Contractor Performance Assessment Report

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Prepared by:
Federal Transit Administration
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Contents

Alphabetical List of Acronyms

Acronym	Name
AA	Alternatives Analysis
ARC	Access to the Region's Core
BRT	Bus Rapid Transit
CATS	Charlotte Area Transit System
CBD	Central Business District
CMAQ	Congestion Mitigation and Air Quality
CPAR	Contractor Performance Assessment Report
CRMF	Commuter Rail Maintenance Facility
CSXT	CSX Transportation, Inc.
CT	Concessionaire Team
DOT	Department of Transportation
DUS	Denver Union Station
EA	Environmental Assessment
EIS	Environmental Impact Statement
FD	Final Design
FDOT	Florida Department of Transportation
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
FY	Fiscal Year
LONP	Letter of No Prejudice
LPA	Locally-Preferred Alternative
LRT	Light Rail Transit
LRV	Light Rail Vehicles
MBTA	Massachusetts Bay Transportation Authority
MJLRT	Mid-Jordan Light Rail Transit
NEC	Northeast (Rail) Corridor
NEPA	National Environmental Policy Act
NJT	New Jersey Transit Corporation
PCGA	Project Construction Grant Agreement
PE	Preliminary Engineering
PMOC	Project Management Oversight Contractor
RTD	Regional Transportation District
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
UNCC	University of North Carolina-Charlotte
U.S.C.	United States Code
UTA	Utah Transit Authority
YOE	Year of Expenditure

1. Introduction

Section 5309 of Title 49 of the United States Code (U.S.C.), as amended by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), emphasizes the need to improve the quality of ridership estimates and costs used to determine funding decisions for major transit investments. To help fulfill this goal, the Federal Transit Administration (FTA) is required to submit an annual report to Congress that documents and analyzes the performance of contractors that develop cost and ridership estimates to support decision-making for New Starts and Small Starts projects. The SAFETEA-LU Conference Report indicates that the Contractor Performance Assessment Report (CPAR) "will provide public transportation agencies with an informational tool, allowing them to better identify contractors able to perform accurate estimates of cost and ridership figures. Additionally, consulting the CPAR as a condition of Federal assistance will help ensure the reliability of estimates used in awarding Full Funding Grant Agreements (FFGA)."

The contractor performance report is required in 49 U.S.C. 5309(l)(2), as amended by SAFETEA-LU. The relevant text in the law is as follows:

> *(2) CONTRACTOR PERFORMANCE ASSESSMENT REPORT.*
> *(A) IN GENERAL. Not later than 180 days after the enactment of the Federal Public Transportation Act of 2005, and each year thereafter, the Secretary shall submit to the committees referred to in subsection (k)(1) a report analyzing the consistency and accuracy of cost and ridership estimates made by each contractor to public transportation agencies developing new fixed guideway capital projects.*
> *(B) CONTENTS. The report submitted under subparagraph (A) shall compare the cost and ridership estimates made at the time projects are approved for entrance into preliminary engineering with:*
> *(i) estimates made at the time projects are approved for entrance into final design;*
> *(ii) costs and ridership when the project commences revenue operation; and*
> *(iii) costs and ridership when the project has been in operation for 2 years.*
> *(C) CONSIDERATIONS. In making comparisons under subparagraph (B), the Secretary shall consider factors having an impact on costs and ridership not under the control of the contractor. The Secretary shall also consider the role taken by each contractor in the development of the project.*

2. Approach to the Contractor Performance Assessments

Since the Contractor Performance Assessment is based on much of the information that is also included in the FTA *Before and After Study Report* and coincides with the same key decision points, FTA will track the information for these two efforts together. The CPAR extends the *Before and After Study* information to include the identification of each party responsible for the cost and ridership information. During the New Starts/Small Starts project development process, project sponsors report cost estimates and ridership forecasting information to support the data collection and analysis requirements of the *Before and After Studies*. The FTA will use this information to attribute, if possible, the causes and responsibility for those changes when preparing future CPARs.

The FTA's approach to this requirement is forward-looking. Projects that were already in preliminary engineering (PE), final design, or project development as of May 2006—when FTA published policy guidance establishing this requirement—are not subject to these contractor performance reporting requirements.

The requirement to publish an assessment of contractor performance may change the manner in which contractors and project sponsors relate to each other during planning and project development. Responsibilities for the inputs needed to develop cost estimates and ridership forecasts will likely become more clearly delineated since contractors will desire strongly to make certain they are not found responsible for errors that are the fault of outside parties.

The FTA is cognizant of the fact that contractors only play one part in the development of cost estimates and ridership forecasts. Contractors generally make extensive use of information and other forecasts and estimates provided by project sponsors, metropolitan planning organizations, and other local agencies. Therefore, FTA will not focus entirely on contractor performance but on the reliability of the estimates and forecasts from whatever source they are derived.

For both the *CPAR* and the *Before and After Study Report*, FTA intends to evaluate cost[1] estimates and ridership forecasts at key decision-making points and compare these estimates to actual results after the project completion. The reporting times for cost estimates, ridership forecasts, and identifying the parties responsible for the inputs and estimates will be:

- Entry into preliminary engineering (PE) for New Starts or project development for Small Starts;
- Entry into final design (for New Starts); and,
- Signing of FFGA for New Starts or Project Construction Grant Agreement (PCGA) for Small Starts.

These three milestones correspond to key decision points for FTA and the project sponsors. The FTA will then assess the contractors' performance by comparing the forecasts of ridership and costs prepared at these decision points to the actual ridership and costs 2 years after opening for revenue service.

3. Contractor Performance Assessment Information

3.1 *New Starts Projects*

Three New Starts projects, the Portland, OR, Milwaukie Light Rail (LRT), and the Denver, CO, Gold Line and East Corridor projects, have entered PE since the publication of the 2008 Contractor Performance Assessment Report. Of the four projects in last year's report, the Salt Lake City Mid-Jordan Light Rail Transit (LRT) extension has advanced from final design to an FFGA. The New Jersey Transit Access to the Region's Core project and the Central Florida Commuter Rail Transit project have advanced from PE to final design. The Northeast Corridor LRT project in Charlotte, NC and the Minneapolis/St. Paul Central Corridor LRT project remain in PE.

[1] FTA is including the financing charges in the cost estimates reported here, as per our policy of including them in the FFGA. However, financing charges depend on the funding strategy developed and finalized during preliminary engineering and final design. They are not directly related to the project cost estimation activities performed by the engineering contractors, which are the subject of this report.

3.1.1. Milwaukie Light Rail Transit, Portland, OR

The Tri-County Metropolitan Transportation District of Oregon (TriMet) proposes to construct a 7.3-mile, double-track light rail transit (LRT) extension of its existing Yellow Line from the downtown Portland transit mall to the city of Milwaukie. The project includes a new multimodal bridge across the Willamette River (a 1.3-mile segment that will include joint operations for buses, light rail vehicles (LRV), and streetcars), ten new LRT stations, two 1,000-space structured park and ride facilities, and the acquisition of 21 LRVs. The majority of the LRT extension would be at grade (5.5 miles) with 1.8 miles below grade along an existing Union Pacific Railroad right-of-way. The TriMet would expand an existing LRV maintenance facility to store and maintain the LRVs.

There are several items related to the scope of the planned multimodal bridge across the Willamette River, including bridge location, design, environmental issues, navigational issues, transit operational issues, construction, and costs that must be resolved during PE. In addition, the project has several freight railroad interfaces (Union-Pacific Railroad and Oregon Pacific Railroad) where the proposed LRT route crosses or parallels existing railroad facilities. These items could delay the completion of the Final Environmental Impact Statement and environmental record of decision if not resolved in a timely manner, and could adversely impact the project's overall schedule and budget.

Reporting Item	**Information at Entry to Preliminary Engineering**
Project Length Number of Stations Number of Vehicles	7.3 Miles 10 Stations 21 Light Rail Vehicles
First Year of Construction	2011
Opening Year Ridership Forecast Year Ridership	22,000 Daily Riders (2016) 27,400 Daily Riders (2030)
Responsible Party for Ridership Forecasts	Portland Metro—Developed Internally 600 Grand Avenue Portland, OR 97232
Capital Cost Estimates	$1,235.6 Million (2008$) $1,471.7 Million Year of Expenditure ($257.1 million in financing charges included)
Responsible Party for Capital Cost Estimates	TriMet—Developed Internally 710 NE Holladay Street Portland, OR 97232

3.1.2 Gold Line, Denver, CO

The Denver Regional Transportation District (RTD) is planning a 10.8-mile commuter rail line using electric multiple unit vehicles from downtown Denver westward to Ward Road in Wheat Ridge. Seven new stations and 2,250 park and ride spaces would be constructed and 22 vehicles would be purchased. When completed, the Gold Line would provide a continuous commuter rail service, connecting the communities of Wheat Ridge, Arvada, and Adams to downtown Denver. Service would operate at 7.5-minute frequencies during peak periods and 15-minute frequencies during off-peak periods.

The Gold Line is part of the larger RTD project known as the East and Gold Line Enterprise, (Eagle Project), and it proposes to utilize a design-build-finance-operate-maintain project delivery method. A Concessionaire Team (CT) composed of engineering, construction, construction management, financial advisors, and vehicle firms would design and construct the Eagle Project, help to finance the project, and have an equity stake. The CT, in cooperation with RTD, would operate the Gold Line project, through a 50-year concessionaire agreement. The project is part of FTA's Public Private Partnership Pilot Program.

The capital cost estimate does not include the entire capital infrastructure investments needed to operate this commuter rail line. The RTD is going to rebuild Denver Union Station (DUS) downtown as part of a separate multimodal project to accommodate commuter rail service. In addition, the trackway between DUS and Pecos will be built as part of RTD's locally funded Northwest Rail Corridor Project, which is anticipated to be constructed in advance of the completion of the Gold Line. The FTA's Project Management Oversight Contractor (PMOC) found that the engineering plans, with the exception of the Commuter Rail Maintenance Facility (CRMF), are very advanced for entry in to PE. The main uncertainties are the agreements with the freight railroads, the potential for interface conflicts and delays with other FasTracks projects, a single track section that may need to be shortened to allow for planned headways, and an aggressive project development and implementation schedule.

Reporting Item	**Information at Entry to Preliminary Engineering**
Project Length Number of Stations Number of Vehicles	10.8 Miles 7 Stations 22 EMUs
First Year of Construction	2010
Opening Year Ridership Forecast Year Ridership	13,000 Daily Riders (2015) 16,800 Daily Riders (2030)
Responsible Party for Ridership Forecasts	DMJM Harris (formerly AECOM Consult) 3101 Wilson Blvd., 4th Floor Arlington, VA 22201
Capital Cost Estimates	$606.7 Million (2008$) $859.5 Million (Year of Expenditure$ [YOE]) ($19.2 million in financing charges included)
Responsible Party for Capital Cost Estimates	CH2M-Hill 535 16th St., Suite 800 Denver, CO 80202

3.1.3 East Corridor, Denver, CO

The Denver Regional Transportation District (RTD) is planning a 22.7-mile commuter rail line using electric multiple unit vehicles from downtown Denver through the communities of Denver, Globerville/Swansea/Elyria, North Park Hill, Stapleton, Aurora/Fitzsimons, Montebello, and Gateway to Denver International Airport. Six new stations and approximately 3,500 park and ride spaces would be constructed and 22 vehicles would be purchased. Service would operate at 7.5 minute frequencies during peak periods and 15-minute frequencies during off-peak periods.

The East Corridor is part of RTD's FasTracks expansion program of major transit investments in the Denver region. It will be constructed as part of the larger RTD project known as the East and Gold Line Enterprise (Eagle Project) utilizing a design-build-finance-operate-maintain project delivery method. A CT composed of engineering, construction, construction management, financial advisors, and vehicle firms would design and construct the Eagle Project, help to finance the project, and have an equity stake. The CT, in cooperation with RTD, would operate the East Corridor project through a 50-year concessionaire agreement. The project is part of FTA's Public Private Partnership Pilot Program.

The FTA's PMOC for this project found that the engineering plans were very advanced for entry into PE. The main uncertainties are the agreements with the freight railroads, the potential for interface conflicts and delays with other FasTracks projects, and an aggressive project development and implementation schedule.

Reporting Item	**Information at Entry to Preliminary Engineering**
Project Length Number of Stations Number of Vehicles	22.7 Miles 6 Stations 22 EMUs
First Year of Construction	2011
Opening Year Ridership Forecast Year Ridership	22,900 Daily Riders (2015) 37,900 Daily Riders (2030)
Responsible Party for Ridership Forecasts	DMJM Harris (formerly AECOM Consult) 3101 Wilson Blvd., 4th Floor Arlington, VA 22201
Capital Cost Estimates	$1,459.4 Million (2008$) $2,043.8 Million (YOE$) ($36.6 million in financing charges included)
Responsible Party for Capital Cost Estimates	PBS&J 4601 DTC Blvd., Suite 700 Denver, CO 80237

3.1.4 Northeast Corridor Light Rail, Charlotte, NC

The Charlotte Area Transit System (CATS) is proposing to construct a 10.7-mile LRT line that would extend from Uptown Charlotte, the region's central business district (CBD), northeast to the US 29 interchange of Interstate 485 (I-485) near the University of North Carolina-Charlotte (UNCC). The inner segment of the proposed line follows active Norfolk Southern and North Carolina Railroad right-of-way, while the outer part follows US 29 before leaving US 29 right-of-way to proceed through the campus of UNCC. The project would be an extension of the existing South Corridor LRT, which is the first major rapid transit project to be constructed in Charlotte. The Northeast Corridor LRT project includes 14 stations, seven park-and-ride lots that would provide a total of 3,800 spaces, and 12 railcars. Peak period light rail service along the Northeast Corridor is planned to operate at 7.5-minute headways in the forecast year.

The original project cost estimate was prepared by Parsons Transportation Group as part of the alternatives analysis (AA) study. Parsons Transportation Group is no longer an engineering

consultant for this project. The original estimate developed by Parsons Transportation Group in 2006 dollars was escalated to 2007 dollars and Year of Expenditure dollars (YOE$) by CATS staff using assumed inflation rates.

The FTA's PMOC completed a review in December 2007 for the Charlotte Northeast LRT project, which stated that the original cost estimate was based on the Parsons Transportation Group rail cost book and from bid costs received on the Charlotte South Corridor LRT project. The PMOC stated that the cost estimates are likely to be low for two reasons. First, the majority of bids on the South Corridor LRT project exceeded the engineers' estimates, which were also based on Parsons Transportation Group's cost book. Second, the South Corridor project experienced a number of cost-overruns where the unit cost to complete exceeded the original unit cost bid by a significant amount. Parsons Transportation Group was removed as the engineering contractor for the South Corridor before that project was completed. The PMOC found that the construction cost of the Northeast Corridor project could be $800 million (YOE$).

Reporting Item	**Information at Entry to Preliminary Engineering**
Project Length Number of Stations Number of Vehicles	10.7 Miles 14 Stations 12 Light Rail Vehicles
First Year of Construction	2011
Opening Year Ridership Forecast Year Ridership	8,100 Daily Riders (2012) 10,500 Daily Riders (2030)
Responsible Party for Ridership Forecasts	DMJM Harris (formerly AECOM Consult) 3101 Wilson Blvd, 4th floor Arlington, VA 22201
Capital Cost Estimates	$619.78 million (2007$) $748.96 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	Parsons Corporation (Parsons Transportation Group) 4701 Hedgemore Drive Charlotte, NC 28209 (not retained under contract)

3.1.5 Mid-Jordan Light Rail Transit (MJLRT) Project, Salt Lake City, UT

The MJLRT, currently under construction, is a 10.6 mile double-track extension of the existing Utah Transit Authority (UTA) LRT Sandy/Salt Lake TRAX Line that will serve nine new stations. The project will include 28 new light rail vehicles and additional storage tracks at the Midvale Maintenance Facility. The MJLRT will operate on the 10.6 mile extension, interline with existing Sandy/Salt Lake TRAX service to downtown Salt Lake City, and terminate at the Intermodal Hub.

When this project initially applied to enter PE in April 2006, the capital cost estimate submitted to FTA was $345.06 million in 2006 dollars and $372.23 million in YOE dollars (including $18.14 million in financing charges). After reviewing the cost estimate, FTA's PMOC found that the cost estimate developed during AA was likely to be underestimated and FTA suggested that it be increased. The UTA's revised PE submittal, which incorporated the PMOC's recommendations, increased the cost estimate to $407.27 million in 2006 dollars and $438.89 million in YOE dollars (including $54.49 million in financing charges). However, the cost

increased again before entry into PE, primarily due to an increase in scope to add 10 more rail vehicles. Thus, the cost data on the chart below in the column labeled "Information at Entry to PE" reflects a total of $452.71 million in 2006 dollars or $521.82 million in YOE dollars (including $48.44 million in financing charges). For the purpose of providing information on contractor performance, FTA will continue to indicate in the text of the Contractor Performance Assessment Report the cost estimates for this project submitted with the initial PE submission in April 2006.

Before the FFGA was signed, the PMOC's risk analysis determined that the Project's current budget has a range between $447.7 million to $728.5 million with the most likely cost being $531.7 million, slightly less than the UTA's estimate supporting the FFGA. The PMOC concluded that UTA has adequately developed a reasonable project budget and provided sufficient contingencies to address both identifiable potential risks and unforeseen project risks.

Reporting Item	**Information at Entry to Preliminary Engineering**	**Information at Entry to Final Design**	**Information at Full Funding Grant Agreement**
Project Length Number of Stations Number of Vehicles	10.6 Miles 9 Stations 28 Light Rail Vehicles	10.6 Miles 9 Stations 28 Light Rail Vehicles	10.6 Miles 9 Stations 28 Light Rail Vehicles
First Year of Construction	2008	2008	2008
Opening Year Ridership Forecast Year Ridership	5,300 Average Daily Boarding (2010) 9,500 Average Daily Boardings (2030)	5,300 Average Daily Boardings (2010) 9,500 Average Daily Boardings (2030)	5,300 Average Daily Boardings (2010) 9,500 Average Daily Boardings (2030)
Responsible Party for Ridership Forecasts	Utah Transit Authority 3600 South 700 West P.O. Box 30810 Salt Lake City, UT 84130-0810	Utah Transit Authority 3600 South 700 West P.O. Box 30810 Salt Lake City, UT 84130-0810	Utah Transit Authority 3600 South 700 West P.O. Box 30810 Salt Lake City, UT 84130-0810
Capital Cost Estimates	$452.71 Million (2006$) $521.82 Million (YOE$) ($.48.44 million in financing charges included)	$477.64 Million (2007$) $535.37 Million (YOE$) ($46.00 million in financing charges included)	$477.64 Million (2007$) $535.37 Million (YOE$) ($46.00 million in financing charges included)
Responsible Party for Capital Cost Estimates	Parsons Corporation 406 W. South Jordan Parkway S. Jordan, UT 84095	Parsons Corporation 406 W. South Jordan Parkway S. Jordan, UT 84095	Parsons Corporation 406 W. South Jordan Parkway S. Jordan, UT 84095

3.1.6 Access to the Region's Core, Northern New Jersey

The New Jersey Transit Corporation (NJT) is proposing to construct a new 9.0-mile commuter rail line adjacent to the existing Northeast (Rail) Corridor (NEC) between Secaucus, New Jersey, and Manhattan. The Trans Hudson Express Tunnel, also known as Access to the Region's Core (ARC), includes the construction of two new tunnels under the Hudson River; new rail tracks between Secaucus Junction and New York Penn Station (PSNY); a new rail station underneath 34th Street in midtown Manhattan (with pedestrian linkages to PSNY); a storage yard in Kearny, New Jersey; and the purchase of 22 specialized dual-powered rail locomotives and 174 bi-level coaches. The project was approved into FD in January 2009. Under a letter of No Prejudice (LONP), NJT began construction on the Tonnelle Avenue underpass in New Jersey in May 2009.

Since the project was approved into PE in 2006, the project cost increased from $7.2 billion to $8.7 billion, primarily as a result of recommendations made during FTA's risk assessment process during the spring and summer of 2008. The FTA identified a range of risks, with the highest cost estimate corresponding to a low degree of risk mitigation and the lowest cost estimate corresponding to a high degree of risk mitigation. In September 2008, FTA and NJT agreed to a cost estimate of $9.1 billion because NJT indicated it would undertake a high degree of risk mitigation.

The $9.1 billion capital cost estimate was based on the following changes to the cost estimate used during PE:

- Revising the estimated rate of escalation through the project's construction period using an annual rate of 4.25 percent, versus the 3.0 rate initially assumed;
- Increasing the base construction cost by $250 million for technical risk;
- Increasing the allocated contingency amounts to reflect a total project contingency of 22.6 percent compared to 17 percent initially assumed;
- Increasing the real estate acquisition cost estimates by approximately $73 million; and
- Including an unallocated contingency of $1.68 billion, with the inclusion of $500 million for differing site conditions.

After agreement on the $9.1 billion capital cost estimate, it was determined that the option on an existing railcar contract that NJT had hoped to use could not be used for the ARC project. The contract was not consistent with FTA procurement requirements since it exceeded a term of 5 years in length. The cost of the multilevel coaches under a new procurement was estimated to increase from $447 million to $836 million. As a result, the total project cost estimate for the ARC project entering Final Design was $9.23 billion.

However, the Baseline Cost Estimate for the FFGA will be set at $8.7 billion in year of expenditure (YOE) dollars because it will include only the vehicles needed for the 2017 opening year service plan (100 multilevel coaches and 10 dual power locomotives) rather than the full number of vehicles needed for the 2030 forecast year service plan (an additional 74 coaches and 12 dual power locomotives). The total number of vehicles assumed in the project's operating plan at Final Design was 174 bilevel coaches and 22 locomotives. In addition, NJT is planning on purchasing the required rolling stock for the ARC project well before the 2017 opening year. Therefore, a straight line depreciation method was assumed to calculate the value of the vehicles for purposes of the FFGA, after accounting for the time they will be used in non-ARC service.

Ridership estimates changed between entry into PE and entry into final design (FD) to reflect revised population and employment forecasts for the New Jersey portion of the region, special events, and automobile operating costs to reflect more current gasoline prices.

Reporting Item	Information at Entry to Preliminary Engineering	Information at Entry to Final Design
Project Length Number of Stations Number of Vehicles	9.3 Miles 2 Stations 20 Locomotives 200 Bilevel Coaches	9.0 Miles 2 Stations 22 Locomotives 174 Bilevel Coaches
First Year of Construction	2008	2009
Opening Year Ridership Forecast Year Ridership	230,300 Daily Riders (2015) 268,400 Daily Riders (2030)	203,100 Daily Riders (2017) 254,200 Daily Riders (2030)
Responsible Party for Ridership Forecasts	New Jersey Transit One Penn Plaza East Newark, NJ 07105	New Jersey Transit One Penn Plaza East Newark, NJ 07105
Ridership Forecasting Consulting Support	AECOM Consult 3101 Wilson Blvd, 4th floor Arlington, VA 22031	DMJM Harris (formerly AECOM Consult) 3101 Wilson Blvd, 4th floor Arlington, VA 22031
Capital Cost Estimates	$6.1095 billion (2005$) $7.176 billion (YOE$) (no financing charges)	$7.329 billion (2008$) $8.700 billion (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	Transit Link Consultants (joint venture of Parsons Brinckerhoff and SYSTRA Consulting) 2 Gateway Center #18 Newark, NJ 07102	THE Partnership (joint venture of PB Americas, STV, and DMJM Harris) 2 Gateway, 17th Floor Newark, NJ 07102

3.1.7 Central Corridor LRT, St. Paul-Minneapolis, MN

The Metropolitan Council/Metro Transit (Met Council), in cooperation with the Ramsey and Hennepin Counties Regional Rail Authorities (RCRRA and HCRRA), is proposing an 11-mile, double-tracked LRT line that would connect the downtowns of St. Paul and Minneapolis while serving a number of other significant activity centers, such as the University of Minnesota, the State Capitol, and major event venues. The LRT line would share 1.2 miles of existing track with the Hiawatha LRT line before turning east in its own right-of-way, cross the Mississippi River on the existing Washington Avenue Bridge to St. Paul, and generally follow University Avenue to the State Capitol area, and terminate at the Union Depot in downtown St. Paul. The Met Council plans to procure 31 light rail vehicles and operate the LRT line at 7.5-minute peak period headways in the forecast year.

The PMOC, in its pre-PE cost review for the Central Corridor LRT project, found that the cost estimates for the project were likely to be too low because they were escalated from a previous

2002 cost estimate using inflation rates that were less than the actual inflation that occurred during this period. In addition, the cost estimates were based on very early project design documents that were later found to be uncertain. The PMOC estimated that this project could cost anywhere between $652 million and $1.49 billion in YOE$. To address the PMO concerns, the unallocated contingency was increased to 15 percent and the Metropolitan Council identified potential cost reduction items totaling $336 million. Thus, FTA advanced the project into preliminary engineering based upon the construction cost estimate of $817 million, excluding finance costs.

Reporting Item	Information at Entry to Preliminary Engineering
Project Length Number of Stations Number of Vehicles	11 Miles 16 Stations 31 Light Rail Vehicles
First Year of Construction	2010
Opening Year Ridership Forecast Year Ridership	34,300 Daily Riders (2014) 43,300 Daily Riders (2030)
Responsible Party for Ridership Forecasts	DMJM Harris (formerly AECOM Consult) 3101 Wilson Blvd, 4th floor Arlington, VA 22031
Capital Cost Estimates	$817.7 million (2006$) $932.2 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	URS Corporation Thresher House 700 Third Street South Minneapolis, MN 55415-1199

3.1.8 Central Florida Commuter Rail Transit (CFCRT) Project, Orlando, FL

At the end of AA in May 2004, the Florida Department of Transportation (FDOT) chose a 60.8-mile commuter rail system serving 16 stations as the locally preferred alternative (LPA). The CFCRT Project was proposed to operate bi-directional service on the existing CSX Transportation, Inc. (CSXT) A-Line rail corridor from the existing DeLand Amtrak Station in Volusia County, south through downtown Orlando and Kissimmee until its terminus at the Poinciana Industrial Park at the intersection of US 17/92 and the CSXT tracks in Osceola County. The CFCRT included the purchase of 34 Diesel Multiple Unit vehicles, 33-miles of new track, a new railway operations signal system, and a vehicle storage and maintenance facility. A-54-mile, 15-station project LPA was approved into Preliminary Engineering (PE) in March 2007. During PE, FDOT decided to pursue entry into final design for only the current 32-mile, 12 station project, which was approved into final design in August 2008. At this stage of project development, the project scope and cost are considered reasonable.

The PMOC found that the cost estimates for the 54-mile project were reasonable for a project requesting entry into PE. However, there were a variety of project risks that the PMOC felt could affect the scope and eventual cost of the project including incomplete agreements with CSXT, Americans with Disabilities Act (ADA) compliance at the stations, an optimistic project development schedule, single-track sections that may need to be double-tracked, sinkholes in the project corridor, and potentially inadequate contingency, among other issues.

At entry into final design, the PMOC found that the project's cost estimate was reasonable, that contingency was adequate, and that the assumed escalation factor was likely to be sufficient to account for anticipated inflation.

Reporting Item	Information at Entry to Preliminary Engineering	Information at Entry to Final Design
Project Length Number of Stations Number of Vehicles	54 Miles 15 Stations 34 DMU's	32 Miles 12 Stations 10 DMU's
First Year of Construction	2007	2009
Opening Year Ridership Forecast Year Ridership	6,580[2] Daily Riders (2009) 10,676 Daily Riders (2030)	4,300 Daily Riders (2012) 7,400 Daily Riders (2030)
Responsible Party for Ridership Forecasts	AECOM Consult 3101 Wilson Blvd, 4th floor Arlington, VA 22031	DMJM Harris (formerly AECOM Consult) 3101 Wilson Blvd, 4th floor Arlington, VA 22031
Capital Cost Estimates	$542.4 million (2006$) $602.1 million (YOE$) ($0.69 million in financing charges included)	$335.4 million (2008$) $357.2 million (YOE$) ($0.90 million in financing charges included)
Responsible Party for Capital Cost Estimates	Earthtech 30 Keller Road, Suite 500 Orlando, FL 32810	Earthtech 30 Keller Road, Suite 500 Orlando, FL 32810

[2] The original opening year ridership forecast (3,619) for the Orlando Commuter Rail project was factored down by 55 percent in addition to the effect of lower population and employment in the opening year. This external reduction was contrary to FTA policy and the factor was subsequently removed to derive the opening year forecast for the Orlando project.

3.2 Small Starts Projects

Small Starts projects are a subcategory of New Starts projects that have a total capital cost less than $250 million and a Small Starts funding share of $75 million or less. Small Starts have only a single project development phase and will only be covered in this report at three points: entry into project development, when a PCGA is executed, and two years after the start of revenue service. Very Small Starts will not be covered in this report because these projects are justified based on existing ridership rather than forecasts and the costs of these projects include mostly "off-the-shelf" components whose costs are largely known.

Twelve Small Starts projects have initiated project development since the 2008 CPAR:

1. Metro Rapid Bus Rapid Transit (BRT), Austin, TX,
2. Roaring Fork Valley BRT, Roaring Fork, CO,
3. Monterey Bay Rapid Transit, Monterey, CA,
4. Mid-City Rapid, San Diego, CA
5. Wilshire Boulevard Bus Only Lane, Los Angeles CA
6. Livermore-Amador Route 10 BRT, Livermore CA
7. Division Avenue BRT, Grand Rapids, Michigan
8. Airport Way BRT, San Joaquin, California
9. Belleview-Redmond BRT, King County, Washington
10. E-Street Corridor sBX BRT, San Bernardino, California
11. East Bay BRT, Oakland, CA, and
12. Nostrand Avenue BRT, New York, NY.

The first nine projects in the list above are Very Small Starts projects and will not be included in this or subsequent CPARs. The E-Street Corridor sBX BRT, the East Bay BRT and the Nostrand Avenue BRT are Small Starts projects and are included in this report. One Small Starts project included in the 2008 CPAR, the Pioneer Parkway Emerald Express (EmX) BRT in Eugene/Springfield, OR, was awarded a PCGA.

Five other Small Starts projects were included in the previous report but have not yet been awarded a PCGA, so their information remains unchanged. They are the Perris Valley Line in Riverside, CA, the Van Ness BRT in San Francisco, CA, the Mason Corridor BRT in Fort Collins, CO, Commuter Rail Improvements in Fitchburg, MA, and the Streetcar Loop in Portland, OR.

3.2.1 East Bay BRT, Oakland, CA

The Alameda-Contra Costa Transit District (AC Transit) is planning the East Bay Bus Rapid Transit (BRT) project, a 17-mile BRT line from Downtown Berkeley, through Downtown Oakland, to San Leandro, terminating at the San Leandro Bay Area Rapid Transit (BART) station on the southern end of the alignment. Forty-nine new stations would be constructed along the East Bay BRT and thirty-one buses would be purchased to augment the existing fleet. When completed, the East Bay BRT would provide a continuous 17-mile BRT system connecting the heavily transit-dependent communities of Berkeley, Oakland, and San Leandro.

In 1999, AC Transit began a Major Investment Study to evaluate various alternative transportation solutions to improve mobility in the Broadway, Telegraph, International, and

Shattuck Avenue corridors. In August 2001, the AC Transit board adopted BRT as the LPA using Broadway and International Avenue alignments. The project was approved into project development in December 2008.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	16.9 Miles 49 Stations 31 Existing Buses (no new vehicles included in project cost)
First Year of Construction	2012
Opening Year Ridership	42,600 Daily Riders (2016)
Responsible Party for Ridership Forecasts	Dowling Associates, Inc. 180 Grand Avenue, Suite 250 Oakland, CA 94612
Capital Cost Estimates	$199.0 million (2008$) $234.6 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	Parsons Transportation Group 50 Fremont Street, Suite 1500 San Francisco, CA 94105

3.2.2 Nostrand Avenue BRT, New York, NY

The New York City Department of Transportation (NYCDOT), in cooperation with the Metropolitan Transportation Authority—New York City Transit (MTA-NYCT), is proposing to construct the Nostrand Avenue Bus Rapid Transit (BRT) Project, a 9.3-mile BRT line from Sheepshead Bay to the Williamsburg Bridge in Brooklyn. The project includes 7 pairs (14 total) of newly-constructed BRT stations and 4.6 miles of exclusive, solid red painted BRT lanes along Nostrand, Rogers, and Bedford Avenues, which are one-way streets. The project includes the purchase of 50 low-floor, low-emission, hybrid-electric, articulated, and specially-branded buses to be operated by MTA-NYCT; transit signal priority; off-vehicle fare collection; and construction of bus lane "bulbs" allowing the stations to extend into the curb lane so buses do not have to pull to the curb. Service would operate from 5:30 AM to 10:00 PM on weekdays, with 3-minute headways during peak periods and 7-minute headways during off-peak periods.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	9.3 Miles 15 Stations (per direction) 50 Buses
First Year of Construction	2010
Opening Year Ridership	17,000 Daily Riders (2011)
Responsible Party for Ridership Forecasts	NYC Transit—Developed Internally 2 Broadway New York, NY 10004
Capital Cost Estimates	$81.7 Million (2008$) $88.3 Million (YOE$) ($4.1 million in financing charges included)
Responsible Party for Capital Cost Estimates	NYC Department of Transportation— Developed Internally 40 Worth Street, New York, NY 10013

3.2.3 Mason Corridor BRT, Fort Collins, CO

The City of Fort Collins, Colorado, is proposing to construct a 5.0-mile BRT system from downtown Fort Collins to Harmony Road. The "Mason Express" or "MAX" right-of-way is parallel to, and a few hundred feet west of, College Avenue (US 287), the city's primary north-south arterial, and adjacent to Burlington Northern Santa Fe railway tracks, which currently accommodate six to eight freight trains per day. The MAX BRT would operate at-grade in mixed traffic from the existing North Transit Center 1.2 miles to the northern edge of Colorado State University and continue in a 3.8-mile exclusive right-of-way to the proposed South Transit Center. Service would operate at 10-minute peak frequencies in the opening year. The project scope includes construction of 10 stations (including two transit centers), eight enhanced bus stops, traffic signal priority in general purpose lanes, a bus guideway facility, 250 park-and-ride spaces, unique MAX project branding, enhancements to the existing maintenance facility, and five new low-floor vehicles. The FTA approved this project into project development in November 2007.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	5.0 Miles 10 Stations (including two transit centers) and 8 on-street stops 5 Buses
First Year of Construction	2008
Opening Year Ridership	3,900 Daily Riders (2010)
Responsible Party for Ridership Forecasts	City of Fort Collins—Transportation Planning 250 N. Mason Street, Fort Collins, CO 80524
Capital Cost Estimates	$69.4 million (2007$) $74.2 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	Felsburg Holt & Ullevig 6300 South Syracuse Way, Suite 600 Centennial, CO 80111

3.2.4 Fitchburg Commuter Rail Improvements, Fitchburg, MA

The Montachusett Regional Transit Authority of the Fitchburg/Leominster, Massachusetts, metropolitan area, in conjunction with the Massachusetts Bay Transportation Authority (MBTA), is proposing to modernize an existing commuter rail line to provide improved service and reliability for riders at 18 urban and suburban stations over a 50-mile corridor extending from Fitchburg to Boston's North Station. Owned by the MBTA and operated under contract by the Massachusetts Bay Commuter Rail Company, improvements to the Fitchburg Line will include the following: (a) installation of approximately 8.5-miles of double track from Ayer to South Acton, and through Waltham Station, resulting in double track operations throughout the line; (b) upgrade of horizontal and vertical track alignment to achieve a maximum 80-mile-per-hour operation compared with the current 60-mile-per-hour maximum speed; (c) construction of three stations with high-level platforms to replace three mini-high platforms displaced by double tracking; (d) replacement of an outdated wayside signal control system with cab signal control; (e) improvement of four highway grade crossings; (f) installation of fiber-optic cable along the route; (g) installation of additional storage track at the Willows Freight Rail Yard to permit higher operating speed in the vicinity of the yard, and (h) other improvements. The FTA approved this project into project development in December 2007.

Reporting Item	**Information at Entry to Project Development**
Project Length Number of Stations Number of Vehicles	49.5 Miles Upgraded 3 Stations Constructed None
First Year of Construction	2008
Opening Year Ridership	10,800 Daily Riders (2012)
Responsible Party for Ridership Forecasts	Central Transportation Planning Staff (based on existing ridership and developed internally) Ten Park Plaza, Suite 2150 Boston, MA 02116
Capital Cost Estimates	$135.1 million (2007$) $150.0 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	McMahon Associates, Inc. 180 Canal Street, Suite 500 Boston, MA 02114

3.2.5 Van Ness Avenue BRT, San Francisco, CA

The San Francisco County Transportation Authority (SFCTA) is proposing to implement a 2-mile exclusive guideway BRT facility on Van Ness Avenue. The system would be operated by the San Francisco Municipal Transportation Agency (SFMTA). The dedicated transit lane originates at the intersection of Van Ness Avenue and Mission Street and extends north to Union Street near Fort Mason and the Fisherman's Wharf area. In addition to guideway construction, the Van Ness Avenue BRT project includes traffic signal pre-emption, pedestrian crossings, and 11 stations. The project's operating plan requires 35 new vehicles, all of which are being procured outside of the scope of the proposed Small Start. Service would operate at 5-minute

headways during weekday peak periods in the opening year of 2011. The FTA approved this project into project development in December 2007.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	2 Miles 11 Stations 35 Buses Procured Outside of BRT Project
First Year of Construction	2010
Opening Year Ridership	70,500 Daily Riders (2011)
Responsible Party for Ridership Forecasts	SFCTA—Developed Internally 100 Van Ness Avenue, 26th Floor San Francisco, CA 94102
Capital Cost Estimates	$74.1 million (2007$) $87.6 million (YOE$) ($9 million in financing charges included)
Responsible Party for Capital Cost Estimates	ARUP 901 Market Street Suite 260 San Francisco, CA 94103 415-957-9445

3.2.6 Perris Valley Commuter Rail, Riverside, CA

The Riverside County Transportation Commission, in conjunction with the Southern California Regional Rail Authority, is proposing to construct a 22.7-mile extension to the Metrolink regional commuter rail system. The Perris Valley Line project would result in an extension of the existing Route 91 commuter rail line between Los Angeles and Downtown Riverside southeast in an alignment parallel to the Ramona Expressway (I-215), serving the communities of Allessandro, Moreno Valley, and Perris, terminating at South Perris. The project includes six new stations and park-and-ride lots to accommodate 1,430 vehicles, as well as the acquisition of three bi-level coaches. The proposed project would operate with 30-minute headways during the morning and evening peak period, as well as a single mid-day train, in the anticipated opening year of 2011. The FTA approved this project into project development in December 2007.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	22.7 Miles 6 Stations 3 Bilevel Coaches
First Year of Construction	2008
Opening Year Ridership	3,400 Daily Riders (2011)
Responsible Party for Ridership Forecasts	Parsons Brinckerhoff 303 Second Street, Suite 700N San Francisco, CA 94107
Capital Cost Estimates	$156.4 million (2007$) $168.3 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	STV Incorporated 1055 W Seventh St, Suite 3150 Los Angeles, CA 90017

3.2.7 Pioneer Parkway EmX BRT, Springfield, OR

The Lane Transit District (LTD) is proposing to construct a 7.8-mile extension to the Franklin corridor BRT "Green Line" currently operating in Eugene, Oregon. The proposed Pioneer Parkway EmX BRT project would extend service from the eastern terminus of the Franklin corridor route north along the Pioneer Parkway to existing and new residential and employment areas in Springfield. The project includes 14 new stations, traffic signal priority, and the purchase of four low-floor, branded, hybrid-electric vehicles. The proposed service would operate at-grade with 10-minute headways during weekday peak-and off-peak periods in the opening year.

The FTA approved the project into project development in November 2006. The Pioneer Parkway EmX BRT project was recommended for funding in the FY 2008 and FY 2009 budgets. The projects capital cost estimate increased from 2007 to 2008 because of inflation, the addition of a bus, increased contingency, and additional costs for right-of-way and traffic signal pre-emption. The LTD and FTA entered into a PCGA in December 2008 with revenue operations scheduled for December 2010.

Reporting Item	Information at Entry to Project Development	Information at Project Construction Grant Agreement
Project Length Number of Stations Number of Vehicles	7.8 Miles 14 Stations 4 Buses	7.8 Miles 14 Stations 5 Buses
First Year of Construction	2007	2008
Opening Year Ridership	3,700 Daily Riders (2010)	3,700 Daily Riders (2010)
Responsible Party for Ridership Forecasts	Ms. Jennifer John (private consultant) 7694 SW Barnard Dr Beaverton, OR 97007	Ms. Jennifer John John Parker Consulting, LLC 6950 SW Hampton Street Suite 318 Tigard, OR 97223
Capital Cost Estimates	$33.4 million (2005$) $37.0 million (YOE$) (no financing charges)	$40.1 Million (2007$) $41.3 Million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	Parsons Brinkerhoff 400 SW Sixth Ave., Suite 802 Portland, OR 97204	Parsons Brinkerhoff 400 SW Sixth Ave., Suite 802 Portland, OR 97204

3.2.8 Streetcar Loop Project, Portland, OR

The Tri-County Metropolitan Transportation District of Oregon (TriMet) proposes to construct the Portland Streetcar Loop Project (the Loop) in Portland, Oregon, a 3.3-mile extension of the existing Portland Streetcar line. The Portland Streetcar Loop Project will extend streetcar tracks, stations and service from the Pearl District in northwest Portland, across the existing Broadway Bridge, serving the eastern half of the Portland Central City. With nine new streetcars, the project would serve 18 new and 16 existing streetcar stations and station pairs. Later, as a separate project, the Loop would be completed via a new bridge at the south end, allowing continuous connections around the entire loop. The FTA approved the Portland Streetcar Loop Project into project development on April 26, 2007.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	3.3 Miles 18 Stations 9 Modern streetcars
First Year of Construction	2008
Opening Year Ridership	8,700 Daily Riders (2011)
Responsible Party for Ridership Forecasts	TriMet 4012 SE 17th Ave. Portland, OR 97202
Capital Cost Estimates	$113.7 million (2007$) $126.9 million (YOE$) ($5 million in financing charges included)
Responsible Party for Capital Cost Estimates	URS Corporation 111 SW Columbia, Suite 1400 Portland, OR 97201-5814

3.2.9 E Street Corridor sBX BRT, San Bernardino, California

Omnitrans, the transit provider in San Bernardino County, is proposing to construct a 16.5-mile BRT project along E Street in San Bernardino. The proposed BRT project would provide a dedicated bus travel lane through the majority of the corridor from north of California State University at San Bernardino, generally following Kendall Drive south to E Street, through downtown San Bernardino, the city of Loma Linda, and through the Loma Linda University Medical Center to the VA Hospital, where the project would terminate. The E Street Corridor alignment includes 17 new stations, improvements to E Street to accommodate exclusive BRT operations, and 14 new low-floor buses. Service would operate at 10-minute headways during weekday peak periods and 15 minute off-peak headways in the opening year of 2011. The FTA approved the project into Project Development in December of 2007.

Reporting Item	Information at Entry to Project Development
Project Length Number of Stations Number of Vehicles	16.5 Miles 17 Stations 14 Low-Floor Buses
First Year of Construction	2008
Opening Year Ridership	8,700 Daily Riders (2011)
Responsible Party for Ridership Forecasts	Parsons Transportation Group 100 West Walnut Street Pasadena, California, 91124
Capital Cost Estimates	$134.7 million (2006$) $163.4 million (YOE$) (no financing charges)
Responsible Party for Capital Cost Estimates	Parsons Transportation Group 100 West Walnut Street Pasadena, California, 91124