Moody’s) or better</li> </ul>
Completeness	Capital plan is complete, i.e. it includes: <ul style="list-style-type: none"> <li>- 20-year cash flow</li> <li>- Key assumptions</li> <li>- Moderate level of detail</li> <li>- Fleet Management Plan</li> <li>- Sensitivity Analysis</li> <li>- More than 5 years of historical data</li> </ul>	Capital plan is complete, i.e. it includes: <ul style="list-style-type: none"> <li>- 20-year cash flow</li> <li>- Key assumptions</li> <li>- Missing some explanatory details</li> <li>- Fleet Management Plan</li> <li>- 5 years historical data</li> </ul>	Capital plan is partially complete, i.e. it includes: <ul style="list-style-type: none"> <li>- 20-year cash flow</li> <li>- Missing other items of supporting documentation (i.e. fleet management plan, key assumptions)</li> </ul>
Commitment of capital funds	<p><b>For final design</b> - Over 75% of Non-Section 5309 New Starts funds are committed. The remaining funds are budgeted.</p> <p><b>For PE</b> – Over 25% of Non-Section 5309 New Starts funds are committed or budgeted. The remaining funds are planned.</p>	<p><b>For final design</b> - Over 50% of Non-Section 5309 New Starts funds are committed. The remaining funds are budgeted.</p> <p><b>For PE</b> - No Non-Section 5309 New Starts funds are committed or budgeted, but the sponsor has a reasonable plan to secure all needed funding.</p>	<p><b>For final design</b> – Between 25% and 50% of Non-Section 5309 New Starts funds are committed. The remaining funds are budgeted.</p> <p><b>For PE</b> - No Non-Section 5309 New Starts funds are committed. The sponsor has no reasonable plan to secure the necessary funding.</p>

	<b>Medium-High</b>	<b>Medium</b>	<b>Low-Medium</b>
<b>Capital funding capacity</b>	The applicant has available cash reserves, debt capacity, or additional funding commitments to cover cost increases or funding shortfalls equal to at least 25% of estimated project costs.	For final design - The applicant has available cash reserves, debt capacity, or additional committed funds to cover cost increases or funding shortfalls equal to at least 10% of estimated project costs.  For PE - The applicant has a reasonable plan to cover cost increases or funding shortfalls equal to at least 25% of estimated project costs.	The applicant has a reasonable plan to cover only minor (under 10%) cost increases or funding shortfalls.  For PE –The applicant has a reasonable plan to cover cost increases or funding shortfalls equal to at least 10% of estimated project costs.
<b>Capital Cost Estimates and planning assumptions</b>	Financial plan contains conservative capital planning assumptions and cost estimates when compared with recent historical experience.	Financial plan contains capital planning assumptions and cost estimates that are in line with historical experience.	Financial plan contains optimistic capital planning assumptions and cost estimates.

Frequently the key factor in rating the capital plan becomes the “commitment” criterion, which is highlighted above. The evaluation of “commitment” is primarily based on the level of commitment and the evidence of the commitment. FTA uses the following categories, among others, in describing the level of commitment:

- **Committed:** Committed sources are programmed capital funds that have all the necessary approvals (legislative or referendum) to be used to fund the proposed project without any additional action. These capital funds have been formally programmed in the MPO’s TIP and/or any related local, regional, or state CIP or appropriation. Examples include dedicated or approved tax revenues, state capital grants that have been approved by all required legislative bodies, cash reserves that have been dedicated to the proposed project, and additional debt capacity that requires no further approvals and has been dedicated by the transit agency to the proposed project.
- **Budgeted:** This category is for funds that have been budgeted and/or programmed for use on the proposed project but remain uncommitted, i.e., the funds have not yet received statutory approval. Examples include debt financing in an agency-adopted CIP that has yet to receive final legislative approval, or state capital grants that have been included in the state budget, but are still awaiting legislative approval. These funds are almost certain to be committed in the near future.
- **Planned:** This category is for funds that are identified and have a reasonable chance of being committed, but are neither committed nor budgeted. Examples include proposed sources that require a scheduled referendum, reasonable requests for state/local capital grants, and proposed debt financing that has not yet been adopted in the agency’s CIP.

### 3.4.3 Evaluating the Operating Plan

Unlike highway projects, FTA rates the constructability of high capacity transit projects partially on the basis of the current and future financial condition of the transit operator, in this case both C-TRAN and TriMet. The focus here is on the entire system, not just the project. Moreover, FTA will rate as Low any project that requires cutbacks in existing transit service in order to fund the operations of a proposed high capacity transit project. As explained in Section 9 of this report, this could be a key issue for the Project.

The stability and reliability of the operating plan is evaluated based on the factors and thresholds shown below. As above, the standards for the “Low” and “High” ratings are not shown. As shown, the standards differ depending on whether the rating is being used to enter PE or to enter Final Design/FFGA.

#### Operating Plan Rating Standards (FTA instructions to its Contractors)

	<b>Medium-High</b>	<b>Medium</b>	<b>Low-Medium</b>
<b>Current Operating Financial Condition</b>	<ul style="list-style-type: none"> <li>- Historical and actual balanced budgets. Any annual cash flow shortfalls paid from cash reserves or other committed sources.</li> <li>- Current operating ratio is at least 1.5</li> <li>- No service cutbacks in recent years.</li> </ul>	<ul style="list-style-type: none"> <li>- Historical and actual balanced budgets. Any annual cash flow shortfalls paid from cash reserves or annual appropriations.</li> <li>- Current operating ratio is at least 1.2</li> <li>- No service cutbacks or only minor service cutbacks in recent years</li> </ul>	<ul style="list-style-type: none"> <li>- Historical and actual cash flow show several years of revenue shortfalls. Any annual cash flow shortfalls paid from short term borrowing.</li> <li>- Current operating ratio is at least 1.0</li> <li>- Major Service cutbacks in recent years</li> </ul>
<b>Completeness</b>	<ul style="list-style-type: none"> <li>Operating plan is complete, including:               <ul style="list-style-type: none"> <li>- More than 5 years of historical data</li> <li>- 20-year cash flow</li> <li>- Key assumptions identified</li> <li>- Moderate level of detail</li> <li>- Sensitivity analysis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Operating plan is complete, including:               <ul style="list-style-type: none"> <li>- 20-year cash flow</li> <li>- 5 years of historical data</li> <li>- Key assumptions identified</li> <li>- Missing some explanatory detail</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Operating plan is missing some key components, i.e.:               <ul style="list-style-type: none"> <li>- 3 years or less of historical data</li> <li>- 20-year cash flow</li> <li>- Missing key assumptions</li> </ul> </li> </ul>
<b>Commitment of O&amp;M Funds</b>	<ul style="list-style-type: none"> <li><b>For final design</b> - Over 75% of the funds needed to operate and maintain the proposed transit system are committed. The remaining funds are budgeted.</li> <li><b>For PE</b> - Over 50% of the funds needed to operate and maintain the proposed transit system are committed or budgeted. The remaining funds are planned.</li> </ul>	<ul style="list-style-type: none"> <li><b>For final design</b> – Over 50% of the funds needed to operate and maintain the proposed transit system are committed. The remaining funds are budgeted.</li> <li><b>For PE</b> – While no additional O&amp;M funding has been committed, a reasonable plan to secure funding commitments has been presented.</li> </ul>	<ul style="list-style-type: none"> <li><b>For final design</b> - Sponsor has identified reasonable potential funding sources, but has received less than 50% commitments to fund transit operations and maintenance.</li> <li><b>For PE</b> - Sponsor does not have a reasonable plan to secure O&amp;M funding. No unspecified sources.</li> </ul>
<b>O&amp;M Funding Capacity</b>	<ul style="list-style-type: none"> <li>- Projected cash balances, reserve accounts, or access to line of credit exceeding 25 percent (3 months) of annual operating expenses.</li> </ul>	<ul style="list-style-type: none"> <li>- Projected cash balances, reserve accounts, or access to line of credit exceeding 12 percent (1.5 months) of annual operating expenses.</li> </ul>	<ul style="list-style-type: none"> <li>- Projected cash balances, reserve accounts, or access to line of credit are less than 8 percent (1 month) of annual operating expenses.</li> </ul>
<b>Operating Planning Assumptions</b>	<ul style="list-style-type: none"> <li>The assumptions supporting the operating and maintenance cost estimates and revenue forecasts are conservative relative to historical experience.</li> </ul>	<ul style="list-style-type: none"> <li>The assumptions supporting the operating and maintenance cost estimates and revenue forecasts are consistent with historical experience.</li> </ul>	<ul style="list-style-type: none"> <li>The assumptions supporting the operating and maintenance cost estimates and revenue forecasts are optimistic relative to historical experience.</li> </ul>

There are two factors that are critical to the rating of the operations plan: (i) commitment of Operations and Maintenance (O&M) funds, and (ii) O&M Funding Capacity, both of

which are highlighted above. FTA expects that project sponsors must secure commitments for O&M funding during PE and have greater than 50 percent of the O&M funding requirement committed before approval to enter final design. The degree of commitment and availability of non-federal operating funds is evaluated based on the evidence of commitment provided by the project sponsor.

The rating of O&M Funding Capacity is essentially based on the amount of end-of-year reserve funds shown in the transit operator's budget. If the amount of reserves is less than an amount calculated as the cost of 1.5 months of system operations, a project will receive a Medium-Low rating for its operations finance plan, and in return, will receive an overall rating of Not Recommended for the project.

## **4. Alternatives Analysis**

### **4.1 Introduction**

49 USC 5309(e)(1)(A) requires projects seeking New Starts funding to be based on an Alternatives Analysis (AA) and Preliminary Engineering (PE). AA is meant to serve local decision-making by identifying:

- The problems in a corridor that are intended to be addressed by transit alternatives
- The transit options for addressing these problems
- The preliminary costs and benefits of the transit options

In theory, AA is a locally managed study process that normally relies on the information generated by the metropolitan transportation planning process regarding regional travel patterns, problems, and needs. However, in practice, FTA plays a major role, typically establishing specific requirements and undertaking oversight reviews. FTA is likely to pay particular attention to the mode, alignment, terminus, and service options that are examined during AA and that emerge from AA.

Local agencies have some latitude in how AA is performed, including the choice of whether to conduct AA (i) on its own, or (ii) as part of a Draft Environmental Impact Statement (DEIS) under NEPA. These options were outlined earlier in this report, and their application to the Columbia River Crossing Project is discussed in Section 9 of this report.

AA is complete when the alternative selected for advancement through project development is formally adopted by the metropolitan planning organization (MPO) into the region's financially constrained long-range transportation plan. This action confirms local consensus to implement the project, and that adequate regional funding capacity exists for its construction and operation. Detailed information on the conduct of AA is provided in FTA's *Procedures and Technical Methods for Transit Project Planning*

## **4.2 Factors Involved in the Definition of Alternatives**

There are many aspects of defining transit alternatives that differ from the definition of highway alternatives. These are discussed below.

### **4.2.1 Mode**

The “modes” of transit under examination is a particularly critical issue during AA. According to the *Strategic Plan* previously adopted for the I-5 Corridor, light rail options are to be considered. FTA may require that all or most potentially less expensive modes, such as Streetcar, Busway, and Commuter Rail, also be considered during AA

In addition to build alternatives, a No-build Alternative and one or more Transportation System Management (TSM) Alternatives must also be identified. The No-build Alternative is a requirement of NEPA and helps establish the environmental impacts of the alternatives. The TSM Alternative must be defined as the "best that can be done" to address the identified problems in the corridor without constructing a new transit guideway. The key factor in defining the TSM is that it must serve the same travel markets and provide a level of service consistent with that provided by the build alternatives under study, absent a corresponding level of capital investment.

There are operating characteristics that help define “mode.” For example, related to “mode” is the issue of the amount/type of “separation” from general traffic that the project may provide to the transit alternatives. For example, buses or light rail can operate on their own, entirely exclusive right-of-way, can fully operate in mixed-traffic, or can operate under right-of-way characteristics anywhere in between. For a given mode, the AA may be required to examine various degrees of exclusivity.

### **4.2.2 Alignment**

Like highway/bridge alternatives, fixed guideway transit alternatives are defined, in part, based on their general vertical and horizontal location, length, and right-of-way. However, transit alternatives must also address such things as location and size of park-and-rides, location of stations, location of feeder bus transfer points, and the routes taken by feeder buses.

### **4.2.3 Terminus Options**

The environmental impact statement must document the impacts of the terminus option selected for construction. Should a project consider a longer fixed guideway alternative in the EIS and later decide, due to a lack of funding, to construct a shorter alternative, a supplemental EIS may be required. This frequently necessitates inclusion in the DEIS of two or more terminus options for each fixed guideway alternative.

#### **4.2.4 Operating Policies**

In order to respond to questions by local decision-makers, the AA may need to consider operating policy alternatives. These may include such factors as: (i) fare structure, (ii) express versus local operations, (iii) alternate feeder route configurations, (iv) headway and wait-time standards, and (v) others. FTA is particularly concerned about employing operating policies that may not provide for clear comparisons of modes or alignments. In such cases, FTA will require inclusion of alternative operating policies in the AA (or DEIS).

#### **4.2.5 Institutional Alternatives**

FTA's AA guidance calls for consideration of institutional alternatives during AA. However, institutional alternatives have not been an issue in the Portland region, and, therefore, have not been addressed in previous AAs prepared in the region. Nonetheless, the unique institutional issues affecting the Columbia River Crossing Project may create the need to consider such alternatives in its AA.

From FTA's perspective, institutional factors include the roles and responsibilities of public agencies, the need for new legislative authorities, labor agreements, and the role of the private sector. For the purpose of evaluating mode and alignment alternatives, the institutional setting must be unbiased and consistent across all alternatives. However, there may be a need to consider optional institutional arrangements, and one or more additional alternatives may need to be defined to explore these options. The AA may include two alternatives that are identical in terms of mode and alignment, but, for example, have different public or private entities responsible for project implementation or operation, or that have different assumptions regarding labor agreements.

### **4.3 Development of Alternatives**

The development of alternatives in an AA is typically an iterative process consisting of the following stages:

- **Conceptual Definition:** The conceptual definitions of the alternatives are typically produced in system planning and then reviewed in the early scoping activities during project planning. For each alternative, the conceptual definition includes the preliminary identification of candidate alignments and operating strategies. The operating strategies give general ideas of overall bus service levels, service standards, and guideway service options. These definitions are sufficient to address such general concerns as ranges of costs, ridership potential, likely cost-effectiveness, and financial feasibility. They also serve in the initial scoping process to identify the range of options to be considered and to shape the technical work scope. The subsequent preliminary analysis is focused on narrowing the range of alternatives to a manageable number to carry forward in the detailed analysis. This analysis employs coarse criteria to sort among the

various alignment and operating options, and to develop preliminary definitions of alignments, standards, and operations.

- **Detailed Definition:** The detailed description provides detailed specifications regarding such factors as the horizontal and vertical alignments, station locations, typical sections and stations, and vehicle loading standards. The *Detailed Definition of Alternatives Report* describes the transit service currently in the corridor and the service levels, operating plans and policies for each alternative in the opening and forecast years. The operating plans describe routing, locations of stations or stops, peak and off-peak headways, and peak and off-peak speeds for each bus and/or rail route, including the feeder system. Policy options, institutional arrangements, and financial strategies are also described.
- **Final Definition:** The final definitions of alternatives consists of the plan and profile drawings, cross-section drawings for various line segments, conceptual drawing of stations and park/ride lots, and proposed specifications developed in the conceptual engineering effort. In addition, the final definitions may also differ from the detailed definitions because of changes made in response to cost, operational and environmental considerations. The final definition reflects the equilibration of transit service levels with travel demand. To document the equilibration process, the final definition of alternatives report should include, for each alternative, and for both the design year and the opening year, tables showing such factors as:
  - Each route's initial headway assumption
  - The initial peak hour peak direction volume
  - The revised headway assumption
  - The final peak hour peak direction volume
  - The resulting peak hour vehicle loadings
  - Weekday vehicle miles and hours for each route
  - The adopted vehicle loading standards.

The final definition of alternatives report also presents inputs to the capital costing and operating and maintenance (O&M) costing tasks. In addition to the plan and profile drawings, the capital costing inputs include the maintenance facility needs and vehicle requirements for each alternative.

#### **4.4 Baseline Alternative**

The Baseline Alternative plays a particularly important role in the FTA process. It serves as the option to which build options are compared for purposes of calculating TSUB and cost-effectiveness. Because of the critical role these factors play in evaluating and rating projects, FTA pays particular attention to the Baseline Alternative. FTA selects the New Starts Baseline Alternative for candidate projects prior to approving project entrance into preliminary engineering.



The New Starts Baseline Alternative represents the "best that can be done" to improve transit service in the corridor without major capital investment in new infrastructure. At a minimum, the New Starts baseline must include in the project corridor all reasonable cost-effective transit improvements short of the fixed guideway improvement often part of a New Starts project. The New Starts Baseline Alternative only replaces the No-build and TSM Alternatives in the FTA ratings process and not for EIS purposes (although the Baseline may be the same as the No-Build or TSM alternative in certain circumstances).

The New Starts Baseline Alternative will be defined in one of three general ways:

- Where the adopted financially constrained long range transportation plan includes all reasonable cost-effective transit improvements within the study area short of the proposed New Starts project, the no-build alternative that includes those improvements may serve as the New Starts Baseline Alternative.
- Where additional cost-effective transit improvements can be made beyond those provided by the adopted plan, the New Starts Baseline Alternative will incorporate those additional cost-effective transit improvements along with the actions in the adopted long range plan. In this case, the New Starts Baseline Alternative is essentially the TSM alternative.
- Where the proposed New Starts project is part of a multimodal alternative that includes major highway components, the New Starts Baseline Alternative will be the proposed multimodal alternative without the New Starts project and its associated transit services.

The following provides the procedure FTA will use to select the Baseline Alternative:

- **Step 1: FTA review of alternatives at the beginning of AA:** After AA has developed the detailed definitions of the alternatives, but before the technical analysis has begun, FTA determines whether the no-build and TSM alternatives respond to the transportation problems in the corridor, the policy and land-use setting is unbiased and consistent across the alternatives, and that the alternatives are defined in accordance with FTA's requirements. FTA does not select a New Starts Baseline Alternative at this stage, rather it only determines if the alternatives are likely to produce an acceptable New Starts Baseline Alternative.
- **Step 2: FTA Confirms Comparability of Preliminary Baseline Alternative:** Based on information documented in the *Final Definition of Alternatives Report*, FTA will confirm that the preliminary Baseline Alternative provides adequate "comparability" for FTA's purposes. The main indicators that proper "comparability" is achieved are the (i) cost effectiveness of the build alternative compared to the No-Build Alternative and (ii) the cost effectiveness of the TSM Alternative compared to the No-Build Alternative.

- **Step 3: FTA selects the Baseline Alternative before entry into Preliminary Engineering:** If an acceptable Baseline Alternative was defined during AA, FTA will select the New Starts baseline in advance of, or in conjunction with, the approval to enter preliminary engineering. If the TSM alternative is poorly defined, entry into PE will be denied until a proper TSM alternative is developed and presented to FTA.

## 5. Preliminary Engineering

During PE, the alternatives are refined to the extent necessary to complete the NEPA process. The information needed to evaluate the New Starts criteria is similarly refined in PE. In addition, the *Project Management Plan* (PMP) is finalized, and non-Section 5309 funding sources are committed to the project (if not previously committed). PE is “complete” when (i) FTA issues a NEPA *Record of Decision* (ROD) or *Finding of No Significant Impact* (FONSI), and (ii) FTA determines that the project sponsor has adequately demonstrated its capability to implement and operate the proposed project.

After completion of AA, project sponsors may request FTA approval to enter PE. The following summarizes items which must be met in advance of FTA’s consideration of a request to enter PE:

- FTA Review of *Scope of Work* for PE
- Problem statement, goals, and objectives for project
- FTA concurrence with *Definition of Alternatives*
- FTA concurrence with documentation of study assumptions, results, and methodologies
- FTA selection of New Starts Baseline Alternative
- Endorsement by MPO of the *Locally Preferred Alternative* (LPA); MPO incorporates LPA in region’s financially constrained long range plan
- FTA acceptance of *Project Management Plan* (PMP) for PE (discussed later in this report).

A formal request to enter preliminary engineering is submitted to the applicable FTA Regional Office, although FTA headquarters New Starts staff will have a critical role in approvals. The request must provide evidence that each of the milestones described above have been achieved. The request must also include the full range of data to rate projects based on the New Starts criteria for Project Justification and Financial Plan. Approval to enter PE is based on the resultant ratings.

## 6. Final Design

Final design is the last phase of project development, and includes right-of-way acquisition, utility relocation, and the preparation of final construction plans (including construction management plans), detailed specifications, construction cost estimates, and bid documents. The project’s financial plan is finalized, and a plan for the “Before and After Study” (discussed in Section 8 this report) is developed.

After completion of PE and FTA approval of the project sponsor's technical capability to undertake Final Design, project sponsors may request FTA approval to enter Final Design. The following summarizes items which must be met in advance of FTA's consideration of a request to enter Final Design:

- FTA issuance of ROD/FONSI
- FTA acceptance of *Updated PMP*
- FTA acceptance of *Fleet Management Plan*
- FTA acceptance of *Real Estate and Acquisition Plan*

Once FTA has found that these milestones have been satisfied, the evaluation of the project's New Starts criteria is undertaken. Like the PE approval process, a project rating of *Recommended* or *Highly Recommended* is required for entrance into Final Design. Projects rated *Not Recommended* against the New Starts criteria cannot be approved for Final Design.

## **7. Full Funding Grant Agreement**

Section 5309(e)(7) specifies the Full Funding Grant Agreement (FFGA) as the means by which 5309 New Starts funds are committed to a project. The FFGA defines the project, including cost and schedule; commits to a maximum level of Federal financial assistance (subject to appropriation); establishes the terms and conditions of Federal financial participation; defines the period of time for completion of the project; and helps to manage the project in accordance with Federal law.

A variety of products are required for receipt of a FFGA, including:

- Completion of FTA's Risk Assessment process, validating the capital cost estimate
- Possible reassessment of FTA's New Starts criteria, and a ratings update
- Final Fleet Management Plan, PMPs, and other technical and procedural documents
- Completed commitments of all required capital and operating funds required for the Project
- Completion of at least 60% Final Design
- Others

An FFGA is composed of text and attachments. The text of an FFGA is a set of standardized contractual terms and conditions applicable to all new starts projects, including obligations of completion and local share, cost eligibility, project management oversight, and labor protection. The attachments to an FFGA are tailored to each specific project, and address the scope of work, project description, baseline cost estimate, baseline construction schedule, prior grants, schedule of Federal funds, environmental mitigation, studies to measure the project's success after it has opened to revenue service, and any special conditions applicable to the project.

Additional information and guidance on developing FFGAs is contained in *FTA Circular C 5200.1A, Full Funding Grant Agreements Guidance*, dated December 5, 2002, and the *FTA Rule on Project Management Oversight* (49 CFR Part 633).

## **8. Miscellaneous Products and Requirements**

FTA requires a large array of products and submittals in connection with the New Starts process; several are summarized below.

### **8.1 Before and After Study**

FTA's *Final Rule on Major Capital Investment Projects* requires that project sponsors seeking Full Funding Grant Agreements submit a complete plan for the collection and analysis of information to identify the impacts of their projects and the accuracy of their forecasts. This *Before and After Study Plan* covers the collection of information on:

- *Project Scope* – the physical components of the project, including environmental mitigation;
- *Service Levels* – the operating characteristics of the guideway, feeder bus services, and other transit services in the corridor;
- *Capital Costs* – total costs of construction, vehicles, engineering, management, testing, and other capital expenses;
- *Operation and Maintenance Costs* – incremental operating/maintenance costs of the project and the transit system; and,
- *Ridership Patterns* - origin/destination patterns of transit riders on the project and in the corridor, and farebox revenues for the transit system.

The Plan further addresses how the data measuring the effects of the New Start project will be collected and how the subsequent analysis of travel patterns and costs "before" and "after" implementation of the project will be undertaken.

### **8.2 Project Management Plan**

FTA requires New Starts project sponsors to demonstrate the technical capability and capacity to carry out the preliminary engineering effort prior to submitting a formal request for entrance into PE. Consequently, project sponsors begin to develop a project management strategy during AA. This strategy is typically documented by a *project management plan* (PMP). The PMP is a dynamic management tool that describes how subsequent phases of project development --- preliminary engineering, final design, construction, and start-up --- will be managed by the lead local agency. As the project progresses through stages, the PMP is updated and refined.

### **8.3 New Starts Submittals**

This report has previously discussed the need to provide FTA with updated information for its New Starts rating process at each stage of project development. In its *Reporting*

*Instructions for the Section 5309 New Starts Criteria*, FTA identified a number of specific technical principles and assumptions which every alternatives analysis must follow. Among other requirements, FTA requires that the Chief Executive Officer of the local sponsoring agency certify that the information provided for the New Starts rating has been prepared by:

- Assuming identical highway and transit networks outside the corridor for the Baseline and the Build alternatives for the travel demand forecasts
- Developing ridership forecasts for the New Starts project that are based on the same set of growth forecasts and land use assumptions that are used to estimate ridership for the Baseline alternative
- Allocating the population and employment growth on the basis of locally adopted land use plans
- Analyzing the Build and Baseline Alternatives within the same basic policy setting, i.e., the model assumptions, parameters, and inputs are the same for all alternatives except for changes in the transportation network or other data that are directly attributable to each alternative
- Reporting the New Starts criteria and specific measures only for the Section 5309 New Starts transit investment and not for the complete build alternative

## **9. Issues for Columbia River Crossing Project**

The New Starts process raises a variety of procedural and strategic issues for the Columbia River Crossing Project. The major issues are summarized below, as are recommendations on how to proceed are identified.

### **9.1 Need to Preserve Eligibility for Section 5309 Funding for the Transit Component of the Project**

As stated earlier in this report, the New Starts process only must be followed if Section 5309 New Start funds may be used to pay a portion of the capital costs of the transit component of the Project. The New Starts process does not have to be followed to use other federal funds, such as STP and NHS funds, for the transit project; nor does it need to be followed if the project is fully locally funded.

Given the state constitutional restrictions on the use of transportation funds in both Washington and Oregon, it appears unlikely that a high capacity transit option would be constructed with all local (or state) funds; although the statutory local match of 15-20 percent (depending on the funding source) must be local (or state) funds. It will likely also be difficult (and perhaps undesirable) to fund the project with formula federal funds and local funds. Given the New Starts rating criteria, the maximum share of the transit component that can be paid with 5309 Funds and still receive a “Recommended” rating is 60 percent. While not a rule, FTA has indicated that it generally views \$500 million as the maximum amount of 5309 Funds that it would recommend to any one project. Based on previous work by Metro and TriMet, this amount appears more than adequate to provide 60 percent funding for the transit component. Thus, 5309 New Start funds

represent a viable option to fill the gap, and should be preserved by complying with New Start rules.

## **9.2 Status of Alternatives Analysis; Options on How to Proceed**

It was previously noted that there are two basic options for proceeding with AA: (i) Option 1 completes AA prior to entering the DEIS, and (ii) Option 2 completes AA as part of the DEIS. In either case, AA is completed by having the MPO (in this case both Metro and RTC) adopt a Locally Preferred Alternative (LPA) as part of the Regional Transportation Plan (RTP).

The technical work, public participation, and public actions related to the transit element undertaken during the *Strategic Plan* stage of the Project may satisfy most of FTA's requirements for AA. During the *Strategic Plan* stage, viable alternatives were identified and evaluated, and the MPO's adopted a LPA; all seemingly consistent with FTA requirements. Further, Metro's and RTC's earlier work with regard to the South-North LRT Project provides further evidence of a long-standing and on-going process of narrowing transit alternatives for the I-5 corridor. It is possible that these previous results can be packaged into an AA document satisfactory to FTA, and that FTA would allow the project to proceed under the Option 1 approach.

While the previous transit analysis may be sufficient to meet most current AA requirements, it probably does not meet all current requirements. Should Option 1 be pursued, there probably will be a need to develop and obtain FTA concurrence with a new Baseline Alternative for the New Starts rating process. The previous TSM Alternatives for this corridor may provide a starting-point, but it was developed prior to FTA's current policies and procedures regarding the Baseline Alternative. Further, Metro/TriMet/RTC/C-TRAN will have to prepare a full New Starts submittal (based on the updated Baseline Alternative) in order to have the project rated; a pre-requisite to receiving FTA approval to enter PE. While this would require a great deal of work, it would save substantial work, time and funds during the DEIS stage, and would get the project into the 5309 funding "pipeline" early.

The Project can also proceed under the Option 2 approach. This would require minimal FTA involvement at this time, and does not necessitate a ratings submittal until completion of the DEIS (when PE approval would be sought). If FTA permits a reasonably narrow range of transit options to be considered in the DEIS under Option 2, Option 2 may allow the DEIS to start earlier than Option 1 and may not require substantially more time to complete the DEIS. Also, as discussed below, Option 2 may avoid, for the time being, some difficult questions regarding the financial condition of the transit operators, and the financial plan. On the other hand, if under Option 2 FTA requires a wide range of options to be carried through the DEIS, Option 2 may significantly lengthen the overall project development schedule.

Either option can work. In either case, the DOTs must work with FTA to ensure that a proper, but narrow, set of transit alternatives is carried into the DEIS. If this is possible under Option 2, it may be the easiest way to proceed.

### **9.3 Transit Operator Issues**

It can be anticipated that FTA will require a description of the institutional arrangements between C-TRAN and TriMet regarding the construction and operation of the project by the time the project is rated for PE, if not earlier. These institutional arrangements may include such things as identifying: (i) how feeder service will be provided and funded, (ii) the proposed TriMet and C-TRAN fare and service policies affecting the Project, and (iii) which agency or newly created joint entity will operate the high capacity transit line. These are difficult issues, which among others, may raise labor and other legal issues that will take time to resolve. Furthermore, the financial ratings required for PE approval and Final Design approval will likely require both agencies to undergo a financial assessment of their system-wide operations capacity. While TriMet's financial capacity may raise some issues with FTA, C-TRAN's is certain to be a concern. Unless its financial condition changes or a special operating entity is created, C-TRAN's recent service cutbacks will be a highly adverse factor in FTA's assessment of the project's operating plan. The project development process must quickly initiate activities to determine how to address this issue.

### **9.4 Funding Commitment Issues**

Typically, TriMet has been able to secure a sizable percentage of the capital and operating funds needed for its light rail projects early in the project development process. This approach has produced Medium to Medium-High finance plan ratings beginning with the PE rating and continuing throughout the project development process. It has also helped create support for the project with FTA and the Congressional committees receiving FTA's *New Starts Annual Report*. Further, it greatly simplified the financial plan discussions in the DEIS and FEIS for these projects. However, this approach may not be possible for the Columbia River Crossing Project.

The threshold is not high for the financial plans required for PE approval. At this stage, only a "reasonable financial plan" is required to receive a Medium rating for the capital and operating finance plan; no commitments of needed funds are required. Thus, this is not likely to be a problem.

The threshold for Final Design approval, which occurs following completion of the FEIS (and issuance of the ROD), is significantly higher. At this stage, at least 50 percent of the non-Section 5309 capital and operating funds required for the transit project must be "committed." If the bridge costs are to be funded with tolls and toll credits are the planned non-Section 5309 funding source, the decision to toll the bridge would be required to receive a "Medium" financial plan rating (and be approved for Final Design). If the tolling strategy includes tolls on both the I-5 and I-205 Bridges, the federal and state statutory issues regarding such a tolling strategy will have to be resolved; otherwise

the request to initiate Final Design may be denied. If tolling or toll credits is not part of the project's overall finance plan, significant and contractually obligated commitments of federal formula, state and/or local funds will be required at this stage.

## **9.5 Project Rating Issues**

The analysis undertaken for the South-North LRT Project found that the LRT alternatives to Clark County will be cost-effective. Since that time, Interstate MAX has been constructed, significantly reducing the incremental cost of serving Clark County. Further, the I-205 LRT Project, if constructed, will include construction of the Mall Alignment in downtown Portland, further significantly reducing the incremental cost of serving Clark County. While it is sometimes difficult to judge the TSUB of a potential project, it appears that the I-5 high capacity alternatives should rate well with regard to cost-effectiveness. In addition, given Oregon's land use laws and Washington's Growth Management Act and local comprehensive plans, the I-5 alternatives should rate well with regard to land use. Together, these factors should produce an adequate, if not good, Project Justification rating. The key to receiving a Recommended or Highly Recommended overall rating will likely rest on the ratings for the project's capital and operations finance plans.

## **9.6 Impact of Reauthorization Bills**

Both the House and Senate transportation reauthorization bills amend federal statutes regarding the New Starts process. The amendment most likely affecting the Columbia River Crossing Project is the eligibility requirements for accessing 5309 funds. Both bills open the 5309 funds to Bus Rapid Transit (BRT) projects. The Senate version does so without limitation, while the House version requires that a majority of the BRT's route be in an exclusive right-of-way. In either case, this creates greater competition for the limited amount of 5309 New Start Funds. Moreover, there are indications that the BRT projects may rate better than rail projects under FTA's measures and procedures. This may limit the Columbia River Crossing Project's ability to access these funds.

## **9.7 Need to Have Project "Authorized"**

Congress requires a project to be "authorized" before it can proceed through the project development process. Congress sometimes "authorizes" a project for construction, and sometimes "authorizes" a project just for PE. This is a political process; there are no substantive rules for either authorization category. Both "authorizations" merely license project sponsors to engage in project development activities; neither mandates project funding.

The transit component of the Columbia River Crossing Project has been "authorized for construction" in both ISTEA and TEA-21 as the "South-North LRT Project." It needs to be reauthorized in TEA-LU/SAFETEA.



There are pros and cons to reauthorizing the Project as the “South-North LRT.” On the positive side, it may be easier to reauthorize an existing project rather than to authorize a new project. Furthermore, there may be some benefit to such a reauthorization if an Option 1 AA is pursued. However, if the South-North LRT is reauthorized, the relationship between the current DEIS and previous EISs for the project will have to be clarified.