

Operating & Maintenance Cost Results Report

Bottineau Transitway

DRAFT ENVIRONMENTAL IMPACT STATEMENT

*Prepared for:
Hennepin County Regional Railroad
Authority*

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Hennepin County
Regional Railroad Authority
Minnesota

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1.0 INTRODUCTION

This Technical Memorandum presents estimated O&M costs for the Bottineau Transitway Project. This Technical Memorandum follows a previous document that presented the project's O&M cost methodology.

As noted by the Federal Transit Administration (FTA), the projection of operating and maintenance (O&M) costs is an important part of planning New Starts projects. O&M cost projections are important for two reasons:

- **Cost Effectiveness Measures.** The projection of design-year O&M costs is a critical input to the determination of the New Starts measures of cost effectiveness.
- **Financial Planning.** The projections of annual O&M costs are vital to the development of financial plans that cover multiple years of construction and operation of the New Starts projects¹.

The FTA requires the use of a resource-driven allocated cost model for O&M costing in a New Starts project. Resource-driven models assign specific costs to specific service characteristics (e.g., train operator costs assigned to annual revenue train-hours). Costs for that particular item (e.g., train operators) are then determined by each alternative's service characteristics (e.g., annual revenue train-hours).

Transit operations affected by the project alternatives include Metro Transit, Metropolitan Council-funded routes, and Maple Grove Transit.

This Technical Memorandum continues with a brief description of the project alternatives in Section 2.0 and a summary of the methodology used to estimate O&M costs in Section 3.0. Section 4.0 of this memorandum presents annual O&M cost estimates for the project alternatives.

¹ Procedures and Technical Methods for Transit Project Planning (Draft) November 2006, Federal Transit Administration.

2.0 PROJECT ALTERNATIVES

The Bottineau Transitway project area extends approximately 13 miles northwest from downtown Minneapolis and into Hennepin County, Minnesota. The Alternatives Analysis phase of the study (2008 to 2010) evaluated baseline improvements to the existing bus system, light rail transit (LRT), bus rapid transit (BRT), and commuter rail. Per guidance established by the FTA² the Bottineau Transitway alternatives for the current phase of the project are being compared against a No-Build alternative and a Baseline alternative. Full descriptions of the service plans for each alternative are provided in the Bottineau Transitway Project's May 2012 *Transit Operations Plans Report (Final)*. Brief descriptions of the operating plan assumptions for each alternative are provided below.

No-Build Alternative

A No-Build alternative establishes a reference point for the environmental impacts of the alternatives, the financial condition of the transit operator(s), and the cost effectiveness of the Baseline alternative. The No-Build alternative reflects existing service plus committed transit improvements to the regional transit network. Major regional transit projects include new park-and-ride facilities at various locations outside the Bottineau Transitway project area, LRT and bus service changes in other corridors, and various service frequency improvements throughout the regional transit network. In addition to regional transit projects, the No-Build alternative includes modest service improvements within the Bottineau Transitway project area.

Baseline Alternative

Projects that seek federal New Starts funding must be evaluated against a "Baseline" alternative. This alternative establishes a basis of comparison for project evaluation. This project's Baseline alternative identifies bus transit improvements in the project area designed to meet the intent of New Starts requirements, while addressing the transportation challenges in the corridor. The Baseline alternative is designed to be the "best that can be done" to improve transit service in the project area without a major capital investment in new infrastructure. Building upon improvements identified for the No-Build alternative, the Baseline alternative incorporates the following:

- A new transit center and park-and-ride lot at 97th Avenue/West Broadway Avenue (near the Target Northern Campus in Brooklyn Park).
- Two limited-stop bus routes in the Bottineau Corridor that would operate in general purpose traffic lanes along Bottineau Boulevard (County Road 81), with stops at approximately the same locations as proposed in the Build Alternatives. One route would start at the proposed 97th Avenue Transit Center, the other at the Maple Grove Transit Station. Both routes would converge at Starlite Transit Center (near Brooklyn Boulevard and County Road 81), and continue to downtown Minneapolis. Both routes would operate every 15 minutes during peak periods and at 20-minute frequencies during the midday in both directions. These two routes would provide a combined 7.5-minute peak and 10-minute midday frequency south of the Starlite Transit Center, which is comparable to proposed LRT and BRT frequencies in the Build alternatives.
- Service changes to the background bus network that affect specific local and express Metro Transit routes, Metropolitan Council-funded routes, and Maple Grove Transit routes.

² Procedures and Technical Methods for Transit Planning: Part II: Conduct of the Analysis: 2. Definition of Alternatives

LRT Build Alternatives

The Bottineau Transitway Draft EIS is evaluating four potential LRT alternatives. There are two alignment options at the north end of the corridor. Alignment “A” travels west from the BNSF railroad corridor to Maple Grove along Elm Creek Boulevard and a to-be-built arterial, terminating at Hemlock Lane. Alignment “B” travels north from the BNSF railroad corridor along West Broadway Avenue to a proposed end-of-line station at 97th Avenue (near the Target Northern Campus). South of the “A” and “B” alignments, there is a common trunk alignment along the BNSF railroad alignment (adjacent to Bottineau Boulevard). This segment has been labeled Alignment C. There are two alignments under consideration south of 36th Avenue in Robbinsdale into downtown Minneapolis. Alignment “D1” continues along the BNSF railroad alignment to Olson Memorial Highway (TH 55), and then follows Olson Highway to downtown. Alignment “D2” cuts over via 34th Avenue to West Broadway to Penn Avenue to Olson Highway, and then follows Olson Highway into downtown. Thus, the four LRT alternatives presently under consideration in this DEIS are as follows:

- **A-C-D1** – The A-C-D1 alignment connects Maple Grove and Target Field, with LRT service continuing via the existing Hiawatha line. Ten rail stations (not including the existing station at The Interchange in downtown Minneapolis) are proposed for the 12.62-mile alignment, which includes four stations with park-and-ride facilities.
- **A-C-D2** – The A-C-D2 alignment also connects Maple Grove and Target Field but follows a different routing between Robbinsdale and downtown Minneapolis (via West Broadway and Penn Avenue). eleven stations (not including the existing station at The Interchange in downtown Minneapolis) are proposed for the 12.61-mile alignment, which includes four stations with park-and-ride facilities.
- **B-C-D1** – This alternative begins at 97th Avenue (alignment “B”), and follows the BNSF railroad and Olson Highway to downtown Minneapolis (alignment “D1”). Ten rail stations (not including the existing station at The Interchange in downtown Minneapolis) are proposed for the 12.45-mile alignment, which includes four stations with park-and-ride facilities.
- **B-C-D2** – This alternative also begins at 97th Avenue but follows West Broadway, Penn Avenue and Olson Highway to downtown Minneapolis (alignment “D2”). There are 11 stations (not including the existing station at The Interchange in downtown Minneapolis) along this 12.44-mile alignment, of which four stations include park-and-ride facilities.

All rail alternatives assume Bottineau LRT service is interlined with Hiawatha trains. Thus, Bottineau service frequencies are determined by Hiawatha frequencies, which are 7.5 minutes during weekday peak periods, and 10 minutes during all other service periods on weekdays, Saturdays, and Sundays, with less frequent service during early morning and late night periods. In addition, background and connecting bus services have been modified to support each alternative in ways that are respectively parallel with the Baseline alternative. This project’s Operations Plan Report describes the bus assumptions by route for each LRT alternative.

BRT Build Alternative

The Bottineau Transitway Draft EIS process also evaluated a BRT alternative, which assumes a dedicated busway alignment from 97th Avenue (near the Target Northern Campus) to Border Avenue, near Target Field. The dedicated busway would follow the LRT B-C-D1 alignment. BRT station locations along the busway are at the same locations proposed for LRT B-C-D1, except that the station serving the Interchange area would be located at Border Avenue. Beginning at Border Avenue, buses would operate in mixed traffic and along the Marquette/2nd Avenue transit lanes, with service ending at the Leamington Ramp. A total of 11 stations are proposed along the dedicated alignment, with additional stops in downtown Minneapolis.

Following the technical analysis conducted and public input received during the Scoping process, the HCRRRA determined that the BRT alternative will not be studied in the Final EIS process. Additional information regarding the decision not to carry the BRT alternative forward is documented in this project's *Scoping Decision Document*, available on the project website at www.bottineautransitway.org.

Although the BRT alternative will not be carried forward for study in the Final EIS, the details of its O&M costs are included in this report for the purpose of fully documenting the assumptions that were included in the alternative.

3.0 O&M COST MODELS

Per FTA guidance, a detailed description of the O&M cost model was provided separately in the project's June 2012 *O&M Cost Methodology Report (Final)*. In that report, it was noted that resource build-up spreadsheet cost models were developed for the Bottineau Transitway project based on 2010 actual expenditures for Metro Transit bus and light rail, Metropolitan Council-funded bus routes, and Maple Grove Transit bus service. Some adjustments were made to expense line items that are known to have different cost characteristics than what was reported for 2010, which also are described in the methodology report.

Input variables determine nearly all costs in the model. The Bottineau Transitway O&M cost models require the following bus and light rail inputs:

- Metro Transit Bus Input Variables
 - Annual Revenue Bus-Hours (all buses)
 - Annual Revenue Bus-Miles (non-articulated bus)
 - Annual Revenue Bus-Miles (articulated bus)
 - Peak Buses (all buses)
 - Transit Centers
 - Operating Garages (buses dispatched into service)
 - Total Garages (includes heavy maintenance facility)
- Metro Transit Light Rail Input Variables
 - Peak Cars
 - Annual Revenue Car-Miles
 - Annual Revenue Train-Hours
 - Passenger Stations (stations with, and without, park-and-ride facilities)
 - End-of-Line Stations
 - Fixed Guideway Directional Route Miles
 - Maintenance Facilities
- Metropolitan Council-Funded Bus Input Variables
 - Annual Revenue Bus-Hours
 - Annual Revenue Bus-Miles
 - Peak Buses
- Maple Grove Transit Fixed Route Input Variables
(for both purchased transportation operators)
 - Annual Revenue Bus-Hours
 - Annual Revenue Bus-Miles
 - Peak Buses

The cost model spreadsheets also include an inflation factor, to allow costs to be inflated or deflated as necessary.

4.0 O&M COST ESTIMATES

This section identifies annual O&M cost estimates for the Bottineau Transitway project's alternatives. Annual O&M costs have been developed for the No-Build, Baseline and Build alternatives using the cost models highlighted in Section 3.0 of this report and fully described in this project's *O&M Cost Methodology Report*. O&M costs depicted in this section are based on actual 2010 expenses, consumption and productivity factors, and inflated to 2011 dollars using the Bureau of Labor Statistics' Consumer Price Index for the Minneapolis/St. Paul region.

Annual operating statistics (model inputs) were developed for the No-Build, Baseline and Build alternatives for bus and light rail services based on the project's operations plans and O&M cost methodology, as referenced above. Those operating statistics are presented in this project's *Transit Operations Plans Report*. It is important to note that all model inputs for the study alternatives reflect the Bottineau Corridor portion of regional transit, rather than system-wide service.

The No-Build alternative, with its modest service improvements, will add \$5.54 million over the annual O&M cost of existing service in the Bottineau Corridor as summarized in Table 4-1.

The project's Baseline and Build alternatives are summarized in Table 4-2. Also shown as Bottineau Corridor-related statistics and costs, the table presents the incremental changes from the No-Build alternative. The Baseline alternative's annual O&M cost is \$15.35 million more than the No-Build, with the Build alternatives ranging between \$24.36 and \$30.37 million in 2011 dollars.

Appendices A through C present summaries of estimated Metro Transit bus and LRT and BRT costs for the project alternatives. These tables present costs for the incremental change in service within the Bottineau Corridor. No-Build costs are presented as additional costs over existing corridor service. Baseline and Build Alternative costs are presented as additional corridor costs over the No-Build alternative. These appendices present summary tables of cost estimates. Detailed cost models were used to generate these summary tables, as described in this project's *O&M Cost Methodology Report*. Appendix C presents estimated O&M costs for Met Council-funded routes that operate in the corridor. Appendix D presents estimated O&M costs for Maple Grove Transit routes.

Table 4-1
Bottineau Corridor No-Build Alternative
Incremental Statistics and Costs over Existing

Costs are in 2011 dollars

Operator/Statistic	No-Build
Metro Transit Bus (Stats over Exist.)	
Annual Rev. Bus-Hours (all buses)	39,389
Annual Rev. Bus-Miles -Non-Articulated Bus	521,243
Annual Rev. Bus-Miles - Articulated Bus	0
Peak Buses (all buses)	2
Additional Cost over Existing	\$4,232,000
Met Council Funded Routes (Stats over Exist.)	
Annual Rev. Vehicle-Hours	4,241
Annual Rev. Vehicle-Miles	40,498
Peak Vehicles	1
Additional Cost over Existing	\$216,500
Maple Grove Transit Routes (Stats over Exist.)	
Annual Rev. Bus-Hours	6,503
Annual Rev. Bus-Miles	129,209
Peak Buses	6
Additional Cost over Existing	\$1,087,400
Metro Transit LRT (Stats over Exist.)	
Peak Cars	n/a
Annual Revenue Car-Miles	n/a
Annual Revenue Train-Hours	n/a
Passenger Stations	
Stations with Park-and-Ride	n/a
Stations without Park-and-Ride	n/a
End-of-Line Stations	n/a
Fixed Guideway Directional Route Miles	n/a
Maintenance Facilities	n/a
Additional Cost over Existing	\$0
Bus Rapid Transit (Stats over Exist.)	
Annual Rev. BRT-Hours (all buses)	n/a
Annual Rev. BRT-Miles -Non-Articulated Bus	n/a
Annual Rev. BRT-Miles - Articulated Bus	n/a
Peak Buses (all BRT buses)	n/a
BRT Passenger Stations	
Stations with Park-and-Ride	n/a
Stations without Park-and-Ride	n/a
On-Street Stations	n/a
BRT Directional Lane Miles	n/a
Additional Cost over Existing	\$0
Total Corridor Cost Over Existing:	\$5,535,900

Table 4-2
Bottineau Corridor Build Alternatives
Incremental Statistics and Cost over No-Build
Costs are in 2011 dollars

Operator/Statistic	Baseline	LRT A-C-D1	LRT A-C-D2	LRT B-C-D1	LRT B-C-D2	BRT
Metro Transit Bus (Stats over N.B.)						
Annual Rev. Bus-Hours (all buses)	111,431	36,149	36,149	27,855	27,855	16,140
Annual Rev. Bus-Miles -Non-Articulated Bus	667,711	612,248	612,248	457,645	457,645	179,033
Annual Rev. Bus-Miles - Articulated Bus	826,047	-76,653	-76,653	-76,653	-76,653	69,896
Peak Buses (all buses)	12	-3	-3	-7	-7	-9
Additional Cost over No-Build	\$12,590,200	\$3,210,000	\$3,210,000	\$2,053,600	\$2,053,600	\$893,700
Met Council Funded Routes (Stats over N.B.)						
Annual Rev. Vehicle-Hours	14,905	16,721	16,721	14,905	14,905	14,905
Annual Rev. Vehicle-Miles	186,271	205,785	205,785	186,271	186,271	188,707
Peak Vehicles	3	4	4	3	3	3
Additional Cost over No-Build	\$777,900	\$892,500	\$892,500	\$777,900	\$777,900	\$779,900
Maple Grove Transit Routes (Stats over N.B.)						
Annual Rev. Bus-Hours	14,535	20,018	20,018	14,535	14,535	14,535
Annual Rev. Bus-Miles	136,884	187,247	187,247	136,884	136,884	136,884
Peak Buses	0	-1	-1	0	0	0
Additional Cost over No-Build	\$1,977,600	\$2,617,300	\$2,617,300	\$1,977,600	\$1,977,600	\$1,977,600
Metro Transit LRT (Stats over N.B.)						
Peak Cars	n/a	20	22	22	24	n/a
Annual Revenue Car-Miles	n/a	2,062,600	2,080,500	2,168,900	2,186,900	n/a
Annual Revenue Train-Hours	n/a	41,900	49,300	49,300	54,600	n/a
Passenger Stations						
Stations with Park-and-Ride	n/a	4	4	4	4	n/a
Stations without Park-and-Ride	n/a	6	7	6	7	n/a
End-of-Line Stations	n/a	1	1	1	1	n/a
Fixed Guideway Directional Route Miles	n/a	25.2	25.5	26.5	26.8	n/a
Maintenance Facilities	n/a	1	1	1	1	n/a
Additional Cost over No-Build	\$0	\$22,363,100	\$23,654,900	\$24,065,400	\$25,072,100	\$0
Bus Rapid Transit (Stats over N.B.)						
Annual Rev. BRT-Hours (all buses)	n/a	n/a	n/a	n/a	n/a	0
Annual Rev. BRT-Miles -Non-Articulated Bus	n/a	n/a	n/a	n/a	n/a	0
Annual Rev. BRT-Miles - Articulated Bus	n/a	n/a	n/a	n/a	n/a	0
Peak Buses (all BRT buses)	n/a	n/a	n/a	n/a	n/a	19
BRT Passenger Stations						
Stations with Park-and-Ride	n/a	n/a	n/a	n/a	n/a	4
Stations without Park-and-Ride	n/a	n/a	n/a	n/a	n/a	6
On-Street Stations	n/a	n/a	n/a	n/a	n/a	10
BRT Directional Lane Miles	n/a	n/a	n/a	n/a	n/a	24.1
Additional Cost over No-Build	\$0	\$0	\$0	\$0	\$0	\$20,711,800
Total Corridor Cost Over No-Build:	\$15,345,700	\$30,194,400	\$30,374,700	\$28,874,500	\$29,881,200	\$24,363,000

Appendix A
Metro Transit Bus Service
O&M Cost Model Summary Results
By Alternative (Corridor Costs Only)

Costs are in 2011 dollars

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
No-Build Alternative**

SUMMARY OF BUS O&M COST ESTIMATES (Corridor Costs Over Existing)

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Internal Audit			\$583							\$25	\$608
	Executive	\$1,857	\$1,564	\$3,209	\$257	\$315	\$1,330	\$3,428			\$4,226	\$16,185
	Police/Security	\$39,558	\$19,498		\$0	\$204	\$104	\$52				\$59,417
	Safety	\$6,867	\$4,624		\$15	\$10		\$60				\$11,577
Administrative	Customer Relations	\$995	\$648		\$5	\$25		\$20				\$1,693
	Transit Info Ctr.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Marketing	\$1,491	\$880	\$242	\$3,405	\$1,364		\$3,021	\$183		\$83	\$10,668
	Service Development	\$17,027	\$10,467		\$90	\$3	\$3	\$15				\$27,605
	Finance	\$54,138	\$37,028	\$9,342	\$6,609	\$9,769	\$176	\$28	\$190		\$1,987	\$119,266
	Purchasing	\$4,253	\$2,827	\$2,271	\$0	\$0	\$0	\$0				\$9,350
	Human Resources			\$45,847	\$0	\$0					\$16,888	\$62,735
	Information Services			\$72,343				\$0			\$62,801	\$135,144
Engineering & Facilities	Eng. & Facilities	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	System facilities Eng.				\$0	\$0	\$0	\$0	\$0			\$0
	Garage Bldg. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Other Fac. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Landscaping/Phone Admin.			\$0				\$0	\$0		\$0	\$0
Bus Operations	Bus Transp. Admin.	\$2,043	\$1,100		\$0	\$0	\$0	\$0	\$0			\$3,143
	Operating Divisions	\$1,298,499	\$917,431		\$0	\$0	\$0	\$0				\$2,215,930
	District Street Superv.	\$9,304	\$4,744		\$0	\$0	\$0	\$0	\$0			\$14,048
	Transit Control Ctr.	\$11,203	\$6,452		\$22	\$164	\$1,081	\$102				\$19,025
	Oper. Instruct. & Dev.	\$15,539	\$12,595		\$81	\$251	\$1	\$252	\$29			\$28,747
	Parts & Warranty Admin.	\$5,530	\$3,897		\$0	\$0	\$0	\$0				\$9,427
	Garage Maint. Divisions	\$316,373	\$231,279		\$0	\$711,038	\$0	\$148	\$0			\$1,258,838
	Non-Rev. Vehicles	\$1,811	\$5,984		\$30	\$769		\$0	\$1			\$8,596
	Heavy Maint. Functions	\$80,857	\$67,562		\$4,144	-\$46,560	\$13,241	\$85	\$743			\$120,072
	Risk Mgmt.			\$22,783	\$16,125					\$57,152	\$3,858	\$99,919
TOTAL COSTS		\$1,867,348	\$1,328,580	\$156,620	\$30,782	\$677,353	\$15,938	\$7,212	\$1,146	\$57,152	\$89,867	\$4,231,996

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
Baseline Alt.**

SUMMARY OF BUS O&M COST ESTIMATES (Corridor Costs Over No-Build)

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Internal Audit			\$3,501							\$147	\$3,648
	Executive	\$11,145	\$9,386	\$19,251	\$1,540	\$1,889	\$7,982	\$20,566			\$25,355	\$97,112
	Police/Security	\$125,492	\$61,855		\$0	\$1,225	\$623	\$314				\$189,509
	Safety	\$21,970	\$14,794		\$93	\$61	\$7	\$358				\$37,282
Administrative	Customer Relations	\$5,971	\$3,889		\$27	\$151		\$120				\$10,158
	Transit Info Ctr.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Marketing	\$8,948	\$5,282	\$1,450	\$20,427	\$8,185		\$18,124	\$1,097		\$496	\$64,009
	Service Development	\$54,016	\$33,205		\$539	\$16	\$20	\$92				\$87,888
	Finance	\$171,745	\$117,464	\$29,635	\$20,965	\$30,991	\$1,057	\$169	\$1,141		\$6,302	\$379,468
	Purchasing	\$12,187	\$8,100	\$6,508	\$0	\$0	\$0	\$0				\$26,795
	Human Resources			\$129,897	\$0	\$0					\$47,849	\$177,745
Information Services			\$204,967				\$0			\$177,930	\$382,897	
Engineering & Facilities	Eng. & Facilities	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	System facilities Eng.				\$0	\$0	\$0	\$0	\$0			\$0
	Garage Bldg. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Other Fac. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Landscaping/Phone Admin.			\$0				\$0	\$0		\$0	\$0
Bus Operations	Bus Transp. Admin.	\$5,715	\$3,077		\$0	\$0	\$0	\$0	\$0			\$8,792
	Operating Divisions	\$3,631,971	\$2,566,105		\$0	\$0	\$0	\$0				\$6,198,076
	District Street Superv.	\$26,025	\$13,269		\$0	\$0	\$0	\$0	\$0			\$39,294
	Transit Control Ctr.	\$41,554	\$23,930		\$62	\$460	\$3,024	\$287				\$69,317
	Oper. Instruct. & Dev.	\$43,463	\$35,228		\$227	\$703	\$2	\$704	\$81			\$80,407
	Parts & Warranty Admin.	\$33,181	\$23,382		\$0	\$0	\$0	\$0				\$56,563
	Garage Maint. Divisions	\$996,330	\$728,349		\$0	\$2,270,890	\$0	\$425	\$0			\$3,995,994
	Non-Rev. Vehicles	\$7,889	\$17,439		\$179	\$4,616		\$2	\$5			\$30,131
	Heavy Maint. Functions	\$255,220	\$213,253		\$11,877	-\$151,875	\$37,945	\$244	\$2,128			\$368,793
	Risk Mgmt.			\$65,291	\$46,210						\$163,784	\$11,057
TOTAL COSTS		\$5,452,822	\$3,878,006	\$460,500	\$102,146	\$2,167,311	\$50,660	\$41,405	\$4,453	\$163,784	\$269,136	\$12,590,223

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
LRT A-C-D1 and A-C-D2**

SUMMARY OF BUS O&M COST ESTIMATES (Corridor Costs Over No-Build)

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Internal Audit			-\$875							-\$37	-\$912
	Executive	-\$2,786	-\$2,346	-\$4,813	-\$385	-\$472	-\$1,995	-\$5,142			-\$6,339	-\$24,278
	Police/Security	\$24,736	\$12,193		\$0	-\$306	-\$156	-\$79				\$36,388
	Safety	\$5,208	\$3,507		-\$23	-\$15		-\$89				\$8,585
Administrative	Customer Relations	-\$1,493	-\$972		-\$7	-\$38		-\$30				-\$2,540
	Transit Info Ctr.	-\$109,961	-\$79,319		-\$2,760	-\$14,745	-\$70	-\$220	-\$143			-\$207,217
	Marketing	-\$14,416	-\$8,510	-\$2,336	-\$5,107	-\$2,046		-\$4,531	-\$274		-\$799	-\$38,018
	Service Development	\$10,647	\$6,545		-\$135	-\$4	-\$5					\$17,026
	Finance	\$33,854	\$23,154	\$5,842	\$4,132	\$6,109	-\$264	-\$42	-\$285		\$1,242	\$73,741
	Purchasing	\$4,370	\$2,904	\$2,333	\$0	\$0	\$0	\$0				\$9,608
	Human Resources			\$44,503	\$0	\$0					\$16,393	\$60,897
	Information Services			\$70,223				-\$62			\$60,960	\$131,121
Engineering & Facilities	Eng. & Facilities	-\$8,237	-\$11,804		\$0	\$0	\$0	\$0	\$0			-\$20,042
	System facilities Eng.				\$0	\$0	\$0	\$0	\$0			\$0
	Garage Bldg. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Other Fac. Maint.	-\$47,355	-\$36,289		-\$52,220	-\$10,280	-\$51,793	-\$111	-\$17,733			-\$215,780
	Landscaping/Phone Admin.			-\$248				-\$103	-\$613		-\$140	-\$1,104
Bus Operations	Bus Transp. Admin.	\$1,854	\$998		\$0	\$0	\$0	\$0	\$0			\$2,852
	Operating Divisions	\$1,178,230	\$832,457		\$0	\$0	\$0	\$0				\$2,010,687
	District Street Superv.	-\$82,318	-\$41,971		-\$805	-\$1,216	-\$930	-\$81	-\$171			-\$127,492
	Transit Control Ctr.	\$2,485	\$1,431		\$20	\$149	\$981	\$93				\$5,160
	Oper. Instruct. & Dev.	\$14,100	\$11,428		\$74	\$228	\$0	\$229	\$26			\$26,085
	Parts & Warranty Admin.	-\$8,295	-\$5,845		\$0	\$0	\$0	\$0				-\$14,141
	Garage Maint. Divisions	\$316,762	\$231,563		\$0	\$702,731	\$0	\$152	\$0			\$1,251,209
	Non-Rev. Vehicles	-\$316	\$5,916		-\$45	-\$1,154		-\$1	-\$1			\$4,400
	Heavy Maint. Functions	\$80,903	\$67,599		\$4,259	-\$46,131	\$13,606	\$88	\$763			\$121,086
	Risk Mgmt.			\$23,410	\$16,569					\$58,726	\$3,964	\$102,670
TOTAL COSTS		\$1,397,973	\$1,012,640	\$138,040	-\$36,433	\$632,809	-\$40,628	-\$9,951	-\$18,431	\$58,726	\$75,246	\$3,209,990

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
LRT B-C-D1 and B-C-D2**

SUMMARY OF BUS O&M COST ESTIMATES (Corridor Costs Over No-Build)

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Internal Audit			-\$2,042							-\$86	-\$2,128
	Executive	-\$6,501	-\$5,475	-\$11,230	-\$898	-\$1,102	-\$4,656	-\$11,997			-\$14,790	-\$56,649
	Police/Security	\$8,196	\$4,040		\$0	-\$715	-\$364	-\$183				\$10,975
	Safety	\$1,926	\$1,297		-\$54	-\$36	-\$4	-\$209				\$2,921
Administrative	Customer Relations	-\$3,483	-\$2,269		-\$16	-\$88		-\$70				-\$5,926
	Transit Info Ctr.	-\$109,961	-\$79,319		-\$2,760	-\$14,745	-\$70	-\$220	-\$143			-\$207,217
	Marketing	-\$17,398	-\$10,270	-\$2,819	-\$11,916	-\$4,775		-\$10,572	-\$640		-\$964	-\$59,355
	Service Development	\$3,528	\$2,169		-\$315	-\$9	-\$12	-\$53				\$5,308
	Finance	\$11,217	\$7,672	\$1,936	\$1,369	\$2,024	-\$616	-\$98	-\$666		\$412	\$23,249
	Purchasing	\$3,108	\$2,066	\$1,660	\$0	\$0	\$0	\$0				\$6,834
	Human Resources			\$32,823	\$0	\$0					\$12,091	\$44,913
	Information Services			\$51,792				-\$62			\$44,960	\$96,690
Engineering & Facilities	Eng. & Facilities	-\$8,237	-\$11,804		\$0	\$0	\$0	\$0	\$0			-\$20,042
	System facilities Eng.				\$0	\$0	\$0	\$0	\$0			\$0
	Garage Bldg. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Other Fac. Maint.	-\$47,355	-\$36,289		-\$52,220	-\$10,280	-\$51,793	-\$111	-\$17,733			-\$215,780
	Landscaping/Phone Admin.			-\$248				-\$103	-\$613		-\$140	-\$1,104
Bus Operations	Bus Transp. Admin.	\$1,429	\$769		\$0	\$0	\$0	\$0	\$0			\$2,198
	Operating Divisions	\$907,903	\$641,463		\$0	\$0	\$0	\$0				\$1,549,366
	District Street Superv.	-\$84,255	-\$42,958		-\$805	-\$1,216	-\$930	-\$81	-\$171			-\$130,417
	Transit Control Ctr.	-\$5,563	-\$3,204		\$16	\$115	\$756	\$72				-\$7,809
	Oper. Instruct. & Dev.	\$10,865	\$8,806		\$57	\$176	\$0	\$176	\$20			\$20,100
	Parts & Warranty Admin.	-\$19,356	-\$13,639		\$0	\$0	\$0	\$0				-\$32,995
	Garage Maint. Divisions	\$222,925	\$162,965		\$0	\$487,081	\$0	\$108	\$0			\$873,079
	Non-Rev. Vehicles	-\$2,320	\$3,984		-\$104	-\$2,693		-\$1	-\$3			-\$1,137
	Heavy Maint. Functions	\$56,920	\$47,560		\$3,029	-\$32,321	\$9,678	\$62	\$543			\$85,472
	Risk Mgmt.			\$16,653	\$11,786						\$41,774	\$2,820
TOTAL COSTS		\$923,588	\$677,563	\$88,523	-\$52,831	\$421,416	-\$48,010	-\$23,343	-\$19,405	\$41,774	\$44,302	\$2,053,579

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
BRT Alternative**

SUMMARY OF BUS O&M COST ESTIMATES (Corridor Costs Over No-Build)

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Internal Audit			-\$2,626							-\$111	-\$2,736
	Executive	-\$8,359	-\$7,039	-\$14,438	-\$1,155	-\$1,416	-\$5,986	-\$15,425			-\$19,016	-\$72,834
	Police/Security	-\$6,708	-\$3,306		\$0	-\$919	-\$467	-\$236				-\$11,637
	Safety	-\$360	-\$242		-\$70	-\$46	-\$5	-\$268				-\$990
Administrative	Customer Relations	-\$4,478	-\$2,917		-\$20	-\$113		-\$90				-\$7,619
	Transit Info Ctr.	-\$109,961	-\$79,319		-\$2,760	-\$14,745	-\$70	-\$220	-\$143			-\$207,217
	Marketing	-\$18,890	-\$11,150	-\$3,061	-\$15,320	-\$6,139		-\$13,593	-\$823		-\$1,047	-\$70,023
	Service Development	-\$2,887	-\$1,775		-\$405	-\$12	-\$15	-\$69				-\$5,163
	Finance	-\$9,181	-\$6,279	-\$1,584	-\$1,121	-\$1,657	-\$793	-\$127	-\$856		-\$337	-\$21,933
	Purchasing	\$2,031	\$1,350	\$1,084	\$0	\$0	\$0	\$0				\$4,465
	Human Resources			\$20,324	\$0	\$0					\$7,487	\$27,811
	Information Services			\$32,070				-\$62			\$27,840	\$59,847
Engineering & Facilities	Eng. & Facilities	-\$8,237	-\$11,804		\$0	\$0	\$0	\$0	\$0			-\$20,042
	System facilities Eng.				\$0	\$0	\$0	\$0	\$0			\$0
	Garage Bldg. Maint.	\$0	\$0		\$0	\$0	\$0	\$0	\$0			\$0
	Other Fac. Maint.	-\$47,355	-\$36,289		-\$52,220	-\$10,280	-\$51,793	-\$111	-\$17,733			-\$215,780
	Landscaping/Phone Admin.			-\$248				-\$103	-\$613		-\$140	-\$1,104
Bus Operations	Bus Transp. Admin.	\$828	\$446		\$0	\$0	\$0	\$0	\$0			\$1,273
	Operating Divisions	\$526,064	\$371,682		\$0	\$0	\$0	\$0				\$897,746
	District Street Superv.	-\$86,991	-\$44,353		-\$805	-\$1,216	-\$930	-\$81	-\$171			-\$134,548
	Transit Control Ctr.	-\$11,110	-\$6,398		\$9	\$67	\$438	\$42				-\$16,953
	Oper. Instruct. & Dev.	\$6,295	\$5,103		\$33	\$102	\$0	\$102	\$12			\$11,646
	Parts & Warranty Admin.	-\$24,886	-\$17,536		\$0	\$0	\$0	\$0				-\$42,422
	Garage Maint. Divisions	\$158,678	\$115,998		\$0	\$344,671	\$0	\$71	\$0			\$619,418
	Non-Rev. Vehicles	-\$3,421	\$2,399		-\$134	-\$3,462		-\$2	-\$4			-\$4,625
	Heavy Maint. Functions	\$40,603	\$33,927		\$1,979	-\$23,796	\$6,323	\$41	\$355			\$59,432
	Risk Mgmt.			\$10,880	\$7,701						\$27,294	\$1,843
TOTAL COSTS		\$391,676	\$302,494	\$42,401	-\$64,288	\$281,038	-\$53,298	-\$30,130	-\$19,976	\$27,294	\$16,519	\$893,730

Appendix B
Metro Transit LRT Service
O&M Cost Model Summary Results
By Alternative (Corridor Costs Only)

Costs are in 2011 dollars

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
LRT A-C-D1
SUMMARY OF LRT O&M COST ESTIMATES (Corridor-Only LRT Costs)**

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Executive	\$31,817	\$26,794	\$54,959	\$3,176	\$5,392	\$27,344	\$58,713			\$72,384	\$280,579
	Police/Security	\$1,074,047	\$529,396		\$44,193	\$23,664	\$17,488	\$5,310				\$1,694,098
Administrative	Customer Relations	\$36,483	\$23,762		\$167	\$923		\$733				\$62,068
	Transit Info Ctr.	\$79,426	\$57,293		\$1,993	\$10,651	\$50	\$159	\$103			\$149,676
	Marketing	\$69,495	\$41,023	\$11,261	\$113,324	\$45,409		\$100,549	\$6,086		\$3,851	\$390,997
	Service Development	\$64,429	\$39,606		\$1,452	\$42	\$54	\$247				\$105,830
Rail Operations	AGM Rail Operations	\$332,489	\$232,556		\$30,548	\$6,622	\$783,952	\$90,064	\$18,390			\$1,494,621
	Rail Transportation Admin.	\$930,969	\$731,723		\$1,232	\$32,313		\$861				\$1,697,098
	Rail Operators	\$1,592,180	\$1,358,216		\$992	\$7,557	\$1,451,689	\$46				\$4,410,679
	HLRT Vehicle Maintenance	\$2,024,968	\$1,729,794		\$66,068	\$1,167,477		\$4,171				\$4,992,479
	HLRT System Maintenance	\$2,062,046	\$1,540,596		\$296,083	\$391,056		\$10,844	\$6,887			\$4,307,511
	Stores	\$199,011	\$165,626					-\$100				\$364,536
	Rail Facility Maintenance	\$201,504	\$168,736		\$66,606	\$133,819	\$10,688					\$581,352
	Janitors	\$167,581	\$151,258		\$212,516	\$49,712	\$3,986		\$5,020			\$590,072
	Bus Op's Direct Charged	\$201,412	\$125,144	\$356,259	\$71,297	\$147,807		\$234	\$19,457	\$182,757	\$137,146	\$1,241,513
TOTAL COSTS		\$9,067,857	\$6,921,522	\$422,480	\$909,647	\$2,022,443	\$2,295,251	\$271,829	\$55,942	\$182,757	\$213,380	\$22,363,109

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
LRT A-C-D2
SUMMARY OF LRT O&M COST ESTIMATES (Corridor-Only LRT Costs)**

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Executive	\$34,999	\$29,474	\$60,455	\$3,737	\$5,931	\$27,344	\$64,584			\$79,622	\$306,145
	Police/Security	\$1,181,054	\$582,140		\$48,596	\$26,022	\$17,488	\$6,248				\$1,861,547
Administrative	Customer Relations	\$42,926	\$27,958		\$196	\$1,086		\$863				\$73,029
	Transit Info Ctr.	\$79,426	\$57,293		\$1,993	\$10,651	\$50	\$159	\$103			\$149,676
	Marketing	\$74,459	\$43,953	\$12,066	\$124,656	\$49,950		\$110,603	\$6,694		\$4,126	\$426,507
	Service Development	\$70,872	\$43,567		\$1,597	\$47	\$60	\$271				\$116,413
Rail Operations	AGM Rail Operations	\$360,077	\$251,852		\$34,585	\$6,622	\$791,638	\$101,964	\$18,390			\$1,565,127
	Rail Transportation Admin.	\$992,763	\$780,292		\$1,450	\$34,458		\$1,013				\$1,809,975
	Rail Operators	\$1,859,474	\$1,586,232		\$1,167	\$8,891	\$1,486,696	\$54				\$4,942,516
	HLRT Vehicle Maintenance	\$2,042,542	\$1,744,806		\$66,641	\$1,177,609		\$4,207				\$5,035,805
	HLRT System Maintenance	\$2,080,019	\$1,554,024		\$298,664	\$394,464		\$10,938	\$6,947			\$4,345,056
	Stores	\$199,011	\$165,626					-\$100				\$364,536
	Rail Facility Maintenance	\$201,504	\$168,736		\$66,606	\$133,819	\$10,688					\$581,352
	Janitors	\$179,552	\$162,062		\$212,516	\$53,263	\$3,986		\$5,020			\$616,398
Bus Op's Direct Charged	\$236,984	\$147,246	\$419,178	\$83,889	\$173,911		\$276	\$22,893	\$215,034	\$161,367	\$1,460,778	
TOTAL COSTS		\$9,635,660	\$7,345,260	\$491,699	\$946,293	\$2,076,723	\$2,337,950	\$301,080	\$60,047	\$215,034	\$245,115	\$23,654,862

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
LRT B-C-D1
SUMMARY OF LRT O&M COST ESTIMATES (Corridor-Only LRT Costs)**

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Executive	\$34,999	\$29,474	\$60,455	\$3,737	\$5,931	\$27,344	\$64,584			\$79,622	\$306,145
	Police/Security	\$1,177,578	\$580,427		\$48,453	\$25,945	\$17,488	\$6,248				\$1,856,139
Administrative	Customer Relations	\$42,926	\$27,958		\$196	\$1,086		\$863				\$73,029
	Transit Info Ctr.	\$79,426	\$57,293		\$1,993	\$10,651	\$50	\$159	\$103			\$149,676
	Marketing	\$74,459	\$43,953	\$12,066	\$124,656	\$49,950		\$110,603	\$6,694		\$4,126	\$426,507
	Service Development	\$70,872	\$43,567		\$1,597	\$47	\$60	\$271				\$116,413
Rail Operations	AGM Rail Operations	\$360,077	\$251,852		\$34,585	\$6,622	\$783,952	\$101,964	\$18,390			\$1,557,441
	Rail Transportation Admin.	\$992,763	\$780,292		\$1,450	\$34,458		\$1,013				\$1,809,975
	Rail Operators	\$1,859,474	\$1,586,232		\$1,167	\$8,891	\$1,538,397	\$54				\$4,994,216
	HLRT Vehicle Maintenance	\$2,129,329	\$1,818,943		\$69,473	\$1,227,645		\$4,386				\$5,249,775
	HLRT System Maintenance	\$2,168,253	\$1,619,945		\$311,333	\$411,197		\$11,402	\$7,241			\$4,529,371
	Stores	\$199,011	\$165,626					-\$100				\$364,536
	Rail Facility Maintenance	\$201,504	\$168,736		\$66,606	\$133,819	\$10,688					\$581,352
	Janitors	\$167,581	\$151,258		\$212,516	\$49,712	\$3,986		\$5,020			\$590,072
	Bus Op's Direct Charged	\$236,984	\$147,246	\$419,178	\$83,889	\$173,911		\$276	\$22,893	\$215,034	\$161,367	\$1,460,778
TOTAL COSTS		\$9,795,235	\$7,472,800	\$491,699	\$961,651	\$2,139,865	\$2,381,964	\$301,723	\$60,341	\$215,034	\$245,115	\$24,065,428

**METRO TRANSIT O&M COSTS
SUMMARY OF COST ESTIMATES FOR:
LRT B-C-D2
SUMMARY OF LRT O&M COST ESTIMATES (Corridor-Only LRT Costs)**

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS
Executive	Executive	\$38,180	\$32,153	\$65,951	\$4,138	\$6,470	\$27,344	\$70,455			\$86,860	\$331,553
	Police/Security	\$1,261,033	\$621,561		\$51,887	\$27,784	\$17,488	\$6,920				\$1,986,673
Administrative	Customer Relations	\$47,541	\$30,964		\$218	\$1,202		\$956				\$80,880
	Transit Info Ctr.	\$79,426	\$57,293		\$1,993	\$10,651	\$50	\$159	\$103			\$149,676
	Marketing	\$79,423	\$46,883	\$12,870	\$135,989	\$54,491		\$120,658	\$7,303		\$4,401	\$462,018
	Service Development	\$77,315	\$47,527		\$1,742	\$51	\$65	\$296				\$126,996
Rail Operations	AGM Rail Operations	\$383,275	\$268,077		\$37,979	\$6,622	\$791,638	\$111,972	\$18,390			\$1,617,952
	Rail Transportation Admin.	\$1,037,021	\$815,077		\$1,606	\$35,994		\$1,122				\$1,890,820
	Rail Operators	\$2,050,915	\$1,749,542		\$1,293	\$9,847	\$1,573,463	\$60				\$5,385,120
	HLRT Vehicle Maintenance	\$2,147,000	\$1,834,038		\$70,049	\$1,237,834		\$4,422				\$5,293,344
	HLRT System Maintenance	\$2,186,226	\$1,633,373		\$313,914	\$414,606		\$11,497	\$7,302			\$4,566,917
	Stores	\$199,011	\$165,626					-\$100				\$364,536
	Rail Facility Maintenance	\$201,504	\$168,736		\$66,606	\$133,819	\$10,688					\$581,352
	Janitors	\$179,552	\$162,062		\$212,516	\$53,263	\$3,986		\$5,020			\$616,398
	Bus Op's Direct Charged	\$262,461	\$163,075	\$464,242	\$92,908	\$192,608		\$305	\$25,354	\$238,152	\$178,715	\$1,617,819
TOTAL COSTS		\$10,229,882	\$7,795,989	\$543,063	\$992,837	\$2,185,241	\$2,424,722	\$328,721	\$63,471	\$238,152	\$269,976	\$25,072,053

Appendix C
Metro Transit BRT Service
O&M Cost Model Summary Results
(Corridor Costs Only)
Costs are in 2011 dollars

**METRO TRANSIT O&M COSTS
SUMMARY OF BRT-SPECIFIC COST ESTIMATES FOR:
BRT Alternative**

Division	Department	Labor	Fringe Benefits	Met Council Labor/Fringe	Contract Services	Materials & Supplies	Utilities	Misc.	Leases & Rentals	Casualty & Liability	Met Council Non-Labor	TOTAL COSTS	
Executive	Internal Audit			\$5,543							\$233	\$5,777	
	Executive	\$17,646	\$14,860	\$30,481	\$2,438	\$2,990	\$12,638	\$32,563			\$40,145	\$153,761	
	Safety	\$46,201	\$31,109		\$147	\$96	\$11	\$566				\$78,131	
Administrative	Customer Relations	\$9,454	\$6,158		\$43	\$239		\$190				\$16,084	
	Marketing	\$14,167	\$8,363	\$2,296	\$32,343	\$12,960		\$28,697	\$1,737		\$785	\$101,347	
	Service Development	\$51,931	\$31,923		\$854	\$25	\$32	\$145				\$84,910	
	Finance	\$165,116	\$112,930	\$28,491	\$20,155	\$29,794	\$1,673	\$267	\$1,807		\$6,059	\$366,293	
	Purchasing	\$27,207	\$18,084	\$14,528								\$59,820	
	Human Resources			\$202,141								\$74,461	\$276,602
	Information Services			\$318,964								\$276,889	\$595,853
Bus Operations	Bus Transp. Admin.	\$4,483	\$2,413									\$6,896	
	Operating Divisions	\$2,848,715	\$2,012,710									\$4,861,425	
	District Street Superv.	\$20,413	\$10,408									\$30,820	
	Transit Control Ctr.	\$47,887	\$27,577		\$49	\$361	\$2,372	\$225				\$78,470	
	Oper. Instruct. & Dev.	\$34,090	\$27,631		\$178	\$551	\$1	\$552	\$64			\$63,067	
	Parts & Warranty Admin.	\$52,537	\$37,021									\$89,558	
	Garage Maint. Divisions	\$2,386,133	\$1,744,339			\$5,463,962		\$949				\$9,595,383	
	Non-Rev. Vehicles	\$14,259	\$38,574		\$283	\$7,309		\$3	\$9			\$60,437	
	Heavy Maint. Functions	\$612,189	\$511,524		\$26,515	-\$372,344	\$84,713	\$546	\$4,751			\$867,894	
	Risk Mgmt.			\$145,762	\$103,164					\$365,647	\$24,684	\$639,257	
BRT-Specific Cost Items	BRT Station Maintenance	\$167,581	\$151,258		\$212,516	\$49,712	\$3,986		\$5,020			\$590,072	
	BRT On-Street Station Maint.				\$186,499							\$186,499	
	Station Utilities						\$107,601					\$107,601	
	Police/Security	\$912,538	\$449,789		\$37,548	\$20,106		\$3,692				\$1,423,673	
	BRT Guideway Maintenance				\$372,173							\$372,173	
TOTAL COSTS		\$7,432,548	\$5,236,671	\$748,206	\$994,904	\$5,215,761	\$213,028	\$68,395	\$13,387	\$365,647	\$423,256	\$20,711,802	

Appendix C
Metropolitan Council-Funded Corridor Bus Service
O&M Cost Model Results
By Alternative (Corridor Costs Only)
Costs are in 2011 dollars

No-Build Alternative

Met Council-Funded Routes
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

											No-Build Alt.	
											(Corridor Costs Over Existing)	
											Inflation Factor: 1.030	
56tf6t	2010 Expenses	Existing Unit Cost Adjusted	Supply Variable Unit Costs (\$2010)			Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$: 2010	
			Revenue Veh-Hours	Revenue Veh-Miles	Peak Vehicles	Resource Variable	Resource Value	Resource/Supply			Resource Unit Cost	Resource Unit Cost
VEHICLE OPERATION	\$1,062,995		\$34.09			Revenue Hours	31,183	1.000	\$34.09	1.030	\$35.12	\$148,962
VEHICLE MAINTENANCE	\$333,672			\$0.78		Revenue Miles	429,892	1.000	\$0.78	1.030	\$0.80	\$32,388
NON-VEHICLE MAINTENANCE	\$5,573				\$398.10	Peak Vehicles	14	1.000	\$398.10	1.030	\$410.20	\$410
GENERAL ADMINISTRATION	\$471,893				\$33,707	Peak Vehicles	14	1.000	\$33,707	1.030	\$34,731	\$34,731
TOTALS	\$1,874,133		\$34.09	\$0.78	\$34,105						\$216,491	
2010 Resource Variable Values												
											Veh-Hours	4,241
											Veh-Miles	40,498
											Peak Vehicles	1

Baseline Alternative

Met Council-Funded Routes
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

											Baseline Alt.	
											(Corridor Costs Over No-Build)	
											Inflation Factor: 1.030	
56tf6t	2010 Expenses	Existing Unit Cost Adjusted	Supply Variable Unit Costs (\$2010)			Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$: 2010	
			Revenue Veh-Hours	Revenue Veh-Miles	Peak Vehicles	Resource Variable	Resource Value	Resource/Supply			Resource Unit Cost	Resource Unit Cost
VEHICLE OPERATION	\$1,062,995		\$34.09			Revenue Hours	31,183	1.000	\$34.09	1.030	\$35.12	\$523,526
VEHICLE MAINTENANCE	\$333,672			\$0.78		Revenue Miles	429,892	1.000	\$0.78	1.030	\$0.80	\$148,971
NON-VEHICLE MAINTENANCE	\$5,573				\$398.10	Peak Vehicles	14	1.000	\$398.10	1.030	\$410.20	\$1,231
GENERAL ADMINISTRATION	\$471,893				\$33,707	Peak Vehicles	14	1.000	\$33,707	1.030	\$34,731	\$104,192
TOTALS	\$1,874,133		\$34.09	\$0.78	\$34,105						\$777,919	
2010 Resource Variable Values												
											Veh-Hours	14,905
											Veh-Miles	186,271
											Peak Vehicles	3

LRT A-C-D1 and A-C-D2

Met Council-Funded Routes
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

LRT A-C-D1 and A-C-D2												
(Corridor Costs Over No-Build)												
Inflation Factor:											1.030	
56tf6t	2010 Expenses	Existing Unit Cost Adjusted	Supply Variable Unit Costs (\$2010)			Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$:	
			Revenue Veh-Hours	Revenue Veh-Miles	Peak Vehicles	Resource Variable	Resource Value	Resource/ Supply			2010 Resource Unit Cost	Estimated Annual Cost
VEHICLE OPERATION	\$1,062,995		\$34.09			Revenue Hours	31,183	1.000	\$34.09	1.030	\$35.12	\$587,311
VEHICLE MAINTENANCE	\$333,672			\$0.78		Revenue Miles	429,892	1.000	\$0.78	1.030	\$0.80	\$164,578
NON-VEHICLE MAINTENANCE	\$5,573				\$398.10	Peak Vehicles	14	1.000	\$398.10	1.030	\$410.20	\$1,641
GENERAL ADMINISTRATION	\$471,893				\$33,707	Peak Vehicles	14	1.000	\$33,707	1.030	\$34,731	\$138,922
TOTALS	\$1,874,133		\$34.09	\$0.78	\$34,105						\$892,452	
2010 Resource Variable Values											Veh-Hours	16,721
											Veh-Miles	205,785
											Peak Vehicles	4

LRT B-C-D1 and B-C-D2

Met Council-Funded Routes
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

LRT B-C-D1 and B-C-D2												
(Corridor Costs Over No-Build)												
Inflation Factor:											1.030	
56tf6t	2010 Expenses	Existing Unit Cost Adjusted	Supply Variable Unit Costs (\$2010)			Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$:	
			Revenue Veh-Hours	Revenue Veh-Miles	Peak Vehicles	Resource Variable	Resource Value	Resource/ Supply			2010 Resource Unit Cost	Estimated Annual Cost
VEHICLE OPERATION	\$1,062,995		\$34.09			Revenue Hours	31,183	1.000	\$34.09	1.030	\$35.12	\$523,526
VEHICLE MAINTENANCE	\$333,672			\$0.78		Revenue Miles	429,892	1.000	\$0.78	1.030	\$0.80	\$148,971
NON-VEHICLE MAINTENANCE	\$5,573				\$398.10	Peak Vehicles	14	1.000	\$398.10	1.030	\$410.20	\$1,231
GENERAL ADMINISTRATION	\$471,893				\$33,707	Peak Vehicles	14	1.000	\$33,707	1.030	\$34,731	\$104,192
TOTALS	\$1,874,133		\$34.09	\$0.78	\$34,105						\$777,919	
2010 Resource Variable Values											Veh-Hours	14,905
											Veh-Miles	186,271
											Peak Vehicles	3

BRT Alternative

Met Council-Funded Routes
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

BRT Alternative
(Corridor Costs Over No-Build)
Inflation Factor: **1.030**

56tf6t	2010 Expenses	Existing Unit Cost Adjusted	Supply Variable Unit Costs (\$2010)			Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$: 2010	
			Revenue Veh-Hours	Revenue Veh-Miles	Peak Vehicles	Resource Variable	Resource Value	Resource/Supply			Resource Unit Cost	Estimated Annual Cost
VEHICLE OPERATION	\$1,062,995		\$34.09			Revenue Hours	31,183	1.000	\$34.09	1.030	\$35.12	\$523,526
VEHICLE MAINTENANCE	\$333,672			\$0.78		Revenue Miles	429,892	1.000	\$0.78	1.030	\$0.80	\$150,919
NON-VEHICLE MAINTENANCE	\$5,573				\$398.10	Peak Vehicles	14	1.000	\$398.10	1.030	\$410.20	\$1,231
GENERAL ADMINISTRATION	\$471,893				\$33,707	Peak Vehicles	14	1.000	\$33,707	1.030	\$34,731	\$104,192
TOTALS	\$1,874,133		\$34.09	\$0.78	\$34,105						\$779,868	
2010 Resource Variable Values			31,183	429,892	14						Veh-Hours	14,905
											Veh-Miles	188,707
											Peak Vehicles	3

Appendix D
Maple Grove Transit Corridor Bus Service
O&M Cost Model Results
By Alternative (Corridor Costs Only)
Costs are in 2011 dollars

Maple Grove Transit
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

														No-Build Alternative	
														(Corridor Costs Over Existing)	
														Inflation Factor: 1.030	
														Year of \$: 2011	
Expense Line Item	2010 Expenses	Existing Unit Cost Adjusted	Bus Supply Variable Unit Cost Rate (\$2010)					Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Resource Unit Cost	Estimated Annual Cost	
			MT Total Bus Hours	MP Total Veh Hours	MT Total Bus Miles	MP Total Veh Miles	MT Peak Buses	MP Peak Vehicles	Resource Variable	Resource Value	Resource/Supply				
PURCHASED TRANSPORTATION - METRO TRANSIT															
VEHICLE OPERATION	\$2,634,961		\$144.06						MT Hours	18,291	1.000	\$144.06	1.030	\$148.43	\$946,268
VEHICLE MAINTENANCE	\$198,330				\$0.46				MT Miles	432,302	1.000	\$0.46	1.030	\$0.47	\$58,113
MAPLE GROVE TRANSIT ADMINISTRATION	\$149,525					\$5,340			MT Peak Buses	28	1.0	\$5,340	1.030	\$5,502	\$27,512
PURCHASED TRANSPORTATION - MIDWEST PARATRANSIT															
VEHICLE OPERATION	\$95,811			\$97.57					MP Hours	982	1.000	\$97.57	1.030	\$100.53	\$12,818
VEHICLE MAINTENANCE	\$4,065				\$0.38				MP Miles	10,748	1.000	\$0.38	1.030	\$0.39	\$2,445
MAPLE GROVE TRANSIT ADMINISTRATION	\$5,340						\$5,340		MP Peak Vehicles	1	1.000	\$5,340	1.030	\$5,502.41	\$5,502
NON-VEHICLE MAINTENANCE															
MAPLE GROVE TRANSIT - MT Peak Bus driven	\$157,327					\$5,619			MT Peak Buses	28	1.0	\$5,619	1.030	\$5,789.52	\$28,948
MAPLE GROVE TRANSIT - MP Peak Vehicle driven	\$5,619						\$5,619		MP Peak Vehicles	1	1.000	\$5,619	1.030	\$5,789.52	\$5,790
TOTALS	\$3,250,978		\$144.06	\$97.57	\$0.46	\$0.38	\$10,959	\$10,959							\$1,087,395
2010 Resource Variable Values														MT Hours	6,375
														MP Hours	128
														MT Miles	122,936
														MP Miles	6,273
														MT Peak Buses	5
														MP Peak Veh	1

Maple Grove Transit
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

														Baseline Alternative	
														(Corridor Costs Over No-Build)	
														Inflation Factor: 1.030	
														Year of \$: 2011	
Expense Line Item	2010 Expenses	Existing Unit Cost Adjusted	Bus Supply Variable Unit Cost Rate (\$2010)					Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Resource Unit Cost	Estimated Annual Cost	
			MT Total Bus Hours	MP Total Veh Hours	MT Total Bus Miles	MP Total Veh Miles	MT Peak Buses	MP Peak Vehicles	Resource Variable	Resource Value	Resource/Supply				
PURCHASED TRANSPORTATION - METRO TRANSIT															
VEHICLE OPERATION	\$2,634,961		\$144.06						MT Hours	18,291	1.000	\$144.06	1.030	\$148.43	\$1,419,402
VEHICLE MAINTENANCE	\$198,330				\$0.46				MT Miles	432,302	1.000	\$0.46	1.030	\$0.47	\$28,364
MAPLE GROVE TRANSIT ADMINISTRATION	\$149,525					\$5,340			MT Peak Buses	28	1.0	\$5,340	1.030	\$5,502	\$0
PURCHASED TRANSPORTATION - MIDWEST PARATRANSIT															
VEHICLE OPERATION	\$95,811			\$97.57					MP Hours	982	1.000	\$97.57	1.030	\$100.53	\$499,890
VEHICLE MAINTENANCE	\$4,065				\$0.38				MP Miles	10,748	1.000	\$0.38	1.030	\$0.39	\$29,960
MAPLE GROVE TRANSIT ADMINISTRATION	\$5,340						\$5,340		MP Peak Vehicles	1	1.000	\$5,340	1.030	\$5,502.41	\$0
NON-VEHICLE MAINTENANCE															
MAPLE GROVE TRANSIT - MT Peak Bus driven	\$157,327					\$5,619			MT Peak Buses	28	1.0	\$5,619	1.030	\$5,789.52	\$0
MAPLE GROVE TRANSIT - MP Peak Vehicle driven	\$5,619						\$5,619		MP Peak Vehicles	1	1.000	\$5,619	1.030	\$5,789.52	\$0
TOTALS	\$3,250,978		\$144.06	\$97.57	\$0.46	\$0.38	\$10,959	\$10,959							\$1,977,616
2010 Resource Variable Values														MT Hours	9,563
														MP Hours	4,973
														MT Miles	60,002
														MP Miles	76,883
														MT Peak Buses	0
														MP Peak Veh	0

Maple Grove Transit
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

														LRT A-C-D1 and A-C-D2 (Corridor Costs Over No-Build)		
														Inflation Factor: 1.030		
Expense Line Item	2010 Expenses	Existing Unit Cost Adjusted	Bus Supply Variable Unit Cost Rate (\$2010)					Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$: 2011			
			MT Total Bus Hours	MP Total Veh Hours	MT Total Bus Miles	MP Total Veh Miles	MT Peak Buses	MP Peak Vehicles	Resource Variable	Resource Value			Resource/Supply	Resource Unit Cost	Estimated Annual Cost	
PURCHASED TRANSPORTATION - METRO TRANSIT																
VEHICLE OPERATION	\$2,634,961		\$144.06							MT Hours	18,291	1.000	\$144.06	1.030	\$148.43	\$1,665,431
VEHICLE MAINTENANCE	\$198,330				\$0.46					MT Miles	432,302	1.000	\$0.46	1.030	\$0.47	\$32,679
MAPLE GROVE TRANSIT ADMINISTRATION	\$149,525						\$5,340			MT Peak Buses	28	1.0	\$5,340	1.030	\$5,502	(\$11,005)
PURCHASED TRANSPORTATION - MIDWEST PARATRANSIT																
VEHICLE OPERATION	\$95,811			\$97.57						MP Hours	982	1.000	\$97.57	1.030	\$100.53	\$884,421
VEHICLE MAINTENANCE	\$4,065					\$0.38				MP Miles	10,748	1.000	\$0.38	1.030	\$0.39	\$46,028
MAPLE GROVE TRANSIT ADMINISTRATION	\$5,340							\$5,340		MP Peak Vehicles	1	1.000	\$5,340	1.030	\$5,502.41	\$5,502
NON-VEHICLE MAINTENANCE																
MAPLE GROVE TRANSIT - MT Peak Bus driven	\$157,327							\$5,619		MT Peak Buses	28	1.0	\$5,619	1.030	\$5,789.52	(\$11,579)
MAPLE GROVE TRANSIT - MP Peak Vehicle driven	\$5,619								\$5,619	MP Peak Vehicles	1	1.000	\$5,619	1.030	\$5,789.52	\$5,790
TOTALS	\$3,250,978		\$144.06	\$97.57	\$0.46	\$0.38	\$10,959	\$10,959								\$2,617,268
2010 Resource Variable Values														MT Hours	11,220	
														MP Hours	8,798	
														MT Miles	69,130	
														MP Miles	118,116	
														MT Peak Buses	-2	
														MP Peak Veh	1	

Maple Grove Transit
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

														LRT B-C-D1 and B-C-D2 (Corridor Costs Over No-Build)		
														Inflation Factor: 1.030		
Expense Line Item	2010 Expenses	Existing Unit Cost Adjusted	Bus Supply Variable Unit Cost Rate (\$2010)					Productivity Ratio			Base Year Resource Unit Cost	Inflation Factor	Year of \$: 2011			
			MT Total Bus Hours	MP Total Veh Hours	MT Total Bus Miles	MP Total Veh Miles	MT Peak Buses	MP Peak Vehicles	Resource Variable	Resource Value			Resource/Supply	Resource Unit Cost	Estimated Annual Cost	
PURCHASED TRANSPORTATION - METRO TRANSIT																
VEHICLE OPERATION	\$2,634,961		\$144.06							MT Hours	18,291	1.000	\$144.06	1.030	\$148.43	\$1,419,402
VEHICLE MAINTENANCE	\$198,330				\$0.46					MT Miles	432,302	1.000	\$0.46	1.030	\$0.47	\$28,364
MAPLE GROVE TRANSIT ADMINISTRATION	\$149,525						\$5,340			MT Peak Buses	28	1.0	\$5,340	1.030	\$5,502	\$0
PURCHASED TRANSPORTATION - MIDWEST PARATRANSIT																
VEHICLE OPERATION	\$95,811			\$97.57						MP Hours	982	1.000	\$97.57	1.030	\$100.53	\$499,890
VEHICLE MAINTENANCE	\$4,065					\$0.38				MP Miles	10,748	1.000	\$0.38	1.030	\$0.39	\$29,960
MAPLE GROVE TRANSIT ADMINISTRATION	\$5,340							\$5,340		MP Peak Vehicles	1	1.000	\$5,340	1.030	\$5,502.41	\$0
NON-VEHICLE MAINTENANCE																
MAPLE GROVE TRANSIT - MT Peak Bus driven	\$157,327							\$5,619		MT Peak Buses	28	1.0	\$5,619	1.030	\$5,789.52	\$0
MAPLE GROVE TRANSIT - MP Peak Vehicle driven	\$5,619								\$5,619	MP Peak Vehicles	1	1.000	\$5,619	1.030	\$5,789.52	\$0
TOTALS	\$3,250,978		\$144.06	\$97.57	\$0.46	\$0.38	\$10,959	\$10,959								\$1,977,616
2010 Resource Variable Values														MT Hours	9,563	
														MP Hours	4,973	
														MT Miles	60,002	
														MP Miles	76,883	
														MT Peak Buses	0	
														MP Peak Veh	0	

Maple Grove Transit
Bottineau Corridor Project
O&M Cost Model
BUS LINE ITEM DETAIL

Expense Line Item	2010 Expenses	Existing Unit Cost Adjusted	Bus Supply Variable Unit Cost Rate (\$2010)						Productivity Ratio			Base Year Resource Unit Cost	BRT Alternative (Corridor Costs Over No-Build) Inflation Factor: 1.030		
			MT Total Bus Hours	MP Total Veh Hours	MT Total Bus Miles	MP Total Veh Miles	MT Peak Buses	MP Peak Vehicles	Resource Variable	Resource Value	Resource/ Supply		Year of \$:		
													2011 Resource Unit Cost	2011 Estimated Annual Cost	
PURCHASED TRANSPORTATION - METRO TRANSIT															
VEHICLE OPERATION	\$2,634,961		\$144.06						MT Hours	18,291	1.000	\$144.06	1.030	\$148.43	\$1,419,402
VEHICLE MAINTENANCE	\$198,330				\$0.46				MT Miles	432,302	1.000	\$0.46	1.030	\$0.47	\$28,364
MAPLE GROVE TRANSIT ADMINISTRATION	\$149,525					\$5,340			MT Peak Buses	28	1.0	\$5,340	1.030	\$5,502	\$0
PURCHASED TRANSPORTATION - MIDWEST PARATRANSIT															
VEHICLE OPERATION	\$95,811			\$97.57					MP Hours	982	1.000	\$97.57	1.030	\$100.53	\$499,890
VEHICLE MAINTENANCE	\$4,065					\$0.38			MP Miles	10,748	1.000	\$0.38	1.030	\$0.39	\$29,960
MAPLE GROVE TRANSIT ADMINISTRATION	\$5,340						\$5,340		MP Peak Vehicles	1	1.000	\$5,340	1.030	\$5,502.41	\$0
NON-VEHICLE MAINTENANCE															
MAPLE GROVE TRANSIT - MT Peak Bus driven	\$157,327						\$5,619		MT Peak Buses	28	1.0	\$5,619	1.030	\$5,789.52	\$0
MAPLE GROVE TRANSIT - MP Peak Vehicle driven	\$5,619							\$5,619	MP Peak Vehicles	1	1.000	\$5,619	1.030	\$5,789.52	\$0
TOTALS	\$3,250,978		\$144.06	\$97.57	\$0.46	\$0.38	\$10,959	\$10,959							\$1,977,616
2010 Resource Variable Values															
			18,291	982	432,302	10,748	28	1							MT Hours 9,563
															MP Hours 4,973
															MT Miles 60,002
															MP Miles 76,883
															MT Peak Buses 0
															MP Peak Veh 0