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Subcommittee on Transportation, Treasury and  
Independent Agencies  
U. S. House of Representatives**

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# **The Rating and Evaluation of New Starts Transit Systems**

**Statement of  
The Honorable Kenneth M. Mead  
Inspector General  
U.S. Department of Transportation**



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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify today to discuss FTA's New Starts evaluation process, and to outline opportunities we found to better ensure that long-term transit spending provides the best value for the American taxpayer and our transportation system.

As you know, the New Starts program relies on full funding grant agreements, which are long-term funding commitments that help meet the financial requirements of large transit projects. Because FTA awards relatively few full funding grant agreements each year, it is crucial that the most promising New Starts projects are selected as candidates for funding. It is doubly critical now because these decisions are being made against the backdrop of limited funding to support projects in the New Starts pipeline.

To illustrate, there are 26 projects with existing full funding grant agreements and another 38 projects<sup>1</sup> in preliminary engineering, final design, or that have been proposed for funding, which collectively are seeking \$24.3 billion in Federal funding.<sup>2</sup> However, the funds available for New Starts projects over the next 6 years can support only a fraction of these projects. Specifically, the House transit reauthorization designated a total of \$9.5 billion for New Starts for Fiscal Years (FY) 2004 through FY 2009. Of the \$9.5 billion, the House bill provides \$3.1 billion for the 26 transit projects with existing full funding grant agreements. This leaves \$6.4 billion to fund other projects over the reauthorization period. Of this amount, \$4.0 billion is proposed for the six projects FTA recommended for multi-year grant agreements in the FY 2005 Annual New Starts Report. If these 6 projects are approved, only \$2.4 billion would be left to fund the \$17.2 billion for the 32 projects remaining in the pipeline. Among these are some costly projects, such as the Long Island Rail Road East Side Access, which has requested \$2.63 billion.

The New Starts evaluation process stands out among Federal transportation grant programs as an example of a systematic approach to evaluating projects for funding, and it is a much better process than existed in years past. Therefore, our purpose today is to understand the limitations of the New Starts process so that it can be further improved for decision-making, particularly as it relates to consideration of highway congestion relief, the weight that should be assigned to land use, and the quality of ridership forecasts.

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<sup>1</sup> This number includes the six projects proposed for full funding grant agreements in the Fiscal Year 2005 New Starts Annual Report.

<sup>2</sup> These projects represent a mix of light rail, heavy rail, commuter rail, and bus rapid transit.

We know that a central issue in FTA's evaluation process has to do with project justification and how it considers the full range of benefits, including congestion relief on the highways. Based on our recently completed work, we have several observations about FTA's evaluation process, some of which raise policy issues—such as FTA's role in the alternatives analysis process; some of which relate to the formulaic element—how projects are rated; and yet others relate to data—the reliability of ridership projections. Specifically, we found that:

- FTA provides guidance to local authorities to assist them in conducting the alternatives analysis, including consideration of highway congestion relief, environmental impacts, financial feasibility, and costs. However, local authorities exercise total discretion in deciding whether or not to use these measures, and the weights to assign to those that are used. FTA does not approve the selection of the locally preferred alternative.
- Changes to the New Starts evaluation process since FY 1998 have expanded the scope of benefits considered to include transportation time savings. These benefits are important, but highway congestion benefits are largely missing. Projects that receive a “Low-medium” cost-effectiveness rating are proposed for funding based on high ratings for land use. If the goal is to give greater emphasis to the direct transportation benefits of the New Starts project, then the balance between these benefits and land use may need to be reconsidered.
- Ridership is the single most critical element supporting project justification. Although FTA has improved its ability to identify problems with ridership forecasts, without more reliable and up-to-date ridership analysis, project justification will continue to be problematic.
- Resolution of problems in estimating highway congestion relief will be difficult to achieve without a joint effort by the Federal Highway Administration (FHWA) and FTA to understand the extent to which transit provides highway congestion relief. This should be a critical Department initiative in support of the multimodal alternatives analysis decision and New Starts funding decisions.

## **New Starts projects emerge from a regional, multimodal transportation planning process.**

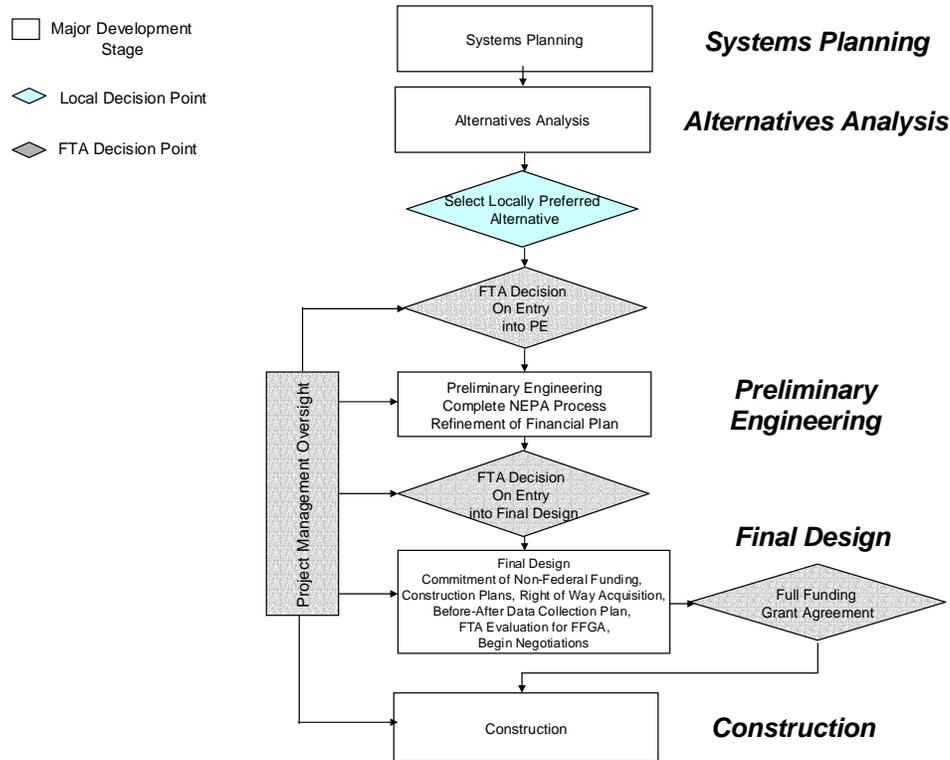
In considering the limitations of FTA's New Starts evaluation process, one must first understand the project planning and development cycle and where FTA's oversight responsibilities fall within this cycle. As required by TEA-21, New Starts projects must emerge from a regional, multimodal transportation planning process. This step begins with *systems planning* to identify the transportation needs of a region. Federal financial support for the initial planning process is derived from various programs within FHWA and FTA. Once this planning has been done, the next step is a phase called the *alternatives analysis* that evaluates corridor-level options, such as rail lines and highway expansions. This stage results in the selection of what is known as the *locally preferred alternative*—which then becomes the New Starts project FTA evaluates for funding.

The project sponsor then submits to FTA a request for entry into preliminary engineering—where FTA begins its evaluation of the project, and approves it for entry into the New Starts funding pipeline. It is at this stage of the process that local sponsors can receive New Starts funds. TEA-21 provides that no more than 8 percent of New Starts appropriations can be allocated for activities other than the final design and construction of projects.

From preliminary engineering the project may proceed through final design, award of a full funding agreement, and ultimately construction. At each of these stages, FTA evaluates the projects for advancement into the next stage. Annual funding recommendations are made for projects that are in final design or construction as part of FTA's annual budget submission. A recommendation for funding does not guarantee that a full funding grant agreement will be executed. As required by law, FTA cannot execute a full funding grant agreement until it has given Congress 60 days to review the grant agreement and accompanying materials. Figure 1 depicts how this process works.

Figure 1.

**TEA-21 New Starts Planning and Project Development Process**



**FTA provides guidance to local authorities to assist them in conducting the alternatives analysis, including consideration of highway congestion relief, environmental impacts, financial feasibility, and costs. However, local authorities exercise total discretion in deciding whether or not to use these measures, and the weights to assign to those that are used. FTA does not approve the selection of the locally preferred alternative.**

Transportation legislation has sought to balance the Federal interest in effective oversight with state and local interest in tailoring decisions to local priorities. It has also sought to promote multimodal system-wide decision-making, while continuing separate modal funding streams. This has presented challenges to the level of oversight and authority that the Department, as well as any one modal administration, can exercise over the local decision process.

These challenges are especially apparent in the New Starts program. Because local planners seek New Starts funding for projects selected out of the alternatives analysis process, FTA relies on information developed during this process for

project ratings and advancement to preliminary engineering. As a result, FTA has issued guidance specifying the information local authorities will need to develop on the benefits, costs, and impacts of alternative strategies, leading to the adoption of a locally preferred alternative.

In conducting this alternatives analysis, local planners are encouraged by FTA to evaluate alternatives using measures that best meet local needs. At the option of local planners, these measures can include:

- Effectiveness – the extent to which alternatives solve the stated transportation problems in the corridor. This measure includes benefits to be derived from congestion relief.
- Impacts – the extent to which the alternatives impact nearby natural resources and neighborhoods, air quality, the adjacent transportation network and facilities, land use, and the local economy.
- Cost-effectiveness – the extent to which costs of the alternatives are in line with the benefits.
- Financial feasibility – the extent that funds required to build and operate the alternatives are likely to be available.
- Equity – the extent that costs and benefits of the alternatives are distributed fairly across different population groups in the community.

Under FTA's current guidance, local authorities exercise total discretion in deciding whether or not to use these measures and the weights to assign to those that are used. For example, capacity constraints heavily influenced New York City planners in their selection of the Second Avenue subway line. Planners found that the volume of traffic and the space available on New York City streets precluded the construction of a surface transit system or additional roads. Consequently, planners chose to run a subway down the east side of Manhattan. Other alternatives involved different alignments and bus/High Occupancy Vehicle lanes. In another example, Phoenix planners had pollution to contend with. As a result, planners chose a light rail system because Phoenix had been designated as a non-attainment area for air pollution. Additionally, highway construction would result in a greater volume of pollution generated from vehicle exhaust.

Once the locally preferred alternative is submitted to FTA for entry into preliminary engineering, FTA assumes a more active role. At this stage, the Transportation Equity Act of the Twenty First Century (TEA-21) requires FTA to evaluate the results of the alternatives analysis, but it is not explicit on how FTA

should accomplish the evaluation. FTA does not approve the selection of the locally preferred alternative or evaluate whether other alternatives would have generated greater benefits than the selected alternative. FTA's review focuses on determining whether the locally preferred alternative qualifies for entry into preliminary engineering based on its **financial** and **project justification ratings**—the two major components of FTA's New Starts evaluation, which we will discuss later.

Prior to the Intermodal Surface Transportation Efficiency Act (ISTEA), FTA sought a larger role in the alternatives analysis process—one that would include approval of the selection of the locally preferred alternative. In April 1989, FTA, then the Urban Mass Transit Authority, issued a Notice of Proposed Rulemaking seeking approval authority for the selection of the preferred alternative. This approval was intended to control the number of projects entering the New Starts pipeline and to ensure that information required for project evaluation be developed consistent with the New Starts criteria. However, both the 1990 and 1991 Department of Transportation Appropriations Acts stipulated that none of the funds appropriated in the acts could be used to implement or enforce the April 1989 Notice of Proposed Rulemaking. Subsequently, FTA withdrew its proposed rule, focusing its efforts on providing technical guidance and evaluating projects requesting entry into preliminary engineering.

Given the history of FTA's involvement in the alternatives analysis process, if there is an expectation that FTA's role should be expanded, it is our opinion that it will require explicit direction from Congress. In deciding an appropriate role for FTA, the following factors need to be considered.

- Once a project emerges as the locally preferred alternative, it is difficult to make material changes in course, such as selecting an entirely different mode, since expectations have been set, political support for the project has been established, and sometimes, even funding put in place.
- Our work has also documented a clear need for more oversight of New Starts projects, but some consideration has to be given to FTA's capability and resources to take on even more responsibility.

**Changes to the New Starts evaluation process since FY 1998 have expanded the scope of benefits considered to include transportation time savings. These benefits are important, but highway congestion benefits are largely missing. Projects that receive a “Low-medium” cost-effectiveness rating are proposed for funding based on high ratings for land use. If the goal is to give greater emphasis to the direct transportation benefits of the New Starts project, then the balance between these benefits and land use may need to be reconsidered.**

FTA evaluates proposed New Starts projects based on a set of financial and project justification measures. Each of these measures are assigned ratings of “High,” “Medium-high,” “Low-medium,” “Medium,” or “Low.” The individual ratings are combined and included in the summary financial and project justification ratings, based on weights assigned to each measure. Projects must receive a rating of at least “Medium” for both the **financial** and **project justification** summary ratings to be recommended for funding,

In evaluating the financial rating, FTA considers:

- Non-Section 5309 Share—whether the sponsor has identified adequate local and other funding to meet its financial commitments.
- Capital Finance Plan—whether the project’s financial plan is complete. This is where the reasonableness of project cost estimates and adequacy of financing for the project is evaluated.
- Operating Finance Plan—whether the sponsor has the financial capacity to undertake the capital investment and to operate and maintain the system over a 20-year period.

Traditionally, our office and this subcommittee have examined the Capital Finance Plan requirements for New Starts funding and whether project sponsors meet these underlying financial requirements. For example, we have reviewed the financing for Hudson-Bergen, Seattle Central Link, Tren Urbano Rail Transit, Hiawatha Corridor Light Rail Transit, and the Los Angeles Metro Rail Red Line. Because this is the first hearing on the project justification component of the New Starts evaluation process, our comments today will focus on this complex area.

There are five criteria or measures under which project justification are evaluated. They are:

- Cost-effectiveness—door-to-door travel time savings for all users of the proposed project (existing transit riders, new riders, and automobile drivers), such as reductions in walk times, wait times, and number of transfers. This includes a time savings factor to account for the congestion relief resulting from motorists switching to transit.
- Land use—existing land usage, growth management, and transit supportive corridor policies; supportive zoning regulations; and implementation tools and performance of land use policies. This means that localities have plans in place that will facilitate future development in the corridor, such as building new or redeveloped commercial and residential areas.
- Mobility improvements—travel time benefits per project passenger mile; number of low-income households served by the new proposed project and located within ½ mile of the stations; and employment near stations that are located within ½ mile of proposed transit stations.
- Environmental benefits—changes in regional pollutant emissions, regional energy consumption in the forecast year, and Environmental Protection Agency air quality designations.
- Operational efficiencies—operating cost per passenger mile in the forecast year.

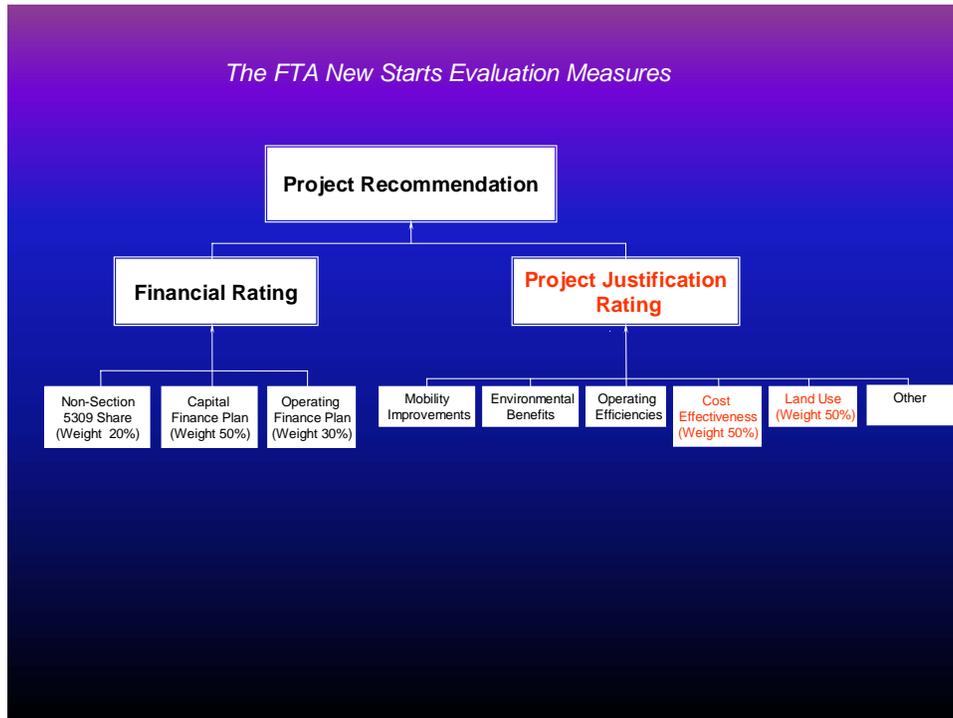
All of these measures are explicitly identified in statute, with the exception of land use.<sup>3</sup> Although land use is not listed separately as a measure, there are repeated references to it in the law. While FTA evaluates New Starts projects against all five measures, it relies primarily on two of these measures—**cost-effectiveness** and **land use**—in determining the project justification rating<sup>4</sup>. Each of these two measures is assigned a weight of 50 percent. Figure 2 reflects the measures used in FTA’s New Starts evaluation process.

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<sup>3</sup> The land use measure was first used as a stand alone measure to evaluate projects for FY 1999.

<sup>4</sup> Mobility improvements are also considered when rounding is necessary to determine the rating.

Figure 2.



Source: FTA

**FTA has expanded the range of benefits considered for project justification, but due to estimation difficulties, does not measure the travel time savings to highway users stemming from highway congestion relief.**

Since FY 1998, FTA has made significant improvements in its evaluation of the project justification by expanding the range of benefits considered. However, for reasons that will be discussed later, projects with “Low-medium” cost-effectiveness ratings get recommended for funding. But it is appropriate to first review the changes FTA has introduced.

First, FTA made land use a separate measure to acknowledge policies that target development around the New Starts project, which it believed can be an important indicator of future project success. Such policies usually have an impact on urban property values and growth in employment. This is considered a *community or economic development benefit* that extends to the area-at-large and can be a significant contributor to total tangible benefits. This, in turn, leads to higher population and employment growth, thus promoting more ridership.

Second, FTA replaced the old cost-effectiveness measure, which considered only the number of new riders. The new one determines the cost per *transportation system user benefits* and captures travel time savings for three categories of users:

- existing transit riders,
- new riders to the system, and
- motorists whose travel time is reduced by other motorists switching to transit.

FTA's old cost-effectiveness measure had two shortcomings. It recognized benefits for only one user group—new transit riders—and it did not measure travel time savings. The new measure captures door-to-door travel time savings, such as reductions in walk times, wait times, ride times, the number of transfers for transit users, and shorter drive times for motorists. The latter essentially serves as a proxy for highway congestion relief. While the new benefits captured are good, travel time savings from highway congestion relief is also important, but at present these savings are not a measurable factor.

The change in the New Starts cost-effectiveness measure reflects projects that serve the existing ridership base, rather than only ones that attract new riders. For example, in the FY 2005 New Starts Annual report, only 9 of the 27 projects that reported ridership expect 50 percent or more of their ridership to come from new riders. An excellent example of this is the New York Second Avenue subway, which is a new line proposed to relieve overcrowding conditions on the existing Lexington Avenue line. The project expects to attract relatively few new riders, about 2 percent of the total projected ridership.

FTA has not fully implemented the new cost-effectiveness measure as intended because it has not been able to reliably estimate highway travel time savings from the data provided by the local sponsors. The root of the problem is in forecasting highway speeds. Until an acceptable forecasting methodology is developed, FTA has deferred inclusion of highway travel time savings in the calculation of transportation user benefits. FTA is considering plans to spend \$1.2 million to conduct research on the estimation of highway travel benefits.

The omission of highway travel time savings in the measurement of transportation user benefits has two important impacts. First, the benefits from proposed projects that convey significant travel time savings for motorists are not recognized in the selection process. Second, to account for this omission, FTA has adjusted the cost-effectiveness thresholds upward. This has the effect of giving all projects the same credit for highway travel time savings, whether they deserve it or not. For example, we are concerned that FTA is rating projects that would have received a "Low" as a "Low-medium." It is our opinion that this may not comport to reality.

In the FY 2005 New Starts Annual Report, eight projects are affected by this adjustment.

The importance of forecasting highway speeds for travel time savings has implications well beyond the evaluation of New Starts projects. For example, it is critical to conducting multimodal studies that would benefit the alternatives analysis and in determining the environmental impacts for all transportation projects. Therefore, it seems to us that the Department would be well served if FHWA and FTA together could develop the solution. Congress may want to consider the milestones that should be set for the Department in reaching a solution.

**FTA’s rating process allows some projects with “Low-medium” cost-effectiveness ratings to receive acceptable project justification ratings.**

Even if highway travel time savings could be reliably estimated, there is still another issue—it is possible for projects with “Low-medium” cost-effectiveness ratings to get recommended for funding.<sup>5</sup> This occurs when “High” ratings for land use offset “Low-medium” ratings for cost-effectiveness through the averaging of scores, resulting in an overall rating of “Medium.” These “Medium” ratings combined with “Medium” or higher ratings for financial commitment leads to an overall “recommended” rating.

For example, six projects with cost-effectiveness ratings of “Low-medium” were either proposed for funding or pending a grant agreement in Fiscal Year 2005. In addition, two projects in preliminary engineering received “Low” cost-effectiveness ratings, yet a “Medium” rating for project justification. The table below summarizes how project ratings were derived for cost-effectiveness and how overall project justification ratings for the FY 2005 budget proposal were achieved. The shaded rows identify the projects proposed for funding with “Low-medium” ratings for cost-effectiveness.

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<sup>5</sup> Not all projects recommended for funding receive full funding grant agreements.

Table  
Summary of FY 2005 New Starts Ratings

2005 New Starts Projects	Overall Project Rating	Financial Rating	Project Justification		
			Overall Rating	Cost Effectiveness	Land Use
<b>Pending FFGA</b>					
Los Angeles, CA <sup>1</sup> , Metro Gold Line	Recommended	Medium	Medium	Low-Med.	Med.-High
<b>Projects in Final Design</b>					
Charlotte, NC <sup>1</sup> , South Corridor LRT <sup>2</sup>	Recommended	Med.-High	Medium	Low-Med.	Med.-High
Cleveland, OH <sup>1</sup> , Euclid Corridor	Recommended	Med.-High	Medium	Low-Med.	Med.-High
New York, NY <sup>1</sup> , LIRR E.S. <sup>2</sup> Access	Recommended	Medium	Med.-High	Medium	High
Phoenix, AZ <sup>1</sup> , Central LRT <sup>2</sup>	Recommended	Med.-High	Medium	Low-Med.	Medium
Pittsburgh, PA <sup>1</sup> , North Shore LRT <sup>2</sup>	Recommended	Medium	Medium	Low-Med.	Med.-High
Raleigh-Durham, NC <sup>1</sup> , RRS <sup>2</sup>	Recommended	Medium	Medium	Low-Med.	Medium
<b>Preliminary Engineering</b>					
Columbus, OH <sup>1</sup> , North LRT <sup>2</sup>	Recommended	Medium	Medium	Medium	Medium
Dallas, TX <sup>1</sup> , NW/SE <sup>2</sup> Light Rail	Recommended	Medium	Medium	Low-Med.	Medium
Fort Collins, CO <sup>1</sup> , Mason	Not Recommended	Low-Med.	Med.-High	Med.-High	Med.-High
Hartford, CT <sup>1</sup> , Busway	Recommended	Medium	Medium	Medium	Medium
Las Vegas, NV <sup>1</sup> , Resort Corridor	Recommended	Medium	Med.-High	Med.-High	Medium
Los Angeles, CA <sup>1</sup> , Mid-City LRT <sup>2</sup>	Not Recommended	Low-Med.	Med.-High	Med.-High	Med.-High
New Orleans, LA <sup>1</sup> , Desire Streetcar	Not Recommended	Medium	Low-Med.	Low	Medium
New York, NY <sup>1</sup> , 2nd Ave. Subway	Recommended	Medium	Med.-High	Low-Med.	High
Orange County, CA <sup>1</sup> , LRT <sup>2</sup>	Recommended	Med.-High	Medium	Medium	Medium
Salt Lake City, UT <sup>1</sup> , Commuter Rail	Recommended	Medium	Medium	Low-Med.	Medium
San Diego, CA <sup>1</sup> , Mid-Coast	Recommended	Medium	Medium	Med.-High	Medium
San Francisco, CA <sup>1</sup> , Central Subway	Recommended	Medium	Medium	Low	High
Washington County, OR <sup>1</sup> , Rail	Recommended	Med.-High	Medium	Low	Med.-High

Source: FTA, FY 2005 New Starts Annual Report

<sup>1</sup>CA=California, NC=North Carolina, OH=Ohio, NY=New York, AZ=Arizona, PA=Pennsylvania, TX=Texas, CO=Colorado, CT=Connecticut, NV=Nevada, LA=Louisiana, UT=Utah, OR=Oregon.

<sup>2</sup>E.S. – East Side; NW/SE – Northwest/Southeast; LIRR – Long Island Rail Road; LRT – Light Rail Transit; RRS – Regional Rail System.

There will always be some balancing involved in arriving at decisions on projects to fund. The balancing issue refers to weighing the direct transportation benefits as measured by cost-effectiveness with the indirect economic development benefits measured by land use. First, and foremost, New Starts are transportation projects designed to promote mobility improvements, operational efficiencies,

cost-effectiveness, and environmental benefits. These represent the direct benefits from the transportation project. However, the prominence of land use in the “equation” can heavily influence a shift in focus, emphasizing the indirect benefits, even when the rating for cost-effectiveness is not high. If the goal is to give greater emphasis to the direct transportation benefits of the New Starts project, then the balance between these benefits and land use may need to be reconsidered.

**Ridership is the single most critical element supporting project justification. Although FTA has improved its ability to identify problems with ridership forecasts, without more reliable and up-to-date ridership analysis project justification will continue to be problematic.**

In addition to our concerns about the lack of data on highway travel time savings, there have been notable problems with locally developed ridership forecasts over the years. Ridership is a critical element in determining *all* project-related benefits, driving mobility improvements, congestion relief, environmental cost savings and economic development. These benefits will fall short if ridership estimates are not materially attained. Thus, reliable ridership estimates are paramount to achieving the intended improvements—namely, the identification of projects with the greatest tangible benefits.

According to FTA, the accuracy of local forecasting models has been limited. This has presented problems for FTA in evaluating the user benefits of proposed projects, and even preventing FTA from rating some projects. For example, in the 2005 New Starts Annual Report, eight New Starts projects did not get rated for cost-effectiveness because projected ridership levels were determined by FTA to be questionable.

To better understand how well project sponsors predict ridership, we reviewed a study<sup>6</sup> conducted by FTA in 2003, which looked at the performance of 19 transit systems that began operations between 1990 and 2000. We looked at the ridership forecasts for five of these systems that have been in revenue service for at least 4 years, to determine how well they performed against their predictions. The FTA report compared the forecasts made by project sponsors for 2005 with actual ridership in 2002 or 2001—the latest available data—to see how close they were coming to meeting their targets.

We found that these projects fell materially short of delivering promised ridership. The ridership levels actually achieved ranged from 33 percent on the Houston

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<sup>6</sup> “Analysis of Predicted and Actual Impacts of New Starts Projects, Part 1: Project Inventory,” FTA, 2003.

Southwest Transit Way (Busway) to 89 percent on the Portland Westside-Hillsboro light rail system. For three of the five projects, ridership projections were never updated to reflect significant changes in project scope, service levels, and/or delays in full system implementation since the alternative analysis was conducted. For the Portland project, which revised its ridership forecast to reflect project changes during the planning phases, the accuracy of forecasted ridership increased significantly. Some of the ridership forecasting problems are also due to the accuracy of local forecasting models. While this is a very small sample, it helps illustrate some of the problems that occur in ridership forecasting.

FTA has taken an important step in dealing with this problem in using the new Summit software<sup>7</sup> to help identify problems with ridership forecasts. While we recognize that there is always uncertainty in forecasting ridership, the bigger challenge is to ensure that as projects progress through planning and development phases, forecasts reflect changes in scope and service levels, and any other factors that materially impact ridership.

Mr. Chairman, this concludes my prepared statement.<sup>8</sup> We would be pleased to answer any questions you or other members of the Subcommittee may have.

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<sup>7</sup> The Summit software is a reporting and analysis tool that computes user benefits from locally-developed forecasts, as well as analytical summaries of both the forecast and user benefits.

<sup>8</sup> This testimony was conducted in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States. The work supporting this testimony was based on prior and ongoing audits conducted by the Office of Inspector General. We updated material to reflect current conditions or to reflect FY 2005 budget requests as necessary.