

FTA Section 5309 New Starts Program

Evaluation Process

presented by

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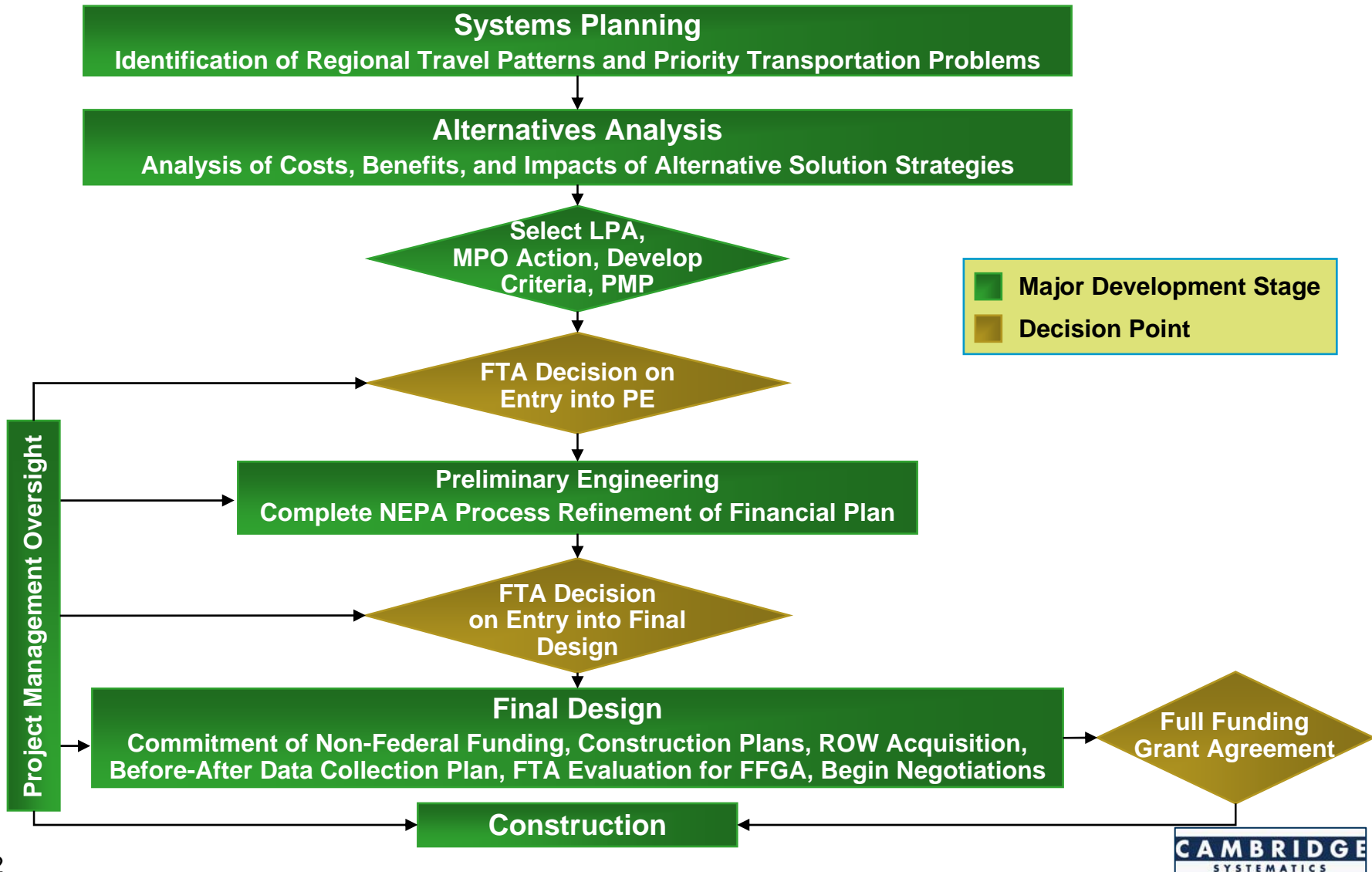


What is a “New Start”?

“Any fixed guide-way system which utilizes and occupies a separate right-of-way, or rail line, for the exclusive use of mass transportation and other high occupancy vehicles, or uses a fixed catenary system and a right-of-way usable by other forms of transportation”

- **Rapid rail**
- **Light rail**
- **Commuter rail**
- **Automated guide-way transit**
- **People movers**
- **Exclusive facilities for buses (such as bus rapid transit) or other HOVs**

New Starts Process Overview



FTA New Starts Policy

- **Discretionary Federal program**
- **New Starts caseload**
- **Criteria needed for FTA recommendations to Congress**
- **Small and Very Small Starts projects defined under SAFETEA-LU exempted**

Evolution of FTA's New Starts Policy

- **1976 – Alternatives analysis**
 - Projects must be “cost effectiveness”
 - TSM alternative
- **1978 – Policy toward rail transit**
 - Local financial commitment
 - Full funding grant agreement
- **1980 – Link toward EIS requirements**
- **1984 – Policy on major investments**
 - Ratings and cost per new rider criteria
- **1987 – Surface Transportation and Uniform Relocation Assistance Act**
 - Statutory criteria – cost effectiveness and financial
 - Section 3(j) Report to Congress

Evolution of FTA's New Starts Policy (continued)

- **1991 – Intermodal Surface Transportation Efficiency Act (ISTEA)**
 - Revised justification criteria
 - Additional considerations
 - Leveled playing field for transit investments
- **1993 – FTA/FHWA planning regulations**
 - Major Investment Study requirement
- **1994 – Executive order 12893 on infrastructure investment**
 - Government-wide standards for investments based on costs and benefits
- **1994 – Policy discussion draft**
- **1996 – Revised New Starts policy**
 - Multiple measure approach for justification
 - TSM as base

Evolution of FTA's New Starts Policy (continued)

- **1998 – Transportation Equity Act for the 21st Century (TEA-21)**
 - Eliminated MIS requirement
 - Requirement for overall New Starts rating
 - Publication of regulations on New Starts evaluation process
- **2000 – Major transit capital investment projects final rule**
 - New measure of cost effectiveness – user benefits
 - Baseline alternative (no longer TSM)
 - Before and after studies
- **2002**
 - Reduction of New Starts share to 60 percent
 - Additional revisions to criteria

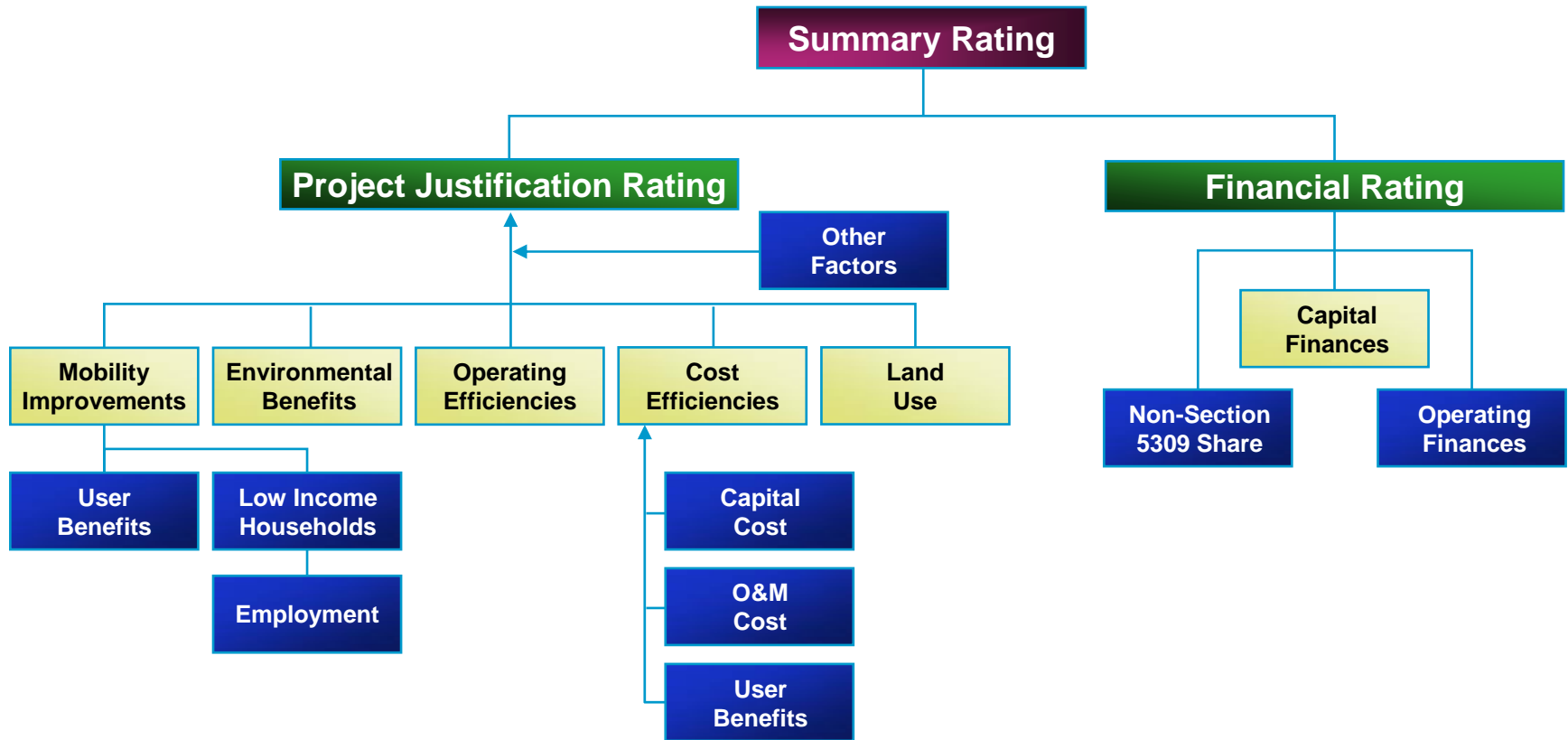
Evolution of FTA's New Starts Policy (continued)

- **2005 – Dear Colleague Letter**
- **2006**
 - **Advanced notice of proposed rulemaking, January**
 - **Procedural changes, May**
 - **Interim Small Starts Guidance, July**
- **2007 (anticipated) – Notice of Proposed Rulemaking**

Evaluation Criteria

- **Project justification**
 - **Mobility improvements**
 - **Environmental benefits**
 - **Operating efficiencies**
 - **Cost effectiveness**
 - **Existing land use, transit-supportive land use policies, and future patterns**
- **Local financial commitment**
 - **Nonsection 5309 share**
 - **Capital finance plan**
 - **Operating finance plan**

FTA Rating Process



Minimum Project Development Requirements



FTA Rating Process (continued)

- **Summary project justification ratings and finance ratings are in turn used to determine overall project ratings to the following decision rule**
 - **High – projects must be rated at least medium-high for both finance and project justification**
 - **Medium – projects must be rated at least medium for both finance and project justification**
 - **Low – projects not rated at least medium in both finance and project justification will be rated as not recommended**
 - **Not rated – indicates that FTA has serious concerns about the information submitted for the mobility improvements and cost effectiveness criteria because the underlying assumptions used by the project sponsor may have inaccurately represented the benefits of the project**
 - **Not available – given to projects that did not submit complete data to FTA for evaluation**

FTA Definition of User Benefits

“User benefits are the changes in mobility for individual travelers that are caused by a project or policy change, measured in hours of travel time, and summed over all travelers.”

User Benefits are Computed from Local Mode Choice Models

- The use of the logit model is assumed –

$$U_1 = B_0 + B_{11} X_1 + B_{21} X_2 + \dots + B_{n1} X_n$$

$$\text{Prob}(1) = \frac{\exp(U_1)}{\sum \exp(U_j)}$$

Mode Choice Model Variables

- **In-vehicle time**
- **Wait time**
- **Walk access time**
- **Auto access time**
- **Fare**
- **Parking cost**
- **Transfers**
- **Income**
- **Auto ownership**
- **Area type**
- **Pedestrian environment**

Logsum Variable

- **Log of denominator of the logit function**

$$\text{Logsum} = \ln \sum \exp(U_j)$$

- **Represents the composite utility of all alternatives, including all variables**
- **Increase in the utility of any alternative results in an increase in the logsum value**

FTA User Benefits Calculation

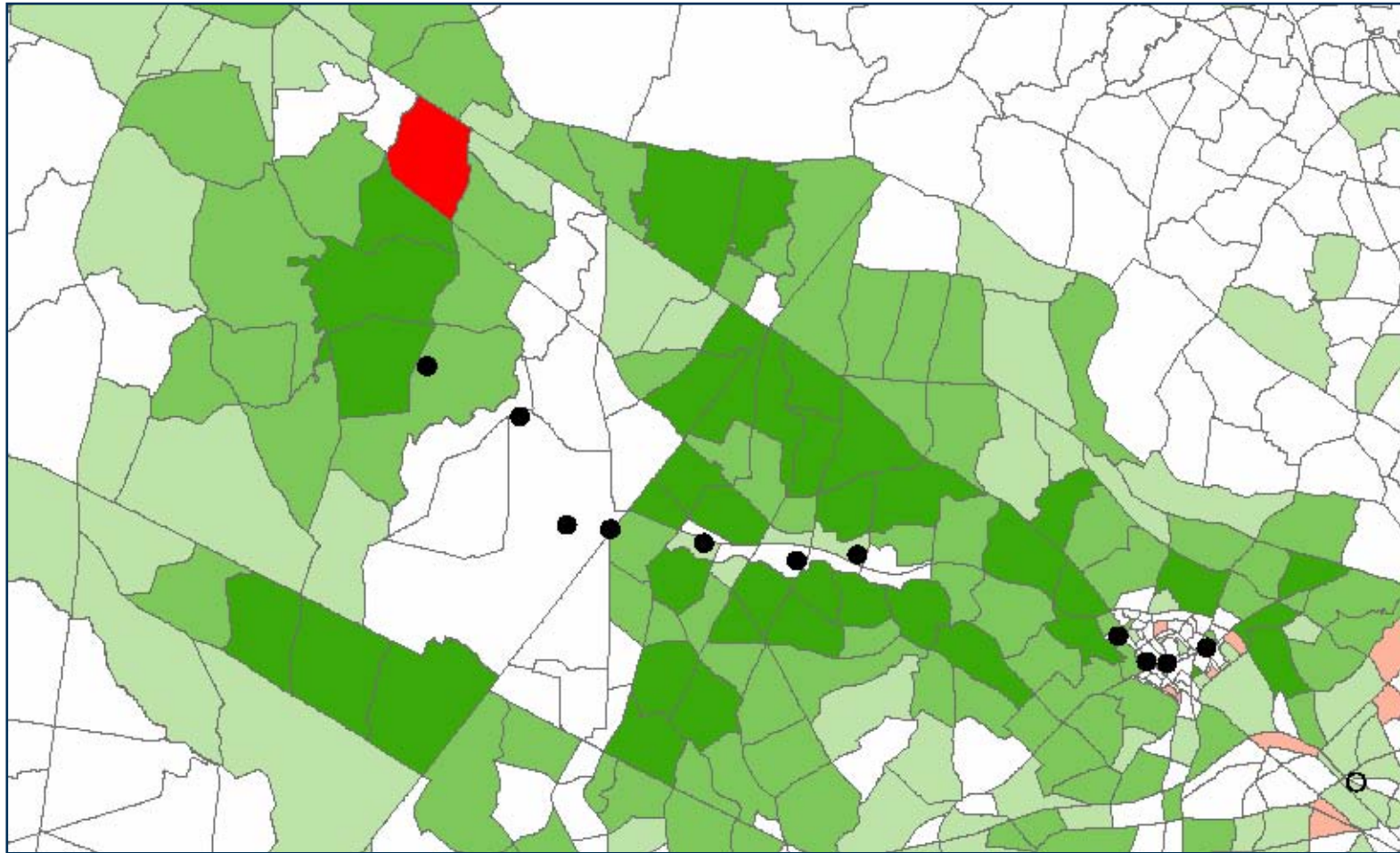
- Logsum value expressed in units of time –

$$\text{User benefits} = \frac{\ln \sum \exp(U_1)}{\text{in-veh. time coeff.}}$$

The FTA SUMMIT Program

- **Computes user benefits as defined**
- **Two parts**
 - **Code added to mode choice model script to save logsum values**
 - **Post processor to save and report user benefits results**
- **Provides a variety of reports, maps, and graphics showing the magnitude and locations of user benefits**

Example of User Benefits Output



SUMMIT Program Use as Diagnostic

- **Previously unknown problems with models**
- **Problems with highway time savings**
- **Inconsistencies with other models**
- **Problems in definitions of the alternatives**

FTA Proposed Guidelines for Models

- **No “cliffs” in level of service variables**
 - **Maximum travel or wait times**
 - **Maximum access distances or times**
 - **Minimum times by submode**
- **Restrictions on model coefficients**
 - **Compelling evidence if $C_{ivt} < -0.03$ or $C_{ivt} > -0.02$**
 - **Compelling evidence if using mode-specific C_{ivt}**
 - **Compelling evidence if $2.0 < C_{ovt}/C_{ivt} < 3.0$**
 - **No “bizarre” constants**

Mobility Improvements

- **Travel time savings**
 - **User benefit calculation expressed in time equivalent units (hours)**
 - **Produces multimodal measure of traveler utility for all users of the transportation system**
- **Number of low income households served**
 - **GIS analysis using Census data, one-half mile radius around stations**
- **Number of jobs near stations**
 - **GIS analysis using best available local data sources**

Environmental Benefits

- **Change in criteria pollutant and precursor emissions and greenhouse gas emissions**
 - Annual regional VMT by vehicle classification
 - Local emissions factors derived from Environmental Protection Agency (EPA) MOBILE emissions model
- **Change in regional energy consumption in the forecast year**
 - Calculated in BTUs, using regional VMT
- **Current regional air quality designation by EPA**

Operating Efficiencies

- **Change in systemwide operating cost per passenger mile**
 - **Calculated using forecast annual passenger miles and operating costs**
 - **Changes greater than 5 cents need to be explained**

Cost Effectiveness

- **Incremental cost divided by transportation system user benefits**
 - **Generated using SUMMIT software and annual systemwide capital and operating costs**
- **Incremental cost per incremental rider**
 - **Generated by dividing change in annual capital/operating costs by change in annual linked trips**

Existing Land Use, Transit Supportive Land Use, and Future Patterns

I. Existing Land Use

- a. Existing

III. Performance and Impacts of Policies

- a. Performance of Land Use Policies
- b. Potential Impact of Transit Project on Regional Land Use

II. Transit Supportive Plans and Policies

- a. Growth Management
- b. Transit Supportive
- c. Supportive Corridor Policies
- d. Tools to Implement Land Use Policies

IV. Other Land Use Considerations

Exceptional examples, e.g.:

- Historic
- Environmental
- Community preservation
- Brownfields redevelopment
- Designated Federal Enterprise Zone/Empowerment Community

Other Factors

- **The degree that institutions (local transportation initiatives, parking policies, etc.) are in place as assumed in the forecasts**
- **Multimodal emphasis of the locally preferred investment strategy, including the Section 5309 New Starts project as one element**
- **Environmental justice considerations and equity issues**
- **Opportunities for increased access to employment for low income persons, and welfare to work initiatives**

Other Factors (continued)

- **Outstanding or unique public involvement program activities, including private sector and institutional involvement**
- **Livable communities initiatives and local economic development initiatives**
- **Consideration of alternative land use development scenarios in local evaluation and decision-making for the locally preferred transit investment decision**
- **Consideration of innovative financing, procurement, and construction techniques, including design-build turnkey applications**

Local Financial Commitment

- **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**
- **The strength of the proposed capital funding plan**
- **The ability of the sponsoring agency to fund operation and maintenance of the entire transit system as planned once the guide-way is built**

GAO Report to Congressional Committees

“FTA New Starts Program is in a period of transition”

- **Incorporation of economic development into evaluation process**
- **Implementation of Small Starts**

Recent Procedural Changes

- **Overall project rating to be “low,” “medium,” or “high” replacing the previous three-point rating scale of not recommended, recommended, or highly recommended**
- **New FTA documentation review requirements during alternatives analysis**
 - **Scope of work**
 - **Problem statement, goals, and objectives**
 - **Definition of alternatives**
 - **Study assumptions and methodologies**
 - **Study results**

Recent Procedural Changes (continued)

- **Project must have progressed beyond the NEPA scoping phase before entering PE**
- **Final EIS must present the New Starts rating for its LPA**
- **Before- and after-study data must be prepared and reported to FTA during AA and project development**
- **Cap to be placed on FFGA New Starts funding amount at the point of approval to enter into final design**

Projects Proposed for FFGAs and Other Funding Fiscal Year 2007

Dollars in Millions*					Ratings		
Project Name	Location	New Starts Category	Total Capital Cost	New Starts Share of Capital Costs	Financial	Land Use	Cost Effectiveness
West Corridor LRT	Denver, CO	New FFGA	\$593.0	49%	Medium-High	Medium	\$21.17
South Corridor I-205/Portland Mall LRT	Portland, OR	New FFGA	\$557.4	60%	Medium	Medium-High	\$15.69
Wilsonville to Beaverton Commuter Rail	Washington County, OR	New FFGA	\$117.3	50%	Medium	Medium-High	\$25.26
Northwest/Southeast LRT MOS	Dallas, TX	New FFGA	\$1,406.2	50%	Medium-High	Medium	\$18.60
Weber County to Salt Lake City Commuter Rail	Salt Lake City, UT	New FFGA	\$611.7	80%	Medium-High	Medium	\$22.78
Long Island Rail Road East Side Access	New York, NY	Pending FFGA	\$7,779.3	34%	Medium	High	\$18.43

LRT = Light Rail Transit
MOS = Minimum Operable Segment

* The numbers included in this table are what was recommended by FTA in the New Starts annual report but the actual total capital cost and percent of New Starts share is subject to change at the time FTA executes the FFGA.

- High
- Medium-High
- Medium
- Medium-Low
- Low



Projects Proposed for FFGAs and Other Funding Fiscal Year 2007 (continued)

Dollars in Millions*					Ratings		
Project Name	Location	New Starts Category	Total Capital Cost	New Starts Share of Capital Costs	Financial	Land Use	Cost Effectiveness
North Shore LRT Connector	Pittsburgh, PA	Pending FFGA	\$393.0	55%	Medium	Medium-High	\$21.89
Second Avenue Subway MOS	New York, NY	Other	\$4,947.8	26%	Medium	High	\$14.10
Norfolk LRT	Norfolk, VA	Other	\$203.7	49%	Medium	Medium	\$21.66
Dulles Corridor Metrorail Project – Extension to Wiehle Avenue	Northern VA	Other	\$1,840.1	50%	Medium	Medium	\$23.63
University Link LRT Extension	Seattle, WA	Other	\$1,720.0	41%	Medium-High	Medium-High	\$19.93
Largo Metrorail Extension	Washington D.C.	Other	\$433.87	60%	N/A	N/A	N/A

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- High
- Medium-High
- Medium
- Medium-Low
- Low

Source: GAO summary of information in the New Starts annual report.

Web Sites

- FTA New Starts web site <http://www.fta.dot.gov/index-5221.html>
- New Starts Criteria guidance <http://www.fta.dot.gov/planning/newstarts/planning-environment-213.html>
- New Starts Report to Congress <http://www.fta.dot.gov/planning/newstarts/planning-environment-2618.html>
- GAO Report
- Cambridge Systematics, Inc. <http://www.camsys.com/>