



U.S. Department  
of Transportation  
**Federal Transit  
Administration**

# **Reporting Instructions for the Section 5309 New Starts Criteria**

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*Prepared by:  
Federal Transit Administration  
Office of Planning and Environment*

## NOTICE

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For additional technical and procedural assistance on the application and reporting of the Section 5309 New Starts Criteria to specific New Starts transit projects, contact the appropriate FTA Regional Office.

For additional guidance on the Section 5309 New Starts Criteria, and for specific questions related to this document, contact Sean Libberton, Acting Chief, Planning Analysis Division, Federal Transit Administration, Washington, DC, 202.366.6512, or e-mail at [sean.libberton@fta.dot.gov](mailto:sean.libberton@fta.dot.gov).

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## I. INTRODUCTION

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The Federal Transit Administration (FTA) has developed these instructions to guide local project sponsors of proposed New Starts projects in the submittal of data and supporting information addressing the Section 5309 New Starts criteria.

FTA reviews and evaluates the information developed according to these instructions to:

- Decide whether proposed projects may advance into the preliminary engineering or final design phases of project development;
- Assign ratings to proposed New Starts projects for the Annual Report on Funding Levels and Allocations of Funds (referred to as the *Annual Report on New Starts*);
- Develop funding recommendations for the Administration's annual budget request; and,
- Determine the findings used to decide which projects are eligible for funding commitments under Full Funding Grant Agreements.

The instructions contained in this document reflect the measures and evaluation and rating process established in FTA's *Final Rule on Major Capital Investment Projects* (December 2000; also known as the *New Starts Final Rule*). These instructions should be used by local project sponsors for the submittal of New Starts information requested for the FY 2006 *Annual Report on New Starts*, as well as for all requests to enter preliminary engineering and final design throughout calendar years 2004 and 2005 (until FTA releases a revised set of instructions). Note that FTA requests information that supports the estimation of project benefits (which in turn supports the development of the New Starts project justification criteria) in advance of the formal submittal of the criteria for the *FY 2006 Annual Report on New Starts*, as well as in advance of any formal preliminary engineering or final design request.

These reporting instructions are essentially the same as those issued in June 2003. However, some important enhancements to this guidance are noted below:

- The guidance has been rearranged to make it more user-friendly. Each reporting template is discussed in order, with instructions for completing the template, key assumptions and data needs identified. In addition, quality control checks have been provided for each template.
- Clarification has been provided on what templates and information are required from exempt New Starts projects (those requesting less than \$25 million in New Starts funds) versus non-exempt projects. FTA notes that even projects that are exempt from the New Starts criteria must provide FTA with basic information that describes and justifies the proposed investment. Section V.1 presents a "checklist" of reporting items for both exempt and non-exempt projects.
- Additional guidance has been provided on developing the "Making the Case" document (see Section V.3).

- Additional guidance has been provided on what Summit software reports and maps must be provided with the submittal. FTA is requesting that these reports and maps be submitted both electronically and in hardcopy (see Section V.3).
- Additional guidance has been added on the optional submission of information related to the anticipated economic benefits of proposed New Starts projects (see Section VI.5).

Minor enhancements to these *Reporting Instructions* include limited additions to the data reported in Template 1 (Project Description Worksheet) and Template 13 (Project Finance Worksheet); clarification of necessary information to be submitted in support of the financial plan; updated diesel locomotive factors in Template 6 (Environmental Benefits); confirmation of 2004 as the year in which constant dollars should be reported; clarification of the inputs into the calculation of annualized costs for both the build and baseline alternatives; and clarification of FTA's longstanding policy that the planning horizon year used for travel forecasting purposes should be 20 years in the future. Deviation from this horizon year (which for this year's reporting should not exceed 2025) should be discussed with FTA.

This document and electronic versions of its corresponding templates will also be posted on the FTA website under *Major Investment Project Planning and Development* at [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm). Additional materials and guidance documents related to major investment planning and the New Starts program are also available at the above address, or by contacting your FTA Regional Office.

## II. NEW STARTS AND THE PLANNING AND PROJECT DEVELOPMENT PROCESS

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Figure 1 illustrates the FTA New Starts Planning and Project Development Process. TEA-21 requires that New Starts projects, like all transportation investments in metropolitan areas, must emerge from a regional multi-modal transportation planning process and must be evaluated and publicly reviewed in accordance with the National Environmental Policy Act (NEPA) in order to be eligible for Federal funding. In addition, 49 U.S.C. §5309(e)(1) specifies that discretionary grants or loans for New Starts projects may only be approved if a proposed project is based on the results of alternatives analysis and preliminary engineering, and certain project justification and financial criteria have been met.

For a project to qualify for Section 5309 New Starts funding, the planning and NEPA process must include a planning-level alternatives analysis (formerly known as a major investment study) which evaluates all reasonable modal and multi-modal alternatives and general alignment options for addressing the identified transportation needs in a particular, broadly defined travel corridor. The alternatives analysis provides information on the benefits, costs and impacts of alternative strategies, leading to the preliminary selection of a locally preferred strategy that is still subject to final NEPA review. The *New Starts Final Rule* also includes a requirement that during alternative analysis sponsors of candidate New Starts projects should develop an alternative, typically the transportation system management (TSM) alternative that can serve as a “New Starts baseline” against which to measure the incremental benefits of proposed major transit capital investments. The locally preferred New Starts build alternative is compared to this New Starts baseline alternative for purposes of isolating the costs and benefits of the proposed project. Further information on alternatives analysis and the definition of the New Starts baseline alternative is provided in FTA’s guidance entitled, *Advancing Major Transit Investments Through Planning and Project Development (Version 1.1)* issued in January 2003 (and available at [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm).)

When the sponsoring agency for a candidate New Starts project is ready to initiate the preliminary engineering (PE) phase of project development, it must submit a request to the appropriate FTA Regional Office. The request must document the adoption by the metropolitan planning organization (MPO) of the project into the region’s financially constrained long-range transportation plan and the programming of the PE activity in the transportation improvement program (TIP). The PE request must also address the project justification and local financial commitment criteria as required in 49 U.S.C. §5309(e)(6). FTA will then evaluate the proposed project based on the New Starts criteria and determine whether or not to advance the project into PE.

Sponsors of candidate New Starts projects must also demonstrate the technical capability and capacity to implement the proposed project at the point of requesting entrance into PE. Following the selection of a locally preferred alternative, project sponsors should begin the development of a project management plan (PMP). It is important to note that this requirement applies to all New Starts projects regardless of the amount of the requested Section 5309 New Starts share.

## II.1. REQUIREMENTS FOR FTA APPROVAL INTO PRELIMINARY ENGINEERING

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The following items must be addressed before FTA will grant approval for a project to enter preliminary engineering:

- Completed alternatives analysis;
- Adopted locally preferred alternative included in financially constrained regional long range transportation plan and PE activity included in TIP;
- FTA approval of New Starts baseline alternative;
- FTA review and conditional approval of PMP;
- Demonstrated technical, legal and financial capacity; and
- “Recommended” or higher rating for the project based on the New Starts criteria.

## II.2. REQUIREMENTS FOR FTA APPROVAL INTO FINAL DESIGN

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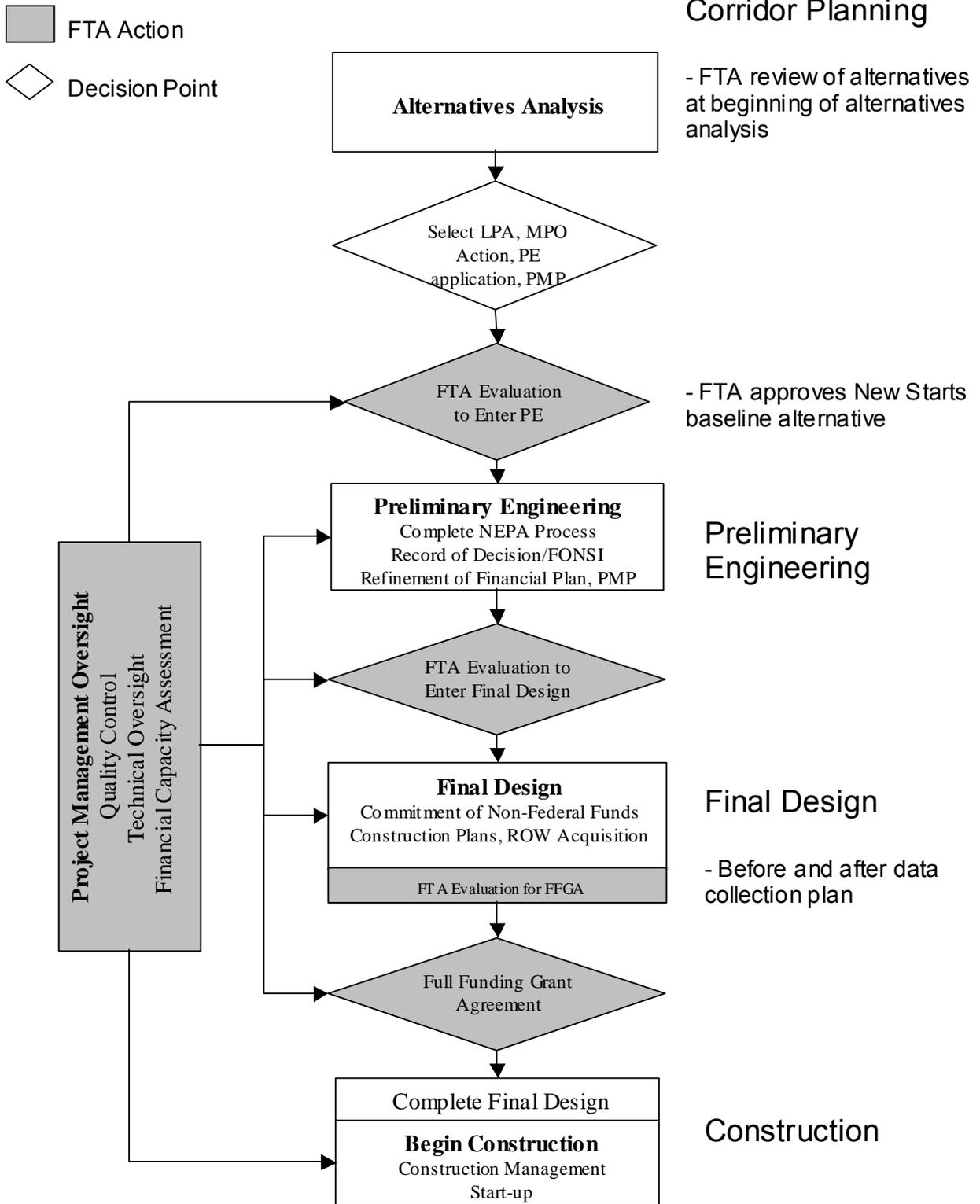
Following the completion of PE, including completion of all NEPA requirements, project sponsors may submit a request to FTA to initiate final design – the last phase of project development prior to construction. Final design may include right-of-way acquisition, utility relocation and the preparation of final construction plans (including construction management plans), detailed specifications, final construction cost estimates and bid documents. As noted previously, the final design phase cannot be initiated until all applicable environmental reviews and evaluations have been satisfied, as evidenced by a NEPA Record of Decision (ROD) or a Finding of No Significant Impact (FONSI). In addition, project sponsors must have an FTA-approved PMP in place at the time of the final design request. FTA will reconfirm that the PMP continues to adequately demonstrate the technical capability of the lead local agency to design, construct, and operate the proposed New Starts project.

FTA will approve entry into final design based on the results of the New Starts rating process.

The following items must be addressed before FTA will grant approval for a project to final design:

- Completed NEPA process (ROD or FONSI);
- Demonstrated technical, legal, and financial capacity;
- FTA-Approved PMP;
- FTA-Approved Rail and Bus Fleet Management Plans;
- Identification of all railroad and other major right-of-way issues, and the development of a plan for resolving these issues; and
- “Recommended” or higher rating for the project based on the New Starts criteria.

Figure 1: FTA New Starts Planning and Project Development Process



### **III. OVERVIEW OF NEW STARTS CRITERIA**

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TEA-21 requires that FTA rate each candidate New Starts project based on the New Starts criteria and assigns an overall project rating of “Highly Recommended,” “Recommended” or “Not Recommended.”

FTA evaluates each project sponsor’s submittal of information addressing the project justification criteria and local financial commitment and assigns overall project ratings. FTA applies these ratings to decisions for advancing proposed projects in the New Starts project development process.<sup>1</sup>

#### **III.1. PROJECT JUSTIFICATION CRITERIA**

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Section 5309(e)(1)(B) of TEA-21 requires that projects proposed for New Starts funding be justified based on a comprehensive review of the following criteria:

- Mobility improvements;
- Environmental benefits;
- Operating efficiencies; and
- Cost-effectiveness.

FTA also considers “other factors” as required by Section 5309(e)(3)(H) of TEA-21. TEA-21 Section 5309(e)(3)(C) further encourages FTA’s consideration of transit supportive land use and future patterns. Because of its important role in contributing to the success of fixed guideway transit systems, FTA has added land use as an additional project justification criterion.

The measures that FTA uses to represent these project justification criteria are presented in Table 1 on the following page. Each of these measures is described in greater detail in the sections that follow in this guidance.

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<sup>1</sup> Note that as a project proceeds through the project development process it is expected that project cost estimates, local funding commitments, and transit supportive land use policies and other development efforts will become more fully realized. Consequently, projects requesting entrance into final design must provide firmer evidence of local financial and land use commitments to be “Recommended” or “Highly Recommended” than do projects requesting entry into preliminary engineering.

Table 1: New Starts Project Justification Criteria and Measures

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. See Section VI.5</li> </ul>

### III.2. LOCAL FINANCIAL COMMITMENT CRITERIA

Section 5309(e)(1)(c) of TEA-21 requires that proposed projects be supported by an acceptable degree of local financial commitment, including evidence of stable and dependable financing sources to construct, maintain and operate the transit system. The measures for evaluating the financial soundness of a proposed project are:

- The proposed share of total project costs from sources other than Section 5309 New Starts funding, including Federal formula and flexible funds, the local match required by Federal law, and any additional capital funding;
- The strength of the proposed capital funding plan; and
- The ability of the sponsoring agency to fund operation and maintenance of the entire transit system as planned once the guideway is built.

Additional information on the local financial commitment criteria and measures is provided in Section V, Reporting and Technical Requirements, in these *Reporting Instructions*.

#### **IV. SUMMARY OF EVALUATION AND RATING PROCESS**

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A detailed description of the New Starts evaluation process that FTA intends to employ for the *FY 2006 Annual New Starts Report* and subsequent PE and final design requests is provided as Appendix D of this guidance. To assign overall project ratings ("Highly Recommended", "Recommended" or "Not Recommended") to each proposed New Starts project, FTA considers the individual ratings for each of the financial rating factors and project justification criteria presented previously. FTA combines this information into summary "finance" and "project justification" ratings for each project. These summary ratings are in turn used to determine *overall* project ratings according to the following decision rules:

- **Highly Recommended** - Projects must be rated at least "medium high" for both finance and project justification;
- **Recommended** - Projects must be rated at least "medium" for both finance and project justification;
- **Not Recommended** - Projects not rated at least "medium" in both finance and justification will be rated as "Not Recommended"

For most measures, projects are aligned in a continuum of values from low to high and broken into five groups, with each group assigned a numerative rating of 1 ("low") to 5 ("high"). The thresholds that distinguish the five groups are not pure "quintiles" (that is, 20 percent each of the total number of projects being evaluated for the measure) but rather logical break points that separate one group from another. Where criteria are represented by more than one measure, ratings for each measure are then rolled up and averaged into criterion-specific ratings, where the numerative rating is converted into a corresponding "high", "medium high", "medium", "low-medium" or "low" rating. For the cost effectiveness criterion, specific dollar thresholds are defined for "high", "medium high", "medium", "low-medium" and "low" ratings. Criterion-specific ratings are subsequently combined to form summary "high", "medium high", "medium", "low-medium" or "low" project justification ratings.

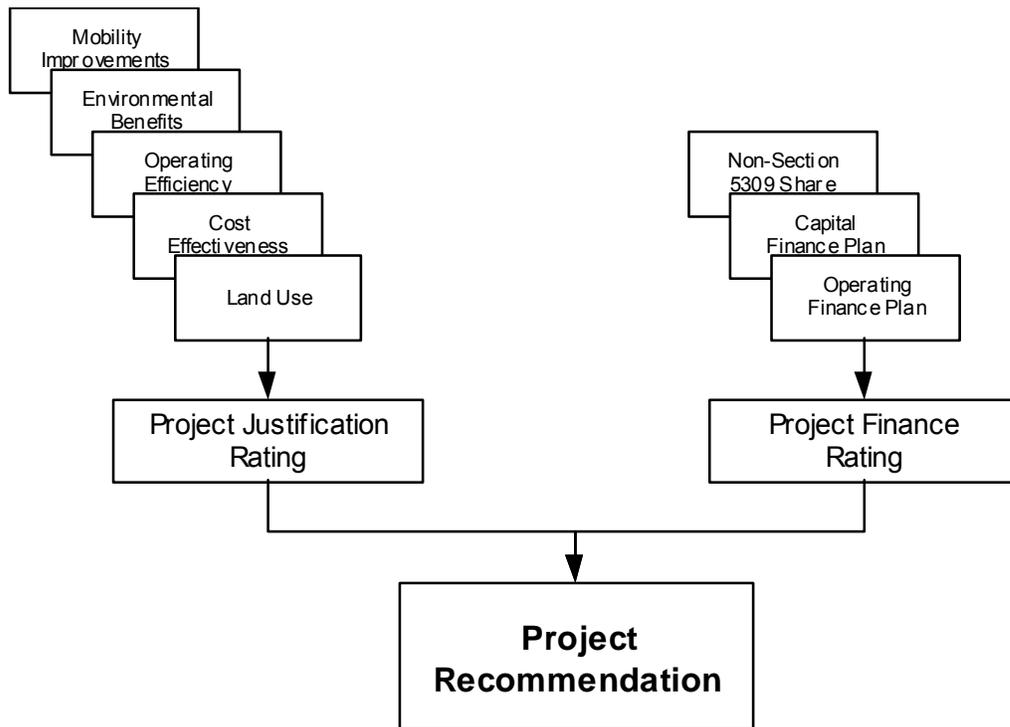
FTA assigns a weight of 50 percent each to both the cost effectiveness and land use criteria and averages them in order to establish a summary project justification rating. When the average of the cost effectiveness and land use rating falls equally between two ratings, the mobility improvements rating may be introduced as a tiebreaker.

FTA weighs the proposed non-New Starts share as 20 percent of the summary financial rating; the strength and reliability of the capital plan counts as 50 percent of the rating; and the strength and reliability of the operating plan accounts for 30 percent of the rating. However, FTA continues to encourage project sponsors to request a Federal New Starts funding share that is as low as possible. The Conference Report that accompanied the FY 2002 Department of Transportation Appropriations Act instructs "FTA not to sign any new full funding grant agreements after September 30, 2002 that have a maximum Federal share of higher than 60 percent." Consequently, FTA has established a number of decision rules to ensure that all "Recommended" New Starts projects are consistent with Congressional and Administration directives regarding the New Starts share. The result of these decision rules is that projects seeking a Federal New Starts share over 60 percent of total costs are given a "low" rating for

local financial commitment, regardless of the ratings received for the capital plan and operating plan. This “low” rating further results in a “Not Recommended” overall project rating.

It is very important to emphasize that project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the *Annual Report on New Starts* and when projects request FTA approval to enter preliminary engineering or final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings updated to reflect new information.

Figure 2: FTA Approach to New Starts Evaluation and Rating



FTA’s evaluation process is described in greater detail in Appendix D of this guidance.

#### IV.1. WHEN DOES FTA EVALUATE AND RATE NEW STARTS PROJECTS?

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TEA-21 requires that FTA evaluate and rate all proposed New Starts projects for advancement in the New Starts project development process and for annual reporting to Congress. FTA applies the results of the New Starts evaluation and the overall project ratings of “Highly Recommended”, “Recommended”, or “Not Recommended” to make the determinations required by Federal statute to:

- Decide whether proposed projects may advance into the preliminary engineering or final design phases of project development;
- Assign ratings to proposed New Starts projects for the *Annual Report on New Starts*;
- Develop funding recommendations for the Administration’s annual budget request; and
- Determine the findings used to decide which projects are eligible for funding commitments under Full Funding Grant Agreements.

A rating of “Highly Recommended” or “Recommended” does not translate directly into a funding recommendation or commitment in any given year. Federal financial commitments, as specified in a Full Funding Grant Agreement (FFGA), will be granted ultimately to those transit New Starts projects that are:

- Rated “Recommended” or “Highly Recommended”;
- In the final design project development phase and have demonstrated “readiness” to utilize the funds based on a reasonable implementation and financing schedule; and
- Whose Section 5309 New Starts request is within available program resources.

## V. REPORTING AND TECHNICAL REQUIREMENTS

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This section describes the information applicants must submit to FTA for evaluation and rating under the Section 5309 New Starts process, and how it should be developed. FTA requires that project sponsors:

- Provide information on the characteristics of the proposed New Starts project and the existing regional transit system;
- Develop and submit information addressing each of the New Starts rating criteria; and,
- Certify that the technical methods and assumptions used to develop the submittal are consistent with FTA policy and sound planning principles, as described in this chapter.

### V.1. REPORTING REQUIREMENTS

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FTA requires a very specific set of information in its evaluation and rating of New Starts projects. Many of the required data inputs and qualitative assessments used by FTA in its evaluation of candidate projects are based upon information developed by local project sponsors during alternatives analysis and other planning/project development activities. FTA will work with local agencies to address questions and issues regarding individual data items and reporting of specific criteria and measures.

This section summarizes the information local project sponsors are required to submit on their proposed project to ensure that FTA can give the project an adequate evaluation and a fair rating. These items will be described in greater detail in the following chapters. Electronic versions of the reporting templates are available on FTA's website for *Major Investment Project Planning and Development* at [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm).

Table 2 on the following page presents a checklist for the reporting of information. FTA notes that notwithstanding their exempt status, sponsors of projects requesting less than \$25 million in New Starts funds must still submit basic information that describes and justifies the proposed major transit capital investment.

*Table 2: Checklist for Required Information Submission*

Reporting Item	Template Number	Exempt Project Sponsor Checklist	Non-Exempt Project Sponsor Checklist
<b>General</b>			
Project Description Narrative and Make the Case Document	NA		
Project Description Worksheet	Template 1		
Project Maps	NA		
Certification of Technical Assumptions	Template 2		
Summit Software Reports and Maps	NA		
Summary “roll-up” report	NA		
Summary reports for each trip purpose (i.e. HBW, HBO, NHB, etc.)	NA		
Trip length frequency reports and row and column sum reports for each trip purpose	NA		
Map of district boundaries and names that includes project alignment and station locations	NA		
Two thematic maps for each trip purpose (productions and attractions) and for total user benefits across all trip purposes	NA		
<b>Mobility Improvements</b>			
Transportation System User Benefits per Passenger Mile Worksheet	Template 3		
Low Income Households Worksheet	Template 4		
Employment Worksheet	Template 5		
<b>Environmental Benefits</b>			
Environmental Benefits (Change in Emissions and Energy Consumption) Worksheet	Template 6		
Current Regional Air Quality Designation	NA		
<b>Operating Efficiencies</b>			
Change in Operating Cost per Passenger Mile Worksheet	Template 7		
<b>Cost Effectiveness</b>			
Annualized Capital Cost Worksheet	Template 8		
Cost Effectiveness Worksheet – User Benefits	Template 9		
Cost Effectiveness Worksheet - Incremental Cost per Incremental Rider	Template 9		
<b>Other Factors</b>			
Other Factors, as appropriate	Template 9 (optional); NA		
<b>Transit Supportive Existing Land Use and Future Patterns</b>			
Supplemental Land Use Information Worksheet	Template 11		
Quantitative Land Use Information Worksheet	Template 12		
Additional Supporting Land Use Documentation	NA		
<b>Local Financial Commitment</b>			
Project Finance Worksheet	Template 13		
Project Finance Plan	NA		
Additional Supporting Financial Documentation	NA		

## V.2. TECHNICAL REQUIREMENTS

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The Section 5309 New Starts criteria are used to evaluate and rate a wide variety of proposed projects nationally. In order to ensure a “level playing field” upon which to evaluate candidate New Starts projects, project sponsors must develop the information that supports their New Starts submissions according to FTA policy. This section describes the basic technical approach related to the definition of both the New Starts “build” and “baseline” alternatives; the assumptions to be used in the travel demand forecasting of these alternatives; and the self-certification that FTA requires of each sponsoring agency which is intended to ensure compliance with these technical principles.

The information needed to address the New Starts criteria should be a normal product of the planning and project development process. Project sponsors are strongly encouraged to recognize and address the substance of this information at the earliest stages of corridor planning and preliminary engineering. Otherwise, additional time and expense may be incurred before project sponsors can submit their requests to enter PE and certify that they have followed these guidelines.

FTA notes that any methods and assumptions that differ from those described in this section should be discussed with FTA before they are used. FTA’s intent is not to totally preclude approaches that depart from this guidance, but for FTA and project sponsors to reach a mutual decision on approaches that may vary from these instructions.

### **Definition of Alternatives**

The definition of the alternatives to be studied in alternatives analysis is an extremely important element in the development of major transit capital projects. FTA has issued a range of guidance on the definition of alternatives, including *Advancing Major Transit Investments Through Planning and Project Development (Version 1.1)* and its chapter on the subject in its revised *Procedures and Technical Methods for Transit Project Planning*, both available at [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm). Please refer to these documents for detailed guidance on the development of alternatives for the alternatives analysis study and for FTA’s subsequent evaluation of the proposed New Starts project.

In response to comments submitted by the transit industry and in recognition of the desire to simplify the New Starts process, the December 2000 *New Starts Final Rule* eliminated the requirement for an evaluation comparing the New Starts criteria for the build alternative against both the no-build *and* the transportation system management (TSM) alternatives. Instead, the *Final Rule* requires that the proposed New Starts project be evaluated against a single “New Starts baseline alternative.” The *New Starts Final Rule* also requires that FTA approve the definition of the New Starts baseline alternative for all proposed New Starts projects prior to its decision to advance the project to preliminary engineering.

### **New Starts Baseline Alternative**

The New Starts baseline alternative is best defined as the “best that can be done” to improve transit service in the corridor without a major capital investment in new infrastructure. This

definition is consistent with that of the TSM; assuming the proper definition of the TSM, the New Starts baseline alternative will be the TSM alternative for most New Starts projects.

The New Starts baseline alternative must be defined so that comparisons with the New Starts project isolate the costs and benefits of the proposed major transit capital investment. At a minimum, the New Starts baseline must include in the project corridor all reasonable cost-effective transit improvements short of the major capital investment often required for a New Starts project. The New Starts baseline alternative should include relatively low cost actions such as traffic engineering, enhanced bus service and other transit operational changes, and modest capital improvements such as reserved lanes, park-and-ride lots, and transit terminals. The New Starts baseline should be designed to address identified transportation needs in the New Starts project's service area and demonstrate the extent to which these problems can be solved without a proposed major capital investment such as a New Starts fixed guideway transit project. However, it is important to note that in some cases the New Starts baseline alternative may still result in substantial capital and operating costs, particularly in complex study areas with significant transportation problems, and where the build alternative is extremely high in cost.

Depending on the specific corridor and circumstances, and through prior agreement with FTA, the New Starts baseline alternative can be defined in one of three general ways:

- First, 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. In this case, the NEPA no-action alternative and the New Starts baseline alternative would generally correspond to one another.
- Second, 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.
- Lastly, where the proposed New Starts project is part of a multi-modal alternative that includes major highway components, the New Starts baseline alternative will be the proposed multi-modal alternative without the New Starts project and its associated transit services.

As noted previously, in the vast majority of cases, the second definition listed above will serve as the appropriate New Starts baseline alternative. Most metropolitan areas where New Starts projects are proposed would likely fit in this category if additional transit actions short of a New Starts major capital investment are feasible. There will be selected cases where the first definition listed above is appropriate, but these appear likely only in highly urbanized corridors already operating a maximum level of transit service. The third definition, multi-modal corridors, will be reviewed closely on a case-by-case basis. FTA staff will work with local project sponsors to examine the specific circumstances related to the definition of alternatives.

The *New Starts Final Rule* requires that FTA approve the New Starts baseline alternative before projects can be approved to advance to preliminary engineering. Local project sponsors considering a potential New Starts project as a build alternative in an alternatives analysis planning study should consult with their FTA Regional Office to determine an appropriate baseline alternative.

### **Build Alternative**

The build alternative is the project that the sponsoring agency is or will be seeking FTA New Starts funding to build. The New Starts project should be evaluated as a stand-alone project. In many instances, the preferred alternative that is adopted into the MPO's plan following a corridor study will include a variety of elements, such as highway and HOV improvements, as well as transit. When addressing the New Starts criteria, those elements of the preferred alternative that are not proposed for New Starts funding should be treated as separate and distinct projects from the New Starts project. This is necessary to accurately identify the transit benefits that the New Starts project will produce.

If the project sponsor intends to build the New Starts project in phases, starting with a minimum operating segment (MOS), then it is the MOS that should be evaluated using the New Starts criteria. The project sponsor may also address the criteria for a more extensive project if that project is shown in the MPO's adopted plan. This supplementary information may be useful to show the MOS in the context of the long range regional plan. Local project sponsors considering implementation of an MOS should discuss this with their FTA Regional Office and the FTA Office of Planning.

The capital and operating cost estimates for the New Starts build alternative must include the feeder bus system and other project elements that are assumed in forecasting ridership.

### **Additional Guidance for Multi-modal Projects**

Defining alternatives for projects that contain more than one mode is more complex. The FTA New Starts evaluation process is designed to analyze the impact of the New Starts project alone. When build alternatives include highway or high-occupancy vehicle (HOV) elements, FTA needs the project sponsor to identify alternatives that isolate the impacts of the proposed New Starts project. The baseline alternative and the build alternative will need to assume the existence of the highway or HOV elements within the corridor to provide a consistent basis of comparison for the New Starts ratings.

This highway-only New Starts baseline alternative may, in some cases, be a reasonable alternative that addresses the purpose and need for Federal action that underlies the NEPA evaluation. In this case, the NEPA scoping process would be expected to advance such highway-only alternatives for evaluation during the NEPA process. However, it is expected that, in many cases, the highway-only alternative created to serve as the New Starts baseline alternative will not sufficiently address the established purpose and need for the proposed project. In this instance, the scoping process would not retain the highway-only alternative for NEPA evaluation. The highway-only alternative would be developed only for use in the New Starts rating process but would not be included in the NEPA evaluation.

## **Travel Demand Forecasting Assumptions**

There is significant variability in the travel demand forecasting models maintained by agencies across the country so that inputs and model assumptions are different in different places. Nevertheless, a number of good practices have evolved that ensure consistent treatment of alternatives. The basic guiding principle in developing model input assumptions is to make sure that the travel forecasting approach does not bias the results in favor of any particular alternative. The following practices must be followed:

- The horizon year used for travel forecasting purposes should be 20 years in the future.
- Model assumptions regarding socio-economic variables and land use, modeling 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.<sup>2</sup>
- Assumptions about policies affecting monetary costs (fares, highway tolls, and parking costs) and transit service need to be the same among all alternatives.
- Assumptions about travel times and operating speeds of transit services must be consistent among the alternatives.
- Access, egress, walking, waiting, and transfer times must be estimated consistently for all alternatives.
- Transit vehicle operating speeds in mixed traffic must reflect anticipated congestion and traffic flow characteristics.
- Transit sub-mode bias constants cannot be used without submitting technical justification to FTA in advance.
- Factors to convert daily ridership to annual ridership must be consistent among all alternatives and must be reasonable and reflective of the operator's recent experience. Any annualization factor over 300 requires a written justification and will be scrutinized by FTA.
- The highway network and zone system must be the same among all alternatives except for changes that result from the alternatives themselves.
- Highway volume-time functions used to determine highway link speeds and assignments based on traffic volumes need to be the same among all alternatives.

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<sup>2</sup> With supporting evidence that local adopted land use plans stipulate that intensity of development in a particular area will increase once a transit investment occurs, FTA may agree that the ridership analysis for the Build project could assume a different allocation of population and employment than the Baseline Alternative. Project sponsors must discuss this approach in advance with FTA where applicable.

### V.3. GENERAL REPORTING INFORMATION

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#### **Project Description Template**

Project sponsors must provide descriptive information on the proposed New Starts project and the regional public transportation system. FTA uses the project description to understand the project, to develop a project profile for the *Annual Report on New Starts*, and to establish a database of project characteristics and local contact information. As in past years, Template 1 (Project Description) is provided at the conclusion of the section for reporting this information. FTA notes that all New Starts sponsors, even those of projects which are exempt from the New Starts criteria, must submit Template 1 to FTA.

#### **Making the Case Document**

Stakeholder scrutiny of the benefits of New Starts projects has never been greater. In an environment where the public and decision-makers demand a high return on taxpayers' investment in transit, more – and more rigorous – questions are being asked about the justification for New Starts projects. Therefore, it is increasingly important that project sponsors can articulate the merits of their proposed transit improvements, and the reasons why these improvements represent the best possible solution to locally identified transportation problems.

FTA believes that a very valuable understanding of candidate New Starts projects can be gained from a simple approximately 3 page narrative, developed by the sponsoring agency, that succinctly describes the benefits of the proposed investment, particularly in comparison to the New Starts baseline (and other lower cost) alternative(s). The intent of this narrative is to “make the case” for the New Starts project. This *Making the Case* document should describe key substantiated project outcomes that justify the worthiness of the proposed New Starts investment. These outcomes should be drawn from the alternatives analysis or other studies performed by the project sponsor that were used as the basis for selecting the locally preferred alternative.

Importantly, the *Making the Case* document should contain substantive benefits backed by demonstrable analytical results – not assertions. Reasons for benefits should be explained, and evidence for such conclusions provided. The analysis should extend beyond a justification for why a given corridor is in need of improvement to why the proposed New Starts project is better than any other reasonable transportation investment in the corridor.

Ultimately, the *Making the Case* document should provide an interpretation of the travel forecasts (most helpfully, Summit-produced reports and maps). In summary, the document should strive to:

- Provide quantitative evidence of transportation problems in the project corridor, and how the proposed project will address these problems.
- Describe the markets (trip purposes, socioeconomic, geographic) that the project benefits, and how and why they benefit. These benefits should be quantitative.
- Provide evidence that this investment is better than all other strategies for meeting the identified corridor problems. A comparison of how the proposed project performs against the baseline and other alternatives in serving key travel markets and meeting identified needs should be included.

- Provide real evidence of non-transportation benefits and impacts, if such benefits are part of the purpose and need of the project.

*Overall, the project sponsor must make the case (with quantitative evidence) that its proposed New Starts project is better than other alternatives considered to improve demonstrated problems in the corridor.*

One useful approach to *Making the Case* for the project would be to analyze the travel forecasts in terms of how they are meeting goals and the specific market needs identified in a well-crafted problem statement/purpose and need for the project, and to summarize the benefits occurring to each market. Summit reports and maps can provide some insight into this analysis. The document should further summarize how the project meets, as quantitatively and substantively as possible, other objectives identified in the problem statement/purpose and need.

There is no set format for the *Making the Case* document. The only requirement is that it be responsive to the items listed above. Time and attention should be paid to the analysis rather than on an elaborately produced document (i.e. “glossy,” with photographs). Because the focus of the *Making the Case* document is to justify New Starts project’s transportation (and, if backed by evidence, economic) benefits, a discussion of local financial commitment, public involvement, project schedule and milestones, and other attributes of proposed major capital transit investments is not relevant.

Finally, FTA notes that the *Making the Case* document is required of all candidate New Starts projects, including those that are exempt from the Section 5309(e) New Starts criteria. While sponsors of exempt projects will not be expected to present the same level of analysis necessary to justify the benefits of non-exempt New Starts, a thoughtful summary, using available quantitative data, of how such improvements meet local goals and objectives will enhance FTA’s understanding of these projects.

### **Project Maps**

FTA includes maps for each of the proposed New Starts project in the *Annual Report on New Starts*. FTA produces maps based on information provided by the project sponsor. All New Starts sponsors must submit maps of their proposed projects. Sponsors are further encouraged to submit electronic versions of these maps. To ensure compatibility, maps should be created in a geographic information system (GIS) program such as Map Info, Arc Info, Maptitude, or TransCAD. In lieu of a GIS formatted map, a clearly legible “hardcopy” map of the project may be submitted. To ensure consistency, maps must focus on the proposed New Starts investment and its relation to other major transportation facilities and major trip generators. Maps shall include a legend, compass and scale. Hardcopy maps should be submitted on 8.5 by 11 inch paper and printed in black and white.

To the extent that they are available, sponsors are encouraged to provide other simple graphic diagrams (not construction documents) of their projects which help illustrate discrete segments of an alignment in terms of relationship to grade and horizontal alignment -- existing track, new track, retrofitted track; single track, double track, shared track; elevated, below-grade, on-grade; relationship to freight lines; number and location of stations; and character of the built and

natural environment in which the project is situated. Accompanying these diagrams, sponsors are further encouraged to provide a brief narrative (one paragraph on each) describing major design or engineering challenges; unresolved scope, interagency and political issues; methods for complying with Americans with Disabilities Act; FRA and railroad compliance provisions and agreements (where applicable); and real estate acquisition issues.

### **Summit Software Reports and Maps**

FTA has developed and made available an innovative software tool for analyzing travel demand model results called Summit. One of the main features of this product is to facilitate the calculation and reporting of the transportation system user benefit measure used in the calculation of cost effectiveness and mobility improvements. Implementing this measure will generally require some code changes to regional travel demand models to ensure that the information needed to calculate user benefits is saved as a model output. After completing the model modifications described above, a set of files will be produced by the regional travel demand model which can be read into the Summit software. Summit will automatically perform the calculations necessary to report the user benefit measure. Specifications for any needed model code changes and detailed documentation on implementing Summit is available from the FTA Office of Planning and Environment.

Project sponsors must submit to FTA, in advance of the formal New Starts project justification criteria, a series of reports and maps produced by the Summit software using data obtained from the project sponsor's travel forecasting model. This information provides both local project stakeholders and FTA with insight into the reasonability of the ridership forecasts and the transportation system user benefits calculations. **FTA requests that this information be submitted both electronically and in hard copy. The following materials should be provided electronically to FTA on a CDROM:**

- All files produced by Summit including:
  - Report Files (".rpt" file extension)
    - The summary "roll-up" report file that sums across all trip purposes coded in the project sponsor's travel forecasting model.
    - The purpose level report files produced by Summit for each trip purpose represented in the project sponsor's travel forecasting model (i.e. home based work, home based other, non-home based, etc.) If the project sponsor's travel forecasting model includes multiple stratifications for each trip purpose (i.e. by time of day or income level), please include not only the individual stratification files but also a summary report file for the trip purpose that sums by time of day and socioeconomic class.
  - Trip Length Frequency Files (".tlf" file extension) - For each trip purpose, there should be one corresponding ".tlf" file.
  - Row and Column Sum Files (".rcu" and ".rcs" file extensions) - All report files with the ".rcu" and ".rcs" file extensions.

- A PDF file containing a map showing the district boundaries and the name and/or number for each district. This map should include on it the alignment and station locations of the New Starts project.
- PDF files containing thematic maps that display the user benefit results based on travel analysis zone (TAZ) geography. This includes the following:
  - Two thematic maps for each trip purpose should be provided, one showing user benefits for trips produced in the zones/districts (row sums) and one showing user benefits for trips attracted to the zones/districts (column sums).
    - Zones with positive user benefits should be shown on the maps as one of three colors (represented as various shades of green) -- significant benefits in dark green (representing the top 40 percent of zones with positive user benefits), medium benefits in medium green (representing the next 30 percent of zones with positive user benefits), and small but non-trivial benefits in light green (representing the next 10 percent of zones with positive user benefits). All remaining zones with positive user benefits would be shown in white. These are considered marginal or negligible benefits.
    - Likewise, zones with negative user benefits should be shown as one of three colors (represented as various shades of red) -- significant disbenefits in dark red, medium disbenefits in medium red, and small but non-trivial disbenefits in light red. Zones with negligible or trivial disbenefits should be shown in white. The breakpoints for the negative user benefits categories should be established based on the corresponding breakpoints for each category of positive user benefits. In other words, if 1,000 hours of user benefits represents the 30 percent positive threshold for the medium gain category for positive benefits, that same 1,000 hour threshold will serve as the breakpoint for the medium loss category -- with the exception that the sign will be reversed (from positive to negative).
    - Please ensure that the thematic maps include a legend that defines the thresholds for each range (in terms of the number of hours of benefits/disbenefits).
  - Two thematic maps showing results summed across all trip purposes, one showing user benefits produced in the zones/districts and one showing user benefits for trips attracted to the zones/districts.
- The data input files to Summit created by the project sponsor's travel forecasting model.

**The following materials should be provided to FTA in hardcopy:**

- The summary “roll-up” report produced by Summit that sums across all trip purposes coded in the project sponsor's travel forecasting model.
- The purpose level report files produced by Summit for each trip purpose represented in the project sponsor's travel forecasting model (i.e. home based work, home based

other, non-home based, etc.) If the project sponsor's travel forecasting model includes multiple stratifications for each trip purpose (i.e. by time of day or income level), please include not only the individual stratification files but also a summary report file for the trip purpose that sums by time of day and socioeconomic class.

- A map showing the district boundaries determined by the project sponsor as well as the name and/or number for each district. This map should include on it the alignment and station locations of the New Starts project.
- Color copies of all of the thematic maps described above.

Please ensure that all maps include the New Starts project alignment and station locations, district boundaries, and legends.

### **Certification of Technical Assumptions**

The use of consistent measures, data inputs, and analytical assumptions is intended to improve the information provided by project sponsors and to support FTA's decision-making process. Project sponsors must also include with their submission a statement certifying that the technical approaches and assumptions used in the analysis were in accordance with the principles outlined by FTA. The sponsoring agency's General Manager or Chief Executive Officer shall sign the certification. Template 2 at the conclusion of this section provides this statement.

## Template 1: Project Description (page 1)

PROJECT DESCRIPTION TEMPLATE		
<b>PROJECT NAME:</b>		
<b>Participating Agencies</b>		
<b>Lead Agency</b>	Name	
	Contact Person	
	Address	
	Telephone Number	
	Fax Number	
	Email	
<b>Metropolitan Planning Organization</b>	Name	
	Contact Person	
	Address	
	Telephone Number	
	Fax Number	
	Email	
<b>Transit Agency</b>	Name	
	Contact Person	
	Address	
	Telephone Number	
	Fax Number	
	Email	
<b>State Department of Transportation</b>	Name	
	Contact Person	
	Address	
	Telephone Number	
	Fax Number	
	Email	
<b>Other Relevant Agencies</b>	Name	
	Contact Person	
	Address	
	Telephone Number	
	Fax Number	
	Email	

**PROJECT DESCRIPTION TEMPLATE (Page 2)**

<b>Project Definition</b>	Length (miles)	
	Mode/Technology	
	Number of Stations	
	List each station separately, including the number of park and ride spaces at each	
	List each station with major transfer facilities to other modes	
	Number of vehicles/rolling stock	
<b>Type of Alignment by Segment</b> <i>(Number of miles)</i>	Above grade	
	Below grade	
	At grade	
	Exclusive	
	Mixed Traffic	
<b>Current Status of Existing Right of Way</b>	Ownership – who owns the right of way?	
	Current Use: active freight or passenger service?	

<b>PROJECT DESCRIPTION TEMPLATE (Page 3)</b>			
<b>Project Planning Dates</b>	<b>Base Year</b>	<b>Opening Year</b>	<b>Forecast Year</b>
<b>Capital Cost Estimate</b>	2004 Constant dollars		
	Year of Expenditure		
<b>Levels of Service</b>	Headways		
	Weekday Peak		
	Weekday Off-peak		
	Weekday Evening		
	Weekend		
	Hours of Service		
	Weekday		
	Weekend		
<b>Travel Demand Estimates</b>	<b>Project Boardings</b>	<b>Opening Year</b>	<b>Forecast Year</b>
	Average Weekday		
	Work Trips		
	Peak Hour		
	Annual		
	<b>Guideway Boardings<sup>3</sup></b>	<b>Opening Year</b>	<b>Forecast Year</b>
	Average Weekday		
	Work Trips		
	Peak Hour		
	Annual		
	<b>Transit System Linked Trips<sup>4</sup></b>	<b>Opening Year</b>	<b>Forecast Year</b>
	Average Weekday		
Annual			
Annual New Riders			
<b>Linked Trips if Proposed System Operated with Current Land Use Patterns and Population/Employment<sup>5</sup></b>			
<b>Fare Policy Assumptions Used In Travel Forecasts<sup>6</sup></b>			
<b>Regional HBW User Benefits Attributable to the Lowest Income Strata<sup>7</sup></b>			

<sup>3</sup> Forecast boardings on the rail or other guideway system, if the New Starts project is an extension to such a system.

<sup>4</sup> Linked Trips refer to trips that begin at the trip origin and end at the FINAL destination. One linked trip could be composed of several unlinked trips. For example, driving to a park and ride, riding a commuter train, and taking a bus to the final destination is all one linked trip which is made up of three unlinked trips and two transit system boardings.

<sup>5</sup> Sponsor shall generate this estimate by running the regional travel demand model using the proposed project transit network, the existing highway network, and existing estimates of population and employment. If the proposed project is within 5 years of the planned opening year, opening year estimates can substitute for this measure.

<sup>6</sup> Please summarize fare policy assumptions used for all regional transit services modeled in the forecast year. Attach this summary to Template 1.

<sup>7</sup> For informational purposes, please report the percentage and total number of regional home-based-work user benefits attributable to the lowest socio-economic strata (as defined by income or auto availability) used in local travel forecasts, for the forecast year.

**PROJECT DESCRIPTION TEMPLATE (Page 4)**

<b>Project Planning and Development Schedule</b>	<b>Project Schedule</b>	
	<i>Insert anticipated or actual dates/durations</i>	
	Planning Studies Initiated	
	Planning Studies Completed	
	LPA selected	
	LPA included in the financially constrained long range plan	
	Included in Financially Constrained TIP	
	Initiation of DEIS	
	Completion of DEIS	
	Initiation of FEIS	
	Completion of FEIS	
	Public Referenda (where applicable)	
	Preliminary Engineering (duration – dates of beginning and ending)	
	Final Design (duration)	
	FFGA- submit request to award (duration)	
	Construction (duration)	
Testing (duration)		
Revenue Operations		
<b>Project Management</b>		
<b>Project Manager</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Agency CEO</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Key Staff: Overall New Starts Criteria</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Key Staff: Ridership Forecasts</b>	Name	
	Address	
	Phone	
	Fax	
	Email	

**PROJECT DESCRIPTION TEMPLATE (Page 5)**

**Project Management (continued)**

<b>Key Staff: Cost Estimates</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Key Staff: Environmental Documentation</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Key Staff: Land Use Assessment</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Key Staff: Financial Assessment</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Key Staff: Project Maps</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Contractors</b>		
<b>Current Prime Contractor</b>	Name	
	Address	
	Phone	
	Fax	
	Email	
<b>Prime Contractor: Project Manager</b>	Name	
	Address	
	Phone	
	Fax	
	Email	

### **Quality Control Checks – Template 1**

- The number of stations reported on Template 1 should match the number of stations identified on Template 4 (Low Income Households Worksheet).
- The forecast year reported on Template 1 should match the forecast year reported on Template 12 (Quantitative Land Use Information Worksheet).
- The capital cost estimates reported on Template 1 should match the capital cost estimates reported on Template 13 (Project Finance Worksheet).
- Average weekday and annual boardings for the system should exceed the average weekday and annual boardings for the project.
- Annual project boardings should exceed annual new riders.
- The number of annual transit system linked trips reported on Template 1 should equal the total annual ridership reported for the build alternative on Template 10 (Cost Effectiveness Worksheet – Incremental Cost per Incremental Rider).
- The number of annual new riders reported on Template 1 should equal the incremental annualized ridership reported on Template 10 (Cost Effectiveness Worksheet – Incremental Cost per Incremental Rider).
- It is unusual for the number of new riders attracted to a New Starts project to exceed 50 percent of annual project boardings. If this is the case, reasons for such a high level of new riders must be included in the *Making the Case* document that supports the project.
- Annual new riders reported on Template 1 should match the number of daily new riders reported in the summit summary report multiplied by the project's annualization factor.
- The project schedule information reported should be up-to-date and accurate.
- Check to ensure all fields have been completed, including the contact information for the project management team.
- If reported information has changed significantly from last year, please provide a separate explanation with your submittal.

## Template 2: Certification of Technical Assumptions

### LEAD AGENCY CERTIFICATION OF TECHNICAL ASSUMPTIONS IN THE DEVELOPMENT OF THE NEW STARTS CRITERIA SUBMISSION

The *(Name of Submitting Agency)*, acting in the capacity as lead agency for *(Project Name)*, the proposed New Starts project, understands that the Section 5309 New Starts criteria are used to evaluate the worthiness of proposed projects across the nation and that it is important that project sponsors address the criteria in a consistent manner.

As Chief Executive Officer of *(Name of Submitting Agency)* I hereby certify that *(Name of Submitting Agency)* has followed FTA's Reporting Instructions on Section 5309 New Starts Criteria in the preparation of this submission, including:

- The horizon year used for travel forecasting purposes should be 20 years in the future.
- Model assumptions regarding socio-economic variables and land use, modeling 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.
- Assumptions about policies affecting monetary costs (fares, highway tolls, and parking costs) and transit service (productivity and loading standards, etc.) need to be the same among all alternatives.
- Assumptions about travel times and operating speeds of transit services must be consistent among the alternatives.
- Access, egress, walking, waiting, and transfer times must be estimated consistently for all alternatives.
- Transit vehicle operating speeds in mixed traffic must reflect anticipated congestion and traffic flow characteristics.
- Transit sub-mode bias constants cannot be used without submitting technical justification to FTA in advance.
- Factors to convert daily ridership to annual ridership must be consistent among all alternatives and must be reasonable and reflective of the operator's recent experience. Any annualization factor over 300 requires a written justification and will be scrutinized by FTA.
- The highway network and zone system must be the same among all alternatives except for changes that result from the alternatives themselves.
- Highway volume-time functions used to determine highway link speeds and assignments based on traffic volumes need to be the same among all alternatives.

Any methods and assumptions that differ from those described in this section have been discussed with and concurred in by FTA.

\_\_\_\_\_  
Chief Executive Officer

\_\_\_\_\_  
Date

## VI. PROJECT JUSTIFICATION INFORMATION

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### VI.1. MOBILITY IMPROVEMENTS

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Three measures are applied to estimate mobility improvements: (1) normalized travel time savings, as measured by transportation system user benefits per passenger mile on the New Starts project; (2) number of low income households served; and, (3) employment near stations. Each of these measures is rated according to the New Starts criteria and combined into a general *mobility improvements* rating.

#### **Normalized Travel Time Savings (Transportation System User Benefits per Passenger Mile)**

Total annual travel time savings will be calculated using the methods developed to estimate transportation system user benefits. The user benefit calculation expressed in time equivalent units (minutes) will serve as the travel time savings estimate in the mobility measure. The calculation of transportation system user benefits produces a multi-modal measure of traveler utility for all users of the transportation system, which can be expressed in terms of travel time savings. This measure is then normalized by dividing the annual travel time savings by the annual passenger miles traveled on the proposed New Starts project. This information is reported in Template 3.

#### **Low Income Households Served**

This measure is defined as the estimated number of low-income households served by the Section 5309 New Starts investment. This mobility improvement measure is reported as the estimated number of low-income households (defined as households below the poverty level) located within ½ mile of boarding points (transit stations) on the proposed New Starts project. Low-income households are reported as an absolute number in the current reporting year, and no comparisons are made to the New Starts baseline. FTA requests that local agencies also report the total number of households within ½ mile of boarding points. This information is reported on Template 4.

#### **Employment Near Stations**

FTA also requires the reporting of the number of jobs within ½ mile of the New Starts project's proposed transit stations. The calculation of this measure is approximately the same as the low-income household measure, but using employment estimates by traffic analysis zones developed for use in the travel demand model. Employment is reported as an absolute number in the current reporting year, and no comparisons are made to the New Starts baseline alternative. This information is reported on Template 5.

## Template 3: Transportation System User Benefits per Passenger Mile

Line	Variable	Value	Source/Calculation
1	Weekday Transportation System User Benefits (User Expenditure Savings in Hours), New Starts baseline vs. build alternative		Source: Output from SUMMIT software for change in User Expenditures between the New Starts baseline and build alternatives.
2	Annualization Factor		Source: Value that converts daily estimates to annual estimates.
3	Total Annual User Benefits (in hours)		Calculation: Multiply change in weekday User Expenditures in Hours (Line 1) by annualization factor (Line 2).
4	Total Annual User Benefits (in minutes)		Calculation: Multiply Total Annual User Benefits (Line 3) by 60
5	Annual Passenger Miles (weekday passenger miles on the New Start investment multiplied by the factor used in line 2)		Source: Forecast Project Passenger Miles from Regional Travel Demand Model
6	Total Transportation System User Benefits per Passenger Mile (in minutes)		Calculation: Divide Total Annual Transportation System User Benefits (Line 4) by Annual Passenger Miles (Line 5)

## **Instructions for Completing Template 3 Transportation System User Benefits per Passenger Mile**

### **Key Assumptions and Data Sources**

- The forecast year is the planning horizon year, generally 20 years in the future.
- The study area consists of the region modeled for travel demand purposes.
- Travel time savings are calculated by subtracting the transportation system user expenditures in hours in the New Starts baseline alternative from the New Starts build alternative.
- Transportation system user benefits (expenditure savings in hours) are produced by the Summit travel demand reporting program using files created by the travel demand model used to forecast ridership for the New Starts baseline and build alternatives.
- Forecast passenger miles traveled on the New Starts build alternative are generated from a combination of sources including the regional demand estimation model and the local agencies' ongoing operations and service planning databases.

Travel time savings reported in this measure for the New Starts build alternative should only reflect savings as a direct result of the Section 5309 New Starts fixed guideway and related transit investments included in the build alternative. Travel time savings that would result from HOV or other roadway improvements that may be included in the full build alternative or multi-modal investment strategy but not proposed for Section 5309 New Starts funds should not be reported in this measure.

### **Calculation and Reporting Methods**

- **Step 1:** Run modified travel demand model for the New Starts baseline and build alternatives. The modified travel demand model will automatically launch Summit and use the trip tables and generalized cost files produced by the travel demand software to estimate user benefits of the New Starts build alternative relative to the New Starts baseline alternative.
- **Step 2:** Locate the Summit report file and report calculations for change in user expenditures in equivalent hours between the baseline and New Starts build alternatives. All project sponsors must also submit an electronic copy of the Summit report files created for the user benefit analysis.
- **Step 3:** Report annualization factor in the template and calculate the annual savings in user expenditures in travel time equivalent units (hours). Annualization factors convert weekday estimates to annual estimates. Any annualization factor over 300 must be accompanied by documentation justifying its usage.
- **Step 4:** Multiply the average weekday user benefits by the annualization factor to calculate the total annual transportation system user benefits for the proposed New Starts project and enter this number in Line 3. Multiply Line 3 by 60 to convert the unit measurement of user benefits to minutes and enter this number in Line 4.

- **Step 5:** Calculate the forecast annual passenger miles (weekday miles multiplied by the annualization factor reported on Line 2) traveled on the New Starts investment in the 20-year forecast directly from the regional travel demand model and enter this number on Line 5.
- **Step 6:** Divide total annual user benefits in minutes by total annual passenger miles traveled on the New Start project to calculate the transportation system user benefits per passenger mile measure.

### **Quality Control Checks – Template 3**

- Use an annualization factor that reflects the current factor necessary to convert weekday ridership into annual ridership.
- Do not assume that the annualization factor will exceed 300 if the current levels of transit service on weekends are limited or nonexistent. FTA requests documentation justifying use of annualization factors in excess of 300.
- Total annual user benefits reported on Template 3 should match what is shown in the Summit summary report file.
- Note that this calculation requires forecast passenger miles traveled specifically on the New Starts project, not systemwide passenger miles used in the calculation of the operating efficiencies measure.
- Provide FTA with an explanation for any changes in the data submitted since last year.

## Template 4: Low Income Households

Census Tract	Number of Total Households	Number of Low-Income Households	Fraction of Tract within 1/2 mi. of New Starts Project Boarding Points	Number of Total HH's within 1/2 Mile of Boarding Points	Number of Low-Inc. HH's within 1/2 Mile of Boarding Points
<b>For each station on New Starts Project</b>					
<b>Station 1</b>					
<b>Subtotal</b>					
<b>Station 2</b>					
<b>Subtotal</b>					
<b>Station 3, etc.</b>					
<b>Subtotal</b>					
<b>Total for All Boarding Points</b>					

Note:  
Attach map showing census tracts and transit system

Source:  
U.S. Census Data: Total Households

Source:  
U.S. Census Data: Households with "income below poverty level"

Source:  
GIS or visual estimation

Calculation:  
Number of Total Households \* Fraction within 1/2 mile

Calculation:  
Number of Low-Income Households \* Fraction within 1/2 mile

## Instructions For Completing Template 4: Low Income Households

### Key Assumptions and Data Sources

- Low-income households reported in this measure are defined by the U.S. Census of Population to include households with “income below the poverty level.”
- Data reported are to reflect the most recent information available through the U.S. Census or other reliable local sources. Data are not to be reported for the forecast year nor should they reflect any analyses of projected conditions.
- Local agencies may have different data sources and analysis/reporting tools available to estimate this measure. The use of geographic information system (GIS) tools should greatly assist in this estimation. Locally applied travel demand models and land use models may include data on household income that could be analyzed and reported to estimate this measure. If these data are not readily available, the U.S. Census of Population data at the tract and/or block level should be applied directly.
- Avoid double counting of households for stations that are less than 1 mile apart. This can be done in two ways: (a) draw a line dividing the area enclosed by the overlapping circles into two parts; or, (b) group stations that are less than 1 mile apart into clusters and report total data for each cluster.
- 

### Calculation and Reporting Method

- **Step 1:** Identify an analysis zone of 1/2 mile radius around the New Starts project’s boarding points, defined as the transit stations located directly on the New Starts transit facility.
- **Step 2:** Applying the best available local data sources and analytical tools, estimate the number of low income households and total number of households within the 1/2 mile radius analysis zones identified in Step 1. If available, GIS and other analytical tools will assist local agencies in estimating this measure. If such tools are not available, and for instances where a census tract or block is only partially located within a designated 1/2 mile radius zone, households within the zone should be factored based on the estimated percentage of the tract or block within the analysis zone.
- **Step 3:** Additional documentation and background information including maps illustrating the transit system, the New Starts boarding points, and Census tracts should be assembled and attached.

### Quality Control Checks – Template 4

- The number of stations included on Template 4 should equal the number of stations reported in Template 1 (Project Description Template).

## Template 5: Employment Worksheet

Traffic Analysis Zone (TAZ)	Total Employment in TAZ	Fraction of TAZ within 1/2 mi. of New Starts Project's Boarding Points	Number of Total Jobs within 1/2 Mile of Boarding Points
<b>For each station on New Starts Project</b>			
<b>Station 1</b>			
<b>Subtotal</b>			
<b>Station 2</b>			
<b>Subtotal</b>			
<b>Station 3, etc.</b>			
<b>Subtotal</b>			
<b>Total for All Boarding Points</b>			

Note:  
Attach map showing TAZ's and transit system

Source:  
Regional travel demand model  
TAZ information file

Source:  
GIS or visual estimation

Calculation:  
Number of Jobs \*  
Fraction within 1/2

## Instructions for Completing Template 5: Employment Worksheet

### Key Assumptions and Data Sources

- Employment data that are linked to a geographic area are generally difficult to collect. Census data usually provides the population estimates for each traffic analysis zone (TAZ), but employment figures must be pieced together from a variety of sources such as State Employment Commissions, market research listings, locally developed employment data, aerial photography and other methods. An estimate of employment is included in the TAZ information file used to generate regional travel demand estimates. The employment data used to forecast ridership may be the primary source for developing the employment measure.
- Local agencies may have different data sources and analysis/reporting tools available to estimate this measure. The use of geographic information system (GIS) tools linked to the regional travel demand model's TAZ structure will greatly simplify the reporting of this measure.
- Avoid double counting of employment for stations that are less than 1 mile apart. This can be done in two ways: (a) draw a line dividing the area enclosed by the overlapping circles into two parts; or, (b) group stations that are less than 1 mile apart into clusters and report total data for each cluster.

### Calculation and Reporting Method

- **Step 1:** Identify an analysis zone of 1/2 mile radius around the New Starts project's boarding points, defined as the transit stations located directly on the New Starts transit facility.
- **Step 2:** Applying the best available local data sources and analytical tools, estimate the number of jobs within the 1/2 mile radius analysis zones identified in Step 1. If available, GIS and other analytical tools will assist local agencies in estimating this measure. If such tools are not available, and for instances where a TAZ is only partially located within a designated 1/2 mile radius zone, jobs within the zone should be factored based on the estimated percentage of the tract or block within the analysis zone.
- **Step 3:** Additional documentation and background information including maps illustrating the transit system, the New Starts project's boarding points, and traffic analysis zones should be assembled and attached.

### **Quality Control Checks – Template 5**

- The number of stations included on Template 5 should equal the number of stations reported in Template 1 (Project Description Template).
- Station area employment should equal the base year station area employment reported on Template 12 (Quantitative Land Use Information Worksheet).
- Total station area employment should generally be less than the employment reported for the central business district on Template 12 (Quantitative Land Use Information Worksheet).

## VI.2. ENVIRONMENTAL BENEFITS

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Three measures are applied to estimate environmental benefits: (1) Change in criteria pollutant and precursor emissions and greenhouse gas emissions; (2) Change in regional energy consumption in the forecast year; and (3) Current regional air quality designation by the Environmental Protection Agency (EPA).

### **Change in Criteria Pollutant/Precursor Emissions, Greenhouse Gas Emissions**

Change in criteria pollutant and precursor emissions is expressed as the annual number of tons of emissions forecast for the region, comparing conditions under the Section 5309 New Starts investment to the New Starts baseline alternative. Criteria pollutant and precursor emissions measured include carbon monoxide (CO), particulate matter (PM<sub>10</sub>), nitrogen oxides (NO<sub>x</sub>), and volatile organic compounds (VOC), the latter two being precursors of ozone. The greenhouse gas emission measured is carbon dioxide (CO<sub>2</sub>). This information is reported in Template 6.

### **Change in Regional Energy Consumption**

Change in regional energy consumption in the forecast year is measured in British Thermal Units (BTUs), comparing the New Starts project to the New Starts baseline alternative. This measure reflects the net impact on energy savings as a result of changes in automobile and commercial travel in the region, offset in part by the energy requirements for operation of the proposed transit investment. Note that this measure reports BTU consumption for transportation operations (transit, auto, and commercial) only, and does not consider energy consumed for construction, equipment manufacturing, and heavy maintenance activities. FTA calculates this measure based on VMT estimates from the regional travel demand model and standard energy consumption rates for available fuel types as reported in the *Transportation Energy Data Book, Edition 16*, Oak Ridge National Laboratory. This information is reported in Template 6.

### **Current EPA Regional Air Quality Designation**

This measure is defined as the U.S. Environmental Protection Agency's (EPA's) current air quality designation for the region, reflecting current compliance with the National Ambient Air Quality Standards (NAAQS). The measure simply reports the EPA designation for the region in terms of attainment, non-attainment, or maintenance for transportation-related pollutants including ozone, carbon monoxide, particulate matter, and nitrogen oxides. Areas in non-attainment are further classified in terms of "extreme," "severe," "serious," "moderate," "marginal," or simply "non-attainment." Areas may also be classified as "transitional" (i.e., less than three years of complete data), or as "ozone maintenance areas" (previously non-attainment) which may further be classified as "moderate," "marginal," or "sub-marginal."

The EPA publishes a list in the "Green Book" that designates each area's current status relative to the attainment of the NAAQS. Project sponsors must report the region's air quality designation from EPA's most recent "Green Book" (see Appendix C).

# Template 6: Environmental Benefits Worksheet

Vehicle Class	Regional VMT/year (millions)		Emission Factor (g/mi)				Annual Emissions (tons)								Change in Emissions (tons per year)				Energy Consumption	Change in BTU/year (millions)	CO2 Consumption	Change in CO2 Emissions/year
	New Starts Baseline	New Starts Project					New Starts Baseline				New Starts Project				Project vs. Baseline				(BTU/Veh-mile)	New Starts Project vs. New Starts Baseline	(Tons CO2/ Million BTU)	New Starts Project vs. New Starts Baseline
			CO	NOx	VOC	PM-10	CO	NOx	VOC	PM-10	CO	NOx	VOC	PM-10	CO	NOx	VOC	PM-10				
Passenger Veh. (LDV/LDT)																			6233		0.0765	
Heavy-Duty Vehicle																			22046		0.0788	
Bus/Diesel																			41655		0.0788	
Bus/CNG																			41655		0.0585	
Bus/LPG																			41655		0.0678	
Bus/M85 or E85																			41655		0.0765	
Bus Electric																			41655		0.0665	
Light or Heavy Rail/Electric																			77739		0.0665	
Commuter Rail/Diesel			18.2	70.5	3.7	2.5													95000		0.0788	
Commuter Rail/Electric																			95000		0.0665	
<b>Total</b>																						

Note:

Private vehicle classes should be consistent with regional travel model -- examples are shown here.

Source:  
- Private vehicles from regional travel demand model  
- Bus and rail from system operating plans

Source:  
- Private vehicles from MOBILE or EMFAC  
- Diesel bus from MOBILE HDDV  
- Alt. fuel buses from diesel EF's and conversion factors given in text  
- Emission rates taken from USEPA Technical Highlights: Emission Factors for Locomotives, Dec. 1997; Tier 2 emissions controls assumed  
- Rail calculated emission rates and fuel consumption rates as follows:  
CO – 26.6 g/gal x .68 gal/mi = 18.2  
Nox – 103 g/gal x .68 gal/mi = 70.5  
VOC – 5.4 g/gal x .68 gal/mi = 3.7  
PM-10 – 3.6 g/gal x .68 gal/mi = 2.5

Alternative fuel consumption assumptions may be acceptable (provide documentation).

Calculation:  
Annual Emissions = VMT \* 1,000,000 \* Emission Factor / 909,000 g/ton

Calculation:  
Change in Emissions = New Start Emissions - Baseline Emissions

Source:  
Transportation Energy Data Book Edition 16  
Note:  
Transit agencies may provide their own estimates for transit vehicle BTU/mi factors(provide documentation)

Calculation:  
= Change in VMT/year \* BTU/veh-mi

Source:  
Calculations by Cambridge Systematics, Inc. based on Energy Information Administrator (1996) and Delucchi (1996).

Calculation:  
= Change in BTU/year \* Tons CO2/million BTU

## Instructions for Completing Template 6: Environmental Benefits Worksheet

### Key Assumptions and Data Sources

- The forecast year is the planning horizon year, generally 20 years in the future.
- The vehicle miles traveled (VMT) data is estimated in the regional travel demand model and from bus and rail system operating plans.
- The study area consists of the regional transportation network modeled for air quality and travel demand purposes.
- Changes in VMT reported in this measure for the New Starts build alternative should only reflect changes as a direct result of the Section 5309 New Starts fixed guideway and related transit investments in the build alternative. Changes in VMT should not be reported in this measure for HOV or other improvements that may be included in the full definition of the Build alternative or multi-modal investment strategy, but not proposed for New Starts funds.
- The criteria pollutant and precursor emissions measured include CO, NO<sub>x</sub>, VOC, and PM<sub>10</sub>. Emissions data for criteria pollutants are typically produced as part of the air quality analysis conducted for alternative analyses and NEPA environmental analyses, linking outputs from the regional travel demand model with emission factors from accepted emission models (e.g., EPA's MOBILE model for estimating highway vehicle emission factors) to provide an overall estimate of emissions for the transportation network. Calculation and reporting procedures are outlined below.
- Regional energy consumption in BTU's is based on estimated change in VMT discussed previously multiplied by standard energy consumption factors for each fuel type.
- The greenhouse gas emissions are calculated from the BTU estimates developed for the energy consumption estimate and multiplied by standard tons CO<sub>2</sub>/million BTU conversion factors provided in the template.
- FTA notes that alternative procedures to estimate emissions may be acceptable. Project sponsors wishing to pursue alternative procedures should submit their proposed methodology to FTA for review in advance of the formal submission of Template 6.

### Calculation and Reporting Method

- **Step 1:** Millions of VMT in the region for the forecast year are estimated by vehicle classification for the New Starts baseline and New Starts build alternatives, using the regional travel demand model. The model applies average speed of travel on regional roadways based on locally observed conditions. These values are applied as inputs to accepted regional emissions estimation models (such as EPA's MOBILE and PART5 software) to generate emissions factors.
- **Step 2:** Emission factors are applied to annual regional VMT by vehicle classification to estimate annual tons of CO, NO<sub>x</sub>, VOC, and PM<sub>10</sub> for the New Starts baseline and build alternatives. Locomotive emissions factors for the diesel commuter rail vehicle classification are provided in the template. Millions of VMT is converted to VMT by multiplying by 1,000,000. Total VMT is then multiplied by the emissions factor and divided by 909,000 to convert units from grams to tons. The results of these

calculations in tons are summed across all vehicle classifications and reported as totals for the New Starts baseline and build alternatives.

- **Step 3:** The differences in the total annual tons of emissions are calculated and reported for CO, NO<sub>x</sub>, VOC, and PM<sub>10</sub>, comparing the New Starts build alternative to the New Starts baseline alternative.
- **Step 4:** Factors and procedures for estimating BTU consumption by vehicle/fuel type for the forecast year are presented in Template 6. In these procedures, passenger vehicles (autos and light duty trucks) are assumed as gasoline powered, and various fuel types of transit vehicles are considered, including diesel, compressed natural gas (CNG), and electricity. Until better data becomes available, assume diesel bus BTU efficiency factors for alternative fuel buses.
- **Step 5:** Change in annual BTU consumption, comparing the New Starts build alternative to the New Starts baseline alternative, is calculated by multiplying the change in VMT by the energy consumption factor to derive change in regional energy consumption in millions of BTU's.
- **Step 6:** Change in emissions of greenhouse gasses (CO<sub>2</sub>) are calculated by multiplying the change in annual energy consumption in millions of BTU's by the CO<sub>2</sub> emissions conversion factors (tons CO<sub>2</sub>/million BTU).

#### **Quality Control Checks – Template 6**

- Emissions should be calculated for each mode in the Region, regardless of the mode under consideration by the project sponsor.
- Non attainment status should be reported based on EPA's latest designations (see Appendix C).

## VI.3. OPERATING EFFICIENCIES

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The only measure for the operating efficiencies criterion is the change in system-wide operating cost per passenger mile in the forecast year, comparing the Section 5309 New Starts build alternative to the New Starts baseline alternative. This measure, expressed in constant 2004 dollars, reports the operating cost per passenger mile for the entire regional transit system. FTA requires that this measure also be reported by transit mode (e.g., rail, bus) if applicable and available.

### **Instructions for Completing Template 7: Operating Efficiencies - Change in Operating Cost per Passenger Mile**

#### **Key Assumptions and Data Sources**

- The forecast year is the planning horizon year, generally 20 years in the future.
- This measure reports operating cost per passenger mile reported to three decimal places, comparing the New Starts project to the New Starts baseline alternative, for operation of the entire transit system. In addition, FTA requests that this measure also be reported by transit mode (e.g., rail, bus) if applicable.
- System-wide, service area, and route level operating cost data (and factors) are typically available as part of ongoing operations planning. Forecast year estimates of operating costs for the New Starts baseline and build alternatives are included in the financial feasibility analyses completed as part of the New Starts planning and project development process.
- System-wide, service area, and route level passenger miles data for the forecast year are available from a combination of sources including the regional demand estimation model and the local agencies' ongoing operations and service planning databases.

#### **Calculation and Reporting Method**

- **Step 1:** Applying the best available local data sources, report the forecast year annual operating cost and annual passenger miles for the New Starts baseline and build alternatives for the entire transit system, and by transit mode if applicable;
- **Step 2:** Calculate operating cost per passenger mile in the forecast year for the New Starts baseline and build alternatives for the entire transit system and for each mode.
- **Step 3:** Present additional documentation and background information as requested on the template.

### **Quality Control Checks – Template 7**

- The transit system annual operating cost should be equal to the operating costs reported on Template 9 (Cost Effectiveness Worksheet – User Benefits).
- Passenger miles reported in Template 7 are systemwide miles and therefore should not be the
- Note that this calculation requires forecast systemwide passenger miles, not miles attributable only to the New Starts project, as used in the calculation of the normalized travel times savings measure reported on Template 3 (Transportation System User Benefits per Passenger Mile).
- If there is a change of greater than 5 cents, an explanation must be provided. Typically, there should be only a very small change in the systemwide operating cost per passenger mile if calculated correctly.

## Template 7: Operating Efficiencies

### Change in Operating Cost per Passenger Mile

Line	Factor	Alternative		New Starts Build vs. Baseline	Source/Calculation
		New Starts Baseline	New Starts Build		
1	System Annual Operating Cost (millions)	\$	\$		<u>Source:</u> Transit system operating costs, current and projected
2	System Annual Passenger-Miles (millions)				<u>Source:</u> Forecast system passenger-miles from regional travel model or other ridership projection model
3	Cost per Passenger-Mile (\$/mi)	\$	\$	\$	<u>Calculation:</u> Annual Operating Cost / Annual Passenger-Miles (Line 1/ Line 2)

## VI.4. COST EFFECTIVENESS

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Project sponsors are requested to submit two measures of cost effectiveness. The first measure, which FTA uses in its evaluation of candidate New Starts projects, is defined as incremental cost divided by transportation system user benefits. The second measure is defined as incremental cost per incremental passenger, and is reported for informational purposes only.

### **Incremental Cost Divided by Transportation System User Benefits**

The measure used by FTA in its evaluation of candidate New Starts projects is the incremental project cost divided by its transportation system user benefits. The inputs to calculate this measure are produced as a matter of course in the development of travel demand forecasts for the proposed project. Project sponsors should continue to submit the previous incremental cost per incremental trip measure, for informational purposes.

The user benefit calculation expressed in time equivalent units (hours) will serve as the denominator of the cost-effectiveness measure. The numerator is annualized capital and operating costs, resulting in a cost effectiveness measure of dollars per hour of transportation system user benefits.

Templates 8 and 9 are included for reporting this measure.

### **Incremental Cost per Incremental Passenger in Forecast Year**

The second cost effectiveness measure is defined as the incremental cost per incremental passenger in the forecast year. This measure, expressed in constant base year (2004) dollars, is based on the annualized total capital investment (Federal and local funds) and annual operating costs divided by the forecast change in annual transit system ridership measured in **LINKED** trips<sup>8</sup>, comparing the New Starts project to the New Starts baseline. The estimate for annualized cost is the same for both cost effectiveness measures. Template 10 is included for reporting this measure.

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<sup>8</sup> Linked trips refer to trips that begin at the trip origin and end at the final destination. One linked trip could be composed of several unlinked trips such as driving to a park and ride, riding a commuter train, and taking a bus to the final destination is all one linked trip but is made up of three unlinked trips and two transit system boardings.

# Template 8: Annualized Capital Cost Worksheet

This Template must be completed for Each Alternative (CIRCLE ONE)

NEW STARTS BASELINE

NEW STARTS PROJECT

Item	Units (if applicable)	Useful Life (Years)	Annualization Factor	Total Cost (millions of 2004 dollars)	Annualized Cost (millions of 2004 dollars)
Right-of-way		100	0.070		
Right-of-way preparation (major grading, tunneling, etc.)		100	0.070		
Structures		30	0.081		
Trackwork (meters)		30	0.081		
Signals, electrification (meters)		30	0.081		
Pavement, parking lots, grade crossings		20	0.094		
Rail vehicles (#)		25	0.086		
Buses (#)		12*	0.126		
Contingencies		Add item-specific contingency to line items			
Engineering, construction management		Allocate proportionally			
Total					

Source:  
Based on 7 percent discount rate and assumed useful life of item

Calculation:  
Annual Cost = Total Cost \* Annualization Factor

\* FTA will consider alternative useful life assumptions of up to 18 years for vehicles associated with bus rapid transit systems if supported by documented evidence of the reasonability of such assumptions.

## Instructions for Completing Template 8: Annualized Capital Cost Worksheet

### Key Assumptions and Data Sources

- Capital costs in constant 2004 dollars are estimated and refined for both the New Starts build and baseline alternatives during the New Starts planning and project development process. Capital costs are to be annualized for input to the calculation of the cost effectiveness index based on FTA's assumptions on the useful life of specific cost components and an established discount rate.<sup>9</sup>
- FTA continues to assume a useful life for buses of 12 years. FTA will consider alternative useful life assumptions of up to 18 years for vehicles associated with bus rapid transit systems if supported by documented evidence of the reasonability of such assumptions. Project sponsors should submit such evidence to FTA for review and acceptance.
- The New Starts build and baseline alternatives' annualized capital costs **should reflect all transit-related costs above the systemwide expenditures assumed in the no-build alternative** (unless FTA has accepted the no-build as the New Starts baseline alternative). For example, the capital cost associated with the purchase of buses necessary for assumed feeder bus service in both the baseline and build alternatives should be included in the annualized capital cost calculation, even though this cost is not an eligible expense under an FFGA.

### Calculation and Reporting Method

- Following the key assumptions and data sources presented above, report the total capital costs, in constant 2004 dollars, for the New Starts baseline and build alternatives. Using the assumed useful life for each element and the corresponding annualization factor, calculate the total annualized cost for both alternatives.

### Quality Control Checks – Template 8

- The project sponsor must complete Template 8 (Annualized Capital Cost Worksheet) for both the New Starts build and baseline alternatives.
- The number and type of vehicles included in the annualized capital cost for both the New Starts baseline and build alternatives should be reported.
- Provide explanations for any information that has changed since last year.
- Verify that the total capital cost reported on Template 8 for the build alternative differs from the total project cost in constant 2004 year dollars reported on Template 1 (Project Description Worksheet) and Template 13 (Project Finance Worksheet) *only* because finance charges have been subtracted and/or because costs above the systemwide expenditures assumed in the no-build alternative, (for example, costs for assumed feeder bus service) have been added.

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<sup>9</sup> Annualization factors are equivalent annual payments at a specific discount rate,  $r$ , over the useful life of the investment,  $n$ . In keeping with OMB practice, the discount rate is assumed to be 7%. The formula to calculate the annualization factor is  $A = r(1+r)^n / (1+r)^n - 1$ .

## Template 9: Cost Effectiveness – Incremental Cost per Hour in Transportation System User Benefits in the Forecast Year

		Column A	Column B	Column C	Column D	Column E	
Line	Variable	Alternative		Change (Build – Baseline)	Annual Factor	Annual Total	Source/Calculation
		New Starts Baseline	New Starts Build				
1	Annualized Capital Cost (Constant 2004 millions of dollars)						Source: New Starts baseline and build alternatives' annualized capital cost estimates from Template 8.
2	Total Systemwide Annual Operating and Maintenance Cost (Constant 2004 millions of dollars)						Source: System-wide operating and maintenance cost estimates for the New Starts baseline and build alternatives (attach documentation).
3	Total Annualized Cost in Forecast Year (Constant 2004 millions of dollars)						Calculation Columns A and B: Sum of annualized capital costs (Line 1) and annual O&M costs (Line 2).  Calculation Column C: Column B value minus Column A value.
4	Weekday User Expenditure Savings (hours)						Source: Weekday user expenditure savings from SUMMIT software. Multiplying the weekday estimate (Column C) by the Annual factor (Column D) produces the annual estimate (Column E).
5	User Benefits from Off-Model Trips (hours)						Source: If desired, calculate off-model user benefits. Annual factor is based on number of events for this special trip generator. Attach documentation. Multiplying the weekday estimate (Column C) by the Annual factor (Column D) produces the annual estimate (Column E).
6	User Benefits from Off-Model Trips (hours)						Source: If desired, calculate off-model user benefits. Annual factor is based on number of events for this special trip generator. Attach documentation. Multiplying the weekday estimate (Column C) by the Annual factor (Column D) produces the annual estimate (Column E).
7	User Benefits from Off-Model Trips (hours)						Source: If desired, calculate off-model user benefits. Annual factor is based on number of events for this special trip generator. Attach documentation. Multiplying the weekday estimate (Column C) by the Annual factor (Column D) produces the annual estimate (Column E).
8	Incremental User Benefits (hours)						Calculation: Sum annual user benefit estimates (sum Lines 4 thru 7 Column E)
9	Cost-Effectiveness - Incremental Cost (\$) / User Benefits (hours)						Calculation: Divide Incremental Annualized Cost (Line 3, Column C) by Incremental User Benefits (Line 8, Column E) for the New Starts build vs. New Starts baseline alternative.

## **Instructions for Completing Template 9: Cost Effectiveness – Incremental Cost per Hour in Transportation System User Benefits in the Forecast Year**

### **Key Assumptions and Data Sources**

- The forecast year is the planning horizon year, generally 20 years in the future.
- All of the data inputs applied in the calculation of this measure (capital and operating/maintenance cost estimates, transit system ridership and user benefits forecasts) are developed as part of the New Starts planning and project development process. Size of fleet is determined from the 20-year systemwide ridership forecast. The latest available data should be applied in the calculation, and documentation of these inputs should be provided.
- Capital costs in constant 2004 dollars are estimated and refined for both the New Starts build and baseline alternatives during the New Starts planning and project development process, and reported as annualized costs. The New Start build and baseline alternatives' annualized capital costs should reflect all costs above the systemwide expenditures assumed in the no-build alternative (unless FTA has accepted the no-build as the New Starts baseline alternative).
- Annual systemwide operating and maintenance costs in constant 2004 dollars including the transit elements of the New Starts baseline and build alternatives are estimated. The latest available cost estimates, accurately reflecting the definition of alternatives, should be applied in the calculation.
- The study area consists of the region modeled for travel demand purposes.
- Transportation system user benefits in equivalent hours are calculated by subtracting the transportation system user expenditures in hours in the New Starts build alternative from the New Starts baseline alternative.
- The calculation of transportation system user expenditures in hours is produced by the Summit software using files, produced by running the regional travel demand model, containing the generalized cost of each trip and associated trip tables for each market sector and mode for the New Starts baseline and build alternatives.

Transportation system user benefits reported in this measure for the New Starts build alternative should only reflect savings as a direct result of the New Starts fixed guideway. User benefits that would result from HOV or other roadway improvements that may be included in the full build alternative or multi-modal investment strategy but not proposed for Section 5309 New Starts funds should not be reported in this measure.

## **Calculation and Reporting Method**

- **Step 1:** Following the key assumptions and data sources presented for Template 8 (Annualized Capital Cost Worksheet), report the total capital costs, in constant 2004 dollars, for the New Starts baseline and build alternatives. Using the assumed useful life for each element and the corresponding annualization factor, calculate the total annualized cost for both alternatives.
- **Step 2:** Applying the best available local data sources, report total annual operating and maintenance costs for the entire transit system under full operating conditions in the forecast year for both the New Starts baseline and build alternatives in constant 2004 dollars. Local agencies should attach documentation of the data inputs and factors applied in the estimation of annual operating and maintenance costs.
- **Step 3:** The annualized capital costs (Step 1) are added to annual operating and maintenance costs (Step 2) to report the total annualized cost for both the New Starts baseline and New Starts build alternatives. The incremental cost for the New Starts project (compared to the New Starts baseline) is calculated and reported by subtracting annualized total costs for the New Starts baseline alternative from the annualized total costs for the New Starts investment.
- **Step 4:** Run the modified travel demand model for the New Starts baseline and build alternatives to produce the files containing the generalized cost of making trips and the associated trip tables for each market sector and mode. These files are created and saved by the travel demand model. The Summit software will use the information in these files to estimate user benefits of the New Starts project relative to the New Starts baseline.
- **Step 5:** Locate the Summit report file and report calculations for change in user benefits (expenditure savings in equivalent hours) between the New Starts baseline and New Starts build alternatives. All project sponsors must submit the Summit report files created for the user benefit analysis to FTA in advance of the formal submission of Template 9.
- **Step 6:** Report annualization factor in the template and calculate the annual savings in user expenditures in travel time equivalent units (hours). This value is called transportation system user benefits.
- **Step 7:** If the project sponsor includes off-model trips in the ridership forecasts, the project sponsor may estimate user benefits associated with these trips, estimate the proper annualization factors, and enter the information into Template 9.<sup>10</sup>

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<sup>10</sup> FTA has developed procedures for estimating the user benefits associated with some non-traditional markets. Project sponsors that wish to report benefits associated with off-model trips (such as stadium or special event trips, fringe parking markets, etc.) are encouraged to contact FTA for additional guidance. Other locally-developed procedures for capturing off-model or non-traditional benefits may be acceptable, but must be submitted to FTA for review and acceptance in advance.

## **Quality Control Checks – Template 9**

- The transit system annual operating cost should equal the systemwide annual operating cost reported in Template 7 (Operating Efficiencies Template).
- Justification must be provided when annual operating costs for the baseline alternative exceed the annual operating cost for the build alternative.
- Total annual ridership should equal the total forecast year annual transit system linked trips reported in Template 1 (Project Description Template).
- Annual new riders (the difference in riders between the New Starts build and New Starts baseline alternatives) should equal the systemwide annual new riders shown on Template 1 (Project Description Template).
- It is unusual for the number of new riders attracted to a New Starts project to exceed 50 percent of annual project boardings. If this is the case, reasons for such a high level of new riders must be justified in the *Making the Case* document which supports the project.
- Total annual ridership for the New Starts build alternative, when divided by the annualization factor reported in Template 3 (Transportation System User Benefits Per Passenger Mile), should be equal to the average weekday transit system linked trips reported in Template 1 (Project Description Template).
- The annualization factor must be the same as the factor used to calculate the normalized travel time savings measure under mobility benefits. Do not assume that the annualization factor will exceed 300 if the current levels of transit service on weekends are limited or non-existent. FTA staff requests documentation justifying use of annualization factors in excess of 300.
- Weekday user expenditure hours reported on Template 9 (line 4) should equal the daily user benefits reported in the Summit summary report multiplied by the annualization factor.
- Provide documentation for the method used to calculate any off-model user benefits (only if data is reported on lines 5, 6 or 7 of Template 9).
- Provide an explanation for any significant differences in the cost-effectiveness of the project from last year.

## Template 10: Cost Effectiveness - Incremental Cost per Incremental Passenger Sample Calculation

Line	Factor	Alternative		New Starts Project vs. Baseline	Source/Calculation
		New Starts Baseline	New Starts Project		
1	Total Annual Ridership in Linked Trips (forecast year)				Source: Regional travel demand model (attach documentation of factors to annualize daily ridership, if applicable)
2	Incremental Annualized Cost (constant 2004 millions of dollars)				Source: Line 3 from Template 9.
3	Incremental Annual Ridership				Calculation: Subtract Total Annual Ridership (Line 1) for the New Starts baseline from New Starts build alternative
4	Cost-Effectiveness (Incremental Cost per New Rider)				Calculation: Divide Incremental Annualized Cost (Line 2) by Incremental Annual Ridership (Line 3)

## Instructions for Completing Template 10: Cost Effectiveness - Incremental Cost per Incremental Passenger Sample Calculation

### Key Assumptions and Data Sources

- The forecast year is the planning horizon year, generally 20 years in the future.
- All of the data inputs applied in the calculation of this measure (capital and operating/maintenance cost estimates, transit system ridership and user benefits forecasts) are developed as part of the New Starts planning and project development process. Size of fleet is determined from the 20-year systemwide ridership forecast. The latest available data should be applied in the calculation, and documentation of these inputs should be provided.
- Capital costs in constant 2004 dollars are estimated and refined for both the New Starts build and baseline alternatives during the New Starts planning and project development process, and are reported as annualized costs. The New Starts build and baseline alternatives' annualized capital costs should reflect all costs above the systemwide expenditures assumed in the no-build alternative, except for the baseline alternative if FTA has accepted the no-build as the baseline.
- Annual operating and maintenance costs in constant 2004 dollars for the transit elements of the New Starts baseline and build alternatives are estimated. The latest available cost estimates, accurately reflecting the definition of alternatives, should be applied in the calculation.
- Annual transit ridership, measured as "linked" trips, is derived from the travel demand model.
- The cost effectiveness index reported in this measure should only reflect costs and new transit riders as a direct result of the New Starts fixed guideway and related transit investments included in the build alternative.<sup>11</sup>

### Calculation and Reporting Method

- **Step 1:** Applying the best available forecasts from the regional travel demand model, report total annual transit system ridership in linked trips under full operating conditions in the design year for the New Starts baseline and build alternatives. Any locally derived annualization factors applied to convert daily linked trips to annual totals must be reported and documented. Annual forecasts of linked trips are used to estimate the "new riders" applied in the calculation of the index. FTA requires that the measure of new riders applied in this index only reflect incremental linked trips from the introduction of the Section 5309 New Starts transit investment. HOV riders are not included.
- **Step 2:** Report the incremental annualized cost for the proposed New Starts project from Line 3 of Template 9.

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<sup>11</sup> Cost effectiveness should not be reported for HOV or other roadway improvements which may be included in the full definition of the build alternative or multi-modal investment strategy, but not proposed for Section 5309 New Starts funds. (FTA will allow local agencies to additionally report the cost effectiveness measure reflecting the definition of the build alternative, including HOV and roadway improvements, to reflect the multi-modal nature of the New Starts investment.)

- **Step 3:** The measure of incremental linked trips for the New Starts project is calculated and reported by subtracting annual linked trips for the New Starts baseline from the annual linked trips for the New Starts build alternative.
- **Step 4:** The value generated in Step 3 (incremental costs) is divided by the value generated in Step 3 (incremental linked trips). The result is the cost effectiveness index of the proposed New Starts project compared to the New Starts baseline alternative.
- **Step 5:** Additional documentation and background information as requested in the template should be assembled and attached.

#### **Quality Control Checks – Template 10**

- Total annual ridership should equal the total forecast year annual transit system linked trips reported in Template 1 (Project Description).
- Annual new riders (the difference in riders between the New Starts build and New Starts baseline alternatives) should equal the systemwide annual new riders shown in Template 1 (Project Description).
- Total annual ridership, when divided by the annualization factor used in Template 3 (Transportation System User Benefits Per Passenger Mile), should be equal to the average weekday transit system linked trips reported in Template 1 (Project Description).
- Incremental annualized cost should equal line 3 on Template 9 (Cost Effectiveness - Incremental Cost per Hour in Transportation System User Benefits in the Forecast Year).
- If data reported on Template 10 has changed significantly from last year, please provide an explanation.

## VI.5. OTHER FACTORS

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This criterion presents local agencies with an opportunity to provide FTA with information regarding other factors that may contribute to the overall success of the proposed New Starts investment. FTA may consider these factors if they are well documented and convincingly demonstrate benefits which are not otherwise captured by the other project justification criteria and measures. Examples of other factors include:

- Environmental justice considerations and equity issues;
- Opportunities for increased access to employment for low income persons, and welfare to work initiatives;
- Livable communities initiatives and local economic development initiatives; and
- Consideration of innovative financing, procurement, and construction techniques, including design-build turnkey applications.

As was done last year, FTA is using the other factors criterion to invite project sponsors to report the cost effectiveness of their proposed New Start project (as measured by the cost per hour of transportation system user benefits) based upon alternative land use forecasts which reflect anticipated development – above and beyond that assumed in adopted regional population and employment projections – caused by the major transit capital investment. This optional cost effectiveness calculation is intended to measure the economic development impacts of the proposed New Starts project.

The calculation of this measure requires two analyses: first, the development of defensible land use assumptions; and second, the calculation of user benefits attributable to these assumptions. Alternative land use forecasts must be based upon specific local land use plans and policies that explicitly permit additional development around guideway transit nodes. These forecasts must be reasonable in the amount of actual development that is expected to occur within the 20-year forecast period assumed for the New Starts project; that is, they should consider factors which might hinder development, such as the presence of recently constructed buildings or residential properties; the size and configuration of individual parcels; environmental constraints; the present economy and future economic projections; and the overall development character of the area.

Additional development may only be considered within one-half mile of proposed New Starts stations. In addition, such development should not be assumed to be net new development to the metropolitan area, but rather a redistribution of population and employment from other areas of the region. FTA requires that New Starts project sponsors who choose to submit information on project cost effectiveness based upon any alternative land use forecasts provide a detailed methodology which describes their land use forecasting process. Development that is described in the *Transit Supportive Land Use* portion of the New Starts criteria submission, but not included in the regionally adopted long range land use forecasts, should be explicitly noted in this methodology. FTA and its contractors will review this documented methodology to determine the reasonableness of the supporting land use assumptions.

Additional guidance on the development and documentation of alternative land use forecasts is provided in Appendix B.

The calculation of user benefits based upon these alternative land use assumptions requires minor modification to local trip distribution models (distinct from the mode choice model modifications necessary to generate the files read into Summit to produce estimates of transportation system user benefits). FTA has staff and contractor resources available to implement these modifications. Please contact Eric Pihl, FTA Office of Planning and Environment, at 202-366-2360 or [eric.pihl@fta.dot.gov](mailto:eric.pihl@fta.dot.gov) if you wish to pursue these modifications.

If the land use forecasting methodology is determined to be sound, the trip distribution model successfully modified, and the resulting travel forecasts intuitive, FTA will report the cost effectiveness of the New Starts project based on the resulting land use forecasts as an “other factor” and will consider this measure in its overall evaluation of the proposed transit capital investment consistent with the rating process described in Appendix D of this guidance.

The cost effectiveness calculation for this measure should be performed as directed for Template 9 (Cost Effectiveness Work Sheet – User Benefits).

## VI.6. EXISTING LAND USE, TRANSIT SUPPORTIVE LAND USE POLICIES, AND FUTURE PATTERNS

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FTA staff, with assistance from designated contractors, gathers and reviews summary information, supporting documentation, and quantitative data prepared by local agencies to assess the existing land use, transit supportive land use policies, and future patterns associated with proposed New Starts projects. This guidance is intended to assist local agencies in the preparation and submission of the materials that FTA uses to assess and rate a proposed project's transit supportive land use.

FTA uses three primary rating categories in its evaluation of New Starts projects. These rating categories reflect the desire to clearly distinguish among three primary aspects of land use: (1) existing land use patterns; (2) plans and policies; and, (3) expected impacts. The categories and factors are:

### **1. Existing Land Use**

### **2. Transit Supportive Plans and Policies** – Includes the following factors:

- Growth Management;
- Transit Supportive Corridor Policies;
- Supportive Zoning Regulations Near Transit Stations; and
- Tools to Implement Land Use Policies.

### **3. Performance and Impacts of Policies** – Includes the following factors:

- Performance of Land Use Policies; and
- Potential Impact of Transit Project on Regional Land Use.

Local agencies may also report “other land use considerations” in the case of unusually exceptional land use characteristics or benefits, which are not otherwise captured under the categories presented above. Other land use considerations may include historic or culturally sensitive areas; community preservation efforts; brownfields redevelopment; designated Federal enterprise zone or empowerment community; etc.

Each of the factors listed above also has associated “supporting factors.” These supporting factors are considered individually in developing overall category ratings, and are used to help project sponsors structure the information that they submit. Table 3 provides guidance on the type of information and supporting documentation that should be provided for each supporting factor. Additional information on how FTA performs its evaluation and rating of the transit supportive land use of candidate New Starts projects is provided in Appendix D of this document.

## **Information and Data Sources for Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns**

In general, local agencies are not expected to generate additional analyses, documents, or quantitative data addressing land use issues in order to satisfy the reporting requirement for the *Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns* criterion. In most instances, agencies will be able to rely on readily available materials that have been prepared in conjunction with other studies and analyses.

Local agencies, municipalities, regional planning and governmental agencies, neighborhood organizations, and the private sector prepare information and documents useful for meeting the reporting requirements for the New Starts land use criterion. These materials are developed routinely in conjunction with local and regional land use plans, livable communities initiatives, and economic development activities, as well as in feasibility studies, alternatives analyses, major investment studies, corridor studies, environmental analyses, and other planning efforts for transit New Starts investments.

To assist the development of accurate project ratings, FTA requests agencies to submit full or relevant portions, as appropriate, of corridor and station area maps, local comprehensive plans and zoning ordinances, local and regional policies and agreements regarding land use planning, documentation of station area planning efforts, and documentation of other tools, incentives, and programs affecting corridor and station area land use. Additional descriptions of the information requested for the *Existing Land Use, Transit Supportive Land Use Plans, and Future Patterns* criterion are provided in Table 3.

### **Quantitative Data**

Quantitative data on population and employment served by a proposed New Starts project are critical inputs to the assessment of existing and future land use conditions. Key indicators include total employment in the Central Business District (CBD), employment served by the system as a whole, and population and employment densities in the corridor and in station areas. Template 12 is the *Quantitative Land Use Information Worksheet*. Appendix A provides a sample methodology for estimating station area population, households, and employment. Agencies are requested to follow this methodology in order to ensure consistent reporting of quantitative data among New Starts applicants.

FTA recognizes that some agencies may have to utilize additional data sources, beyond those described above, to provide the quantitative data requested in Template 12. Likely sources are additional reports and data from the Census, MPOs, and local planning agencies. FTA intends to use these data to arrive at a more complete understanding of proposed projects and to develop more thorough information about population and employment densities and development forecasts and proposals. It is hoped that, in cases where agencies have not prepared these data previously, the development of this information will be as useful for agency planning and analysis as it is for FTA's New Starts project review.

### **Reporting Method**

Upon request from FTA, local agencies will submit written summaries and supporting materials to contractors employed by FTA to assist in information gathering during the New Starts review process. Information on the *Existing Land Use, Transit Supportive Land Use Plans, and Future Patterns* criterion should be organized as follows:

1. Table of Contents
2. Project Description
3. Map(s)
4. Summary Information, Referencing Supporting Documentation (Template 11)
5. Quantitative Data (Template 12)
6. Supporting Documentation

The materials to be submitted and the reporting process are discussed further below.

**1. Table of Contents**

Local agencies should provide a Table of Contents at the beginning of their submission, summarizing all provided materials.

**2. Project Description**

Applicants are required to submit the Project Description worksheet as part of their full New Starts application. Applicants should include a copy of this worksheet with their land use submittal.

**3. Maps**

Project maps should be submitted that clearly indicates the location of the project and all stations, with reference to: 1) the major highway network; 2) other major transit connections; 3) the CBD and other major activity centers; 4) boundaries of local jurisdictions; and 5) boundaries of the project study corridor.

**4. Summary Information (Qualitative Data)**

Template 11 is the reporting format for providing summary qualitative information on each of rating categories: (1) Existing Land Use; (2) Transit Supportive Land Use Plans and Policies; (3) Performance and Impacts of Policies; and (4) Other Land Use Considerations (optional).

Template 11 allows local agencies to provide written statements to highlight or expand upon information for specific factors. Local agencies may also provide specific references to existing maps, plans, or other documentation attached with the submittal that address the specific factor and type of information requested by FTA.

**5. Quantitative Data**

Template 12 is the reporting format for Quantitative Data. The objective of gathering these data is to better understand base year and forecast year information about population, housing units, and employment associated with the project. These subjects are addressed in various combinations at the metropolitan, CBD, corridor, and station area levels.

Appendix A provides a sample methodology for estimating station area population, households, and employment. This guidance is intended to assist local agencies with providing quantitative data at the station area level in a uniform manner.

## **6. Supporting Documentation**

Agencies should provide full or relevant portions of supporting documentation referenced in their submission. Some particularly helpful pieces of supporting documentation are described below.

**Visual aids (maps, photographs, and illustrations)** – The characteristics of existing land use, as well as planned future development, can be most readily communicated through information that is visual or graphical in nature. Some recommended types of visual and graphical information to include with the submission are:

- Maps of station areas showing the street network, existing land uses, planned land uses, and zoning;
- Aerial and ground-level photographs of station areas;
- Maps showing existing and forecast population and employment densities in the corridor; and
- Photographs or illustrations of existing transit supportive station area development that has taken place around any existing transit stations or corridors in the region.

**Planning documents** – Land use plans, policies, and reports developed by local and regional agencies represent a key source of information on the potential for future transit supportive development. Some examples from which to provide either full documents or relevant excerpts include:

- Regional growth management policies and agreements;
- Local comprehensive plans, small-area or station area plans, zoning ordinances, and design guidelines relevant to station areas;
- Station area planning documents (conceptual plans, land inventories, market studies);
- Analysis of land development trends and market potential for transit supportive development within the region and station areas;
- Descriptions of the corridor and station area physical environment from environmental review documents;
- Descriptions of other tools and incentives available for influencing development; and
- Site plans or descriptions of station area development proposals.

### **Guidance for Agencies That Have Submitted Materials Previously**

Agencies that fully reported land use assessment information for a recent preliminary engineering or final design approval or for a previous *Annual Report on New Starts*, need only provide information that reflects changes since the most recent submission. Unless indicated to the applicant by FTA, prior year submissions remain available in FTA's files. **New documents or other materials not previously submitted to FTA, or information that was incomplete or unavailable in prior year submissions, should be reported and highlighted.**

### **Importance of Organized, Comprehensive Submittal**

It is important for sponsoring agencies to consider that ratings assigned to the land use measurement factors by FTA will be directly related to the ability of FTA and its reviewers to

readily identify, locate, review, and assess locally provided documentation. A well-organized submittal is to the advantage of the local agency.

### **Additional Guidance**

Following are several suggestions for improving agency submissions of information for the *Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns* criterion:

- Project sponsors should provide documentation to substantiate qualitative information rather than rely solely upon reference;
- To the extent possible, sponsors should quantify data, e.g., density, employment, trip generators, etc.;
- Sponsors should provide detailed documentation and maps, including approved policies and plans, market studies and economic analyses, etc. Where appropriate, maps and graphics should be used to supplement data; for example, the reporting of development and pedestrian amenities via maps and/or aerial photos is helpful;
- Submissions should be brief and precise, but thorough, in providing explanatory statements; important information should not be omitted for the sake of brevity;
- Brief descriptions of anticipated development and implemented projects, rather than simply a list, is helpful;
- Submissions should provide an explanation of the impact of transit supportive land use policies and how implementation would be achieved, particularly when significant changes are anticipated;
- Submissions should distinguish between existing conditions and those expected from the implementation of land use policies and development practices;
- Submissions should distinguish between station area, corridor, municipal, and regional transit supportive policies and plans;
- Information submitted should identify the mix of land uses within the corridor;
- Submissions should address parking policies and pricing strategies;
- Sponsors are strongly encouraged to present land use information in the format established in these *Reporting Instructions*.

In addition, project sponsors are reminded of the importance of providing FTA adequate time to evaluate and rate each project's existing land use, transit supportive land use policies, and future patterns. Please comply with the specified timeframe for submitting information, and with the mailing directions indicating to whom the various materials are to be submitted.

*Table 3: Assessment of Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns: Guidance on Documentation and Information to be Submitted*

Information Requested	Documentation Supporting Land Use Criterion
<b>I. EXISTING LAND USE</b>	
Existing corridor and station area development (population, employment, high trip generators)	<ul style="list-style-type: none"> <li>• Corridor and station area population, housing units, and employment (provide information in template form, Template 12)</li> <li>• Listing and description of high trip generators (examples include colleges/universities, stadiums/arenas, hospitals/medical centers, shopping centers, performing arts centers, and other significant trip generators)</li> </ul>
Existing station area development character	<ul style="list-style-type: none"> <li>• Description of character of existing land use mix and pedestrian environment in corridor and station areas</li> <li>• Station area maps with uses and building footprints shown</li> <li>• Ground-level or aerial photographs of station areas</li> </ul>
Existing station area pedestrian facilities, including access for persons with disabilities	<ul style="list-style-type: none"> <li>• Station area maps identifying pedestrian facilities and access provisions for persons with disabilities</li> <li>• Documentation of achievement of curb ramp transition plans and milestones required under CFR 35.150(d)(2)</li> </ul>
Existing corridor and station area parking supply	<ul style="list-style-type: none"> <li>• Existing parking spaces per square footage of commercial development and/or per dwelling unit</li> <li>• Parking spaces per employee in the CBD and/or other major employment centers</li> <li>• Land area within ½ mile of station devoted to parking</li> <li>• Average daily parking cost in the CBD and/or other areas</li> </ul>
<b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES</b>	
<b>a. Growth Management</b>	
Concentration of development around established activity centers and regional transit	<ul style="list-style-type: none"> <li>• Regional plans or policies that promote increased development, infill development, and redevelopment in established urban centers and activity centers, and/or limit development away from primary activity centers</li> <li>• Regional plans or policies to concentrate development around major transit facilities</li> <li>• Local comprehensive plans or capital improvement plans that give priority to infill development and/or provide for opportunities for high density redevelopment</li> </ul>
Land conservation and management	<ul style="list-style-type: none"> <li>• Growth management plans (e.g. growth management areas, urban growth boundaries, agricultural preservation plans, open space preservation plans) with maps</li> <li>• Policies that allow for transfer of development rights from open space or agricultural land to urban areas</li> </ul>

*Table 3: Assessment of Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns: Guidance on Documentation and Information to be Submitted*

Information Requested	Documentation Supporting Land Use Criterion
<p><b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES (continued)</b></p> <p><b>b. Transit Supportive Corridor Policies</b></p>	
<p>Plans and policies to increase corridor and station area development</p>	<ul style="list-style-type: none"> <li>• Adopted city, county, and regional plans and policies and private sector plans and initiatives that promote development in the transit corridor and station areas; plans may include general plans, specific plans (subarea, station area, etc.), redevelopment project plans, or other district plans</li> <li>• Examples of transit supportive policies include: general policy statements in support of transit as a principal mode of transportation within the corridor; policies that support and promote the use of transit; policies/plans that provide for high density development within the corridor and station areas; and policies that support changes to zoning within the corridor and station areas</li> </ul>
<p>Plans and policies to enhance transit-friendly character of station area development</p>	<ul style="list-style-type: none"> <li>• Elements of adopted city, county, and regional plans and policies that promote transit-friendly character of corridor and station area development</li> <li>• Policies to promote mixed-use projects</li> <li>• Policies to promote housing and transit-oriented retail</li> <li>• Policies that allow/promote vertical zoning within the corridor</li> <li>• Façade improvement programs</li> <li>• Funds to support transit-oriented plans</li> <li>• Private sector plans and initiatives consistent with the public plans and policies listed above</li> </ul>
<p>Plans to develop pedestrian facilities and enhance disabled access</p>	<ul style="list-style-type: none"> <li>• Requirements and policies for sidewalks, connected street or walkway networks, and other pedestrian facility development plans for station areas</li> <li>• Capital improvement programs to enhance pedestrian-friendly design in station areas</li> <li>• Curb ramp transition plans and milestones required under CFR 35.150(d)(2), and other plans for retrofitting existing pedestrian infrastructure to accommodate persons with disabilities in station areas</li> <li>• Street design guidelines or manuals addressing pedestrian and transit-oriented street design (lighting, street furniture, sidewalk width, etc.)</li> </ul>
<p>Parking policies (allowances for reductions in parking requirements and traffic mitigation requirements for development near station areas, plans for park-and-ride lots, parking management)</p>	<ul style="list-style-type: none"> <li>• Policies to reduce parking requirements or cap parking in station areas</li> <li>• Policies establishing maximum allowable parking for new development in areas served by transit</li> <li>• Shared parking allowances</li> <li>• Mandatory minimum cost for parking in areas served by transit</li> <li>• Parking taxes</li> </ul>

*Table 3: Assessment of Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns: Guidance on Documentation and Information to be Submitted*

Information Requested	Documentation Supporting Land Use Criterion
<p><b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES (continued)</b>  <b>c. Supportive Zoning Regulations Near Transit Stations</b></p>	
<p>Zoning ordinances that support increased development density in transit station areas</p>	<ul style="list-style-type: none"> <li>• Ordinances and maps describing existing zoning (allowable uses and densities)</li> <li>• Recent changes to zoning ordinances to allow or encourage development with transit supportive densities and uses</li> <li>• Transit overlay zoning</li> <li>• Zoning incentives for increased development in station areas (density bonuses, housing fund subsidies, regulation relaxation, expedited zoning review, etc.)</li> </ul>
<p>Zoning ordinances that enhance transit-oriented character of station area development and pedestrian access</p>	<ul style="list-style-type: none"> <li>• Zoning regulations that allow mixed-use development</li> <li>• Zoning regulations addressing placement of building footprints, pedestrian facilities, façade treatments, etc.</li> <li>• Architectural design guidelines and mechanisms for implementation/enforcement of these guidelines</li> </ul>
<p>Zoning allowances for reduced parking</p>	<ul style="list-style-type: none"> <li>• Residential and commercial parking requirements (minimums and/or maximums) in station areas under existing zoning</li> <li>• Zoning ordinances providing reduced parking requirements for development near transit stations</li> </ul>
<p><b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES (continued)</b>  <b>d. Tools to Implement Land Use Policies</b></p>	
<p>Outreach to government agencies and the community in support of land use planning</p>	<ul style="list-style-type: none"> <li>• Promotion and outreach activities by the transit agency, local jurisdictions, and/or regional agencies in support of station area planning, growth management, and transit-oriented development</li> <li>• Inter-local agreements, resolutions, or letters of endorsement from other government agencies in support of coordinating land use planning with transit investment</li> <li>• Actions of other groups, including Chambers of Commerce, professional development groups, citizen coalitions, as well as the private/commercial sector, in support of transit-oriented development practices</li> <li>• Public outreach materials and brochures</li> </ul>
<p>Regulatory and financial incentives to promote transit-supportive development</p>	<ul style="list-style-type: none"> <li>• Regulatory incentives (e.g., density bonuses, streamlined processing of development applications) for developments near transit</li> <li>• Zoning requirements for traffic mitigation (e.g., fees and in-kind contributions) and citations of how such requirements can be waived or reduced for locations near transit stations</li> <li>• Programs that promote or provide incentives for transit-oriented development such as tax increment financing zones, tax abatement programs, and transit-oriented loan</li> </ul>

*Table 3: Assessment of Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns: Guidance on Documentation and Information to be Submitted*

Information Requested	Documentation Supporting Land Use Criterion
	<p>support programs</p> <ul style="list-style-type: none"> <li>• Other economic development and revitalization strategies for station areas or within the corridor</li> </ul>
<p>Efforts to engage the development community in station-area planning and transit-supportive development</p>	<ul style="list-style-type: none"> <li>• Outreach, education, and involvement activities targeted at the development community (including developers, property owners, and financial institutions)</li> <li>• Transit-oriented market studies</li> <li>• Joint development programs and proposals</li> <li>• Letters of endorsement or other indicators of support from the local development community</li> </ul>
<p>Public involvement in corridor and station area planning</p>	<ul style="list-style-type: none"> <li>• Description of public involvement process, including corridor and station area land use planning activities</li> <li>• Description of the level of participation in land use planning activities and support for these activities by the general public and community groups</li> <li>• Public outreach materials and brochures</li> </ul>
<p><b>III. PERFORMANCE AND IMPACTS OF LAND USE POLICIES</b>  <b>a. Performance of Land Use Policies</b></p>	
<p>Demonstrated cases of developments affected by transit supportive policies</p>	<ul style="list-style-type: none"> <li>• Documentation of projects that have recently been built consistent with transit-oriented design principles (higher density, orientation toward street, provision of pedestrian access from transit, etc.)</li> <li>• Documentation of projects that incorporate a mix of uses or increased amounts of housing</li> </ul>
<p>Station area development proposals and status</p>	<ul style="list-style-type: none"> <li>• Descriptions and plans for new development, including joint development proposals, including size, types of uses, and expected dates of start of construction and completion</li> </ul>
<p><b>III. PERFORMANCE AND IMPACTS OF LAND USE POLICIES (continued)</b>  <b>b. Potential Impact of Transit Project on Regional Land Use</b></p>	
<p>Adaptability of station area land for development</p>	<ul style="list-style-type: none"> <li>• Description or inventory of land near transit stations that is vacant or available for redevelopment, and amount of development anticipated for these parcels</li> <li>• Projected timeline for development of station area properties</li> <li>• Amount of development allowed at station area build-out compared to existing amount of development</li> </ul>
<p>Corridor economic environment</p>	<ul style="list-style-type: none"> <li>• Regional and corridor economic conditions and growth projections</li> <li>• Development market trends in existing corridors and station areas (for areas with existing transit)</li> <li>• Demonstrated market support for higher-density and transit/pedestrian-oriented development</li> <li>• Locations of major employment centers in the region, and</li> </ul>

*Table 3: Assessment of Existing Land Use, Transit Supportive Land Use Policies, and Future Patterns: Guidance on Documentation and Information to be Submitted*

Information Requested	Documentation Supporting Land Use Criterion
	<p>expected growth in these centers</p> <ul style="list-style-type: none"> <li>• Projected population, employment, and growth rates in corridor or station areas compared to region</li> </ul>
<p><b>IV. OTHER LAND USE CONSIDERATIONS (Optional)</b></p>	
<p>Other unidentified or unusual circumstances, conditions, or constraints under which the transit agency operates and which influence local and regional land use policies, plans, and implementation</p>	<p>Examples may include:</p> <ul style="list-style-type: none"> <li>• Unique project purpose</li> <li>• Exceptional examples of historical, environmental or community preservation and enhancement</li> <li>• Topography</li> <li>• Brownfields redevelopment</li> <li>• Central city redevelopment</li> <li>• Designation as a Federal Enterprise Zone/Empowerment Community</li> <li>• Type and condition of market (e.g., resort, seasonal)</li> <li>• Intermodal connections</li> <li>• Other factors</li> </ul>

# Template 11: Supplemental Land Use Information and Supporting Documentation Worksheet

Information Requested	Documentation Supporting Land Use Criterion
<b>I. EXISTING LAND USE</b> <b>a. Existing Land Use</b>	
Existing station area development	
Existing station area development character	
Existing station area pedestrian facilities, including access for persons with disabilities	
Existing station area parking supply	

Information Requested	Documentation Supporting Land Use Criterion
<p align="center"><b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES</b></p> <p align="center"><b>a. Growth Management</b></p>	
<p>Concentration of development around established activity centers and regional transit</p>	
<p>Land conservation and management</p>	

Information Requested	Documentation Supporting Land Use Criterion
<b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES (continued)</b> <b>b. Transit Supportive Corridor Policies</b>	
Plans and policies to increase station area development	
Plans and policies to enhance transit-friendly character of station area development	
Plans to improve pedestrian facilities, including facilities for persons with disabilities	
Parking policies	

Information Requested	Documentation Supporting Land Use Criterion
<b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES (continued)</b> <b>c. Supportive Zoning Regulations Near Transit Stations</b>	
Zoning ordinances that promote transit supportive development density in transit station areas	
Zoning ordinances and design guidelines that enhance transit-oriented character of station area development and pedestrian access	
Zoning ordinances that support reductions in parking	

Information Requested	Documentation Supporting Land Use Criterion
<p align="center"><b>II. TRANSIT SUPPORTIVE PLANS AND POLICIES (continued)</b></p> <p align="center"><b>d. Tools to Implement Land Use Policies</b></p>	
<p>Outreach to government agencies and the community in support of land use planning</p>	
<p>Regulatory and financial incentives to promote transit supportive development</p>	
<p>Efforts to engage the development community in station area planning and transit supportive development</p>	

Information Requested	Documentation Supporting Land Use Criterion
<b>III. PERFORMANCE AND IMPACTS OF LAND USE POLICIES</b> <b>a. Performance of Land Use Policies</b>	
Demonstrated cases of developments affected by transit supportive policies	
Station area development proposals and status	
<b>III. PERFORMANCE AND IMPACTS OF LAND USE POLICIES (continued)</b> <b>b. Potential Impact of Transit Project on Regional Land Use</b>	
Adaptability of station area land for development	
Corridor economic environment	

Information Requested	Documentation Supporting Land Use Criterion
<b>IV. OTHER LAND USE CONSIDERATIONS (Optional)</b>	
<p>Otherwise unidentified circumstances, conditions, or constraints under which the transit agency operates and which influence local and regional land use policies, plans, and implementation</p>	

# Template 12: Quantitative Land Use Information Worksheet

Project sponsors should adhere to the following guidelines when completing this template:

1. Please indicate the specific year for reporting base and forecast year estimates.
2. Please report the density of population and employees *per mile* (not per acre).

Population and Employment Data – Metropolitan Area, CBD, and Corridor			
Data	Base Year __ __	Forecast Year 20 __	Growth (%)
<b>Metropolitan Area</b>			
Total Population			
Total Employment			
<b>Central Business District<sup>12</sup></b>			
Total Employment			
Employment – Percent of Metropolitan Area			
Employment Density (e.g., employees/acre)			
<b>Corridor</b>			
Total Population			
Total Employment			
Population – Percent of Metropolitan Area			
Employment – Percent of Metropolitan Area			
Corridor Land Area (sq. mi.)			
Population Density (persons per sq. mi.)			
Employment Density (jobs per sq. mi.)			
<b>Population and Employment Data -- Station Area (1/2-mile radius)<sup>13</sup></b>			
Data	Base Yr. ____	Forecast Yr. 20__	Growth (%)
<b>Total, All Station Areas</b>			
Housing Units			
Population			
Employment			
Land Area (indicate sq. mi.)			
Housing Unit Density (units per sq. mi.)			
Population Density (persons per sq. mi.)			
Employment Density (persons per sq. mi.)			

<sup>12</sup> Optionally, employment for the largest activity center(s) served by the New Start project may be reported.

<sup>13</sup> See “Mobility Benefits” section for guidance on calculating station-area households and Appendix for a sample methodology for estimating station area population, households, and employment.

Station Area 1 <sup>14</sup>			
Housing Units			
Population			
Employment			
Land Area (indicate units) <sup>15</sup>			
Housing Unit Density (units per sq. mi.)			
Population Density (persons per sq. mi.)			
Employment Density (persons per sq. mi.)			
Station Area 2, etc.			
Housing Units			
Population			
Employment			
Land Area (indicate units)			
Housing Unit Density (units per sq. mi.)			
Population Density (persons per sq. mi.)			
Employment Density (persons per sq. mi.)			

<sup>14</sup> Reporting of data by individual station area is required.

<sup>15</sup> This is only necessary in the case of overlapping station areas, or other cases in which the data refer to an area other than a circle of ½-mile radius. See Appendix A for additional guidance.

## **Instructions for Completing Template 12: Quantitative Land Use Information Worksheet**

### **Quality Control Checks - Template 12**

- The forecast year reported on Template 12 should match the forecast year reported on Template 1 (Project Description).
- Information should be provided for each station area.

## **VII. LOCAL FINANCIAL COMMITMENT INFORMATION**

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TEA-21 requires FTA to ensure that proposed New Starts projects are supported by an acceptable degree of local financial commitment and resources, including evidence of stable and dependable funding sources to construct, maintain, and operate the fixed guideway capital investment, as well as the rest of the transit system. Project sponsors submit financial plans, project finance templates, and supporting documentation to FTA and selected contractors. FTA evaluates the sponsor's financial condition and local financial commitment based on the financial submission. This assessment is used to report specific measures from which a rating is assigned. All candidate New Starts projects in or seeking entry into final design or preliminary engineering are rated.

FTA uses three measures to determine *Local Financial Commitment*:

1. The proposed share of total project costs from sources other than the New Starts portion of Section 5309, including Federal formula and flexible funds, the local match required by Federal law, and any additional capital funding;
2. The strength of the proposed capital funding plan; and
3. The ability of the sponsoring agency to fund operation and maintenance of the entire transit system as planned once the guideway is built.

The evaluation of each measure results in FTA assigning a summary financial rating of "high," "medium-high," "medium," "low-medium," or "low" to reflect FTA's assessment of the sponsoring agency's ability and commitment to meet the funding requirements of the New Start project. As a project proceeds through the project development process, it is expected that project cost estimates and local funding sources will become more refined and committed. Consequently, projects in or requesting entrance into final design must meet a higher rating threshold than projects in preliminary engineering. A detailed review of FTA's financial rating process can be found in Appendix D of these *Reporting Instructions*.

Increasing demands on limited New Starts funds have brought additional scrutiny to the New Starts rating process. Congress and others have directed FTA to improve the financial reporting guidance and to aggressively evaluate the financial capacity of project sponsors to successfully implement major transit capital investments. For this reason, FTA has developed more detailed instructions for preparing financial submittals, which can be found in the document entitled *Guidance for Transit Financial Plans (June 2000)* located on FTA's website for *Major Investment Project Planning and Development* [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm).

All project sponsors must provide all of the required information included in the *Guidance for Transit Financial Plans*, including:

- a 20-Year cash flow analysis that includes a discussion of all the assumptions that went into the projections including inflation rates, capital and operating cost and revenue growth rates, service growth rates (miles and hours of service), fare increases, farebox recovery rates, as well as financing assumptions (if applicable) such as debt proceeds, debt service requirements, interest rates, and debt coverage ratios, etc.

- Supporting documentation including:
- past three years' audited financial statements
- documents evidencing commitment of funds
- latest bonding prospectus (if applicable)
- rail and bus fleet management plans
- regional economic forecast documentation
- at least 5 years of prior cost and revenue data to substantiate the growth rates assumed in the cast flow analysis
- details on proposed funding sources such as when legislative approval or a public referendum is expected and the date the source would become effective
- description of innovative financing techniques (if applicable)
- agency adopted capital improvement program
- most recent strategic plan or budget

Failure to include any of the elements required for the financial review will adversely impact the project's financial rating and may result in a "low" financial rating. A "low" rating for the project finance criteria ensures a "Not Recommended" project rating, which will prevent a project from moving forward in the New Starts project development process.

### **Financial Information Reporting Items**

Sponsoring agencies will submit documentation of local financial commitment to FTA and the designated contractor. FTA needs the following items to evaluate and rate the project sponsor's local financial commitment:

- a completed Template 13 (New Starts Project Finance Worksheet);
- a comprehensive Financial Plan; and
- Supporting Documentation.

These items are described in detail in the next sections.

### **New Starts Project Finance Worksheet**

All sponsoring agencies – including sponsors of projects which are exempt from the New Starts criteria - must complete Template 13 (New Starts Project Finance Worksheet) and are encouraged to work closely with FTA staff and FTA contractors to ensure that the most appropriate and up-to-date information is applied in the assessment. For non-exempt projects, FTA staff and FTA contractors will review information in order to assess each measure and assign ratings. Template 13 is designed to provide a uniform reporting method for the basic financial information and transit system characteristics necessary for FTA to assess the local financial commitment for the proposed New Starts

project. It is not intended as a substitute for a financial plan. A written explanation should be provided for not submitting any requested or current data. Failure to adequately justify any non-compliance will adversely impact the project's financial rating.

Please note that finance charges must be accounted for and included in the capital cost estimate of all New Starts projects. Specifically, only finance charges that are expected to occur prior to either the revenue operations date or the fulfilment of the Section 5309 New Starts funding commitment should be included. In addition, the costs of preliminary engineering and final design should also be included in the capital cost estimate.

### **Financial Plan**

All sponsoring agencies must submit to FTA a financial plan for their proposed project. For non-exempt projects, FTA evaluates the financial plan to ensure that the agency has the financial capacity to construct and operate the proposed New Starts project as well as operate and maintain the rest of the transit system. FTA has developed guidance on the content and format of financial plans for transit agencies. In addition to FTA's long-standing *Guidance for Transit Financial Plans*, (June 2000), FTA has updated the financial planning chapter to its *Procedures and Technical Methods for Transit Project Planning*. Both documents are available on FTA's web site for *Major Investment Project Planning and Development* at [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm). Both documents specify the contents and format of an acceptable financial plan. All agencies submitting information for evaluation and rating are required to submit financial plans that adhere to these guidelines. Failure to provide a complete financial plan will adversely impact the project's financial rating.

### **Supporting Documentation**

The supporting documentation provided by sponsoring agencies to FTA staff and contractors should be developed as part of the New Starts planning and project development process (alternatives analysis, major investment studies, preliminary engineering, environmental impact statement, and final design). Documentation for each of the funding sources must be provided. All underlying financial assumptions should be identified in the project finance plan and reflect capital financing strategies, projected operating and maintenance costs, revenue stream assumptions, and cash flow projections.

It is important for sponsoring agencies to understand that the ratings assigned by FTA will be directly related to the ability of reviewers to readily identify, locate, review, and assess the provided documentation. A concise, well-organized submittal is to the advantage of the sponsoring agency.

## *Examples of Financial Plan Supporting Documentation*

### **General Documentation**

- Background information and description of the transit agency, including organizational structure and an outline of any other significant capital projects underway (e.g., annual A-128 audits and annual reports for past three years, current budget).
- Background information and description of the New Starts fixed guideway project, including project status (e.g., project pamphlets, planning and engineering reports used to select and define the project).
- Information describing current and forecast economic conditions in the region (e.g., regional socioeconomic reports, regional planning estimates of socioeconomic growth used in the development of the financial and ridership estimates).

### **Financial Documentation**

- Agency capital and operating cash flow analysis for the 20-year period (in year of expenditure dollars) as required by planning guidelines. The cash flow analysis should include expenses and revenues for the proposed project.
- A description of the types and amounts of funds (in year of expenditure dollars) for the transit system and proposed project (e.g., local, state, Federal, sales tax, bonds, flexible funding, innovative funding sources).
- Operating and maintenance cost estimates (in year of expenditure dollars) for the entire planned transit system, including the proposed project.
- Capital cost estimates (in year of expenditure dollars) for the proposed project, broken out by major cost categories, including contingencies.
- Description of innovative financing techniques (e.g., innovative funding sources or financing techniques to be used to support the project or to be implemented as part of a larger system-wide program).
- Latest bonding prospectus, capital and operating financing plans, and other related reports.
- Commitment letters, contracts, agreements, legislative referendums, joint development agreements, or other documentation evidencing commitment of funds
- Correspondence or other documentation indicating local source's "intent to commit" if no formal commitment or programming of local funding is yet in place.

### **Additional Documentation**

- Regional Long Range Transportation Plan
- Regional Transportation Improvement Program (TIP)
- Major Investment Study (MIS) or Alternatives Analysis (AA), Environmental Impact Statement (EIS), if applicable
- Independent Audit Reports
- Rail vehicle and bus fleet management plans

## Template 13: New Starts Project Finance Worksheet

<b>PROJECT NAME:</b>			
<b>Total Capital Cost of Project in Constant 2004 \$:</b>	\$	<b>Total Capital Cost of Project in YOE \$ (including finance charges, cost of PE and FD, and construction):</b>	\$
<b>Section 5309 New Starts Funding Anticipated (YOE \$):</b>	\$	<b>Section 5309 New Starts Share of Project Cost (%):</b>	%
<b>Estimated Cost of Preliminary Engineering (YOE \$):</b>	\$	<b>Estimated Cost of Final Design (YOE \$):</b>	\$
<b>Total Finance Charges Included in Capital Cost (include only finance charges that are expected prior to either the revenue operations date or the fulfillment of the Section 5309 New Starts funding commitment):</b>			\$
<b>Other Federal Capital Funding</b> (Non-5309 New Starts Funds such as FTA Section 5307, Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ), Section 5309 Rail Modernization, etc.)	<b>Type of Funds</b>	<b>Dollar Amount</b>	<b>% of Total Capital Cost</b>
1)			
2)			
3)			
4)			
<b>State Capital Funding Sources</b> (Funds provided by State agencies or State legislatures such as bonds, dedicated sales tax, annual legislative appropriation, transportation trust funds, etc.)	<b>Type of Funds</b>	<b>Dollar Amount</b>	<b>% of Total Capital Cost</b>
1)			
2)			
3)			
4)			
5)			

<b>PROJECT NAME:</b>			
<b>Local Capital Funding Sources</b> (Municipal, City, County, Township, or Regional funding such as bonds, dedicated sales tax, annual legislative appropriation, regional transportation trust funds, etc.)	<b>Type of Funds</b>	<b>Dollar Amount</b>	<b>% of Total Capital Cost</b>
1)			
2)			
3)			
4)			
5)			
6)			
<b>Private Sector/In-kind match/Other</b> (Donations of right-of-way, construction of stations or parking, or the provision of funding for the project from a non-governmental entity, business, or business association.)	<b>Type of Funds</b>	<b>Dollar Amount</b>	<b>% of Total Capital Cost</b>
1)			
2)			
3)			
<b>TOTAL NON-SECTION 5309 SHARE</b>			

<b>PROJECT NAME:</b>			
<b>New Starts Project Financial Commitment</b>			
<b>Other Federal Sources</b> (Should correspond to sources listed on page 1)	<b>Specify Whether New or Existing Funding Source</b>	<b>Specify Status of Funds -- Committed, Budgeted, or Planned</b> (See reference notes below)	<b>Identify Supporting Documentation Submitted to Verify Funding Source</b>
1)			
2)			
3)			
4)			
<b>State Sources</b> (Should correspond to sources listed on page 1)			
1)			
2)			
3)			
4)			
5)			
<b>Local Sources</b> (Should correspond to sources listed on page 1)			
1)			
2)			
3)			
4)			
5)			
6)			
<b>Private Sector/In-kind Match/Other</b> (Should correspond to Sources listed on page 1)			
1)			
2)			
3)			
4)			
5)			

**Reference Notes:**

1. The following categories and definitions are applied to funding sources:

- **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. Funds will be classified as budgeted where available funding cannot be committed until the Full Funding Grant Agreement (FFGA) is executed, or due to local practices outside of the project sponsor's control (e.g., the project development schedule extends beyond the TIP period).
- **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.

<b>PROJECT NAME:</b>			
<b>Innovative Financing Methods</b> (Unconventional sources of funding which may include TIFIA, State Infrastructure Banks, Public/Private partnerships, Toll Investment Credits, revenue finance methods, etc.)			
<b>Innovative Funding Source</b>	<b>Anticipated Funding Amount</b>	<b>Identify Supporting Documentation Submitted</b>	
<b>Operating and Maintenance Cost Worksheet</b>			
<b>Current Transit System Operating Characteristics</b> (From National Transit Database. Otherwise, the baseline alternative transit system operating characteristics may suffice, provided that sufficient detail is provided)			
<b>Current Sources of Operating Funds</b> (Existing sources of funds used to support operating expenses of the transit system. These typically include a mixture of farebox revenues and State and Local funding sources.)	<b>Dollar Amount</b>	<b>Type of Funding Source</b> (Farebox revenues, advertising revenues, dedicated sales tax, annual legislative appropriation, regional transportation trust funds, property tax assessment, or any other potential local funding source)	<b>Annual/Dedicated</b> (Note whether the funds must be appropriated by legislative action or renewed ANNUALLY, or whether the funding is DEDICATED to transit system operating expenses independent of annual legislative action)
Farebox Revenues			
State Revenue Source A			
State Revenue Source B			
State Revenue Source C			
Local Revenue Source A			
Local Revenue Source B			
Local Revenue Source C			
Other			
<b>Total</b>			

<b>PROJECT NAME:</b>			
<b>Summary Data from the Proposed New Starts Project Operating Finance Plan</b>			
New Starts Project Average Annual Operating Cost Forecast Year Dollar Amount (YOE \$):		Total Transit System (including New Starts Project) Annual Operating Cost Forecast Year Dollar Amount (YOE \$)	
<b>Proposed Sources of Operating Funds</b> (Proposed sources of operating funds that are anticipated to support operating expenses of the transit system. These typically include a mixture of farebox revenues and State and Local funding sources)	<b>Dollar Amount</b>	<b>Type of Funding Source</b>	<b>Annual/Dedicated</b>
Farebox Revenues			
State Revenue Source A			
State Revenue Source B			
State Revenue Source C			
Local Revenue Source A			
Local Revenue Source B			
Local Revenue Source C			
Other			
Total			
<b>Transit System Operating Characteristics</b>			
<b>Current Systemwide Characteristics</b> (Can be the same data as reported to the FTA for the National Transit Database)	<b>Number/Value</b>	<b>Future Transit System with New Starts Project</b> (Systemwide characteristics at completion of the New Starts Project)	<b>Number/Value</b>
Farebox Recovery Percent		Farebox Recovery Percent	
Number of Buses		Number of Buses	
Number of Rail Vehicles (type)		Number of Rail Vehicles	
Current Annual Passenger Boardings		Annual Passenger Boardings (Forecast)	
Daily Passenger Boardings		Daily Passenger Boardings (Forecast)	
Average Fare		Average Fare	
Average Age of Buses		Revenue Miles of Service Provided	
Average Age of Rail Vehicles		Revenue Hours of Service Provided	
Revenue Miles of Service Provided			
Revenue Hours of Service Provided			

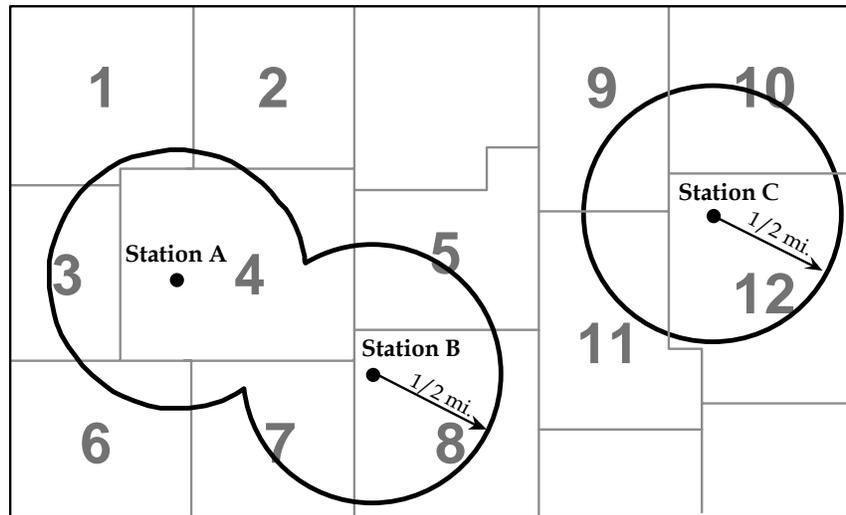
<b>PROJECT NAME:</b>				
<b>Prior State or Local Expenditures for Project Planning/ROW/Overmatch</b> (Includes all funds expended by State or local government agencies for project planning, environmental studies, right-of-way purchases, or construction EXCLUDING funds allocated to match Federal funds to perform similar tasks)	<b>Project or Funding Type</b>	<b>Dollar Value</b>		<b>% of Total Costs</b>
	1)			
	2)			
	3)			
	4)			
	5)			
<b>Prior State or Local Expenditures for Project Planning/ROW/Overmatch</b> (Should correspond to those listed above)	<b>Identify Supporting Documentation Submitted</b>			
	1)			
	2)			
	3)			
	4)			
	5)			
<b>Previous New Starts Investments in the Region</b> (Briefly describe previous New Starts major capital investments within the region. Include the project name and the amount and percent of Federal and Non-Section 5309 New Starts funding sources used for construction.)				
<b>Project Name</b>	<b>Federal Funding Share</b>		<b>State/Local Funding Share</b>	
	<b>Amount</b>	<b>Percent</b>	<b>Amount</b>	<b>Percent</b>

## Instructions for Completing Template 13: New Starts Project Finance Worksheet

### Quality Control Checks – Template 13

- The capital costs reported on Template 13 (both year-of-expenditure and current year costs), should match what is reported on Template 1 (Project Description).
- The cost of preliminary engineering and final design must be reported and included in the total capital cost of the project.
- Financing costs should be reported if applicable and included in the total capital cost of the project.
- Verify that the total project cost in constant 2004 dollars reported on Template 13 differs from that shown on Template 8 for the build alternative (Annualized Capital Cost Worksheet) *only because* on Template 8 finance charges have been subtracted and/or because costs above the systemwide expenditures assumed in the no-build alternative, (for example, costs for assumed feeder bus service) have been added.
- If the capital cost of the project has changed significantly from last year, please provide an explanation.
- Total federal funding for the project (New Starts plus other federal sources) should not exceed 80 percent.
- The sum of all proposed sources of operating funds reported on Template 13 should equal the total transit system annual operating cost in the forecast year.
- The type of funding sources should be identified for each capital and operating revenue source.

**APPENDIX A: SAMPLE METHODOLOGY FOR ESTIMATING STATION AREA SOCIO-ECONOMIC STATISTICS**



	Census Tract Total				Fraction of Tract within 1/2 Mile of Station	Within 1/2 Mile of Station			
	Land Area (sq. mi.)	Population	Households	Employment		Land Area (sq. mi.)	Population	Households	Employment
<b>Stations A and B</b>									
Tract 1	0.452	2,309	987	1,654	0.08	0.036	185	79	132
Tract 2	0.362	133	58	611	0.06	0.022	8	4	37
Tract 3	0.294	398	145	1,254	0.52	0.153	207	76	652
Tract 4	0.655	2,634	1,154	2,719	0.85	0.557	2,239	981	2,311
Tract 5	0.429	1,038	393	858	0.41	0.176	425	161	352
Tract 6	0.416	2,412	887	1,477	0.19	0.079	458	168	281
Tract 7	0.380	2,088	856	2,785	0.54	0.205	1,127	462	1,504
Tract 8	0.434	2,344	991	2,031	0.68	0.295	1,720	720	1,349
Subtotal	3.422	13,542	5,541	13,342		1.523	6,370	2,652	6,618
<b>Station C</b>									
Tract 9	0.355	1,816	722	610	0.24	0.085	436	173	146
Tract 10	0.462	70	31	1,569	0.40	0.185	28	12	628
Tract 11	0.504	2,645	1,156	760	0.33	0.166	873	381	251
Tract 12	0.540	2,573	1,010	1,873	0.65	0.351	1,730	687	67
Subtotal	1.860	7,192	2,966	3,041		0.787	3,066	1,254	1,091
<b>Total</b>	<b>5.282</b>	<b>20,734</b>	<b>8,507</b>	<b>16,384</b>		<b>2.310</b>	<b>9,437</b>	<b>3,906</b>	<b>7,709</b>

**Sample Methodology for Estimating Station Area Population, Households**

Instructions for computing station area data:

1. Plot each station location on a map showing census tracts or, alternatively, Traffic Analysis Zones (TAZs).
2. Draw a circle of 1/2 mile radius around each station.

3. Obtain data on total land area, population, households, and employment for the tracts or zones that fall partially or completely within the station areas. Land area, population, and households can be obtained from the census (for census tracts) or from a regional land use database used for travel demand modeling (for TAZs). The regional MPO should have these data available. Employment data at the tract or TAZ level may be obtained from the MPO.
4. Estimate the total land area, population, households, and employment contained within each ½ mile station radius by summing the data for each tract or zone that falls within the ½ mile station radius. For tracts or TAZs that partially fall within the ½ mile station radius, station-area population, households, and employment should be estimated by multiplying the total for the zone by the proportion of the zone estimated to fall within the ½ mile radius. The proportion of the zone falling within the ½ mile radius can be estimated either visually or using GIS.
5. Avoid double counting of population and employment for stations that are less than 1 mile apart. This can be done in two ways: (a) draw a line dividing the area enclosed by the overlapping circles into two parts; or, (b) group stations that are less than **1 mile** apart into clusters and report total data for each cluster (as shown for Stations A and B in the figure above). In either case, please report the total land area encompassed by the overlapping circles. (Total land area for individual stations not grouped together should be roughly the area enclosed by a circle of ½-mile radius, i.e.,  $3.1415 \times (0.5)^2 = 0.785$  sq. mi.)
6. If possible, attach a map showing station locations, ½ mile radii, and census tracts or traffic analysis zones, along with a table listing the tracts or zones, estimated proportion of each within ½ mile of the station, and population, households, and/or employment for the tract.

## **APPENDIX B: DEVELOPMENT AND DOCUMENTATION OF ALTERNATIVE LAND USE FORECASTS**

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FTA is allowing project sponsors to develop an “alternative” land use forecast, along with its resulting estimate of transportation system user benefits, as a measure of the economic development impacts of proposed New Starts investments. Specifically, the annualized capital and operating cost of a New Starts project is divided by an estimate of its user benefits based upon this alternative land use forecast, resulting in an alternative measure of cost effectiveness which is considered as an other factor in FTA’s New Starts evaluation process.

Typically, land use forecasts of population and employment adopted by a region’s metropolitan planning organization for regional transportation planning purposes are incorporated into the regional travel demand model. These are the “official” regional land use forecasts, but may not reflect specific consideration of the development potential supported by local land use policies around major capital transit facilities included in the region’s long range plan for one of two reasons: first, because they were made after the most recent cycle of updates to regional land use projections; and second, because they are viewed as contingent upon the transit project being constructed and therefore are not being considered for standard regional modeling and forecasting purposes.

The alternative land use forecast discussed here is an option for those project sponsors who believe that local land use policies and plans are not fully represented in the regional forecast. The alternative land use forecast is meant to consider any additional development that may be expected as a result of construction and operation of the proposed New Starts project. This appendix provides guidance on how to develop an alternative land use forecast that is used for economic development-related estimates of user benefits and calculations of cost effectiveness, as described above.

FTA and its contractors will review the alternative land use forecast and supporting methodology documentation to determine whether the “alternative” land use forecast is plausible and realistic, and the extent to which it is contingent upon the transit project. FTA’s review of the alternative land use forecasts focuses on two basic considerations:

1. The likelihood that the alternative land use forecast will occur, assuming that the transit project is built; and
2. The extent to which realization of the alternative land use forecast depends upon construction and operation of the transit project.

The first consideration – **likelihood that the alternative land use forecast will occur** – is intended to reflect whether the physical, policy, and economic conditions exist to support the level of development assumed in the alternative land use forecast. It considers three separate factors, including:

- **Station area development capacity** – the existence of sufficient vacant and/or underutilized land to support development of the magnitude projected by the transit agency;

- **Plans, policies, and implementation tools** – the extent to which adopted and/or proposed plans, policies, and implementation tools support the forecast types and amount of development and the certainty of their successful implementation; and
- **Economic conditions and market trends** – the extent to which regional and localized economic/market conditions support the types and amounts of projected development.

The second consideration – **dependence of alternative land use forecast on transit project** – recognizes that the transit project is only one of a number of factors that can influence land development. For example, some areas may be undertaking development initiatives that may be successful even without the transit project. This criterion provides a measure of the additional “leverage” provided by the proposed transit project in encouraging transit station area development. It considers two factors:

- **Dependence of plans and policies on transit project** – the extent to which the application of supportive plans, policies, and implementation tools is contingent upon the transit project; and
- **Dependence of market forces on transit project** – the extent to which developer interest in building the types of uses projected for station areas is dependent upon implementation of the transit project.

Consequently, justification for the submitted alternative land use forecast should address each of these specific considerations and factors. Central to this justification is evidence of a) existing (or conditional) zoning, plans, and/or policies which support the New Starts transit investment; b) positive market reaction to other transit capital investments in the region; and c) regional economic vitality.

To assess the reasonability of these alternative land use forecasts, FTA and its contractors will rely primarily on the information already provided by project sponsors for the transit-supportive land use criterion (see Section V.7 of the *Reporting Instruction for the Section 5309 New Starts Criteria*, April 2004). Project sponsors, however, should also submit a specific methodology, along with the alternative land use forecasts themselves, which describe the specific assumptions made in the forecast and to support these assumptions. Such documentation should include:

- A description of how the regionally-adopted land use forecast was generated (including year developed, methodology, and assumptions regarding station area land use) that demonstrates that development projects assumed in the proposed alternative land use forecast are not reflected in the baseline forecast;
- A table showing, by station area, the additional amount of population, housing units, and employment assumed in the alternative land use forecast;
- A description for each station area of the basis for calculating this additional development (e.g., how much land will be required, floor area ratios, dwelling units per acre);
- Site plans, conceptual renderings, or descriptions of any built, proposed, and/or potential projects that are consistent with the alternative land use forecast assumptions; and

- Market studies, news articles citing statements from developers, and/or any other sources that lend support to the assumptions made in the alternative land use forecast.

Development that is described in the *Transit Supportive Land Use* portion of the New Starts criteria submission, but not included in the regionally adopted long range land use forecasts, should be explicitly noted in this methodology. As noted in Section VI.5 of the *Reporting Instructions*, the resulting alternative land use forecasts must be reasonable in the amount of actual development which is expected to occur within the 20-year forecast period assumed for the New Starts project; that is, they should consider factors which might hinder development, such as the presence of recently constructed buildings or residential properties; the size and configuration of individual parcels; environmental constraints; the present economy and future economic projections; and the overall development character of the area. Additional development may only be considered within one-half mile of proposed New Starts stations. In addition, such development should not be assumed to be net new development to the metropolitan area, but rather a redistribution of population and employment from other areas of the region.

## APPENDIX C: U.S. EPA REGIONAL DESIGNATIONS FOR NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

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This information can be found at <http://www.epa.gov/oar/oaqps/greenbk/>

### CLASSIFICATIONS OF OZONE NONATTAINMENT AREAS

As of January 06, 2004

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#### EXTREME (2010)

[Los Angeles South Coast Air Basin, CA](#)

#### SEVERE (2007)

[Chicago-Gary-Lake County, IL-IN](#)

[Houston-Galveston-Brazoria, TX](#)

[Milwaukee-Racine, WI](#)

[New York-N. New Jersey-Long Island, NY-NJ-CT](#)

[Southeast Desert Modified AQMA, CA](#)

#### SEVERE (2005)

[Atlanta, GA](#)

[Baltimore, MD](#)

[Baton Rouge, LA](#)

[Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD](#)

[Sacramento Metro, CA](#)

[San Joaquin Valley, CA](#)

[Ventura Co, CA](#)

[Washington, DC-MD-VA](#)

#### SERIOUS (1999)

[Boston-Lawrence-Worcester \(E. MA\), MA-NH](#)

[Dallas-Fort Worth, TX](#)

[East Kern Co, CA](#)

[El Paso, TX](#)

[Greater Connecticut, CT](#)

[Phoenix, AZ](#)

[Portsmouth-Dover-Rochester, NH](#)

[Providence \(All RI\), RI](#)

[Springfield \(Western MA\), MA](#)

#### MODERATE (1996)

[Atlantic City, NJ](#)

[Beaumont-Port Arthur, TX](#)

[Cincinnati-Hamilton, OH-KY \(OH Portion\)](#)

[Knox & Lincoln Co.s, ME](#)

[Lewiston-Auburn, ME](#)

[Portland, ME](#)

[Poughkeepsie, NY](#)

**MARGINAL (1993)**

[Albany-Schenectady-Troy, NY](#)  
[Allentown-Bethlehem-Easton, PA-NJ](#)  
[Altoona, PA](#)  
[Birmingham, AL](#)  
[Buffalo-Niagara Falls, NY](#)  
[Erie, PA](#)  
[Essex Co, NY](#)  
[Harrisburg-Lebanon-Carlisle, PA](#)  
[Jefferson Co, NY](#)  
[Johnstown, PA](#)  
[Kent & Queen Anne's Co.s, MD](#)  
[Lancaster, PA](#)  
[Manchester, NH](#)  
[Reno, NV](#)  
[Scranton-Wilkes-Barre, PA](#)  
[Smyth Co, VA \(White Top Mtn\)](#)  
[Sunland Park, NM \(New Area 1995\)](#)  
[Sussex Co, DE](#)  
[York, PA](#)  
[Youngstown-Warren-Sharon, PA portion](#)

**OTHER**

[San Francisco Bay Area, CA](#)

Section 185A and Incomplete Areas Not Included. "Section 185A" was previously called "Transitional". Dates in parenthesis are when the ozone standard must be met. Section 185A and incomplete data areas are not included. Dates in parenthesis are when the ozone standard must be met. On July 10, 1998 (63 FR 37258), EPA published the final rule redesignating the San Francisco Bay Area to nonattainment with the federal 1-hour ozone NAAQS. EPA did not assign the Bay Area a classification. Then on July 22, 1999 (64 FR 39416) EPA published a final rule assigning the area a nonattainment classification on moderate for purposes of funding appropriation under the Transportation Equity Act for the 21st Century (TEA 21), Congestion Mitigation and Air Quality improvement Program (CMAQ) only. This is NOT an official list of ozone nonattainment areas. See the Code of Federal Regulations (40 CFR Part 81) and pertinent Federal Register notices for legal lists and boundaries.

# CLASSIFICATIONS OF CARBON MONOXIDE NONATTAINMENT AREAS

As of January 06, 2004

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## **SERIOUS**

[Anchorage, AK](#)  
[Fairbanks, AK](#)  
[Las Vegas, NV](#)  
[Los Angeles South Coast Air Basin, CA](#)  
[Phoenix, AZ](#)  
[Spokane, WA](#)

## **MODERATE > 12.7PPM**

[Provo, UT](#)

## **MODERATE <= 12.7PPM**

[El Paso, TX](#)  
[Missoula, MT](#)  
[Reno, NV](#)

This is NOT an official list of CO nonattainment areas. See the Code of Federal Regulations (40 CFR Part 81) and pertinent Federal Register notices for legal lists and boundaries.

# CLASSIFICATIONS OF PARTICULATE MATTER NONATTAINMENT AREAS

As of January 06, 2004

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## **SERIOUS**

[Clark Co, NV](#)  
[Coachella Valley, CA](#)  
[Los Angeles South Coast Air Basin, CA](#)  
[Owens Valley, CA](#)  
[Phoenix, AZ](#)  
[San Joaquin Valley, CA](#)  
[Wallula, WA](#)  
[Washoe Co, NV](#)

## **MODERATE**

[Ajo \(Pima County\), AZ](#)  
[Anthony, NM](#)  
[Bonner Co \(Sandpoint\), ID](#)  
[Butte, MT](#)  
[Columbia Falls, MT](#)  
[Coso Junction, CA](#)  
[Douglas \(Cochise County\), AZ](#)  
[Eagle River, AK](#)  
[El Paso Co, TX](#)  
[Eugene-Springfield, OR](#)  
[Flathead County; Whitefish and vicinity, MT](#)  
[Fort Hall Reservation, ID](#)  
[Hayden/Miami, AZ](#)  
[Imperial Valley, CA](#)  
[Juneau, AK](#)  
[Kalispell, MT](#)  
[LaGrande, OR](#)  
[Lake Co, OR](#)  
[Lamar, CO](#)  
[Lame Deer, MT](#)  
[Lane Co, OR](#)  
[Libby, MT](#)  
[Lyons Twsp., IL](#)  
[Medford-Ashland, OR](#)  
[Missoula, MT](#)  
[Mono Basin, CA](#)  
[Mun. of Guaynabo, PR](#)  
[New Haven Co, CT](#)  
[New York Co, NY](#)  
[Nogales, AZ](#)  
[Ogden, UT](#)  
[Paul Spur, AZ](#)  
[Pinehurst, ID](#)  
[Polson, MT](#)  
[Portneuf Valley, ID](#)  
[Rillito, AZ](#)  
[Ronan, MT](#)  
[Sacramento Co, CA](#)  
[Salt Lake Co, UT](#)  
[San Bernardino Co, CA](#)  
[Sanders County \(part\);Thompson Falls and vicinity,MT](#)

[Sheridan, WY](#)  
[Shoshone Co, ID](#)  
[Southeast Chicago, IL](#)  
[Spokane Co, WA](#)  
[Steamboat Springs](#)  
[Trona, CA](#)  
[Utah Co, UT](#)  
[Weirton, WV](#)  
[Yakima Co, WA](#)  
[Yuma, AZ](#)

This is NOT an official list of PM-10 nonattainment areas. See the Code of Federal Regulations (40 CFR Part 81) and pertinent Federal Register notices for legal lists and boundaries.

## **APPENDIX D: FY 2006 NEW STARTS EVALUATION AND RATING PROCESS**

This document describes the basic methodology that the Federal Transit Administration (FTA) intends to use to evaluate, rate, and recommend funding for projects included in the *FY 2006 Annual Report on New Starts*. This methodology is similar to the process used in the evaluation of projects included in the *FY 2004* and *2005 Annual Report on New Starts*, and consistent with FTA's *Final Rule on Major Capital Investment Projects* issued on December 7, 2000.

Section I of this appendix provides an introduction to the legislative background of FTA's project evaluation and rating responsibilities; identifies each of the statutory criteria used by FTA in its evaluation process; and summarizes the overall project evaluation and rating process. Sections II and III describe the specific project justification and local financial commitment measures and ratings, respectively, including an explanation of the rating ranges and thresholds for each individual measure and how they are rolled up into aggregate criteria ratings. Section IV concludes this paper with a summary of what the overall project rating means.

This document is supplemented by two additional documents. *Guidelines and Standards for Assessing Transit-Supportive Land Use* and *Guidelines and Standards for Assessing Local Financial Commitment* provide additional detail on the process FTA uses to evaluate these two criteria. These materials will be posted on FTA's website at its site for *Major Investment Project Planning and Development* [http://www.fta.dot.gov/grant\\_programs/transportation\\_planning/9924\\_ENG\\_HTML.htm](http://www.fta.dot.gov/grant_programs/transportation_planning/9924_ENG_HTML.htm). in May 2004.

FTA reminds the audience of this paper that project evaluation is an on-going process. It is based on an analysis of the Section 5309 New Starts Criteria and documentation submitted to FTA by local agencies. As New Starts projects proceed through project development, the estimates of costs, benefits, and impacts are refined. The FTA ratings and recommendations will be updated at least annually to reflect new information, changing conditions, and refined financing plans.

### **I. LEGISLATIVE BACKGROUND**

On June 9, 1998, the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) was enacted. It requires the U.S. Department of Transportation to submit an annual report to Congress (*Annual Report on New Starts*) that includes a proposal on the allocation of amounts to be made available to finance grants and loans for capital projects for new fixed guideway systems and extensions to fixed guideway systems among applicants for those amounts. It also requires that the annual report include the Secretary's evaluations and ratings of the capital projects seeking grants or loans for new or extended fixed guideway systems.

TEA-21 also mandates that proposed New Starts projects must receive FTA approval to advance from alternatives analysis to preliminary engineering, and from preliminary

engineering to final design and construction. This approval will be based, in large part, on an evaluation of the proposed project's New Starts criteria.

FTA's evaluation includes a review of each project's New Starts criteria and the assignment of a rating to each criterion. Based on these criteria-specific ratings, candidate New Starts projects may be rated as "Highly Recommended" "Recommended" or "Not Recommended".

FTA's approach to developing project ratings for candidate New Starts projects is described in its *Final Rule on Major Capital Investment Projects*. The *Final Rule* confirms the criteria and establishes the measures and general process for evaluating New Starts projects, but does not provide the specific weights that FTA employs in its consideration of each measure. The weights to be used for the *FY 2006 Annual Report on New Starts* (and that were used in FTA's FY 2004 and 2005 evaluations) are described in Sections II and III of this paper.

The following subsections identify the specific New Starts project justification and local financial commitment criteria.

#### ***I.A Project Justification Criteria***

Section 5309(e)(1)(B) requires that projects proposed for New Starts funding be justified based on a comprehensive review of the following criteria:

- Mobility Improvements
- Environmental Benefits
- Operating Efficiencies
- Cost Effectiveness

Section 5309(e)(3)(C) requires FTA to further consider mass transit-supportive land use policies and future patterns; subsequently, FTA added the following criteria:

- Transit Supportive Existing Land Use and Future Patterns

Finally, FTA also considers "other factors," as required by Section 5309(e)(3)(H). Section III of this paper presents the measures FTA uses to represent each of these criteria, and how FTA evaluates them.

#### ***I.B Local Financial Commitment***

Section 5309(e)(1)(C) requires that proposed projects also be supported by an acceptable degree of local financial commitment, including evidence of stable and dependable financing sources to construct, maintain and operate the transit system. The measures for the evaluation of the local financial commitment to a proposed project are:

- The proposed share of total project costs from sources other than the Section 5309 New Starts program, including Federal formula and flexible funds, the local match required by Federal law and any additional capital funding ("overmatch");
- The strength of the proposed capital financing plan;

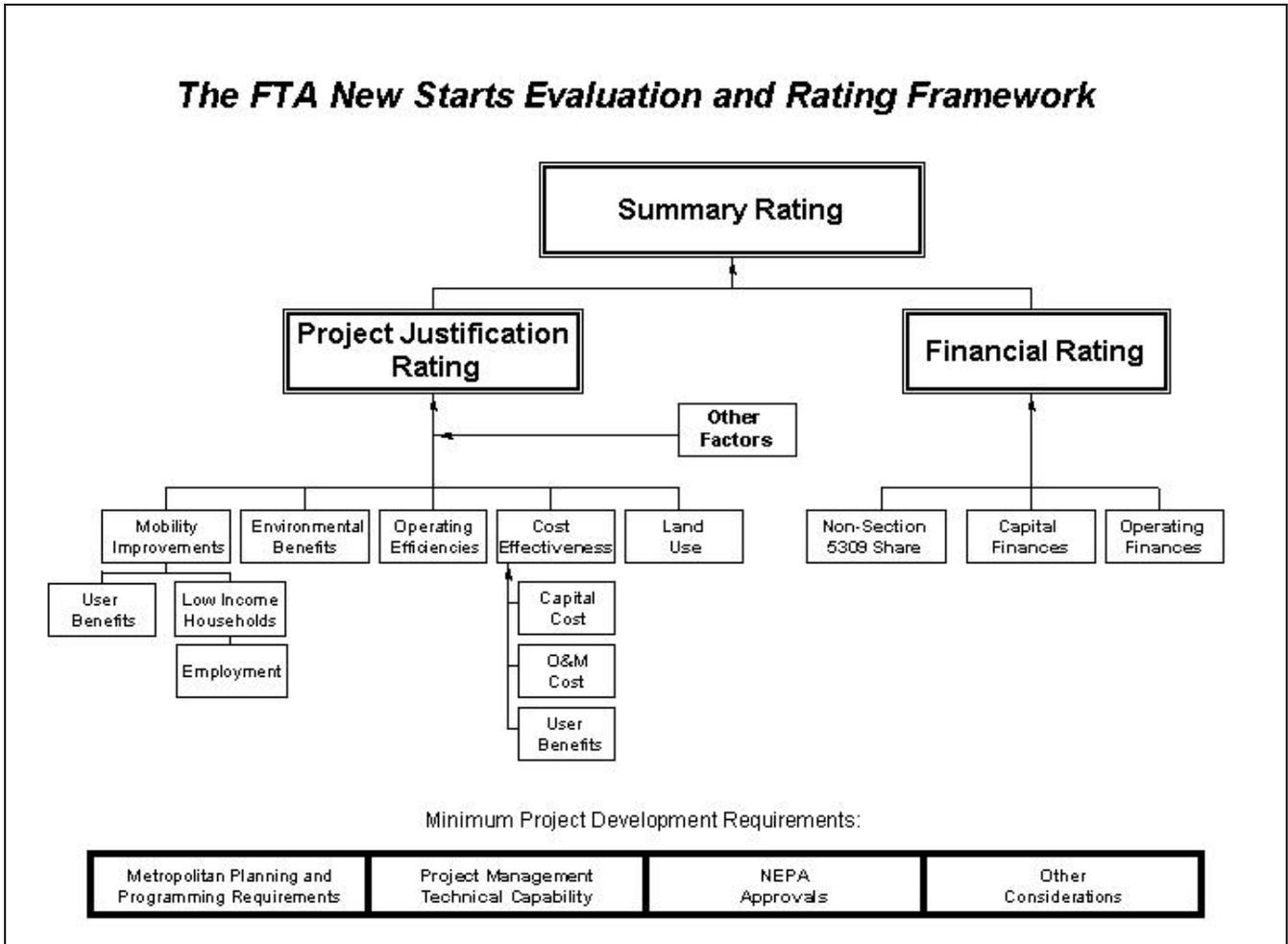
- The ability of the sponsoring agency to fund operation and maintenance of the entire system as planned once the guideway project is built.

Section IV describes how FTA uses these measures in its evaluation of candidate New Starts projects.

***I.C The Evaluation Process***

FTA evaluates proposed New Start projects against the full range of criteria for both project justification and local financial commitment, using a multiple measure method illustrated on the following flow chart. The specific project justification and finance measures included in Figure I-1 are described in Sections II and III of this paper, respectively.

**Figure I-1 New Starts Evaluation Process**



### ***I.D Project Recommendations***

Consistent with §5309(e)(6), an overall project rating of "Highly Recommended", "Recommended" or "Not Recommended" is assigned to each proposed project, based on the results of FTA's evaluation of each of the criteria for project justification and local financial commitment.

To assign overall project ratings ("Highly Recommended", "Recommended" or "Not Recommended") to each proposed New Starts project, FTA considers the individual ratings for each of the financial rating factors and project justification criteria (these individual ratings are discussed in the following sections). FTA combines this information into summary "finance" and "project justification" ratings for each project.

For both project justification and finance, summary ratings are assigned as one of the following: "high", "medium-high", "medium", "low-medium" or "low." These summary ratings are in turn used to determine overall project ratings according to the following decision rule:

- **Highly Recommended** Projects must be rated at least "medium high" for both finance and project justification;
- **Recommended** Projects must be rated at least "medium" for both finance and project justification;
- **Not Recommended** Projects not rated at least "medium" in both finance and justification will be rated as "not recommended"

### ***I.E Ratings: An On-going Process***

Again, it is important to emphasize that project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the Annual Report on New Starts and when a project sponsor requests FTA approval to advanced their proposed New Start into preliminary engineering and final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings updated to reflect new information.

## **II. PROJECT JUSTIFICATION RATING**

The following summarizes FTA's process for evaluating the project justification criteria of proposed New Starts projects.

### ***II.A Project Justification Rating***

FTA assigns a summary project justification rating of "high", "medium-high", "medium", "low-medium" or "low" to each project based on consideration of the ratings applied to the project justification criteria presented in Section I and each of the specific measures (and, for land use, categories) identified in Table II-1 on the following page:

**Table II-1 New Starts Project Justification Criteria and Supporting Measures and Categories**

Criterion	Measures/Categories
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>
Mobility Improvements	<ul style="list-style-type: none"> <li>• Normalized Travel Time Savings (Transportation System User Benefit per Project Passenger Mile)</li> <li>• Low-Income Households Served</li> <li>• Employment Near Stations</li> </ul>
Operating Efficiencies	<ul style="list-style-type: none"> <li>• System Operating Cost per Passenger Mile</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>

For mobility improvements and transit supportive land use, projects are aligned for each measure and category in a continuum of values from low to high and broken into five groups, with each group assigned a numerative rating of 1 (“low”) to 5 (“high”). The thresholds that distinguish the five groups are not pure quintiles (that is, 20 percent each of the total number of projects being evaluated for the measure) but rather logical break points in the aligned data that separate one group from another. Where criteria are represented by more than one measure, ratings for each measure are rolled up and averaged into criterion-specific ratings, where the numerative rating is converted into a corresponding "high", "medium high", "medium", "low-medium" or "low" rating. The mobility improvements and land use rating process are described in greater detail in *Sections II.C* and *II.D* below)

For the cost effectiveness criterion, specific dollar thresholds are defined for "high", "medium high", "medium", "low-medium" and "low" ratings (these thresholds are presented in *Section II.B* below). Decision rules for the operating efficiencies and environmental benefits criteria are described in *Sections II.E* and *II.F*, respectively.

Criterion-specific ratings are subsequently combined to form the summary "high", "medium high", "medium", "low-medium" or "low" justification ratings for each project presented in *Section I.E.*

FTA assigns a weight of 50 percent each to the cost effectiveness and land use criteria in order to establish a summary project justification rating. When the average of the cost effectiveness and land use rating falls equally between two ratings (say, between a "medium" and a "medium-high" rating), the mobility improvements rating is introduced as a "tiebreaker." Specifically, when mobility improvements are rated "low," the summary rating will "round down" to the lower of the two ratings; for all other mobility improvement ratings, the rating is "rounded-up" to establish the summary project justification rating. For example, a project with a cost effectiveness rating of "low" and a land use rating of "medium-high" - along with a mobility improvements rating of "medium" - would receive a summary project justification rating of "medium."

Based upon its prior experience in evaluating New Starts projects, FTA has determined that locally-generated and reported information in support of the operating efficiencies and environmental benefits criteria does not distinguish in any meaningful way any differences between competing major transit capital investments. Consequently, while ratings for these criteria are assigned by FTA and reported in (among other places) the *Annual Report on New Starts*, they are not considered in the determination of an overall project justification rating. If well documented and considered by FTA to be an unusually significant benefit to a proposed project that is not otherwise captured in the other New Starts criteria, "other factors" may increase a summary project justification rating by up to one step (for example, from "medium-high" to "high"). The evaluation and rating of individual project justification criteria is discussed below.

***II.B Cost Effectiveness***

In its evaluation of the cost effectiveness of a proposed project, FTA considers the incremental cost per hour of transportation system user benefits in the forecast year. This measure, expressed in constant base-year dollars, is based on the annualized total capital and annual operating costs divided by the forecast change in annual user benefits, comparing the proposed project to the New Starts baseline alternative. Table II-2 below presents the thresholds FTA uses for assigning a "high," "medium high," "medium," "low-medium," or "low" cost effectiveness rating for each project:

**Table II-2 Cost Effectiveness Thresholds**

High	\$9.99 and under
Medium-High	\$10.00- \$12.99
Medium	\$13.00-\$19.99
Low-Medium	\$20.00-\$24.99
Low	\$25.00 and over

***II.C Transit-Supportive Existing Land Use and Future Patterns***

In its evaluation of the land use affecting New Starts projects, FTA explicitly considers the following transit supportive land use categories and factors:

1. **Existing Land Use**
2. **Transit Supportive Plans and Policies**, including the following factors:
  - Growth management;
  - Transit supportive corridor policies;
  - Supportive zoning regulations near transit stations; and
  - Tools to implement land use policies.
3. **Performance and Impacts of Policies**, including the following factors:
  - Performance of land use policies; and
  - Potential impact of transit project on regional land use.

FTA also permits New Starts project sponsors to submit information in support of an optional “other land use considerations” category.

Based on information submitted to FTA by local agencies, FTA gauges each category by the factors identified above. FTA assigns one of five numerative ratings (“1” to “5”) to each project for each of these factors. Each factor is weighted equally within its category, averaged, and combined into category-specific ratings. These category ratings are then combined equally (that is, each land use category rating contributes one-third of the value) and converted to a descriptive rating of "high", "medium high", "medium", "low-medium," or "low" to determine the overall land use rating. In rare cases, when based on unusually compelling “other” land use considerations, FTA may increase the land use rating by one step.

Additional detail on FTA’s land use rating process is contained in *Guidelines and Standards for Assessing Transit-Supportive Land Use*, available in May 2004. Table II-3 on the following pages summarize the ratings applied by FTA in the assessment of each land use category and supporting factor at each stage of project development.

**Table II-3 Ratings Applied in Assessment of Land Use Criterion**

<b>I. EXISTING LAND USE</b>		
<i>Existing Land Use</i>		
Phase of Project Development	Land Use Assessment Ratings	
Preliminary Engineering and Final Design	HIGH (5)	Current levels of population, employment, and other trip generators in station areas are sufficient to support a major transit investment. Most station areas are pedestrian-friendly and fully accessible.
	MEDIUM (3)	Current levels of population, employment, and other trip generators in station areas marginally support a major transit investment. Some station areas are pedestrian-friendly and accessible. Significant growth must be realized.
	LOW (1)	Current levels of population, employment, and other trip generators in station areas are inadequate to support a major transit investment. Station areas are not pedestrian-friendly.
Ratings based on assessment of the following: <ul style="list-style-type: none"> <li>• Existing corridor and station area development;</li> <li>• Existing corridor and station area development character;</li> <li>• Existing station area pedestrian facilities, including access for persons with disabilities; and</li> <li>• Existing corridor and station area parking supply.</li> </ul>		
<b>II. TRANSIT-SUPPORTIVE PLANS AND POLICIES</b>		
<i>Growth Management</i>		
Phase of Project Development	Land Use Assessment Ratings	
Preliminary Engineering and Final Design	HIGH (5)	Adopted and enforceable growth management and land conservation policies are in place throughout the region. Existing and planned densities and market trends in the region and corridor are strongly compatible with transit.
	MEDIUM (3)	Significant progress has been made toward implementing growth management and land conservation policies. Strong policies may be adopted in some jurisdictions but not others, or only moderately enforceable policies (e.g., incentive-based) may be adopted regionwide. Existing and/or planned densities and market trends are moderately compatible with transit.
	LOW (1)	Limited consideration has been given to implementing growth management and land conservation policies; adopted policies may be weak and apply to only a limited area. Existing and/or planned densities and market trends are minimally or not supportive of transit.
Ratings based on assessment of the following: <ul style="list-style-type: none"> <li>• Concentration of development around established activity centers and regional transit; and</li> <li>• Land conservation and management.</li> </ul>		

**Table II-3 Ratings Applied in Assessment of Land Use Criterion (cont.)**

<b>II. TRANSIT-SUPPORTIVE PLANS AND POLICIES</b>		
<i>Transit-Supportive Corridor Policies</i>		
Final Design	HIGH (5)	Conceptual plans for the corridor and station areas have been developed. Local jurisdictions have adopted or drafted revisions to comprehensive and/or small area plans in most or all station areas. Land use patterns proposed in conceptual plans and local and institutional plan revisions are strongly supportive of a major transit investment.
	MEDIUM (3)	Conceptual plans for the corridor and station areas have been developed. Local jurisdictions have initiated the process of revising comprehensive and/or small area plans. Land use patterns proposed in conceptual plans and local and institutional plan revisions are at least moderately supportive of a major transit investment.
	LOW (1)	Limited progress, to date, has been made toward developing station area conceptual plans or revising local comprehensive or small area plans. Existing station area land uses identified in local comprehensive plans are marginally or not transit-supportive.
Preliminary Engineering	HIGH (5)	Conceptual plans for the corridor and station areas have been developed. Discussions have been undertaken with local jurisdictions about revising comprehensive plans. Land use patterns proposed in conceptual plans for station areas (or in existing comprehensive plans and institutional master plans throughout the corridor) are strongly supportive of a major transit investment.
	MEDIUM (3)	Conceptual plans for the corridor and station areas are being developed. Discussions have been undertaken with local jurisdictions about revising comprehensive plans. Land use patterns proposed in conceptual plans for station areas (or existing in local comprehensive plans and institutional master plans) are at least moderately supportive of a major transit investment.
	LOW (1)	Limited progress, to date, has been made toward developing station area conceptual plans or working with local jurisdictions to revise comprehensive plans. Existing station area land uses identified in local comprehensive plans are marginally or not transit-supportive.
Ratings based on assessment of the following: <ul style="list-style-type: none"> <li>• Plans and policies to increase corridor and station area development;</li> <li>• Plans and policies to enhance transit-friendly character of corridor and station area development;</li> <li>• Plans to improve pedestrian facilities, including facilities for persons with disabilities; and</li> <li>• Parking policies.</li> </ul>		

**Table II-3 Ratings Applied in Assessment of Land Use Criterion (cont.)**

<b>II. TRANSIT-SUPPORTIVE PLANS AND POLICIES</b>		
<b><i>Supportive Zoning Regulations Near Transit Stations</i></b>		
Final Design	HIGH (5)	Local jurisdictions have adopted zoning changes that strongly support a major transit investment in most or all transit station areas.
	MEDIUM (3)	Local jurisdictions are in the process of adopting zoning changes that moderately or strongly support a major transit investment in most or all transit station areas. Alternatively: strongly transit-supportive zoning has been adopted in some station areas but not in others.
	LOW (1)	No more than initial efforts have begun to prepare station area plans and related zoning. Existing station area zoning is marginally or not transit-supportive.
Preliminary Engineering	HIGH (5)	A conceptual planning process is underway to recommend zoning changes for station areas. Conceptual plans and policies for station areas are recommending transit-supportive densities and design characteristics. Local jurisdictions have committed to examining and changing zoning regulations where necessary. Alternatively, a “high” rating can be assigned if existing zoning in most or all transit station areas is already strongly transit-supportive.
	MEDIUM (3)	A conceptual planning process is underway to recommend zoning changes for station areas. Local jurisdictions are in the process of committing to examining and changing zoning regulations where necessary. Alternatively, a “medium” rating can be assigned if existing zoning in most or all transit station areas is already moderately transit-supportive.
	LOW (1)	Limited consideration has been given to preparing station area plans and related zoning. Existing station area zoning is marginally or not transit-supportive.
Ratings based on assessment of the following: <ul style="list-style-type: none"> <li>• Zoning ordinances that support increased development density in transit station areas;</li> <li>• Zoning ordinances that enhance transit-oriented character of station area development and pedestrian access; and</li> <li>• Zoning allowances for reduced parking and traffic mitigation.</li> </ul>		

**Table II-3 Ratings Applied in Assessment of Land Use Criterion (cont.)**

<b>II. TRANSIT-SUPPORTIVE PLANS AND POLICIES</b>		
<i>Tools to Implement Land Use Policies</i>		
Final Design	HIGH (5)	Transit agencies and/or regional agencies are working proactively with local jurisdictions, developers, and the public to promote transit-supportive land use planning and station area development. The transit agency has established a joint development program and identified development opportunities. Agencies have adopted effective regulatory and financial incentives to promote transit-oriented development. Public and private capital improvements are being programmed in the corridor and station areas which implement the local land use policies and which leverage the Federal investment in the proposed corridor.
	MEDIUM (3)	Transit agencies and/or regional agencies have conducted some outreach to promote transit-supportive land use planning and station area development. Regulatory and financial incentives to promote transit-oriented development are being developed, or have been adopted but are only moderately effective. Capital improvements are being identified that support station area land use plans and leverage the Federal investment in the proposed major transit corridor.
	LOW (1)	Limited effort has been made to reach out to jurisdictions, developers, or the public to promote transit-supportive land use planning; to identify regulatory and financial incentives to promote development; or to identify capital improvements.
Preliminary Engineering	HIGH (5)	Transit agencies and/or regional agencies are working proactively with local jurisdictions, developers, and the public to promote transit-supportive land use planning and station area development. Local agencies are making recommendations for effective regulatory and financial incentives to promote transit-oriented development. Capital improvement programs are being developed that support station area land use plans and leverage the Federal investment in the proposed major transit corridor.
	MEDIUM (3)	Transit agencies and/or regional agencies have conducted some outreach to promote transit-supportive land use planning and station area development. Agencies are investigating regulatory and financial incentives to promote transit-oriented development. Capital improvements are being identified that support station area land use plans and leverage the Federal investment in the proposed major transit corridor.
	LOW (1)	Limited effort has been made to reach out to jurisdictions, developers, or the public to promote transit-supportive land use planning; to identify regulatory and financial incentives to promote development; or to identify capital improvements.

**Table II-3 Ratings Applied in Assessment of Land Use Criterion (cont.)**

<b>II. TRANSIT-SUPPORTIVE PLANS AND POLICIES</b>		
<i>Tools to Implement Land Use Policies (Continued)</i>		
Ratings based on assessment of the following:		
<ul style="list-style-type: none"> <li>• Outreach to government agencies and the community in support of land use planning;</li> <li>• Regulatory and financial incentives to promote transit-supportive development; and</li> <li>• Efforts to engage the development community in station area planning and transit-supportive development.</li> </ul>		
<b>III. PERFORMANCE AND IMPACTS OF LAND USE POLICIES</b>		
<i>Performance of Land Use Policies</i>		
Final Design	HIGH (5)	A significant number of development proposals are being received for transit-supportive housing and employment in station areas. Significant amounts of transit-supportive development have occurred in other, existing transit corridors and station areas in the region.
	MEDIUM (3)	Some development proposals are being received for transit-supportive housing and employment in station areas. Moderate amounts of transit-supportive development have occurred in other existing transit corridors and station areas in the region.
	LOW (1)	A limited number of proposals for transit-supportive housing and employment development in the corridor are being received. Other existing transit corridors and station areas in the region lack significant examples of transit-supportive housing and employment development.
Preliminary Engineering	HIGH (5)	Transit-supportive housing and employment development is occurring in the corridor. Significant amounts of transit-supportive development have occurred in other, existing transit corridors and station areas in the region.
	MEDIUM (3)	Station locations have not been established with finality, and therefore, development would not be expected. Moderate amounts of transit-supportive housing and employment development have occurred in other, existing transit corridors and station areas in the region.
	LOW (1)	Other existing transit corridors and station areas in the region lack significant examples of transit-supportive housing and employment development.
Ratings based on assessment of the following:		
<ul style="list-style-type: none"> <li>• Demonstrated cases of development affected by transit-oriented policies; and</li> <li>• Station area development proposals and status.</li> </ul>		

**Table II-3 Ratings Applied in Assessment of Land Use Criterion (cont.)**

<b>III. PERFORMANCE AND IMPACTS OF LAND USE POLICIES</b>		
<b><i>Potential Impact of Transit Project on Regional Land Use</i></b>		
Preliminary Engineering and Final Design	HIGH (5)	A significant amount of land in station areas is available for new development or redevelopment at transit-supportive densities. Local plans, policies, and development programs, as well as real estate market conditions, strongly support such development.
	MEDIUM (3)	A moderate amount of land in station areas is available for new development or redevelopment at transit-supportive densities. Local plans, policies, and development programs, as well as real estate market conditions, moderately support such development.
	LOW (1)	Only a modest amount of land in station areas is available for new development or redevelopment. Local plans, policies, and development programs, as well as real estate market conditions, provide marginal support for new development in station areas.
Ratings based on assessment of the following: <ul style="list-style-type: none"> <li>• Adaptability of station area land for development; and</li> <li>• Corridor economic environment.</li> </ul>		

As Table II-3 indicates, FTA takes into consideration the stage of development of a proposed project in its evaluation of land use information. For example, the planning and policy oriented factors (existing land use, containment of sprawl, and corridor policies) are relevant in evaluating projects in all stages of project development, but particularly useful for projects early in project development. On the other hand, the implementation-oriented factors (supportive zoning regulations, implementation tools, and performance of land use policies) are more applicable in evaluating projects more advanced in preliminary engineering or final design.

***II.D Mobility Improvements***

In its evaluation of the mobility improvements that would be realized by implementation of a proposed project, FTA reviews three measures:

1. **Normalized Travel Time Savings**, as measured by transportation system user benefits per project passenger mile;
2. Number of current **Low Income Households** which would be served by the proposed New Starts investment; and
3. Number of current **Jobs** served by the proposed New Starts project.

The normalized travel time savings of New Starts projects is weighted 50 percent in the development of the mobility improvements rating; the low-income households and employment measures *combined* account for the other 50 percent of the rating. The process FTA uses to establish measure-specific ratings and the overall mobility improvements rating is described below:

**Transportation System User Benefits per Passenger Mile** This measure reflects the travel time savings, as measured by minutes of transportation system user benefits in the forecast year anticipated from the proposed project compared to its baseline alternative. In order to rate projects in comparison to other

proposed New Starts, this measure is normalized by the annual passenger miles traveled on the New Starts project in the forecast year.

As noted previously, projects are aligned in ascending order of user benefits per passenger mile and categorized into five groups, separated by the logical breakpoints indicated by the submitted data for the measure. Projects in the highest grouping (that is with the most user benefits per passenger mile) receive a “5,” while projects in the lowest grouping receive a “1.”

**Number of Low Income Households and Jobs Served** These two measures reflect the absolute number of low income households (defined as below the poverty level) and jobs located within ½ mile of the "boarding points", or stations, associated with the proposed project. The total number of low income households and jobs located within these ½ mile zones is then divided by the total number of stations to determine both the average number of low-income households and average number of jobs per station. Projects are aligned in ascending order of both low-income households per station and jobs per station, categorized into five groups, and assigned a rating from “1” to “5.”

The numerative ratings assigned for both low income households and jobs are compared for each project. FTA then considers the potential for connections of these two markets in assigning a single rating for both measures. In the case of projects which are new guideway systems in their regions, the lower of the low income households or jobs rating is assigned as the combined rating for the two measures. For extensions to existing guideways, the higher of the low income households and employment rating is utilized, unless the employment rating is higher and there are few low income households living along the guideway. In this latter case, the low income rating would be assigned as the combined rating of the two measures.

### ***II.E Operating Efficiencies***

FTA measures this criterion by evaluating the change in systemwide operating costs per passenger mile in the forecast year, comparing the Section 5309 New Start investment to the baseline alternative. FTA assigns a rating of “medium” to all projects that have information submitted for this measure. As noted previously, FTA has found that information submitted in support of the operating efficiencies criterion does not distinguish with any meaning the merits of competing New Starts projects. While FTA reports the information submitted by project sponsors on operating efficiencies to Congress in the *Annual Report on New Starts*, it does not formally incorporate this measure into its evaluation.

### ***II.F Environmental Benefits***

In its evaluation of environmental benefits that would be realized through the implementation of a proposed project, FTA considers the current air quality designation by EPA. This measure is defined for each of the transportation-related pollutants (ozone, CO, and PM-10) as the current air quality designation by EPA for the metropolitan region in which the proposed project is located, indicating the severity of the metropolitan area's noncompliance with the health-based EPA standard (NAAQS) for the pollutant, or its compliance with that standard. New Starts project sponsors submit information to FTA on the forecast reductions in emissions resulting from the New Starts project for each transportation-related pollutant.

Specifically, FTA follows the following decision rule when assigning ratings for environmental benefits:

- Projects in non-attainment areas for any transportation-related pollutants that demonstrate a reduction in that pollutant receive a “high” rating.
- Projects that are in attainment areas that demonstrate reductions in any transportation-related pollutant receive a “medium” rating.
- All other projects are rated “low.”

As noted previously, FTA has found that information submitted in support of the environmental benefits criterion does not distinguish with any meaning the merits of competing New Starts projects. While FTA reports the information submitted by project sponsors on environmental benefits to Congress in the *Annual Report on New Starts*, it does not formally incorporate this measure in its evaluation of New Starts projects.

### ***II.G Other Factors***

Consistent with §5309(e)(3)(H), FTA also includes a variety of other factors when evaluating project justification, including:

- Environmental justice considerations and equity issues;
- Opportunities for increased access to employment for low income persons, and welfare to work initiatives;
- Livable communities initiatives and local economic development initiatives;
- Consideration of innovative financing, procurement, and construction techniques, including design-build turnkey applications;
- The cost effectiveness of the New Starts project based on alternative land use forecasts which consider the economic development impacts (benefits) of the proposed transit capital investment; and
- Any other factor which the New Starts project sponsor believes articulates the benefits of the proposed major transit capital investment but which is not captured within the other project justification criteria.

Only in the most compelling of cases are other factors formally assigned a rating. When they are rated, FTA considers other factors in the evaluation of candidate New Starts projects in two ways. For evaluations in support of budget recommendations contained in the *Annual Report on New Starts*, the other factors rating is introduced *after* the assignment of an initial summary project justification rating. If the other factors rating is higher than the summary project justification rating, FTA may increase this initial summary justification rating by as much as one step.

For preliminary engineering and final design approvals, other factors are considered in the same way. In addition, the technical capability of the project sponsor to implement and operate the project is implicitly considered within the other factors criteria. This inclusion ensures that project management issues are adequately addressed in FTA's decision to permit advancement into the next stage of the project development process.

### **III. FINANCIAL RATING**

The following provides a summary of FTA's process for evaluating the local financial commitment of proposed New Starts projects.

#### ***III.A Financial Rating***

FTA assigns a summary financial rating of "high", "medium high", "medium", "low-medium" or "low" to each project following consideration of individual ratings applied to the following measures for local financial commitment:

1. **Share of non-New Starts funding;**
2. Stability and reliability of the proposed project's **capital funding plan**, including the following factors:
  - Current capital condition;
  - Completeness of plan;
  - Commitment of capital funds;
  - Capital funding capacity; and
  - Reasonable capital planning assumptions and cost estimates.
3. Stability and reliability of the proposed project's **operating funding plan**, including the following factors:
  - Current operating financial condition;
  - Completeness of operating plan;
  - Commitment of operations and maintenance (O&M) funds;
  - O&M funding capacity; and
  - Operations planning assumptions and cost estimates.

These ratings are based on an analysis of the Section 5309 New Starts Criteria and documentation submitted to FTA by local agencies. FTA's evaluation takes into account the stage of project development, particularly when considering the stability and reliability of the capital and operating finance plans. Expectations for firm commitments of non-Federal funding sources become increasingly higher as projects progress further

through development (preliminary engineering, followed by final design), and are rated accordingly.

FTA rates the capital and operating plan for each factor according to the standards defined in Tables III-1 and III-2 on the following pages.

In addition, the summary financial rating considers the non-Section 5309 New Starts share of project capital costs and the historic support of new start projects by the applicant.

Additional detail on FTA's process for rating local financial commitment is contained in its *Guidelines and Standards for Assessing Local Financial Commitment*, available in May 2004.

Numerative ratings from 1 to 5 are assigned to each of the factors reflecting each measure; these factors are weighted equally within each measure, then averaged and combined into ratings for each measure. Once measure-specific ratings have been determined, FTA weighs the proposed non-New Starts share as 20 percent of the summary financial rating; the strength and reliability of the capital plan counts as 50 percent of the rating; and the strength and reliability of the operating plan accounts for 30 percent of the rating. These ratings are combined and converted by FTA into a summary financial rating of "high," "medium high," "medium," "low-medium," or "low."

**Table III-1 Capital Plan Rating Standards**

	High (5)	Medium-High (4)	Medium (3)	Low-Medium (2)	Low (1)
<b>Current capital condition</b>	- Average bus fleet age under 6 years. - Bond ratings less than 2 years old (if any) of AAA (Fitch/S&P) or Aaa (Moody's) or better	- Average bus fleet age under 6 years. - Bond ratings less than 2 years old (if any) of A (Fitch/S&P) or A2 (Moody's) or better	- Average bus fleet age under 8 years. - Bond ratings less than 2 years old (if any) of A - (Fitch/S&P) or A3 (Moody's) or better	- Average bus fleet age under 12. - Bond ratings less than 2 years old (if any) of BBB+ (Fitch/S&P) or Baa (Moody's) or better	- Average bus fleet age 12 years or more. - Bond ratings less than 2 years old (if any) of BBB (Fitch/S&P) or Baa3 (Moody's) or below
<b>Completeness</b>	Capital plan includes: - 20-year cash flow - All assumptions are clearly explained - High level of detail - Fleet Management Plan - Extensive Sensitivity analysis - More than 5 years of historical data	Capital plan is complete, i.e. it includes: - 20-year cash flow - Key assumptions - Moderate level of detail - Fleet Management Plan - Sensitivity Analysis - More than 5 years of historical data	Capital plan is complete, i.e. it includes: - 20-year cash flow - Key assumptions - Missing some explanatory details - Fleet Management Plan - 5 years historical data	Capital plan is partially complete, i.e. it includes: - 20-year cash flow - Missing other items of supporting documentation (i.e. fleet management plan, key assumptions, historical data)	Capital plan is incomplete. Missing some key components, including the 20-year cash flow.
<b>Commitment of capital funds</b>	For final design - 100% of Non-Section 5309 New Starts Funds are committed.  For PE – Over 50% of Non-Section 5309 New Starts Funds are committed or budgeted. The remaining funds are planned.	For final design - Over 75% of Non-Section 5309 New Starts Funds are committed. The remaining funds are budgeted.  For PE – Over 25% of Non-Section 5309 New Starts Funds are committed or budgeted. The remaining funds are planned.	For final design - Over 50% of Non-Section 5309 New Starts Funds are committed. The remaining funds are budgeted.  For PE - No Non-Section 5309 New Starts Funds are committed or budgeted, but the sponsor has a reasonable plan to secure all needed funding.	For final design – Between 25% and 50% of Non-Section 5309 New Starts Funds are committed. The remaining funds are budgeted.  For PE - No Non-Section 5309 New Starts funds are committed. The sponsor has no reasonable plan to secure the necessary funding.	For final design - Under 25% of Non-Section 5309 New Starts Funds are committed. Not all remaining funds are budgeted.  For PE - The sponsor has not identified any reasonable funding sources for the Non-Section 5309 New Starts funding share.
<b>Capital funding capacity</b>	The applicant has access to funds via additional debt capacity, cash reserves, or other committed funds to cover cost increases or funding shortfalls equal to at least 50% of estimated project costs.	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 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.	The applicant has no reasonable plan to cover cost increases or funding shortfalls.
<b>Reasonable capital planning assumptions</b>	Financial plan contains very conservative capital planning assumptions and cost estimates when compared with recent historical experience.	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.	Financial plan contains capital planning assumptions and cost estimates that are far more optimistic than recent history suggests.

**Table III-2 Operating Plan Rating Standards**

	High (5)	Medium-High (4)	Medium (3)	Low-Medium (2)	Low (1)
<b>Current Operating Financial Condition</b>	<ul style="list-style-type: none"> <li>- Historical and actual positive cash flow. No cash flow shortfalls.</li> <li>- Current operating ratio exceeding 2.0</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 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>	<ul style="list-style-type: none"> <li>- Historical and actual cash flow show several years of revenue shortfalls, or historical information not provided.</li> <li>- Current operating ratio is less than 1.0</li> <li>- Major Service cutbacks in recent years</li> </ul>
<b>Completeness</b>	<ul style="list-style-type: none"> <li>Operating plan includes:                             <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>- Extensive level of detail</li> <li>- Extensive 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>- 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 no 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>	<ul style="list-style-type: none"> <li>Operating plan is missing some key components, i.e.:                             <ul style="list-style-type: none"> <li>- No cash flow</li> <li>- No historical data</li> </ul> </li> </ul>
<b>Commitment of O&amp;M Funds</b>	<ul style="list-style-type: none"> <li>For final design - 100% of the funds needed to operate and maintain the proposed transit project are committed.</li> <li>For PE – Over 75% 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>For final design - Over 75% of the funds needed to operate and maintain the proposed transit project are committed. The remaining funds are budgeted.</li> <li>For PE - 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>For final design – Over 50% of the funds needed to operate and maintain the proposed transit system are committed. The remaining funds are budgeted.</li> <li>For PE – 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>For final design - Sponsor has identified reasonable potential funding sources, but has received less than 50% commitments to fund transit operations and maintenance.</li> <li>For PE - Sponsor does not have a reasonable plan to secure O&amp;M funding. No unspecified sources.</li> </ul>	<ul style="list-style-type: none"> <li>For final design - Sponsor has not yet received any funding commitments to fund transit operations and maintenance and has not identified any reasonable plan for securing funding commitments.</li> <li>For PE - Sponsor has not identified any reasonable funding sources for the operation and maintenance of the proposed project.</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 50 percent (6 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 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>	<ul style="list-style-type: none"> <li>- Projected cash balances are insufficient to maintain balanced budgets.</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 very 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 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>	<ul style="list-style-type: none"> <li>The assumptions supporting the operating and maintenance cost estimates and revenue forecasts are far more optimistic than historical experience suggests is reasonable.</li> </ul>

#### ***IV.B Financial Rating Decision Rule***

In addition to the financial rating considerations and weights described above, FTA uses the following decision rules to ensure that all “Recommended” New Starts projects possess adequate non-New Starts funding commitments and the overall financial capacity to comply with Congressional and Administration policies regarding the ability to leverage non-New Starts resources to implement major transit capital investment projects:

- If the New Starts share is greater than 60 percent, the rating for the non-New Starts share measure is “low.” Moreover, the summary financial rating is “low” regardless of the capital and operating plan ratings.
- If the New Starts share is 60 percent or less, the following ratings apply to the non-New Starts share funding measure:
  - 50-60 percent = “3” rating
  - 35-49 percent = “4” rating
  - > 35 percent = “5” rating
- If the New Starts share is greater than 50 but less than 60 percent, the summary financial rating cannot be higher than “medium.”
- If either of a proposed project’s capital or operating finance plan receives a "low-medium" or "low" rating, the summary financial rating for the project cannot be higher than a "low-medium."
- To receive a summary financial rating of “medium-high,” both the capital and operating funding plan must be rated at least “medium-high” (and must have a New Starts share of less than or equal to 50 percent of total project costs).

#### **IV. RATINGS AND FUNDING RECOMMENDATIONS**

As this document describes, TEA-21 requires that FTA evaluate each candidate New Starts project, and to assign overall project ratings of "Highly Recommended", “Recommended” or "Not Recommended." FTA undertakes this evaluation and rating for all projects in preliminary engineering and final design included in the annual New Starts report to Congress. FTA also evaluates and rates projects at the point that their sponsors request FTA entry into preliminary engineering and final design.

To assign overall project ratings to each proposed New Starts project, FTA considers the individual ratings for each of the project justification and local financial factors, measures, and criteria. FTA combines these ratings into overall summary finance and project justification ratings for each project. These summary ratings are in turn used to determine *overall* project ratings according to the following decision rule:

- **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 justification will be rated as "Not Recommended".

These project ratings are intended to reflect the worthiness of each project. A rating of "Recommended" does not translate directly into a funding recommendation in any given fiscal year. Rather, project ratings are intended to reflect overall project merit. Proposed projects that are rated "Recommended" or "Highly Recommended," will be eligible for multi-year funding recommendations (embodied in a full funding grant agreement, or FFGA) in the Administration's proposed budget if other requirements have been met (completion of the Federal environmental review process, demonstrated technical capability to construct and operate the project) and if funding is available.

When determining annual funding allocations among proposed New Starts, the following general principles are applied:

- Any project recommended for new funding commitments should meet the project justification, finance, and process criteria established by Section 5309(e) and be consistent with Executive Order 12893, "Principles for Federal Infrastructure Investments," issued January 26, 1994.
- Existing FFGA commitments should be honored before any additional funding recommendations are made, to the extent that funds can be obligated for these projects in the coming fiscal year.
- The FFGA defines the terms of the Federal commitment to a specific project, including funding. Upon completion of an FFGA, the Federal funding commitment has been fulfilled. Additional project funding will not be recommended. Any additional costs beyond the scope of the Federal commitment are the responsibility of the grantee.
- Funding for initial planning efforts such as alternatives analysis is provided through the Section 5303 Metropolitan Planning or Section 5307 Urbanized Area Formula Grants programs.
- Firm funding commitments, embodied in FFGAs, will not be made until the final design process has progressed to the point where costs, benefits, and impacts are accurately forecasted.
- Funding should be provided to the most worthy projects to allow them to proceed through the process on a reasonable schedule, to the extent that funds can be obligated to such projects in the upcoming fiscal year. The results of the project evaluation process and resulting finance, justification, and overall ratings determine whether particular projects are "worthy."

Again, FTA emphasizes that project evaluation and rating is an on-going process. As proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings may be updated to reflect new information.