Denver Regional Council of Governments

2010 Annual FasTracks Review and Determination Report

Adopted August 17, 2011

DRCOG
DENVER REGIONAL COUNCIL OF GOVERNMENTS

1290 Broadway, Ste. 700 ♦ Denver, CO 80203
www. drcog.org

1. Introduction

Per requirements of State Senate Bill 90-208 (SB-208), the Denver Regional Council of Governments (DRCOG) approved the Regional Transportation District (RTD) FasTracks Plan, including the technologies and method of financing, on April 21, 2004. Resolutions of approval were passed for each of the individual corridors and for the system as a whole. The resolutions stated that an annual review would be conducted through the MPO process to identify any substantial changes from one year to the next and *"directed that the DRCOG Board of Directors make a determination if the changes are substantial and require further SB-208 action."* The 2004 DRCOG action is referred to as the original or initial review.

RTD's 2010 Annual Report to DRCOG on FasTracks (May 2011)

RTD submitted its *2010 Annual Report* to DRCOG in mid-2011. The report provides information on the topics identified in the DRCOG approval resolutions as annual review subjects:

- **Project definition and scope**,
- **Implementation schedule**,
- **Operating characteristics,**
- **Level of bus service,** and
- **Financial plan**, which includes plan and corridor costs and revenue projections.

The report provides detailed project information including scope, costs, and status updates for each corridor. A large portion of this year's effort is devoted to the results of RTD's 2011 Annual Program Evaluation (APE). On an annual basis, through the Annual Program Evaluation (APE) process, RTD updates the FasTracks financial plan with new revenue and cost projections, including capital, financing and operating costs for each of the corridors and projects in year of expenditure (YOE) dollars, and reflects the currently adopted FasTracks implementation schedule for each of the corridors. The report describes RTD's plan to complete the FasTracks Plan by 2020, three years later than originally planned. The financial plan included in RTD's *2010 Annual Report* is referred to as the 2011 Financial Plan.

Financial assumptions and projections were developed by RTD using the best available estimates of costs, reasonably anticipated federal funding based on current federal law and regulations, and revenues from other sources including sales tax and fare collections. In the report, RTD expressed confidence that the FasTracks program will be completed in accordance with the 2011 Financial Plan due to efforts to reduce construction risk and manage future cost and revenue risk exposures, specifically:

- 5 out of 12 FasTracks projects are under contract, with fixed budgets negotiated with contractors.
- Eagle Project is $305 million below internal cost estimates.
- West Corridor is being completed on time and within budget.

- Engineering has advanced to at least 30%, and “Bottom Up” estimates are complete for all corridors.
- Multiple railroad right-of-way (ROW) agreements with the Union Pacific Rail Road and Burlington Northern Santa Fe Railway are either complete or nearing completion.
- Conservative cost estimates and inflation rates were used.
- Sensitivity analyses were conducted on “high, medium and low” sales and use tax forecasts to ensure the program can be completed per the revised schedule.

As in previous Annual Reports, RTD continues to address the funding gap for the FasTracks program first identified in the 2008 APE. In March 2011 the RTD Board of Directors adopted a financial plan that contained two possible scenarios. In April 2011 the RTD Board made the decision to not proceed with the first scenario, which required a 0.4% tax increase in January 2012 and going to the ballot in 2011. The second scenario is included as the 2011 Financial Plan. The 2011 Financial Plan assumes the passage of 0.4% sales and use tax increase commencing in January 2013. This scenario results in the completion of the full FasTracks program by 2020, assuming current cost escalation and revenue growth forecasts.

The FasTracks Plan is currently financed in part through a 0.4% regional sales and use tax approved by voters in November of 2004. If a new tax increase initiative is placed on the ballot in 2012 and it passes, the total transit tax rate in the District will increase to 1.4% (i.e., 0.6% for the base system, 0.8% for FasTracks).

In the 2010 Annual Report, RTD estimates the capital cost to complete the FasTracks Plan has increased from $6.7 billion in the *2009 Annual Report* to $6.85 billion, and this still represents a major increase from the original $4.7 billion estimate in the 2004 (see Table 3 of the *2010 Annual Report*). In 2004, RTD projected sales and use tax revenues for the FasTracks program of $13.7 billion from 2005 – 2035. The 2011 Financial Plan now estimates $8.0 billion. This decrease in projected revenues over time has significantly impacted the FasTracks Plan.

The forecast for sales and use tax revenue growth (2011-2035) is on average 4.36% per year based on a medium growth scenario. In developing this forecast, RTD worked with stakeholders and financial and construction cost experts. Sales and Use Tax Forecasting Work Sessions were held in late 2010 with economic and financial advisors from across the region to evaluate and reach consensus on the forecasting methodologies to use for the financial plan. The FasTracks Construction Inflation Workshop evaluated the inflation rate to be applied to the capital cost estimates.

The 2011 Financial Plan anticipates a total of $1.3 billion in Federal New Starts Grant funding, a Small Starts grant of $75 million for the Southeast Corridor, $212.6 million in other federal grant funding, and $133.2 million in contributions from local jurisdictions.

DRCOG staff assessed the changes proposed by RTD in the *2010 Annual Report* in relation to the review items established by DRCOG as part of the SB-208 evaluation of the original FasTracks Plan. Proposed changes are assigned to the following categories:

- *Substantial changes requiring a new SB-208 finding*; examples are changes to technology and funding/financial,
- *Substantial changes, but not warranting a new SB-208 finding*; examples are changes that modify Regional Transportation Plan (RTP) networks or require a subsequent amendment of the RTP, or
- *Not substantial* (informational).

Regardless of the magnitude of the change, action on each FasTracks annual report establishes the starting point for reports in following years. The changes proposed by RTD in the *2010 Annual Report* and the DRCOG staff assessment follow.

Summary of Key Staff Assessments and Recommendations

The *2010 Annual FasTracks Review and Determination Report* was prepared by DRCOG staff. DRCOG staff was assisted in the review of the 2011 Financial Plan by a consulting team. Pertinent observations from the previous FasTracks review and determination reports, also referred to as the *2009 Annual Review*, are referenced herein as both background and continuity of commentary.

➢ The *2010 Annual Report* includes a revised 2011 Financial Plan, approved by the RTD Board of Directors April 26, 2011. The 2011 Financial Plan reflects the latest capital cost sales and use tax forecasts, and presumes that a ballot initiative will be passed to increase the sales and use tax by 0.4% effective January 2013. This presumption is unchanged from the *2009 Annual Report*. Its assumptions also include receipt of a Full Funding Grant Agreement (FFGA) for the East Corridor, Gold Line, and Commuter Rail Maintenance Facility in the amount of approximately $1.03 billion (unchanged from the *2009 Annual Report*), and private sector funding from the Eagle Project of about $486.9 million (a $54 million decrease from the *2009 Annual Report*).

  - *DRCOG staff regards the 2011 Financial Plan as an improvement to the previous plan due to more concrete financial data with the completion of all but one corridor study, use of "Bottom Up" methodology, completion of the Eagle Project Concessionaire process, and progress in securing federal New Starts funding for the Eagle Project. DRCOG staff recommends the 2011 Financial Plan be accepted through a new SB-208 action.*
  - *DRCOG staff notes that outside factors (e.g., statewide ballot issues), a delay in going to the voters for the RTD sales and use tax increase, or the failure of the tax increase vote would cause major changes requiring a significantly modified financial plan and associated schedule for completion of the FasTracks Plan.*

- There are no other changes in the *2010 Annual Report* categorized as substantial that require a new SB-208 finding.
- The *2010 Annual Report* identifies schedule changes for nearly all the corridors (see Table B) ranging from one to nearly 3 year delays beyond the previous schedule. “Completion” of FasTracks is now proposed for 2020. The schedule changes are substantial, but do not require a new SB-208 finding. The changes to corridor completion dates must be reflected in RTP conformity modeling.
- The *2010 Annual Report* details the completion of the environmental documents for all corridors by the end of 2010 with the exception of the North Metro corridor (with a Record of Decision (ROD) anticipated in Spring 2011). This reflects great progress over the past year. *Completion of the environmental process in all but one corridor lends further credibility to developing solid cost estimates.*
- DRCOG has previously commented that because the FasTracks plan relies on both shared track operations through lease agreements and the purchase of railroad-owned land to build commuter rail lines and a maintenance facility, productive negotiation with the railroad companies is critical to successful implementation. RTD made major advances in railroad negotiations during 2010 with the completion of railroad right-of-way (ROW) agreements with the Union Pacific Rail Road (UPRR) and Burlington Northern Santa Fe Railway (BNSF). *DRCOG staff urges RTD to conclude further needed agreements with the BNSF to operate in the rail ROW for the Northwest Corridor.*

2. Project Definition/Scope

(*SEE TABLE 1 OF THE ORIGINAL 2004 REVIEW, TABLE 1 OF THE 2010 ANNUAL REPORT*)

The following summary in Table A identifies the project definition/ scope changes included in the *2010 Annual Report*. The tables list the changes by corridor. For purposes of examination, DRCOG staff placed scope changes into five categories:

- Technology (mode),
- Length of corridors,
- Station locations and parking,
- Track and crossings, and
- Support facilities.

Changes in corridor construction costs are presented in Section 6.A.

As noted in Table A, none of the project scope changes are SB-208 actionable and only one requires RTP conformity model changes.

Table A
Summary of Project Definition/Scope Changes

Corridor	*Changes Identified in 2010 Annual Report*	*SB-208 Actionable*	*RTP Conformity Model Change*
West Corridor	• One less at-grade crossing.		
Northwest Rail Corridor	• Phase 1: Opening day spaces changed from 925 to 350 at South Westminster/1st Avenue Station. • One less at-grade crossing.		
Gold Line Corridor	• Added one grade separation (Wadsworth Bypass). • One less at-grade crossing.		
I-225 Corridor	• Sequence of two underpasses and one overpass changed to one flyover at Mississippi Avenue.		
East Corridor	• Alignment changes from all double track to six miles of interspersed single track and 16.8 miles of double track. • At-grade crossings reduced from 18 to 15.		
North Metro Corridor	• Approximately 13 miles of the alignment is single-track, with passing track segments in five locations from Denver Union Station to 38th Street; from south of 72nd Avenue to just north of I-76; from north of Thornton Parkway to just north of 104th Avenue; from south of 124th Avenue to south of York Street; and from SH 7 to approximately 162nd Avenue.		

Table A
Summary of Project Definition/Scope Changes

Corridor	*Changes Identified in 2010 Annual Report*	*SB-208 Actionable*	*RTP Conformity Model Change*
	• Confirmed location of two stations: National Western Stock Show (selected over Coliseum Stadium option); 72nd Avenue at rail line (replaces existing park-n-Ride at 72nd Avenue and US 85.) • Alignment refined in Sand Creek Junction area. • At-grade crossings reduced from 19 to 18.		✓
Southeast Corridor Extension	• *No changes.*		
Southwest Corridor Extension	• *No changes.*		
US-36 Corridor BRT	• *No changes.*		
Central Corridor Extension	• *No changes.*		
Denver Union Station	• *No changes.*		
	• Commuter Rail Maintenance Facility – Maintenance of Way building removed from project.		
Maintenance Facilities	• Light Rail Maintenance Facilities – *No changes.*		
	• Bus Maintenance Facility – *No changes.*		

Technology (Mode)

No Changes.

DRCOG staff assessment: Further SB-208 action is not needed.

Length of corridors

No Changes.

DRCOG staff assessment: Further SB-208 action is not needed.

Station locations and parking

A. Station setting. The locations of two stations on the North Metro Corridor have been confirmed: National Western Stock Show (selected over Coliseum Stadium option); 72nd Avenue (replaces existing Commerce City park-n-Ride).

DRCOG staff assessment: These changes are not substantial but do require a change to the RTP conformity model network. Further SB-208 action is not needed.

B. Parking revisions.

• North Metro Corridor:	Addition of 920 parking spaces as part of National Western Stock Show Station and 72nd Avenue Station.
• Northwest Corridor:	350 parking spaces will be built initially as part of Phase 1 at South Westminster/71st Avenue, with 600 additional spaces added by 2035.
• Southwest Corridor:	Addition of 440 spaces for Englewood Station as part of Existing Facility Enhancements.

Additional changes including updates to values within the tables of the document are due to revised methods of reflecting existing, new, and shared station parking spaces within the calculations.

DRCOG staff assessment: These changes are not substantial. Further SB-208 action is not needed.

Tracks and crossings

A. Alignment changes. The East Corridor alignment has changed from all double track to six miles of interspersed single track and 16.8 miles of double track. The locations of double track and single track from west to east along the corridor include: DUS to Chambers Road (double track); Chambers Road to 40th Avenue (single track); 40th Avenue to 56th Avenue (double track); 56th Avenue bridge to Pena Boulevard bridge (single track); Pena Boulevard bridge to DIA (double track).

North Metro Corridor alignment has changed to approximately 13 miles of the alignment single-track, with passing track segments in five locations. The alignment has been refined in Sand Creek Junction area.

DRCOG staff assessment: These changes are not substantial. Further SB-208 action is not needed.

B. Grade-separations. Since the *2009 Annual Report*, the number of defined at grade crossings has changed for the following corridors:

- Gold Line Corridor: Added one grade separation (Wadsworth Bypass)
- I-225 Corridor: Consolidated two underpasses and one bridge crossing to one flyover at Mississippi Avenue
- East Corridor: At-grade crossings reduced from 18 to 15 as a result of a correction in count.
- North Metro Corridor: At- grade crossings reduced from 19 to 18 due to a change in the alignment in the Sand Creek Junction area.

DRCOG staff assessment: The total number of at-grade crossings in the FasTracks Plan has grown from 135 originally to 164 in the 2010 Annual Report. In past year, the net change of at-grade crossings within the FasTracks Plan has decreased by seven. However, revising the number of at-grade crossings is not considered a substantial change. Further SB-208 action is not needed.

Support facilities

A. **Light Rail Maintenance Facility**. No change.

B. **Commuter Rail Maintenance Facility (CRMF)**. Maintenance of Way (MOW) building is no longer needed as its function was incorporated into the CRMF and yard, and was removed from project. Maintenance of Way is the RTD department responsible for maintaining the track along the commuter rail corridors.

   DRCOG staff assessment: This change is not substantial. Further SB-208 action is not needed.

C. **Bus Maintenance Facility**. No change

3. Implementation Schedule

(SEE FIGURE 4 OF ORIGINAL 2004 REPORT, FIGURE 25 AND FIGURE 26 OF 2010 ANNUAL REPORT)

- **Environmental process schedules.** Significant progress was made over the past year on the corridor environmental studies:
  - Corridor studies completed in 2010:
    - Northwest Rail EE
    - Central Corridor Extension EE
    - Southeast Extension EE
    - Southwest Extension EE
  - Corridor studies nearing completion in 2010:
    - North Metro EIS (since completed)

  DRCOG staff assessment: During 2010 significant progress was made toward the completion of Corridor Environmental Studies. RTD completed the North Metro EIS process in Spring 2011 (after the 2010 Annual Report).

- **Construction completion schedules.** The *2010 Annual Report* (Figure 27) identifies earlier opening dates on corridors that were associated with the Eagle Project than in the *2009 Annual Report* (see Table B). However, opening dates on four corridors are delayed one to nearly three years.

Table B
Construction Completion Schedule

Corridor	*2004 "208 Review"*	*2009 Annual Report*	*2010 Annual Report*
West Corridor	early 2014	mid 2013	mid 2013
Northwest Rail Corridor	early 2015	mid 2016 *(to S. Westminster)* early 2018 *(to Longmont)*	early 2016 *(to S. Westminster)* late 2020 *(to Longmont)*
Gold Line Corridor	early 2016	early 2017	mid 2016
I-225 Corridor	late 2015	mid 2018	mid 2014 *(Nine Mile to Iliff)* early 2020 *(Iliff to end of line)*
East Corridor	early 2015	early 2017	early 2016
North Metro Corridor	late 2015	late 2018	late 2015 *(DUS to Stock show)* mid 2020 *(Stock show to end of line)*
Southeast Corridor	early 2017	mid 2018	late 2017
Southwest Corridor	early 2017	mid 2018	late 2020
US-36 Corridor BRT	late 2016	not specified*	not specified
Central Corridor Extension	mid 2015	mid 2017	early 2017
Denver Union Station	late 2014	mid 2011 (LR) mid 2015 (CR)	mid 2011 (LR) late 2014 (CR)
Commuter Rail Maintenance Facility	—	mid 2016	end 2014
Light Rail Maintenance Facility	—	mid 2011	mid 2011
Bus Maintenance Facility		after 2035	after 2035

** dependent on other funding for the HOT lanes*

DRCOG staff assessment: The construction completion schedule changes are rational given the expectations of the 2011 Financial Plan. The schedule changes are substantial and must be incorporated into the air quality conformity modeling conducted for the 2035 RTP. Further SB-208 action is not needed.

- **Negotiations with railroads.** RTD reported significant progress for right-of-way (ROW) purchases and associated agreements with the railroads, which included signing the Relocation and Construction agreement and Joint Corridor Use Agreements for all corridors. Key actions since the *2009 Annual Report*:
  - Completed agreements with the BNSF Railway Company for acquisition and relocation of the ROW for the Gold Line; a portion of the CRMF; and the first electrified section of the Northwest Corridor (DUS to South Westminster/71st Avenue).

- Execution of Purchase and Sale Agreements, Relocation and Construction Agreements, and forms of Operating and Maintenance Agreements with the Union Pacific Railroad (UPRR). These agreements will become effective after completion of railroad relocation and construction for the West Corridor Burnham Lead, and East and Gold Line Corridors.

DRCOG staff assessment: DRCOG staff is pleased to see major and substantive progress was made with railroad negotiations in 2010 and strongly encourages RTD to complete contract negotiations with the BNSF for preliminary engineering for the Northwest Rail Corridor, and closings on all pending real estate acquisitions.

4. Operating Characteristics

(SEE TABLE 2 OF ORIGINAL 2004 REPORT, TABLE 9 IN 2010 ANNUAL REPORT; FIGURE 3 OF ORIGINAL 2004 REPORT, FIGURE 27 OF 2010 ANNUAL REPORT)

A. Headways

1. **Northwest Rail.** Phase 1 will operate as an independent segment with 30 minute peak and 60 minute off-peak frequencies until Phase 2 of the corridor is opened in late 2020, then the original service plan of 15 minute peak and 30 minute off-peak frequencies will be implemented.

   DRCOG staff assessment: As noted previously, the schedule change is substantial and the headway for phase 1 must be reflected in the RTP conformity modeling, but further SB-208 action is not required.

B. Corridor capacity / line loads

1. **East Corridor.** Originally, the corridor was planned to operate with 5-car trains. Revised modeling and loading assumptions show ridership demand can be met with 4-car trains instead of 5-car trains (*2009 Annual Report* showed demand could be met with 3-car trains).
2. **I-225**. Peak hour demand in 2035 can be accommodated with a combination of 1- and 2-car trains for the G-Line and 3-car trains for the H-Line.
3. **North Metro.** Peak hour demand can be accommodated with 2-car trains on opening day but 4-car trains are needed by 2035 (*2009 Annual Report* showed demand could be met with 3-car trains).
4. **Northwest Rail.** Peak hour demand in 2035 can be accommodated with a combination of 2- and 3-car trains.

   DRCOG staff assessment: Forecasted peak line load passenger volumes remain unchanged from the 2009 Annual Report. Peak hour capacities decreased on four corridors (East, Gold, Central and Southeast Lines), and increased on six corridors (CPV, I-225, North Metro, Northwest, Southwest, and West). Service changes are substantial and must be reflected in the RTP conformity modeling, but do not require further SB-208 action.

5. Level of Bus Service

(*SEE CHAPTER 6 OF ORIGINAL 2004 REPORT, CHAPTER 4 OF 2010 ANNUAL REPORT*)

Background bus service levels in the 2011 Financial Plan are consistent with the previous *2009 Annual Report*. Base system service increases were made in 2010, including increases in fixed route and call-n-Ride service over 2009 estimated levels. Increases were also made in ADA services. Future year increases in services will be in the range of plus 0.6% to 1.1% annually from 2012 to 2020, and in the range of plus 0.7% to 3.8% annually from 2021 to 2035. The total number of bus hours proposed for 2017 and 2035 decreased about .1% (2017) and .8% (2035) from those shown in the *2009 Annual Report*; 4.08 million hours for 2017 compared to 4.28 million, and 5.51 million hours for 2035 compared to 5.66 million.

DRCOG staff assessment: This change is not substantial. Further SB-208 action is not needed.

6. Financial Plan

Since 2005, RTD has been updating the Financial Plan annually to reflect the latest available information and assumptions. This is a prudent approach in an environment of ever-evolving cost and economic conditions.

The *2010 Annual Report*, containing the 2011 Financial Plan, includes new capital and operating cost estimates and revenue revisions, all of which are modified from the *2009 Annual Report*. DRCOG retained the services of a consultant team comprised of Urban Engineers and Jeffrey Parker & Associates (Urban/JPA) to assist in the review of RTD's 2011 Financial Plan. Urban/JPA performed an analysis based on RTD's draft financial plan which included a vote to increase sales tax 0.4% in 2011. Subsequently, the RTD Board of Directors made a decision that the final financial plan would show a sales tax vote of 0.4% in 2012 (same as the *2009 Annual Report*). RTD staff has identified the major differences between the draft financial plan (vote in 2011), and the final plan (vote in 2012). DRCOG believes the Urban/JPA findings relative to the draft financial plan hold true for the final financial plan.

This section first reviews cost elements, then key revenue assumptions, before assessing the overall 2011 Financial Plan.

Plan and Corridor Costs

(SEE TABLE 1 OF THE ORIGINAL 2004 REVIEW, TABLE 3 OF THE 2010 ANNUAL REPORT, AND TABLE 13 OF THE ORIGINAL 2004 REPORT, NO COMPARABLE TABLE PROVIDED IN THE 2010 ANNUAL REPORT).

A. Capital costs. In the *2010 Annual Report*, RTD presented updated costs based on the 2011 Annual Program Evaluation (APE) as shown in Table C. The table also includes the *2009 Annual Report* values.

The corridor costs in the *2010 Annual Report* are $2.1 billion more than in the original *2004 Annual Report,* and about $106 million more than in last year's *2009 Annual Report*. The key factors contributing to the increased capital costs since last year include:

1) More accurate corridor costs with 30% engineering and use of "Bottom Up" methodology. Updated material, labor and right-of-way unit costs.
2) Completing the Eagle Project Contract.
3) Changes with respect to stations and park-n-Rides.
4) Changes resulting from negotiations with railroads for right of way needed for the program.
5) Decreases in projected sales and use tax collections, which lead to project delays, which increases Year of Expenditure (YOE) costs due to inflation.

Table C
FasTracks Capital Program Costs
(millions of inflated dollars)

Sources	***2004 "208 Review" Report Table 1***	***2009 Annual Report Table 3***	***2010 Annual Report Table 3***	***Difference 2009 to 2010***
West Corridor	$511.8	$696.9	$684.3	-$12.6
Northwest Rail (DUS to S. Westminster ; S. Westminster to Longmont)	$565.1	$729.4	$1031.6	+$302.2
Gold Line Corridor	$463.5	$517.0	$415.9	-$101.1
I-225 Corridor	$442.3	$670.1	$750.8	+$80.7
East Corridor	$702.1	$1,232.9	$1,095.9	-$137
North Metro Corridor	$420.0	$977.6	$904.3	-$73.3
Central Corridor Ext.	$68.7	$65.4	$70.6	+$5.2
Southeast Corridor Ext.	$136.8	$180.4	$209.1	+$28.7
Southwest Corridor Ext.	$134.9	$177.2	$185.1	+$7.9
US-36 BRT	$226.3	$239.4	$239.4	$0.0
Denver Union Station	$268.4	$283.4	$283.3	-$0.1
Light Rail Maintenance Facility	$100.4	$28.9	$20.9	-$8.0
Commuter Rail Maintenance Facility	$80.4	$178.6	$189.0	+$10.4
Bus Maintenance Facility	$71.7	$0.0		$0.0
Other FasTracks Costs	$524.7	$767.9	$771.3	+$3.4
Totals	**$4,717.1**	**$6,745.1**	**$6,851.5**	**+$106.4**

B. Construction costs. Urban/JPA evaluated the construction item unit costs and estimating methodology for construction costs incorporated in the 2011 Financial Plan. They commented that the Plan exhibits a very high level of detail, primarily the result of all corridors surpassing the 30% rate of design during 2010. The construction cost estimates are based on a combination of actual contracts awarded to date with a reasonable provision for potential cost increases (unanticipated changes or amendments to existing contracts), and the use of “Bottom Up” estimates for corridors still in design.

For the first time in the evolution of the FasTracks program, RTD was able to use Bottom Up estimating exclusively for un-contracted corridors in 2011, which generally yields a higher level of confidence in budgeting since a higher degree of definition (i.e., units measurements, productivity rates, and labor/material/equipment rates) is used.

Urban/JPA also validated RTD’s use of HCSS Construction Scheduling and Primavera Scheduling software. Further, they stated RTD’s estimating procedures are consistent with other large capital projects that they have reviewed throughout the country.

C. Rail Vehicle costs. As in past years, RTD relied predominantly on an independent report on the cost estimates for commuter railcar Electric Multiple Unit ("EMU") and Diesel Multiple Unit ("DMU") procurements. While Urban/JPA did not review the model in depth due to it being the same as used in prior years' reports, the assumptions are considered appropriate and reasonable for estimating rail vehicle costs as it is generally based upon accepted industry practices.

D. Material Costs. The "Bottom Up" estimating methodology uses a more precise method of forecasting construction costs.

Urban/JPA suggested that RTD consider revisiting its estimates of key material costs, citing comparisons to ENR "material" estimates. RTD staff believes that since they are continually monitoring the local material market place in the greater Denver metropolitan area, their pricing was more accurate than that provided by ENR pricing, which presents a more national perspective. While there remains some degree of concern in material pricing volatility, the RTD position is deemed reasonable for the 2011 Financial Plan, with a suggestion that further review be considered in the 2012 Financial Plan.

E. Labor Unit Costs and Productivity Rates. Urban/JPA reviewed a sampling of these for various operations and trades and compared them with nationally recognized and accepted data bases. The crew size, makeup by job classification, equipment and **t**ool provisions, supervision, along with productivity rates, and any other direct supporting cost were all found to be acceptable.

Urban**/**JPA believes RTD's "all inclusive" support cost mark-up, for job site general conditions, home office overhead and profit, and other costs such as bonds, insurance, and contingencies for anticipated project risk, of 15% provision is an accurate representation of the factor to be used for home office and profit provisions.

Urban/JPA found that RTD's approach is in close agreement with Davis-Bacon, and the sampled items are reasonable and acceptable. They noted that if RTD provides continual monitoring, evaluation, and necessary refinement of its estimates relative to various cost inputs, the level of confidence in the estimates will be enhanced and should maintain reasonable proximity to the actual costs realized, once contracts are executed.

F. Effects of inflation and construction/materials price fluctuations. During their workshop in November 2010, the Construction Inflation Workshop participants generally agreed that RTD's current methodology (and forecast values) for estimating Construction Cost Inflation is well founded, responsible, pragmatic and as prudent as any methodology currently being used by other transit agencies for similar purposes.

The following recommendations from the Construction Inflation Workshop were incorporated into the 2011 APE and into the 2011 Financial Plan:

- Materials cost escalation of 5% per year from 2011-2019.
- Escalation assumptions for other cost elements such as Operations & Maintenance, labor, fuel, and other factors were updated based on Consumer Price Index (CPI) forecasts.

Urban/JPA continues to have concerns over sudden commodity price spikes that cannot be foreseen. Nonetheless, they have determined that RTD's average escalation methods and resultant rates appear to be conservative enough to reasonably spread the concern of price volatility out over enough years to compensate for this concern.

G. Contingency. Urban/JPA believes that the FasTracks program is applying a sufficient and somewhat conservative level of unallocated contingency (25% of estimated construction costs for corridors yet to be bid). Urban/JPA does question RTD's methodology for calculating allocated contingency within their Bottom Up estimates, and recommends revising their methodologies for basing estimates on historical productivity rates rather than an allocated level of contingency.

RTD provided a sensitivity analysis addressing the effects of a long-term reduction in Sales and Use Tax revenue growth. However, RTD has not provided a sensitivity analysis addressing sudden, unanticipated shortfalls with varying recovery periods. A sensitivity analysis of the capital budget would allow the parameters with the greatest influence on budget variation to be isolated and studied at a greater depth. A sensitivity test would provide RTD a focus on future events that might greatly influence the budget in proactively developing mitigation and hedging strategies to address potential large cost changes.

H. Operating costs. The total overall system operating costs (base system plus FasTracks) will grow 63% from 2011 to 2020 as the FasTracks services are phased in. Projected annual costs are forecast to be $654.3 million in 2020, growing to $967.6 million in 2030 and $1.153 billion in 2035.

The operating costs in the 2011 Financial Plan are divided between the existing system, and the FasTracks program. The operating costs of the existing system are incurred directly by RTD. This includes all existing bus and light rail services. The operating costs for the FasTracks program and all added service will be shared by RTD and the Denver Transit Partners (DTP), the Eagle Project Concessionaire. The East, Gold, and the electrified segment of the Northwest rail lines, plus the commuter rail maintenance facility ("CRMF") will be operated and maintained by DTP, with the caveat that RTD will provide traction power and security services for all lines, including those operated by DTP. All other FasTracks components and services will be operated and maintained directly by RTD. Service payments made by RTD, as stipulated in its Eagle Project agreement, will cover DTP's operations support and expenses.

RTD's operating and maintenance projections for new and added rail lines are primarily based on best assumptions and comparable data from similar existing services and industry benchmarked information. Urban/JPA stated that RTD's extrapolation of historical bus and light rail data for added service in these areas appears reasonable. However, they believe that commuter rail operating and maintenance costs tend to run higher than comparable costs for light rail operations, particularly with regard to labor costs. Urban/JPA noted that since RTD will operate two of the commuter rail services (North Metro and Northwest Rail), but has no experience in operating commuter rail, the projected operating costs are of some concern. Urban/JPA believes that RTD needs to review the Northwest Corridor plans and expectations for service, and associated operating and maintenance costs, and develop more-refined projections.

I. Cost savings. The Denver region is very familiar with Design/Build, where the public agency contracts with a private company to design and construct a project based on requirements from the public agency. RTD intends to use Design/Build extensively because of its ability to deliver projects more quickly. RTD's revised implementation schedule and its year-of-expenditure cost estimates reflect this. Further, RTD expects that by using Design/Build, it can take advantage of the private sector's experience and innovation and realize actual cost savings in construction.

Urban/JPA believes that RTD's Eagle Project procurement was conducted with commercially reasonable terms and has the opportunity to represent a path-breaking example of a successfully-closed public-private partnering project.

Also, the 2011 Financial Plan includes operating costs for the Eagle Project commuter rail services based on the actual negotiated contract (rather than projections developed by RTD that were used in previous years). The Eagle Project service average cost per vehicle mile in 2020 ($14.72) is lower than the national average of $20.52. Given the potential cost savings and operating efficiencies, DRCOG supports the public-private partnership in place with DTP and encourages RTD to continue to seek additional public-private partnering opportunities.

DRCOG staff conclusion on costs:

- *Overall, DRCOG considers the capital construction estimate of $6.85 billion to be reasonable. The 2011 Financial Plan and supporting information presented a fair and accurate representation of conditions and costs to be expected for each corridor evaluated. RTD's capital cost estimating methodology is reliable, reasonable, and properly supported. The escalation rates appear to be sufficiently conservative to spread concerns about price volatility over enough years to address this concern. However, DRCOG staff recommends RTD continue to evaluate and consider advance purchases of certain materials that will be necessary for construction, to* *take advantage of favorable pricing or as a hedge against anticipated price increases, when the economic environment supports such consideration.*

- *DRCOG staff considers RTD's assumptions for operating costs generally reasonable based on local experience and national and industry trends.*
- *DRCOG staff continues to support RTD use of public-private partnerships when and if feasible to implement FasTracks and recognizes public-private partnerships as a critical component of the 2011 Financial Plan and overall system implementation.*

Revenue Projections

(SEE TABLE 1 OF THE 2011 FINANCIAL PLAN)

The 2011 Financial Plan reflects new revenue forecasts. Table D below shows the revisions proposed by RTD to fund the capital program. RTD has assumed (in this financial plan) a sales and use tax increase of 0.4% beginning January 2013.

The $6.85 billion in FasTracks capital improvements are funded by a combination of federal grants ($1.62 billion), local and third party contributions ($162.8 million), and a set of borrowing proceeds and pay-as-you-go cash generated mainly by the District's Sales and Use Tax ($5 billion). The table below summarizes the sources of funds expected to fund capital improvements through 2020.

Table D

FasTracks Capital Funding Sources (in millions)

	2010 Financial Plan		**2011 Financial Plan**	
Revenue Bond Proceeds	1,683,588	25.0%	2,571,792	37.5%
COPs Proceeds	229,999	3.4%	251,505	3.7%
TIFIA Loan Proceeds	325,532	4.8%	-	
Denver Union Station Note Proceeds	-		167,954	2.5%
Public-Private Partnerships	541,014	8.0%	486,921	7.1%
Pay-as-you-go-Capital	2,148,516	31.9%	1,583,804	23.1%
Subtotal generated by sales and use tax	*4,928,649*	*73.1%*	*5,061,976*	*73.9%*
Federal New Start Grants	1,339,126	19.9%	1,339,130	19.5%
Federal Small Starts Grants	-		75,000	1.1%
Other Federal Grants	292,828	4.4%	212,557	3.1%
Subtotal federal grants	*1,631,954*	*24.3%*	*1,626,687*	*23.7%*
Local Match Funding	135,112	2.0%	133,240	1.9%
Other Local Funding	32,257	0.5%	29,606	0.4%
Subtotal local funding	167,369	2.5%	162,846	2.3%
Total FasTracks Program Funding	***6,727,972***	***100%***	***6,851,509***	***100%***

The 2011 Financial Plan reflects a significant shift from pay-as-you-go capital to sales tax revenue bonds to accommodate cash flow constraints resulting from a shift in the capital funding schedule and operating cash flows. As a result, the size and timing of the various funding sources will continue to evolve through completion of the program and may require additional debt to address sudden funding shortfalls resulting, for example, from economic downturns.

As a backdrop to these discussions, it is important to restate an observation from the *2007 Annual Review*: *"there is substantial uncertainty inherent in all of the… key revenue elements. Subject-matter experts may reasonably reach divergent opinions."*

A. Revenues from sales and use tax. In 2004, RTD projected sales and use tax revenues for the FasTracks program of $13.7 billion from 2005–2035. The current projection is $8.0 billion. The 2011 Financial Plan identifies a ballot initiative to seek a 0.4% increase in the sales and use tax, effective in January 2013. Without the additional sales tax increase, RTD estimates a funding gap to construct FasTracks by its original schedule of $2.4 billion.

To address the challenges of making long-term sales and use tax revenue projections, RTD convened a group of state and local government economic and financial advisors to review and evaluate forecasting methodologies and obtain consensus on a future forecasting method. Sales and Use Tax Forecasting Work Sessions were held in late 2009 (leading to the 2010 Financial Plan) and another session was held in fall 2010. The work sessions confirmed continuation of the overall methodology of the sales and use tax forecasting. The 2011 Financial Plan sales and use tax forecasts are based upon the following:

- **2005-2010**, actual RTD sales and use tax revenues (reflecting recession-caused declines in 2008 and 2009).
- **2011 – 2012**, the Colorado Legislative Council statewide forecasts; and
- **2013 – 2035**, Outcome of Sales and Use Tax Forecasting Work Sessions.

Average annual growth rates determined in the work session range from 2.77% to 4.19% per year for both sales and use tax for the financial plan period 2005-2035, and 3.25% to 5.03% for the period 2011-2035. The "middle" growth rate scenario is used for the 2011 Financial Plan (3.66% for 2005-2035, 4.36% for 2011-2035).

The work session also considered RTD's 20-year average historical sales tax growth rate, the forecast growth in CPI and the DRCOG population and employment growth forecasts.

RTD has provided a sensitivity analysis examining the impacts of a decrease in the Sales and Use Tax revenue stream over 2014-2035. The analysis assumed the more conservative, "low" scenario developed with the methodology confirmed by the Regional Sales and Use Tax Working Group.

Using this “low” growth rate scenario, the total FasTracks Sales and Use Tax collections would be 10.9% lower over the 2005-2035 period (or 11.6% lower over the remaining 2010-2035 period), but the system would still be completed by 2020. However, if construction period collection shortfalls were even greater than that, RTD indicated it would have to consider measures such as a rescheduling of capital projects, reduced service levels, and/or debt restructuring.

Urban/JPA agrees RTD’s computations show that, if approved, the 0.4% increase could adequately fund the projected shortfall if the sales tax generates the revenues RTD projects. However, Urban/JPA stated that volatility in actual collections resulting from severe dips followed by quick recoveries (as reflected in the 2009-2010 collections) is a pattern that is likely to reoccur through 2035. While RTD could use accumulated cash balances to weather an “economic shock” after the program’s full build-out, its cash capacity is more limited during the construction phase. As such, significant and sudden shortfalls during this decade may alter RTD’s capacity to complete the system by 2020 as currently planned. Shortfalls could potentially limit RTD’s ability to fulfill its financial obligations on a full and timely basis as the Sales and Use Tax revenue stream is more intensively leveraged and as pay-as-you-go obligations become due.

B. Other RTD Revenues.

- **Farebox Revenues.** The average fare in 2035 will be 86.5% greater than today’s average fare. This represents a somewhat more modest fare increase than that projected in the 2010 Financial Plan, which assumed a 98.9% increase. Historically, the RTD average system fare increased by 59.3% over the 2000-2009 period (or by 5.3% on a compounded annual basis). As such, the planned fare increases from a percentage standpoint are consistent with, if not slightly more conservative than RTD’s past fare increases.

  The farebox recovery ratio is expected to gradually increase from the 27% actual 2009 ratio (up from 20% in 2005) to 35% in 2035, based on containment of operating cost escalation relative to farebox revenue growth. If this target is not achieved, the base system may be unable to provide the full subsidy for rubber tire service expansion within the FasTracks Plan, which is assumed to start in 2023 and total $1.3 billion through 2035.

- **Parking Revenues.** RTD estimates combined parking revenues of $474,000 in 2009, $411,000 in 2010, $1.8 million in 2020, and $5.3 million in 2035 for FasTracks and the base system. These large increases will be supported by projected ridership growth as well as development of new parking facilities. Urban/JPA has suggested that a revised forecast be prepared that reflects recent economic conditions, but notes that parking revenues are a very minor source of revenue for the FasTracks program.

C. Federal Funding. The 2011 Financial Plan includes federal funding derived from 2011 to 2017, likely through <u>two</u> future federal surface transportation plan authorizations. It is important to point out that Congress has still not passed a new transportation authorization bill.

- **The FTA New Starts grant program.** Federal funds comprise 24.1% ($1.6 billion) of the capital sources of funds for the FasTracks program. The largest portion (63%) of federal funding for FasTracks construction is from the anticipated Full Funding Grant Agreement ("FFGA") with the FTA for the Eagle Project ($1.03 billion).

  Though there is uncertainty as to when new multi-year authorization bill would be passed by Congress, Urban/JPA noted that in the past when operating under temporary program authorizations in 2003-2005, the FTA signed six FFGAs totaling nearly $2.1 billion. RTD has a successful record of being awarded funds through New Starts.

  During the preparation of this report, U.S. Transportation Secretary Ray LaHood announced in June 2011 that the FTA projects contributing approximately $1 billion towards the Eagle Project.

  DRCOG staff is encouraged by the most recent New Starts-related activities over the past year, and views the $1.03 billion for the FFGA for the Eagle Project as reasonable.

  The next largest portion (19%) of federal funding for FasTracks construction is the FFGA signed in 2009 for the West Corridor in the amount of $308.68 million. Of this amount, 87% was appropriated through federal FY 2010, and the President's FY 2011 budget included the remaining 13% to complete federal funding for the West Corridor.

- **Earmarks.** The 2011 Financial Plan assumes $102.4 million in earmarked funds. Approximately half of this amount ($49.8 million) has already been appropriated for the DUS and U.S. 36 Bus Rapid Transit ("BRT") Corridor. RTD forecasts an additional $7.5 million per year for the 7-year period from 2012 through 2018 (total of $52.6 million) from future authorizations of the Federal Surface Transportation program based on prior receipts. This forecast represents a 50% decrease from the $15 million annual amount RTD assumed in 2010. RTD assumes no continuation of federal funds received in recent years (i.e., Department of Homeland Security and the FTA Bus and Bus Related Equipment and Facilities program).

- **Small Starts.** New in the 2011 Financial Plan, RTD assumes $75 million in federal Small Starts grants for the Southeast Corridor Extension. In light of the significant amount of New Starts and TIFIA funding already awarded to the Denver region and given the oversubscription of New Starts and Small Starts funding, the assumption of additional Small Starts funding may be considered aggressive. However, as noted above, RTD has a successful record of being awarded funds through New Starts and may be able to continue that success in the Small Starts program.

- **CMAQ.** RTD assumes $62.7 million in federal CMAQ funds for FasTracks construction. This $62.7 million includes an initial $60 million commitment from DRCOG for implementation of actual FasTracks elements and $0.2 million of other CMAQ funding for the DUS. It also includes $2.5 million awarded to the DUS from a second $60 million commitment of CMAQ funds approved by DRCOG in 2008 for the FasTracks program. RTD is including no other funds from the second $60 million commitment. If the required consensus is achieved among RTD, corridor local governments, and CDOT (if applicable) on any corridor that second commitment funds be allocated to the base program, those would be added in subsequent Financial Plans.

- **ARRA.** The 2011 Financial Plan shows $47.4 million in American Recovery and Reinvestment Act (ARRA) funds already allocated to the FasTracks program.

- **Transit Formula Funds.** RTD assumes $585.2 million in federal funds for ongoing FasTracks capital renewal and replacement costs. RTD assumes that the grants will increase annually at the rate of inflation in 2011 and beyond. Urban/JPA believes that as long as the service levels on the future route miles are comparable to those on the currently eligible fixed guideways (RTD has indicated that they are), this forecasting method is reasonable. But a risk factor results from the increasing number of transit systems nationwide that are eligible to apply for federal formula funds. Therefore, if Congress fails to 'expand the pie', then RTD's amount will be less than forecast.

- **Base System Federal Funds.** RTD assumes approximately $3.0 billion in federal funds for operation and maintenance of the Base System for 2005-2035. As discussed above, there is a risk that the growth rate in these funding programs will fail to keep pace with the number of agencies eligible for these funds.

- **Federal Funds in General**.
  Urban/JPA concludes that RTD's projections of federal funding may be reasonable based on recent history; the 2011 Financial Plan assumes funding from several long-standing programs that have grown over the years. However, with the current debate at the federal level, funding of surface transportation programs may well level off or decrease under a new authorization. RTD's assumptions that transit funding programs will increase annually with the rate of inflation appear optimistic.

D. Other Funding Sources. The $487 million in financing attributed to DTP in the 2011 Financial Plan for the Eagle Project is consistent with the executed P3 financial structure. This amount is lower than last year's $541 million estimate that was based on P3 financial projections prior to receipt of bids.

Although the risk related to the $1.03 billion FFGA for the Eagle Project is considered relatively minor, should FTA fail to execute the FFGA, the P3 agreement contains a provision that would rescind all Phase 2 elements from the P3 scope.

RTD assumes $133.2 million in contributions from local jurisdictions equal to 2.5% of eligible corridor costs which equates to 1.9% of total project costs. RTD assumes an additional $29.6 million in other third-party contributions. RTD also assumes third-party contributions of $168 million related to the DUS. Urban/JPA noted that these figures appear reasonable.

The 2011 Financial Plan shows $569 million cash generated over 2005-2035 by investment income on sales tax revenues and bond proceeds in escrow. Urban/JPA noted that 1.5% annual earning rate assumed by RTD appears to be aggressive in the short-term.

DRCOG staff conclusion on revenues:

- *RTD has made revisions to its sales and use tax projections reflective of the current economic conditions, and is basing the 2011 Financial Plan on the success of a ballot issue in 2012 to increase the sales and use tax rate by 0.4% in 2013. This sales and use tax rate increase assumption is unchanged from the 2010 Financial Plan.*
- *DRCOG staff believes that RTD's expectations for New Starts revenue are reasonable. DRCOG staff commends RTD for "closing the deal" with the P3 Concessionaire and for its exploration and pursuit of a variety of funding mechanisms.*
- *DRCOG staff feels RTD may be somewhat aggressive in its expectations for other federal funding sources given the uncertain budget environment at the federal level.*
- *Overall, DRCOG staff considers the revenue element of the 2011 Financial Plan to be based on generally reasonable assumptions.*

DRCOG staff overall assessment of the 2011 Financial Plan

The individual corridor cost changes, opening day revisions which impact year-of-expenditure costs, and funding source and revenue changes are significant, and in combination reflect a "substantial" change to the 2011 Financial Plan, which DRCOG staff suggests requires new action under SB-208. DRCOG staff finds the 2011 Financial Plan to be an improvement over the 2010 Financial Plan, based on more concrete financial data with the completion of all but one corridor study, use of "Bottom Up" methodology, completing the Eagle Project Concessionaire process, and progress in securing federal New Starts funding for the Eagle Project. Urban/JPA noted:

> "RTD's 2011 FasTracks Financial Plan provides a detailed and well documented model in support of the current $6.85 billion project…RTD staff and their consultants provided large volumes of astute and verifiable data from a capital and operating cost standpoint…Urban/JPA believes that RTD

has sufficiently attempted to mitigate risk issues and that the budget is appropriate and reasonable."

- *DRCOG staff recommends acceptance of the 2011 Financial Plan, including the system and corridor costs and the revenue elements.*

Finally, while DRCOG and RTD have tended to focus on the "reasonableness" of various assumptions in light of historical experience, Urban/JPA recommends that greater attention be given to mitigation and recovery measures created to address any adverse changes in the future. RTD has indicated that such measures might include management decisions to delay capital expenditures, reduce service levels, draw on accumulated cash balances, and/or restructure debt.

Given that the RTD Board must obtain voter support for a sales and use tax increase before 2013 if it desires to achieve 2020 implementation, RTD must continue to fine-tune its financial plan with conservative assumptions. As stated in the *2008 Annual Review*: *"RTD must convince the voters the next increase will be the <u>last</u> increase".*