

Southwest Ohio Regional
Transit Authority

**MetroMoves Bus /
Regional Rail System:
Financial Plan for the
Southwest Ohio
Regional Transit
Authority, Hamilton
County, Ohio**

Final Report

June 2002

**METROMOVES BUS / REGIONAL
RAIL SYSTEM: FINANCIAL PLAN
FOR THE SOUTHWEST OHIO
REGIONAL TRANSIT AUTHORITY,
HAMILTON COUNTY, OHIO**

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1. INTRODUCTION

1.1 Purpose of This Report

The purpose of this report is to summarize the costs, and determine a reasonable phasing plan and resulting revenue streams required for the Southwest Ohio Regional Transit Authority (SORTA) to complete construction and begin service in nine proposed light rail transit (“LRT”), commuter rail and streetcar corridors. Resources for a tenth project, the MetroMoves Bus expansion plan, are also included. The rail corridors and the MetroMoves Bus program are listed in Table 1 below.

Table 1: Bus Project and Rail Corridors Summary

Corridor or Project	Priority
MetroMoves Bus Service Expansion	1
Central Area Streetcar	2
Downtown-Uptown Area Streetcar	3
I-71 Corridor LRT	4
I-75 Corridor LRT	5
Western (I-74) Corridor LRT	6
Eastern Corridor	7
Southeast Corridor LRT	8
Crosstown Connection LRT	9
River Road/Lawrenceburg Commuter Rail	10

A model was developed to help determine a reasonable implementation schedule under assumptions about inflation, average rail and bus fares, and tax revenue growth. While some of the planned rail corridors extend beyond Hamilton County into neighboring jurisdictions, *the costs and revenue streams and phasing plan presented in this report are for the portions of the corridors within Hamilton County boundaries only.*

1.2 Key Assumptions

The key assumptions underlying this analysis have been grouped within three categories: project phasing assumptions, costing assumptions and funding assumptions.

1.2.1 Phasing Assumptions

The priority of implementation (shown in Table 1) is based on a ranking of the economic benefits of each project. The priority determines the order in which construction and commencement of service occurs. The MetroMoves bus program is to be implemented over a ten-year period beginning in 2003, with service to be introduced gradually over that period. For the rail corridors, on the other hand, all construction and vehicle acquisition must be complete before service can commence. It is assumed that the rail corridors are built sequentially, with construction taking place on *one project at a time over a period of 30 years*. No construction on rail projects begins until 2005 to allow for project startup activities.

1.2.2 Costing Assumptions

The capital and operating costs, the ridership and revenue forecasts for the MetroMoves bus expansion plan are taken from the HLB Decision Economics draft report entitled *Refined MetroMoves Project: Ridership, Revenue, Operating Cost Projections, and Financial Plan*, dated June 1, 2002.¹

Cost estimates for the rail corridors, both operating and capital, were supplied by Parsons Brinckerhoff in 2002 dollars. Capital costs were estimated specifically for the Hamilton County portion of each rail line. Operations and maintenance expenses were provided for the entire corridor and prorated based on the proportion of mileage within the county. Average daily ridership estimates for Hamilton County were determined as part of the regional rail plan and supplied by Parsons Brinckerhoff for Hamilton County.

All costs and revenues were escalated for inflation at a rate of 3.0 percent to determine the phasing and present values, although some figures are included in this report in 2002 dollars (in dollars of 2002) for comparison.

1.2.3 Funding Assumptions

With respect to the federal and state funding for the bus and rail projects, the assumptions are as follows: For the MetroMoves bus program, \$23 million in federal Section 5309 bus capital funding was assumed in Years 1 and 2 of the program. No other capital assistance from federal or state sources was included.

On the operating side, estimated state and formula funding was added to support operating costs. The amounts are based on SORTA's current experience and are added each year in proportion to the level of additional MetroMoves bus service as it is introduced gradually over the 10-year implementation period. Both before and after the achievement of steady state conditions in Year 10, throughout the forecast period covered by this report, formula funding is escalated for inflation.

The Regional Rail plan funding assumes a funding contribution for capital outlay of 50 percent federal and 25 percent state. No operating assistance from federal or state sources is included for the rail program.

1.3 Summary of Findings

The completion of all ten projects could be accomplished in a 30-year timeframe, from 2003 to 2032. Table 2, below, is a summary of the phasing and implementation schedule.

¹ The principal findings of HLB's draft report are summarized in Chapter 2.

Table 2: Project Phasing and Implementation Schedule

	Construction Period	Opening Year
MetroMoves Bus	2003-2012	2003
Central Area Streetcar	2005	2005
Downtown-Uptown Streetcar	2005	2005
I-71 Corridor LRT	2006-2013	2013
I-75 Corridor LRT	2013-2018	2018
Western (I-74) Corridor LRT	2018-2024	2024
Eastern Corridor	2020-2023	2029
Southeast Corridor LRT	2029-2030	2030
Crosstown Connection LRT	2030-2031	2031
River Road Commuter Rail	2031-2032	2032
Complete Program Implementation		2032

Table 3 is a summary of the amounts of federal, state and local resources required to build and to operate the bus and rail expansion plans under the assumptions described above. In the table, funding totals are given in real terms (in dollars of 2002).

Table 3: Funding Sources over 2003-2032, 2002 Dollars (Thousands)

	MetroMoves Bus Program *	Regional Rail Plan	Total
Total Capital Outlay	\$173,652	\$2,652,298	\$2,825,950
Federal Contribution	\$22,094	\$1,326,149	\$1,348,243
State Contribution	\$0	\$663,074	\$663,074
Additional Local Revenues Required	\$151,558	\$663,074	\$814,633
Total O&M Costs	\$602,644	\$959,079	\$1,561,723
Farebox Revenues	\$78,574	\$367,656	\$446,230
Federal Contribution	\$162,052	\$0	\$162,052
State Contribution	\$6,275	\$0	\$6,275
Additional Local Revenues Required	\$355,743	\$591,423	\$947,166
Total Additional Local Revenues Required	\$507,301	\$1,254,497	\$1,761,799

* Including vehicle replacements

The local requirement represents an additional revenue stream of approximately **\$58.7 million per year on average over the funding period**, for a total of about \$1.76 billion (both in dollars of 2002). Note that the additional local funding requirement was estimated against a *baseline* assuming a 4 percent annual nominal growth in city income tax revenues.

Table 4, below, presents summary financial statistics for the complete program in nominal (year-of-expenditure), real (2002) and present value terms (assuming a 4 percent discount rate).

Table 4: Total Funding Sources over 2003-2032, (Thousands)

	In Year of Expenditure Dollars	In 2002 Dollars	In Present Value
Total Program Costs	\$7,264,966	\$4,387,674	\$3,624,586
Farebox Revenues	\$852,805	\$446,230	\$363,854
Federal Contribution	\$2,400,421	\$1,510,296	\$1,176,470
State Contribution	\$1,060,317	\$669,349	\$577,358
Additional Local Revenues Required	\$2,951,422	\$1,761,799	\$1,506,904

1.4 Organization of this Report

This report is organized as in the following sections: This introductory section, and the high level summary which follows, constitute Chapter 1. The MetroMoves Bus program costs and revenues stream required is described in Chapter 2. The rail corridors that comprise the Regional Rail Plan and their costs and required revenue streams are described in Chapter 3. Chapter 4 presents a combined picture of the MetroMoves Bus and Regional Rail programs.

2. METROMOVES BUS PROGRAM

The chapter is organized as follows. Program costs are summarized in Section 2.1. Section 2.2 provides an overview of ridership and revenue forecasts. Revenue streams required to finance the MetroMoves bus program are presented in Section 2.3.

2.1 Program Costs

The MetroMoves bus program is a major bus, and shuttle, expansion project. The program is planned to begin in 2003 and would be fully implemented by 2012. The expanded bus service would make use of a number of neighborhood and regional transfer hubs (transfer facilities) to be constructed, and would take advantage of advanced passenger information technology. Improved service on existing routes is also a part of the program.

2.1.1 Capital Costs

As shown in Table 5, below, total capital expenditures for the MetroMoves plan are expected to reach \$112 million, with \$30 million spent on vehicles,² \$32 million on the new operating division and \$40 million on neighborhood and regional transfer hubs.

Table 5: MetroMoves Bus Program Capital Costs Estimates in 2002 Dollars (Thousands)

Cost Categories	Capital Costs
Revenue Fleet ¹	\$31,055
Operations and Maintenance ²	\$32,089
Advanced Technology	\$9,140
Passenger Facilities	\$39,719
Total Capital Costs	\$112,003

Notes:

1. *Excluding vehicle replacements*

2. *Including maintenance facility, equipment and vehicles.*

2.1.2 Operations and Maintenance Cost

Operations and maintenance cost projections for the MetroMoves plan are summarized in Table 6, below. Overall, operating expenses directly attributable to service improvements would amount to \$16.4 million. Additional operating expenses (including new operating division overheads, staffing and maintenance for hubs, and passenger information services) would reach \$5.3 million annually.

For the purpose of this report, operations and maintenance costs are assumed to increase at the rate of general inflation throughout the funding period, that is, at a 3.0 percent annual rate.

² Excluding replacement costs

Table 6: MetroMoves Bus Program Annual Operations & Maintenance Expenditures in 2002 Dollars (Thousands)

Cost Categories	Annual O&M Costs
MetroMoves Service Improvements	\$16,400
Third Operating Division Overhead	\$2,296
Access Service Coverage	\$1,215
Staffing and Maintenance for Hubs	\$826
Advance Technology Farebox Maintenance	\$361
Passenger Information Services	\$570
Layover Facilities	\$15
Total Annual O&M Costs	\$21,682

2.2 Ridership Forecasts and Farebox Revenue

Annual ridership projections for the MetroMoves service improvements are summarized in Table 7, below.

Table 7: Annual Ridership Forecasts

MetroMoves Bus Service	Steady State Annual Ridership Forecast
Annual Incremental Fixed Route Bus Ridership	3,342,120
Annual Shuttle Ridership	678,072
Total Incremental Ridership	4,020,192

Source: HLB Decision Economics, 2002

As shown in Table 7, the MetroMoves plan is expected to generate about 4 million passenger trips per year. Incremental ridership projections are *relatively* modest, as it is expected that the new suburban and crosstown routes that constitute a key part of the MetroMoves program serve lower density areas and would have lower load factors (carry fewer passengers per bus) than the current system, oriented toward the higher density urban area.

The ramp-up factors used to calculate annual fare revenue correspond to the schedule for MetroMoves vehicle purchase. Incremental revenue is assumed to reach a steady state 10 years after the start of the program. The analysis assumes that ridership for the added bus service will continue in a steady-state mode into the future, and that bus fares will keep pace with inflation. The 2002 *average fare* assumed for the MetroMoves bus expansion program is \$0.75.

2.3 Required Revenue Streams

A \$23 million in federal Section 5309 bus capital funding was assumed in Years 1 and 2 of the program. No other capital assistance from federal or state sources was included. On the operating side, estimated state and formula funding was added to support operating costs. The amounts are based on SORTA's current experience and are added each year in proportion to the level of additional MetroMoves bus service as it is introduced gradually over the 10-year

implementation period. Both before and after the achievement of steady state conditions in Year 10, throughout the 30-year forecast period covered by this report, formula funding is escalated for inflation.

Table 8a and Table 8b, below, present the total stream of revenues needed to support the MetroMoves bus program throughout the forecast period. Grand total in year-of-expenditure and in 2002 dollars are summarized in Table 8a, while Table 8b provides a breakdown by year.

Table 8a: MetroMoves Bus Plan - Capital Outlay, Revenue and Operating Cost Streams In Year of Expenditure Dollars (Thousands)

Total over the Funding Period (2003-2032)	In Year of Expenditure Dollars	In 2002 Dollars
Expenditures (Capital and O&M)		
Capital Outlay Required	\$237,548	\$173,652
O&M Costs Required	\$1,032,016	\$602,644
Total	\$1,269,564	\$776,296
Revenues to Cover Capital Costs		
Federal	\$23,168	\$22,094
State	\$0	\$0
Revenues to Cover O&M Costs		
Federal	\$278,161	\$162,052
State	\$10,771	\$6,275
Farebox Revenues	\$135,105	\$78,574
Total	\$447,205	\$268,995
Additional Local Revenues Required		
To Cover Capital Costs	\$214,380	\$151,558
To Cover O&M Costs	\$607,979	\$355,743
Total	\$822,359	\$507,301

Table 8b: Metro Moves Bus Plan - Capital Outlay, Revenue and Operating Cost Streams In Year of Expenditure Dollars (Thousands)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expenditures (Capital and O&M)															
Capital Outlay Required	\$23,079	\$40,716	\$18,674	\$19,712	\$4,720	\$4,629	\$4,729	\$3,320	\$2,970	\$1,374	\$344	\$1,206	\$4,551	\$8,205	\$5,394
O&M Costs Required	\$1,584	\$5,748	\$10,248	\$13,714	\$16,460	\$19,180	\$21,911	\$24,883	\$28,006	\$30,555	\$31,626	\$32,961	\$33,951	\$34,971	\$36,022
Total	\$24,663	\$46,464	\$28,922	\$33,426	\$21,180	\$23,809	\$26,640	\$28,203	\$30,976	\$31,929	\$31,970	\$34,167	\$38,502	\$43,176	\$41,416
Revenues to Cover Capital Costs															
Federal	\$9,061	\$14,107	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Revenues to Cover O&M Costs															
Federal	\$454	\$1,391	\$2,375	\$3,426	\$4,179	\$4,975	\$5,814	\$6,698	\$7,664	\$8,411	\$8,663	\$8,923	\$9,190	\$9,466	\$9,750
State	\$18	\$54	\$92	\$133	\$162	\$193	\$225	\$259	\$297	\$326	\$335	\$346	\$356	\$367	\$378
Farebox Revenues	\$301	\$838	\$1,215	\$1,680	\$2,070	\$2,516	\$2,952	\$3,337	\$3,704	\$3,933	\$4,051	\$4,173	\$4,298	\$4,427	\$4,560
Total	\$9,834	\$16,390	\$3,682	\$5,239	\$6,411	\$7,683	\$8,991	\$10,295	\$11,665	\$12,669	\$13,049	\$13,441	\$13,844	\$14,260	\$14,688
Additional Local Revenues Required															
To Cover Capital Costs	\$14,018	\$26,609	\$18,674	\$19,712	\$4,720	\$4,629	\$4,729	\$3,320	\$2,970	\$1,374	\$344	\$1,206	\$4,551	\$8,205	\$5,394
To Cover O&M Costs	\$811	\$3,465	\$6,566	\$8,475	\$10,049	\$11,497	\$12,920	\$14,588	\$16,341	\$17,886	\$18,577	\$19,520	\$20,107	\$20,711	\$21,334
Total	\$14,829	\$30,074	\$25,240	\$28,187	\$14,769	\$16,126	\$17,649	\$17,908	\$19,311	\$19,260	\$18,921	\$20,726	\$24,658	\$28,916	\$26,728
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Expenditures (Capital and O&M)															
Capital Outlay Required	\$6,876	\$6,602	\$5,809	\$5,521	\$4,824	\$3,646	\$1,610	\$6,079	\$10,245	\$7,035	\$8,454	\$6,842	\$7,687	\$7,258	\$5,437
O&M Costs Required	\$37,104	\$38,219	\$39,367	\$40,550	\$41,768	\$43,021	\$44,312	\$45,641	\$47,010	\$48,421	\$49,873	\$51,369	\$52,910	\$54,498	\$56,133
Total	\$43,980	\$44,821	\$45,176	\$46,071	\$46,592	\$46,667	\$45,921	\$51,720	\$57,256	\$55,456	\$58,327	\$58,211	\$60,598	\$61,756	\$61,570
Revenues to Cover Capital Costs															
Federal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Revenues to Cover O&M Costs															
Federal	\$10,043	\$10,344	\$10,654	\$10,974	\$11,303	\$11,642	\$11,991	\$12,351	\$12,722	\$13,103	\$13,496	\$13,901	\$14,318	\$14,748	\$15,190
State	\$389	\$401	\$413	\$425	\$438	\$451	\$464	\$478	\$493	\$507	\$523	\$538	\$554	\$571	\$588
Farebox Revenues	\$4,697	\$4,838	\$4,983	\$5,132	\$5,286	\$5,499	\$5,721	\$5,951	\$6,191	\$6,441	\$6,700	\$6,970	\$7,251	\$7,543	\$7,847
Total	\$15,128	\$15,582	\$16,050	\$16,531	\$17,027	\$17,592	\$18,176	\$18,781	\$19,405	\$20,051	\$20,719	\$21,410	\$22,124	\$22,862	\$23,626
Additional Local Revenues Required															
To Cover Capital Costs	\$6,876	\$6,602	\$5,809	\$5,521	\$4,824	\$3,646	\$1,610	\$6,079	\$10,245	\$7,035	\$8,454	\$6,842	\$7,687	\$7,258	\$5,437
To Cover O&M Costs	\$21,976	\$22,637	\$23,317	\$24,019	\$24,741	\$25,429	\$26,135	\$26,860	\$27,605	\$28,369	\$29,154	\$29,960	\$30,787	\$31,636	\$32,507
Total	\$28,852	\$29,239	\$29,126	\$29,540	\$29,565	\$29,075	\$27,745	\$32,939	\$37,850	\$35,404	\$37,608	\$36,801	\$38,474	\$38,894	\$37,944

3. REGIONAL RAIL PLAN

The chapter is organized as follows. Program costs are summarized in Section 3.1. Section 3.2 provides an overview of ridership and revenue forecasts. Required revenue streams are presented in Section 3.3. The proposed phasing of rail corridors is shown in Section 3.4.

The nine rail transit projects (listed in Table 1 in the introduction) have been proposed, which together comprise a comprehensive rail transit network for the region. The list of projects and their priority order was determined by considering the economic benefit of each project. This chapter proposes a phased implementation of these nine projects and presents the resulting revenue streams required to complete the plan according to that phasing.

It should be noted that a final determination of the rail mode and alignment in the Eastern Corridor is pending the outcome of the Eastern Corridor Study. For the purpose of this analysis, costs and parameters of the light rail option are used.

3.1 Program Costs

3.1.1 Capital Costs

Capital cost estimates were supplied by Parson Brinckerhoff and are shown in Table 9, below. Cost estimates were produced in 2002 dollars. These estimates were escalated by 3.0 percent annually to arrive at year-of-expenditure dollars. Parsons Brinckerhoff provided cost estimates for the Hamilton County portions of each corridor only, according to the specific routing of each corridor.

Table 9: Regional Rail Plan (Hamilton County) Capital Costs Estimates in 2002 Dollars (Thousands)

Rail Corridor	Capital Costs
Central Area Streetcar	\$61,410
Downtown-Uptown Area Streetcar	\$122,000
I-71 Corridor LRT	\$850,000
I-75 Corridor LRT	\$551,399
Western (I-74) Corridor LRT	\$507,830
Eastern Corridor	\$334,547
Southeast Corridor LRT	\$44,779
Crosstown Connection LRT	\$116,945
River Road/Lawrenceburg Commuter Rail	\$63,388
Total Capital Costs	\$2,652,795

Source: Parsons Brinckerhoff

Table 10, on the next page, presents a listing of all corridors with the mileage of each by jurisdiction. The mileage in each corridor for Hamilton County relative to the other jurisdictions was used to calculate Hamilton County's share of operations and maintenance costs.

Table 10: Regional Rail System Corridors Estimated Mileage

JURISDICTION	Hamilton %	TOTAL	OHIO					KENTUCKY			INDIANA	
			Hamilton	Warren	Butler	Clermont	Kenton	Boone	Campbell	Dearborn		
LIGHT RAIL SYSTEM												
I-71 Corridor LRT	46%	44	20	7	n/a	n/a	n/a	11	6	n/a	n/a	
Eastern Corridor	83%	12	10	n/a	n/a	2	n/a	n/a	n/a	n/a	n/a	
I-75 Corridor LRT	87%	15	13	n/a	2	n/a	n/a	n/a	n/a	n/a	n/a	
Southeast Corridor LRT	5%	10	1	n/a	n/a	n/a	n/a	n/a	n/a	10	n/a	
Western (I-74) Corridor LRT	100%	12	12	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
Crosstown Connection LRT	100%	4	4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
TOTAL LIGHT RAIL SYSTEM	62%	98	60	7	2	2	2	11	6	10	0	
COMMUTER RAIL SYSTEM												
River Road Commuter Rail	90%	24	21	n/a	n/a	n/a	n/a	n/a	n/a	n/a	2	
I-75 Corridor Commuter Rail	52%	32	17	n/a	15	n/a	n/a	n/a	n/a	n/a	n/a	
Eastern Corridor Commuter Rail	88%	17	15	n/a	n/a	2	n/a	n/a	n/a	n/a	n/a	
TOTAL COMMUTER RAIL SYSTEM	73%	73	53	0	15	2	2	0	0	0	2	
STREETCAR SYSTEM												
Central Area Streetcar	47%	4	2	n/a	n/a	n/a	n/a	1	n/a	1	n/a	
Downtown-Uptown Streetcar	100%	4	4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
TOTAL STREETCAR SYSTEM	73%	8	6	0	0	0	0	1	0	1	0	
TOTAL REGIONAL RAIL SYSTEM	67%	179	119	7	17	4	4	12	6	11	2	

Source: Parsons Brinckerhoff

3.1.2 Operations and Maintenance Cost

Annual costs for operations and maintenance (O&M) for each rail corridor were supplied by Parsons Brinckerhoff, in 2002 dollars. The exception is the River Road commuter rail corridor, for which no O&M costs are included in the analysis. Revenue will only be needed for covering the initial capital costs of the line.

The cost estimates provided were for operation of the entire line, including those portions extending beyond the borders of Hamilton County. Since O&M costs are primarily mileage-based, the Hamilton County share was calculated by multiplying the percentage of the mileage for each corridor in Hamilton County by the cost estimate for the entire line. The adjusted cost was then escalated for inflation (at 3.0 percent) to reflect costs in year-of-expenditure dollars. Table 11 shows the costs in 2002 dollars for the Hamilton County portions. Again, no O&M costs were estimated for the River Road commuter rail corridor, as this analysis is focused on its capital costs only.

Table 11: Regional Rail Plan (Hamilton County) Operations & Maintenance Expenditures in 2002 Dollars (Thousands)

Rail Corridor	Annual O&M Costs
Central Area Streetcar	\$3,539
Downtown-Uptown Area Streetcar	\$7,307
I-71 Corridor LRT	\$18,303
I-75 Corridor LRT	\$12,444
Western (I-74) Corridor LRT	\$8,209
Eastern Corridor	\$6,812
Southeast Corridor LRT	\$410
Crosstown Connection LRT	\$3,804
River Road/Lawrenceburg Commuter Rail	Not Included
Total Annual O&M Costs	\$60,828

Source: Parsons Brinckerhoff

3.2 Ridership Forecasts and Farebox Revenue

Table 12, below, provides the annual passenger forecast totals for each rail corridor.

Table 12: Annual Ridership Forecasts

Rail Corridor	Steady State Annual Ridership Forecast
Central Area Streetcar	814,000
Downtown-Uptown Area Streetcar	1,250,000
I-71 Corridor LRT	5,750,000
I-75 Corridor LRT	5,500,000
Western (I-74) Corridor LRT	4,500,000
Eastern Corridor	5,000,000
Southeast Corridor LRT	900,000
Crosstown Connection LRT	750,000
River Road/Lawrenceburg Commuter Rail	N/A
Total Annual Ridership	24,464,000

Source: Parsons Brinckerhoff

The 2002 average fare for the light rail corridors is \$1.20. The fare along all corridors is escalated annually for inflation of 3.0 percent. The resulting average fare in year-of-expenditure dollars is multiplied by the number of passengers, shown in the above table. Conservatively, a ceiling of 60 percent has been placed on the farebox recovery ratio of operations and maintenance costs.

3.3 Required Revenue Streams

The Regional Rail plan funding assumes a funding contribution for capital outlay of 50 percent federal and 25 percent state. No operating assistance from federal or state sources is included for the rail program.

Table 13 summarizes the revenue streams required to finance the regional rail plan. Totals are shown for the 30-year implementation period in Table 13a, and then for each of the 30 years, in Table 13b. The row in boldface type entitled "Total Additional Local Revenues Required" in Table 13b represents the total of local revenues needed to complete the Regional Rail plan.

3.4 Rail Corridors Phasing

The phasing of the rail corridors is shown in Table 14, below. Percentage completion is based on the cumulative percentage of capital expenditure.

Table 13a: Regional Rail Plan (Hamilton County) - Capital Outlay, Revenue and Operating Cost Streams In Year of Expenditure Dollars (Thousands)

Total over the Funding Period (2003-2032)	In Year of Expenditure Dollars	In 2002 Dollars
Expenditures (Capital and O&M)		
Capital Outlay Required	\$4,198,185	\$2,652,298
O&M Costs Required	\$1,797,217	\$959,079
Total	\$5,995,402	\$3,611,377
Revenues to Cover Capital Costs		
Federal	\$2,099,092	\$1,326,149
State	\$1,049,546	\$663,074
Revenues to Cover O&M Costs		
Federal	\$0	\$0
State	\$0	\$0
Farebox Revenues	\$717,700	\$367,656
Total	\$3,866,339	\$2,356,880
Additional Local Revenues Required		
To Cover Capital Costs	\$1,049,546	\$663,074
To Cover O&M Costs	\$1,079,517	\$591,423
Total	\$2,129,063	\$1,254,497

Table 13b: Regional Rail Plan (Hamilton County) - Capital Outlay, Revenue and Operating Cost Streams In Year of Expenditure Dollars (Thousands)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expenditures (Capital and O&M)															
Capital Outlay Required	\$0	\$0	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
O&M Costs Required	\$0	\$0	\$3,868	\$12,208	\$12,574	\$12,951	\$13,340	\$13,740	\$14,152	\$14,576	\$40,349	\$41,560	\$42,807	\$44,091	\$45,414
Total	\$0	\$0	\$153,868	\$162,208	\$162,574	\$162,951	\$163,340	\$163,740	\$164,152	\$164,576	\$190,349	\$191,560	\$192,807	\$194,091	\$195,414
Revenues to Cover Capital Costs															
Federal	\$0	\$0	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
State	\$0	\$0	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500
Revenues to Cover O&M Costs															
Federal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Farebox Revenues	\$0	\$0	\$641	\$1,783	\$2,123	\$2,483	\$2,862	\$3,150	\$3,277	\$3,409	\$9,277	\$10,576	\$11,944	\$13,386	\$14,904
Total	\$0	\$0	\$113,141	\$114,283	\$114,623	\$114,983	\$115,362	\$115,650	\$115,777	\$115,909	\$121,777	\$123,076	\$124,444	\$125,886	\$127,404
Additional Local Revenues Required															
To Cover Capital Costs	\$0	\$0	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500
To Cover O&M Costs	\$0	\$0	\$3,227	\$10,425	\$10,450	\$10,468	\$10,478	\$10,590	\$10,875	\$11,167	\$31,072	\$30,984	\$30,862	\$30,705	\$30,510
Total	\$0	\$0	\$40,727	\$47,925	\$47,950	\$47,968	\$47,978	\$48,090	\$48,375	\$48,667	\$68,572	\$68,484	\$68,362	\$68,205	\$68,010
Expenditures (Capital and O&M)															
Capital Outlay Required	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
O&M Costs Required	\$66,745	\$68,747	\$70,810	\$72,934	\$75,122	\$77,376	\$79,547	\$81,739	\$83,951	\$86,206	\$107,404	\$125,757	\$130,469	\$143,347	\$147,647
Total	\$216,745	\$218,747	\$220,810	\$222,934	\$225,122	\$227,376	\$229,547	\$231,739	\$233,951	\$236,206	\$257,404	\$275,757	\$280,469	\$293,347	\$295,832
Revenues to Cover Capital Costs															
Federal	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
State	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500
Revenues to Cover O&M Costs															
Federal	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
State	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Farebox Revenues	\$21,859	\$23,765	\$25,768	\$27,871	\$30,079	\$31,291	\$32,503	\$33,715	\$34,927	\$36,139	\$48,748	\$58,600	\$62,444	\$66,288	\$69,676
Total	\$134,359	\$136,265	\$138,268	\$140,371	\$142,579	\$144,791	\$147,003	\$149,215	\$151,427	\$153,639	\$167,248	\$171,100	\$174,944	\$178,788	\$180,814
Additional Local Revenues Required															
To Cover Capital Costs	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,046
To Cover O&M Costs	\$44,886	\$44,982	\$45,042	\$45,063	\$45,043	\$45,084	\$45,066	\$45,965	\$45,228	\$45,451	\$58,656	\$67,157	\$68,025	\$68,483	\$77,972
Total	\$82,386	\$82,482	\$82,542	\$82,563	\$82,543	\$82,584	\$82,566	\$82,965	\$82,728	\$82,951	\$96,156	\$104,657	\$105,525	\$111,983	\$115,018

Table 14: Regional Rail Plan (Hamilton County) Construction Completion Summary Based on Cumulative Percentage of Capital Expenditure

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	0%	0%	62%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	0%	0%	0%	10%	25%	40%	55%	69%	82%	95%	100%	100%	100%	100%	100%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	12%	31%	50%	68%	85%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	0%	0%	5%	10%	15%	20%	24%	29%	33%	37%	42%	45%	49%	53%	57%
	1%	2%	8%	13%	18%	22%	27%	31%	35%	39%	43%	47%	50%	54%	58%

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	2%	20%	38%	54%	71%	87%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	0%	0%	0%	0%	0%	0%	3%	26%	48%	69%	90%	100%	100%	100%	100%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	78%	100%	100%	100%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	48%	100%	100%
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	100%
	60%	64%	67%	70%	73%	76%	79%	82%	85%	88%	90%	93%	95%	98%	100%
	61%	64%	68%	71%	74%	77%	80%	82%	85%	88%	90%	93%	95%	98%	100%

4. COMBINED METROMOVES BUS PROGRAM AND REGIONAL RAIL PLAN

This chapter provides an implementation schedule and an estimate of the required local contribution for the combined MetroMoves bus program and regional rail plan. The proposed implementation schedule is presented in Section 4.1. Section 4.2 concludes the chapter, and the report, with estimates of total funding sources.

4.1 Construction and Service Implementation Schedule

The MetroMoves Bus implementation program will proceed simultaneously with the Regional Rail Plan. While construction of each rail corridor must be completed before service begins, some MetroMoves Bus services will be introduced each year during its 10-year implementation period. Construction necessary for MetroMoves Bus will also be spread over the 10-year period.

Figure 1 depicts the construction and service implementation schedule graphically.

4.2 Required Revenue Streams

The following tables combine the revenue requirements for the MetroMoves Bus program and the Region Rail Plan over the 30-year period needed to implement all the proposed services.

Totals over the implementation period are provided in both year-of-expenditure dollars and 2002 dollars in Table 15a. Annual totals in year-of-expenditure dollars, for each of the 30 years, are shown in Table 15b. Annual totals in 2002 dollars are shown in Table 15c.

Table 15a: Combined MetroMoves Bus and Regional Rail Plan (Hamilton County) - Capital Outlay, Revenue and Operating Cost Streams in Year of Expenditure Dollars (Thousands)

Total over the Funding Period (2003-2032)	In Year of Expenditure Dollars	In 2002 Dollars
Expenditures (Capital and O&M)		
Capital Outlay Required	\$4,435,733	\$2,825,950
O&M Costs Required	\$2,829,233	\$1,561,723
Total	\$7,264,966	\$4,387,674
Revenues to Cover Capital Costs		
Federal	\$2,122,260	\$1,348,243
State	\$1,049,546	\$663,074
Revenues to Cover O&M Costs		
Federal	\$278,161	\$162,052
State	\$10,771	\$6,275
Farebox Revenues	\$852,805	\$446,230
Total	\$4,313,543	\$2,625,875
Additional Local Revenues Required		
To Cover Capital Costs	\$1,263,926	\$814,633
To Cover O&M Costs	\$1,687,496	\$947,166
Total	\$2,951,422	\$1,761,799

As shown in the above table, the program would necessitate a total additional local contribution of \$1.76 billion in real terms (dollars of 2002), representing an additional revenue stream of approximately *\$58.7 million per year on average over the funding period.*³

³ \$58.7 million = \$1,762 million divided by 30 years

Table 15b: Combined MetroMoves Bus and Regional Rail Plan (Hamilton County) - Capital Outlay, Revenue and Operating Cost Streams in Year of Expenditure Dollars (Thousands)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expenditures (Capital and O&M Costs)															
Capital Outlay Required	\$23,079	\$40,716	\$168,674	\$169,712	\$154,720	\$154,629	\$154,729	\$153,320	\$152,970	\$151,374	\$150,344	\$151,206	\$154,551	\$158,205	\$155,394
O&M Costs Required	\$1,584	\$5,748	\$14,116	\$25,922	\$29,034	\$32,131	\$35,251	\$38,623	\$42,158	\$45,131	\$71,975	\$74,521	\$76,758	\$79,062	\$81,436
Total	\$24,663	\$46,464	\$182,790	\$195,634	\$183,754	\$186,760	\$189,980	\$191,943	\$195,128	\$196,505	\$222,319	\$225,727	\$231,309	\$237,267	\$236,830
Revenues to Cover Capital Costs															
Federal	\$9,061	\$14,107	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
State	\$0	\$0	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500
Revenues to Cover O&M Costs															
Federal	\$454	\$1,391	\$2,375	\$3,426	\$4,179	\$4,975	\$5,814	\$6,698	\$7,664	\$8,411	\$8,663	\$8,923	\$9,190	\$9,466	\$9,750
State	\$18	\$54	\$92	\$133	\$162	\$193	\$225	\$259	\$297	\$326	\$335	\$346	\$356	\$367	\$378
Farebox Revenues	\$301	\$838	\$1,856	\$3,463	\$4,193	\$4,999	\$5,814	\$6,487	\$6,981	\$7,342	\$13,328	\$14,749	\$16,242	\$17,813	\$19,464
Total	\$9,834	\$16,390	\$116,822	\$119,522	\$121,035	\$122,666	\$124,353	\$125,945	\$127,442	\$128,578	\$134,827	\$136,517	\$138,289	\$140,146	\$142,091
Additional Local Revenues Required:															
To Cover Capital Costs	\$14,018	\$26,609	\$56,174	\$57,212	\$42,220	\$42,129	\$42,229	\$40,820	\$40,470	\$38,874	\$37,844	\$38,706	\$42,051	\$45,705	\$42,894
To Cover O&M Costs	\$811	\$3,465	\$9,793	\$18,900	\$20,499	\$21,965	\$23,398	\$25,178	\$27,216	\$29,053	\$49,649	\$50,504	\$50,969	\$51,416	\$51,844
Total	\$14,829	\$30,074	\$65,967	\$76,112	\$62,719	\$64,094	\$65,627	\$65,998	\$67,686	\$67,927	\$87,493	\$89,210	\$93,020	\$97,121	\$94,738
Expenditures (Capital and O&M Costs)															
Capital Outlay Required	\$156,876	\$156,602	\$155,809	\$155,521	\$154,824	\$153,646	\$151,610	\$156,079	\$160,245	\$157,035	\$158,454	\$156,842	\$157,687	\$157,258	\$153,622
O&M Costs Required	\$103,849	\$106,966	\$110,177	\$113,484	\$116,890	\$120,397	\$139,739	\$143,931	\$148,249	\$152,696	\$157,277	\$177,126	\$183,379	\$197,845	\$203,780
Total	\$260,725	\$263,568	\$265,986	\$269,005	\$271,714	\$274,043	\$291,348	\$300,010	\$308,494	\$309,731	\$315,731	\$333,968	\$341,067	\$355,103	\$357,402
Revenues to Cover Capital Costs															
Federal	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
State	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500	\$37,500
Revenues to Cover O&M Costs															
Federal	\$10,043	\$10,344	\$10,654	\$10,974	\$11,303	\$11,642	\$11,991	\$12,351	\$12,722	\$13,103	\$13,496	\$13,901	\$14,318	\$14,748	\$15,190
State	\$389	\$401	\$413	\$425	\$438	\$451	\$464	\$478	\$493	\$507	\$523	\$538	\$554	\$571	\$588
Farebox Revenues	\$26,556	\$28,603	\$30,751	\$33,003	\$35,365	\$36,790	\$44,481	\$47,276	\$50,202	\$53,265	\$55,448	\$65,570	\$69,695	\$74,407	\$77,523
Total	\$149,487	\$151,848	\$154,318	\$156,902	\$159,606	\$161,383	\$169,437	\$172,605	\$175,916	\$179,376	\$181,967	\$192,510	\$197,068	\$202,226	\$204,440
Additional Local Revenues Required:															
To Cover Capital Costs	\$44,376	\$44,102	\$43,309	\$43,021	\$42,324	\$41,146	\$39,110	\$43,579	\$47,745	\$44,535	\$45,954	\$44,342	\$45,187	\$44,758	\$42,483
To Cover O&M Costs	\$66,862	\$67,619	\$68,359	\$69,082	\$69,784	\$71,514	\$82,802	\$83,826	\$84,833	\$85,821	\$87,810	\$97,117	\$98,811	\$108,119	\$110,479
Total	\$111,238	\$111,721	\$111,668	\$112,103	\$112,108	\$112,660	\$121,911	\$127,405	\$132,578	\$130,356	\$133,764	\$141,458	\$143,999	\$152,877	\$152,962

Table 15c: Combined MetroMoves Bus and Regional Rail Plan (Hamilton County) - Capital Outlay, Revenue and Operating Cost Streams in 2002 Dollars (Thousands)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Expenditures (Capital and O&M Costs)															
Capital Outlay Required	\$22,407	\$38,379	\$154,361	\$150,787	\$133,463	\$129,499	\$125,809	\$121,032	\$117,239	\$112,636	\$108,612	\$106,053	\$105,242	\$104,592	\$99,741
O&M Costs Required	\$1,538	\$5,418	\$12,918	\$23,031	\$25,045	\$26,909	\$28,662	\$30,489	\$32,311	\$33,582	\$31,997	\$32,267	\$32,268	\$32,269	\$32,270
Total	\$23,945	\$43,797	\$167,278	\$173,818	\$158,508	\$156,409	\$154,471	\$151,521	\$149,549	\$146,219	\$160,608	\$158,320	\$157,510	\$156,861	\$152,012
Revenues to Cover Capital Costs															
Federal	\$8,797	\$13,297	\$68,636	\$66,637	\$64,696	\$62,811	\$60,982	\$59,206	\$57,481	\$55,807	\$54,182	\$52,603	\$51,071	\$49,584	\$48,140
State	\$0	\$0	\$34,318	\$33,318	\$32,348	\$31,406	\$30,491	\$29,603	\$28,741	\$27,904	\$27,091	\$26,302	\$25,536	\$24,792	\$24,070
Revenues to Cover O&M Costs															
Federal	\$441	\$1,311	\$2,173	\$3,044	\$3,605	\$4,166	\$4,727	\$5,288	\$5,874	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258
State	\$17	\$51	\$84	\$118	\$140	\$161	\$183	\$205	\$227	\$242	\$242	\$242	\$242	\$242	\$242
Farebox Revenues	\$292	\$790	\$1,698	\$3,077	\$3,617	\$4,186	\$4,727	\$5,121	\$5,350	\$5,463	\$9,629	\$10,345	\$11,060	\$11,777	\$12,493
Total	\$9,547	\$15,449	\$106,909	\$106,194	\$104,405	\$102,731	\$101,110	\$99,422	\$97,674	\$95,674	\$97,402	\$95,750	\$94,168	\$92,653	\$91,203
Additional Local Revenues Required:															
To Cover Capital Costs	\$13,610	\$25,082	\$51,407	\$50,832	\$36,419	\$35,282	\$34,336	\$32,224	\$31,017	\$28,926	\$27,339	\$27,148	\$28,635	\$30,216	\$27,532
To Cover O&M Costs	\$788	\$3,266	\$8,962	\$16,792	\$17,683	\$18,395	\$19,025	\$19,876	\$20,859	\$21,618	\$35,867	\$35,422	\$34,707	\$33,992	\$33,277
Total	\$14,397	\$28,348	\$60,369	\$67,624	\$54,102	\$53,678	\$53,361	\$52,099	\$51,876	\$50,544	\$63,207	\$62,570	\$63,342	\$64,209	\$60,809
Expenditures (Capital and O&M Costs)															
Capital Outlay Required	\$97,760	\$94,747	\$91,521	\$88,691	\$85,722	\$82,592	\$79,124	\$79,084	\$78,830	\$75,001	\$73,474	\$70,608	\$68,922	\$66,732	\$63,290
O&M Costs Required	\$64,715	\$64,716	\$64,717	\$64,718	\$64,719	\$64,719	\$72,929	\$72,929	\$72,929	\$72,929	\$72,929	\$79,740	\$80,151	\$83,955	\$83,955
Total	\$162,475	\$159,463	\$156,239	\$153,410	\$150,442	\$147,312	\$152,052	\$152,012	\$151,759	\$147,929	\$146,403	\$150,349	\$149,072	\$150,687	\$147,245
Revenues to Cover Capital Costs															
Federal	\$46,738	\$45,376	\$44,055	\$42,771	\$41,526	\$40,316	\$39,142	\$38,002	\$36,895	\$35,820	\$34,777	\$33,764	\$32,781	\$31,826	\$30,525
State	\$23,369	\$22,688	\$22,027	\$21,386	\$20,763	\$20,158	\$19,571	\$19,001	\$18,448	\$17,910	\$17,389	\$16,882	\$16,390	\$15,913	\$15,263
Revenues to Cover O&M Costs															
Federal	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258	\$6,258
State	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242	\$242
Farebox Revenues	\$16,549	\$17,305	\$18,063	\$18,821	\$19,581	\$19,777	\$23,214	\$23,954	\$24,696	\$25,440	\$25,711	\$29,519	\$30,462	\$31,574	\$31,938
Total	\$93,156	\$91,870	\$90,645	\$89,479	\$88,370	\$86,751	\$88,428	\$87,458	\$86,539	\$85,671	\$84,377	\$86,666	\$86,134	\$85,814	\$84,226
Additional Local Revenues Required:															
To Cover Capital Costs	\$27,654	\$26,682	\$25,439	\$24,534	\$23,434	\$22,118	\$20,411	\$22,081	\$23,488	\$21,270	\$21,309	\$19,962	\$19,750	\$18,993	\$17,503
To Cover O&M Costs	\$41,666	\$40,910	\$40,154	\$39,397	\$38,638	\$38,442	\$43,214	\$42,474	\$41,732	\$40,988	\$40,717	\$43,721	\$43,188	\$45,880	\$45,516
Total	\$69,320	\$67,593	\$65,593	\$63,931	\$62,072	\$60,560	\$63,625	\$64,555	\$65,220	\$62,259	\$62,026	\$63,683	\$62,938	\$64,873	\$63,018