J00H01
Maryland Transit Administration
Maryland Department of Transportation

Operating Budget Data

($ in Thousands)

	FY 10 Actual	FY 11 Working	FY 12 Allowance	FY 11-12 Change	% Change Prior Year
Special Fund	$546,509	$551,090	$593,480	$42,390	7.7%
Contingent & Back of Bill Reductions	0	0	-1,176	-1,176	
Adjusted Special Fund	**$546,509**	**$551,090**	**$592,304**	**$41,214**	**7.5%**
Federal Fund	63,775	62,736	59,735	-3,002	-4.8%
Contingent & Back of Bill Reductions	0	0	-49	-49	
Adjusted Federal Fund	**$63,775**	**$62,736**	**$59,686**	**-$3,051**	**-4.9%**
Adjusted Grand Total	**$610,284**	**$613,827**	**$651,990**	**$38,163**	**6.2%**

- The fiscal 2012 allowance increases $39.4 million, or 6.4%, compared to the fiscal 2011 working appropriation. When adjusting for contingent and across-the-board actions, the fiscal 2012 allowance increases $38.2 million, or 6.2%.

- The department intends to process operating budget amendments totaling $13.0 million in fiscal 2011, the largest is $10.6 million to fund the arbitrator‟s decision regarding union wages. When adjusting for the projected budget amendments, the fiscal 2012 allowance increases $25.2 million, or 4.0%.

- Due to the recent decision by the arbitrator regarding union wages, the largest increase in the budget is for personnel-related expenditures which increase $28.8 million. Approximately $20.0 million of the increase is tied to union wages and the restoration of furloughs, as well as increases for health insurance and pension payments.

- The largest nonpersonnel-related increases include $4.1 million for Maryland Area Regional Commuter (MARC) contract increases, $3.3 million for additional maintenance and repair costs for buses, $2.4 million for InterCounty Connector commuter bus and existing commuter bus service, and $2.1 million in additional contract costs for elevator maintenance.

Note: Numbers may not sum to total due to rounding.

For further information contact: Jonathan D. Martin Phone: (410) 946-5530

PAYGO Capital Budget Data

($ in Thousands)

	Fiscal 2010	Fiscal 2011		Fiscal 2012
	Actual	Legislative	Working	Allowance
Special	$118,789	$150,259	$139,434	$143,601
Federal	186,998	282,776	231,779	217,763
Total	**$305,787**	**$433,035**	**$371,213**	**$361,364**

- The fiscal 2011 working appropriation is $61.8 million less than the legislative appropriation largely due to cash flow changes in a number of projects and the department more accurately reflecting its estimates of spending.

- The fiscal 2012 allowance decreases $9.8 million compared to the fiscal 2011 working appropriation due to cash flow changes in a number of projects. There is an additional $10.3 million in the allowance for the Takoma/Langley Park transit center project.

Operating and PAYGO Personnel Data

	FY 10 Actual	FY 11 Working	FY 12 Allowance	FY 11-12 Change
Regular Operating Budget Positions	3,012.50	3,012.50	3,012.50	0.00
Regular PAYGO Budget Positions	102.00	102.00	102.00	0.00
Total Regular Positions	**3,114.50**	**3,114.50**	**3,114.50**	**0.00**
Operating Budget FTEs	16.00	15.00	16.00	1.00
PAYGO Budget FTEs	0.00	0.00	0.00	0.00
Total FTEs	**16.00**	**15.00**	**16.00**	**1.00**
Total Personnel	**3,130.50**	**3,129.50**	**3,130.50**	**1.00**

Vacancy Data: Regular Positions

Turnover and Necessary Vacancies, Excluding New Positions	72.88	2.34%
Positions and Percentage Vacant as of 1/1/11	115.00	3.69%

- The fiscal 2012 allowance for regular positions does not change in fiscal 2012. The number of operating budget full-time equivalents (FTEs) increases by 1 as several employees had their authorized hours increased.

- The department‟s fiscal 2012 vacancy rate is budgeted at 2.34% requiring 72.88 vacant positions. As of January 1, 2011, the department had 115.00 positions vacant and a vacancy rate of 3.69%.

- The operating budget is reduced by $725,542 due to the various contingent and across-the-board actions relating to health insurance while the capital budget is reduced $81,950.

Analysis in Brief

Major Trends

Boardings Decline: Ridership declined in fiscal 2010 by 1% largely due to multiple snow events and higher growth rates in fiscal 2009. Light rail and commuter bus growth has moderated as ridership stabilized after the completion of the double tracking project and commuter bus service is reaching its capacity. The Governor has expressed the goal of doubling ridership in the State by calendar 2020, which would require annual increases of 4% or greater in fiscal 2014 to 2020. **The Department of Legislative Services (DLS) recommends that the Maryland Transit Administration (MTA) discuss its estimates of ridership and how it intends to meet the Governor's goal of doubling ridership in the State given the funding constraints facing the department.**

On-time Performance: Core bus performance improved from 27% of trips being late in fiscal 2009 to 13% in fiscal 2010. MARC on-time performance increased from 87 to 89% despite several incidents over the summer of 2010 that resulted in delays. The Penn line in particular experienced a dip in on-time performance to 85% in November 2010. **DLS recommends that MTA discuss what steps were taken to improve bus on-time performance and what can be done to further improve on-time performance. DLS also recommends that MTA discuss what has caused on-time delays in recent months and what can be done to improve on-time performance.**

Farebox Recovery: The farebox recovery rate for Baltimore services decreased from 31% in fiscal 2009 to 28% in fiscal 2010 largely due to the budgetary impact of the decision of the arbitrator to increase union compensation and additional winter maintenance costs. MARC"s farebox recovery rate improved in fiscal 2010 from 44 to 48%.

Performance Goals: Operating expenditures increased in fiscal 2010 due to the decision of the arbitrator regarding union wages. As a result, most of the measures relating to cost were higher in fiscal 2010 than in 2009. Measures that involve revenue miles also increased in fiscal 2010 because revenue vehicle miles declined more than ridership, except for Metro.

Issues

Paying for the Major Transit Lines: The State continues to move forward with plans for three major transit lines – the Purple Line and Corridor Cities Transitway (CCT) in the Washington region and the Red Line in Baltimore City. As part of the process to obtain federal funding, MTA must submit a financial plan to the Federal Transit Administration demonstrating its ability to pay for the transit lines. In the financial plan, MTA and the Maryland Department of Transportation (MDOT) assume a $757 million revenue increase in fiscal 2016. The transit lines are not affordable without this increase in revenue. **DLS recommends that MTA discuss with the committees the financial plan, what is the source of the additional revenue assumed, how much will be available for future capital spending by other modes, what are the assumptions for the CCT, and what would be the source of funding to operate the transit lines.**

Union Compensation Increases Due to Arbitrator's Decision: MTA was in negotiations with its largest union, but since it was unable to reach an agreement, the parties went to binding arbitration where it was decided that the union would receive retroactive pay increases and a pension enhancement. This was done while other State employees have not had pay increases in recent fiscal years, and pension benefits are being reviewed. Furthermore, the MTA pension system is inadequately funded. **DLS recommends that MTA discuss the impact of the arbitrator's decision on future negotiations and what steps may be taken, including requiring employee contributions, to improve the funded status of the system. DLS also recommends committee narrative be adopted requiring a report on how MTA can improve the funded status of its pension system and its Other Post Employment Benefits. In addition, the report should discuss what actions can be taken to make union health insurance benefits more comparable to State employees.**

MTA Farebox and Fare Increases: MTA continues to fall short of the statutory requirement for farebox recovery for Baltimore area services. This is largely due to personnel expenditures, fuel, and repair parts. To meet the farebox recovery rate, MTA indicates that the average fare would need to be set at $2.00. **DLS recommends a Budget and Reconciliation Financing Act provision be added that would specify that the average fare for Baltimore area services be set to $2.00, equal to the amount necessary to meet the statutory farebox recovery requirement.**

MARC Third Party Contract: MARC service is contracted with Amtrak and CSX Transportation (CSX). CSX wants to end its role as operator and has been assessing financial penalties as an incentive for the State to identify a third party contractor. MTA initiated a procurement to identify a third party operator; however, the procurement was pulled in the fall of 2010 due to a lack of competition. There appears to be two issues with the prior procurement: liability insurance and the division of labor, which may be addressed in the future. **DLS recommends that MTA and MDOT discuss with the budget committees in further detail why the procurement was pulled, what changes it feels need to be made to create a more competitive procurement, and the proposed timeline for identifying a third party contractor given the financial penalties.**

Operating Budget Recommended Actions

1. Adopt committee narrative requesting a report on how to make the transit pension system more sustainable.

PAYGO Budget Recommended Actions

1. Concur with Governor"s allowance.

Updates

Corrective Actions to MARC "Hell Train": On June 10, 2010, MARC train 538 operated by Amtrak departed Union Station in Washington, DC with approximately 1,200 passengers. Shortly after its departure, the train became disabled, and there was no air conditioning. Ultimately, it took two hours for a rescue train to arrive, and passengers complained of a lack of communication regarding the situation. To resolve the situation, MTA has issued a report with corrective actions to be taken to prevent this type of event from occurring again.

J00H01

Maryland Transit Administration

Maryland Department of Transportation

Budget Analysis

Program Description

The Maryland Department of Transportation (MDOT) supports transit in Maryland through the Maryland Transit Administration (MTA). MTA consists of the following operating budget programs:

- **Transit Administration** provides executive direction and support services for MTA.

- **Bus Operations** manages bus services in Baltimore City and surrounding counties. These services include the operation of fixed route and paratransit lines and contracts with commuter and paratransit service providers.

- **Rail Operations** includes the Baltimore Metro heavy rail line and the Baltimore area light rail line as well as the management of the Maryland Area Regional Commuter (MARC) contracts with Amtrak and CSX Transportation (CSX).

- **Statewide Operations** provides technical assistance and operating grants to local jurisdictions‟ transit services, including Montgomery County‟s "Ride-On" and Prince George‟s County‟s "the Bus" services. Additionally, the program contracts with private carriers to operate commuter bus services throughout the State. Assistance is also provided to several short-line freight railroads to support the maintenance of State-owned rail lines.

MTA has identified the following goals:

- to provide outstanding service;

- to encourage transit ridership in Maryland;

- to use MTA resources efficiently and effectively and be accountable to the public, customers, and employees, with performance measured against prior years and transit industry peers; and

- to provide a safe, crime free environment for customers and employees.

Performance Analysis: Managing for Results

Boardings Decrease

Exhibit 1 provides detail on the number of boardings for services provided by MTA. Overall, MTA ridership experienced relatively high rates of ridership growth from fiscal 2007 to 2009. Growth reached a high point of 5.2% in fiscal 2008 as gas prices spiked with growth remaining relatively high in fiscal 2009 at 4.0% even with the impact of the recession. Ridership declined in fiscal 2010 by 1.0% largely due to multiple snow events and higher growth rates in fiscal 2009. In fiscal 2011 and 2012, MTA is estimating that ridership will continue to grow at a rate of 2.0 and 1.0%, respectively. There are several noteworthy trends:

Exhibit 1
MTA Boardings and Percent Change
Fiscal 2007-2012

	2007	2008	2009	2010	2011 Est.	2012 Est.
Bus	1.0%	4.0%	5.0%	-1.0%	2.0%	1.0%
Metro	2.0%	6.0%	-3.0%	-1.0%	2.0%	2.0%
Light Rail	32.0%	12.0%	9.0%	-6.0%	2.0%	1.0%
Paratransit	11.0%	35.0%	12.0%	11.0%	16.0%	18.0%
TaxiAccess	18.0%	10.0%	-12.0%	-22.0%	-1.0%	-1.0%
MARC	3.0%	5.0%	2.0%	0.0%	0.0%	1.0%
Contracted Commuter Bus	5.0%	10.0%	7.0%	-3.0%	1.0%	1.0%
Total	**3.5%**	**5.2%**	**4.0%**	**-1.0%**	**2.0%**	**1.0%**

MARC: Maryland Area Regional Commuter
MTA: Maryland Transit Administration

Source: Maryland Transit Administration

- ***Light Rail and Commuter Bus:*** Historically, light rail and commuter bus service have had sizable growth rates, even reaching double digits in some fiscal years. In fiscal 2011 and 2012, ridership growth is not expected to exceed 2%. This can be attributed to light rail ridership stabilizing after growth from the double tracking project and commuter bus service reaching its capacity.

- ***Paratransit Services:*** TaxiAccess experienced another sizable reduction in ridership in fiscal 2010 largely due to changes in the fee structure and a reduced travel area. While there is a decline in TaxiAccess ridership, ridership growth for Mobility increased 11% in

fiscal 2010, and double digit ridership growth is projected in fiscal 2011 and 2012. In its Managing for Results (MFR) submission, MTA indicates that the number of certified paratransit users increased approximately 14%. Given that the paratransit service is one of the more costly services provided by MTA, continued large increases in the population served and ridership will have an adverse effect on the department‟s budget.

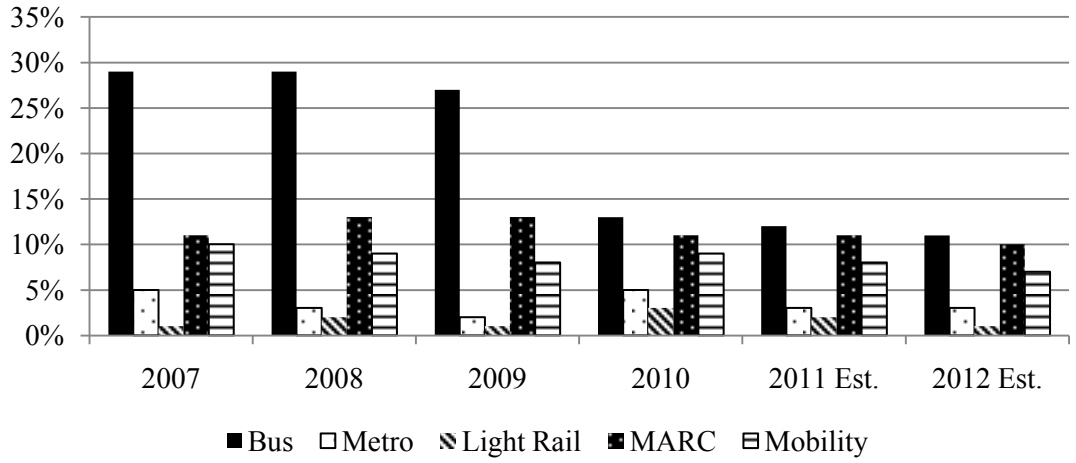
The Governor has expressed the goal of doubling ridership in the State by 2020. To do this, the Administration is using strategies such as expanding and enhancing service, ensuring quality service, and focusing on transit-oriented development. Given the funding constraints facing the Transportation Trust Fund (TTF) and the recent modest growth in ridership, it is unclear how the goal of doubling ridership will be met. To meet the goal, ridership growth would have to have annual increases of 4% or greater from fiscal 2014 to 2020. **The Department of Legislative Services (DLS) recommends that MTA discuss its estimates of ridership and how it intends to meet the Governor's goal of doubling ridership in the State given the funding constraints facing the department.**

On-time Performance

MTA seeks to provide high on-time performance for all of its services. **Exhibit 2** provides data on the percentage of service not provided on-time for bus, Metro, light rail, and MARC. Overall, the level of on-time performance largely improved in fiscal 2010 compared to the prior year. Light Rail, Mobility, and Metro on-time performance was slightly worse due to the winter events. The largest single improvement was in the core bus service where in fiscal 2009, 27% of service was late and in fiscal 2010 only 13% of service was late. **DLS recommends that MTA discuss what steps were taken to improve on-time performance in fiscal 2010 and what other steps can be taken to further drive down the 13% of buses that are late.**

MARC service on-time performance actually increased from 87 to 89% in fiscal 2010; however, there is cause for concern regarding MARC‟s on-time performance. Several recent press articles have highlighted issues with on-time performance. The *Washington Post* noted that the Brunswick line had averaged eight delays every weekday from the beginning of September through October 2010. The *Baltimore Sun* noted that in November 2010 on-time performance on the Penn and Camden lines dropped to 85%. In prior fiscal years, mechanical issues with locomotives and other breakdowns have resulted in delays; however, the agency has introduced new locomotives to help resolve this. Because MARC does not own the rail lines, it is not always the priority rail service on the line at that particular moment; however, Amtrak has also worked to improve this. Recently, MTA announced changes to the Penn Line in response to break downs in the summer of 2010 that would allow for more trips using fewer cars. With an overall net increase in seats, the hope is that this will also improve on-time performance. **DLS recommends that MTA discuss what has caused the on-time delays in recent months for the MARC service and how changes to the Penn Line may improve on-time performance.**

Exhibit 2
Trips Not On-time
Fiscal 2007-2012



MARC: Maryland Area Regional Commuter

Source: Maryland Transit Administration

Farebox Recovery

Section 7-208 of the Transportation Article sets the statutory farebox recovery rate at 35% for Baltimore area core services and MARC service. **Exhibit 3** shows the farebox recovery by mode of transit and Baltimore core services. Baltimore area core services last had a farebox recovery rate of 35% in fiscal 2004, and MARC farebox recovery has been steadily declining. The statutory farebox level has not been met due to the costs of utilities, fuel, labor, and the MARC contract outpacing ridership growth.

The farebox recovery rate for Baltimore services decreased from 31% in fiscal 2009 to 28% in fiscal 2010 largely due to the budgetary impact of the decision of the arbitrator to increase union compensation and additional winter maintenance costs. The decline in ridership and revenue also lowered the farebox recovery calculation. In fiscal 2011 and 2012, the farebox recovery rate for Baltimore area services core bus is expected to be 29%; still below the statutory mandate.

MARC‟s farebox recovery improved in fiscal 2010 from 44 to 48%. This increase was largely due to improvements in the accounting of revenues since CSX discontinued its work on revenue collections. Improvements were also made to Amtrak‟s invoicing and processing. In fiscal 2011 and beyond, the farebox recovery rate is expected to decline as contract expenditures are expected to increase.

Exhibit 3
Farebox Recovery Rate
Fiscal 2006-2012

	2006	2007	2008	2009	2010	2011 Est.	2012 Est.
Baltimore Area Services	**33.2%**	**31.7%**	**29.0%**	**31.0%**	**28.0%**	**29.0%**	**29.0%**
Core Bus	37.2%	35.0%	31.0%	34.0%	31.0%	31.0%	30.0%
Metro	30.6%	28.0%	28.0%	27.0%	25.0%	27.0%	27.0%
Light Rail	16.0%	19.0%	18.0%	19.0%	17.0%	19.0%	19.0%
MARC	58.9%	56.2%	53.0%	44.0%	48.0%	46.0%	45.0%
Washington Commuter Bus	36.2%	34.0%	33.0%	34.0%	33.0%	34.0%	35.0%

MARC: Maryland Area Regional Commuter

Source: Maryland Transit Administration

Exhibit 4 compares MTA"s farebox recovery for fiscal 2009 to other peer jurisdictions according to the National Transit Database, as required under Section 7-208. The National Transit Database includes different transit administrative costs than MTA uses for its performance measure, which reduces the farebox recovery rate compared to the MFR measure. The data shows that Baltimore core bus service had the third lowest rate of recovery but was higher than WMATA. The recovery rate for light rail and Metro did not compare as favorably; however, light rail and Metro are individual lines and not part of an integrated system. Light rail had the second lowest farebox recovery level of any system at 21.5% while Metro had the lowest at 21.3%. MTA indicates that the Boston and Washington systems use bus lines as a feeder for its rail system whereas Baltimore is not developed enough to be integrated like the other systems. Commuter rail service had the lowest recovery rate of peer systems, except for the Portland system which was under 5.0%, due to the recent run-up in contract costs for the MARC service.

Performance Goals

Section 7-208 also requires MTA to develop performance goals for passenger trips per revenue vehicle mile, operating expenses per passenger trip, and operating expenses per revenue vehicle mile by transit mode. **Exhibit 5** shows the actual figures for fiscal 2009 and 2010, the goal and estimate for 2011, and the goal for 2012.

Operating expenditures increased in fiscal 2010 largely due to the decision of the arbitrator regarding union wages. As a result, most of the measures relating to cost were higher in fiscal 2010 than in 2009. The exception to this is the Metro measure of expenditures per revenue vehicle mile. This improved in fiscal 2010 because the number of revenue vehicle miles declined because 4 to 6 car trains were put into service instead of 6 to 8 car trains. Measures that involve revenue miles increased in fiscal 2010 because expenses grew faster than the number of revenue vehicle miles. In fiscal 2011 and 2012, expenditures are projected to continue to grow faster than the level of ridership or service growth.

Exhibit 4
Comparison of Farebox Recovery Rates by Mode
Fiscal 2009

	Bus	Light Rail	Heavy Rail	Commuter Rail
Cincinnati	35.1%	n/a	n/a	n/a
Philadelphia	30.7%	44.1%	53.1%	56.1%
Los Angeles	28.9%	20.7%	39.2%	n/a
Baltimore	**22.3%**	**21.5%**	**21.3%**	**32.3%**
Boston	21.1%	53.3%	53.8%	49.6%
Pittsburgh	26.6%	15.2%	n/a	n/a
Washington	21.6%	n/a	62.9%	n/a
Portland	23.5%	35.0%	n/a	3.4%

Source: National Transit Database; Maryland Transit Administration

Exhibit 5
Fiscal 2009-2012 Performance Goals

	2009	2010	2011 Est.	2012 Est.
Core Bus				
Passengers Per Revenue Mile	4.4	4.2	4.2	4.2
Operating Expenses Per Passenger Trip	$2.93	$3.26	$3.29	$3.32
Operating Expenses Per Revenue Vehicle Mile	$12.76	$13.57	$13.84	$14.12
Light Rail				
Passengers Per Revenue Mile	3.1	2.9	3.1	3.1
Operating Expenses Per Passenger Trip	$4.34	$4.99	$4.62	$4.76
Operating Expenses Per Revenue Vehicle Mile	$13.58	$14.48	$14.55	$14.62
Metro				
Passengers Per Revenue Mile	2.7	3.0	3.0	3.0
Operating Expenses Per Passenger Trip	$3.92	$3.90	$3.92	$4.04
Operating Expenses Per Revenue Vehicle Mile	$10.13	$11.59	$11.76	$11.93

Source: Maryland Transit Administration

Proposed Budget

The fiscal 2012 allowance increases $39.4 million, or 6.4%, compared to the fiscal 2011 working appropriation. When adjusting for contingent and across-the-board actions, the fiscal 2012 allowance increases $38.2 million, or 6.2%, as shown in **Exhibit 6**. The department intends to process budget amendments totaling $13.0 million in fiscal 2011. When adjusting for the projected budget amendments, the fiscal 2012 allowance increases $25.2 million. Most of the increases in the allowance are for union personnel expenditures and contracted transit services.

Impact of Cost Containment

The fiscal 2012 budget reflects several across-the-board actions. In fiscal 2012, MTA"s share of the reduction is $807,492 ($725,542 in operating expenditures and $81,950 in capital expenditures) due to changes in employee health insurance. To the extent that MTA has positions abolished under the Voluntary Separation Program, additional reductions will be implemented by the Administration.

The fiscal 2012 allowance also includes a Back of the Bill reduction of $0.5 million for the consolidation of police functions between MDOT and MTA. Since MTA is the only agency within MDOT with a police force, it is assumed that the reduction in the allowance will be taken from the MTA budget. **DLS recommends that MTA discuss what functions will be consolidated and where the savings will come from.**

Personnel

Personnel expenditures in the fiscal 2012 allowance increase $28.8 million. The largest increases are associated with the arbitrator"s decision regarding union employees" salary and wages. Specific increases include the following:

- $10.2 million increase in salary increases for union employees and the restoration of the furlough for regular State employees;
- $6.0 million increase in current and retiree health insurance, largely driven by the arbitrator"s decision;
- $4.1 million increase in pension payments for union employees;
- $3.4 million increase in the workers" compensation premium based upon claim history; and
- $3.0 million increase in overtime based upon actual expenditures.

Exhibit 6
Proposed Budget
MDOT – Maryland Transit Administration Operating Budget
($ in Thousands)

How Much It Grows:	Special Fund	Federal Fund	Total
2011 Working Appropriation	$551,090	$62,736	$613,827
2012 Allowance	593,480	59,735	653,215
Amount Change	$42,390	-$3,002	$39,389
Percent Change	7.7%	-4.8%	6.4%
Contingent Reductions	-$1,176	-$49	-$1,226
Adjusted Change	$41,214	-$3,051	$38,163
Adjusted Percent Change	7.5%	-4.9%	6.2%

Where It Goes:

Personnel Expenses	
Union wage increase from binding arbitration and restoration of furlough	$10,188
Employee and retiree health insurance net of contingent reductions	65
Employee retirement system payment	693
Union health insurance	6,002
Union and MTA Police pension payment	4,079
Workers‟ compensation premium assessment	3,339
Overtime	3,001
Additional assistance	1,735
Turnover adjustments	-1,069
Other fringe benefit adjustments	871
Administration	
Spending for management studies and consultants based upon need	343
Spending for supplies and materials based upon need	353
Insurance paid to State Treasurer‟s Office based upon rates provided	-457
Bus Operations	
Additional maintenance and repair based upon fiscal 2010 actual spending	3,251
Higher contract costs for paratransit Mobility services	1,959
Vehicle purchases	345

Where It Goes:	
Lower fuel and utilities due to Department of Budget and Management instructions	-343
Contingent reduction for the consolidation of police forces	-500
Lower diesel fuel price estimates based upon actual price	-4,433
Rail Operations	
Small tools based upon need	252
Supplies and materials increase for track work and actual needs	336
Additional maintenance and repair based upon fiscal 2010 actual spending	888
Contract costs for elevator maintenance	2,108
Lower fuel and utilities due to Department of Budget and Management instructions	-578
Snow removal budget reduced	-1,045
MARC contract increases	4,127
Statewide	
ICC Commuter bus service and contract increases for existing service	2,440
Other	213
Total	**$38,163**

ICC: InterCounty Connector
MARC: Maryland Area Regional Commuter
MTA: Maryland Transit Administration

Note: Numbers may not sum to total due to rounding.

Administration

In the Administration program, there is a nominal increase in spending largely associated with personnel expenditures; however, there are increases for management studies and consultants and supplies and materials based upon actual spending.

Bus Operations

The largest increase in the Bus Operations program, outside of personnel, is for additional maintenance and repair costs for buses and maintenance shops totaling $3.3 million based upon fiscal 2010 actual spending. Mobility Paratransit service expenditures increase approximately $2.0 million due to the contract cost of providing the service as well as ridership continuing to increase. Of note is that ridership for the TaxiAccess program is expected to be moderated due to the policy changes for trip length and eligibility. The additional spending is offset by assuming that fiscal 2012 diesel fuel expenditures will be equal to the fiscal 2010 level, translating into a price of $2.36 and a reduction of $4.4 million (MTA fuel is bought through the Department of General Services and does not include State taxes).

Rail Operations

The largest increases in the Rail Operations program are for contract related services. The contracts for MARC increase $4.1 million with approximately $3.0 million of that cost due to the penalties MTA has to pay CSX for still providing the service. There is also a $2.1 million increase for elevator maintenance based upon the contract and need. Other spending increases include $0.9 million for additional maintenance and repair costs based upon fiscal 2010 actual spending. In terms of spending reductions, it is notable that the agency has reduced its snow removal budget by $1.0 million despite most other agencies having increased budgeted winter maintenance. **DLS recommends that MTA discuss why it reduced its winter maintenance budget.**

Statewide Operations

The largest increase in the Statewide Operations program is for increases in the contract commuter bus service totaling $2.4 million due to contract increases and the addition of ICC bus service.

Potential Underfunding Funds Budget Increases

While the budget increases $38.2 million, or 6.2%, questions about the sufficiency of MTA‟s budget continue. Personnel expenditures increase approximately $29.0 million, and contracted transit services increase approximately $8.5 million which accounts for most of the increase in the allowance. The fiscal 2012 allowance does provide increases in funding for the maintenance and repair of vehicles, the replenishment of inventories for repairs, and contract maintenance for elevators; however, the allowance also assumes that departmentwide expenditures on fuel will be $4.4 million less than the fiscal 2011 working appropriation actual level and that utility expenditures will be $1.0 million less than the fiscal 2011 working appropriation. Furthermore, the department has reduced its expenditures on winter maintenance by $1.0 million in the allowance.

In the past, DLS has noted that MTA‟s budget was underfunded. It appears that efforts have been made to true up MTA‟s budget, but this has been done by reducing the estimates of spending for diesel fuel and winter maintenance expenditures which are highly unpredictable. To the extent that expenditures for these items exceed the budgeted levels, MTA may once again need to reduce funding for maintenance or supplies. **DLS recommends that MTA and MDOT discuss how it will fund any additional needs MTA has.**

PAYGO Capital Program

Program Description

MTA"s capital program provides funds to support the design, construction, rehabilitation, and acquisition of facilities and equipment for the bus, rail, and statewide programs. The program also provides State and federal grants to local jurisdictions and nonprofit organizations to support the purchase of transit vehicles and the construction of transit facilities.

Federal Stimulus Funding

The American Recovery and Reinvestment Act of 2009 (ARRA) provided additional transit formula funding for states to use on highway projects. ARRA funding did help to offset the $2.2 billion in reductions made to the capital program as a result of the recession. Maryland received $135.0 million for transit formula funding in the ARRA for MTA; however, favorable highway project bids resulted in savings that could be used for other projects. Approximately $17.0 million of the bid savings were transferred to MTA, leaving MTA with $152.0 million. The *Consolidated Transportation Program* (CTP) provides a listing of local ARRA projects, as well as State funded projects, by jurisdiction. The State also received approximately $10.0 million from two ARRA grants, one for Metro and the other for station improvements at Baltimore/Washington International Thurgood Marshall airport. With the two ARRA grants and transferred highway funding, the total amount of ARRA funding is $162.0 million.

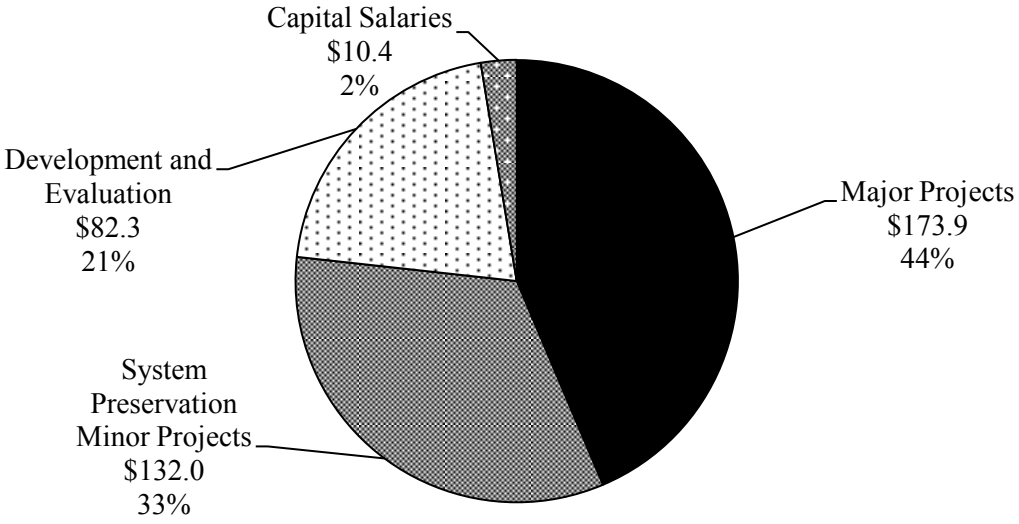
Of the $162 million in transit funding, MTA received $118 million, and locally operated transit systems received $44 million. The State-funded projects involved a number of system preservation-related projects for Metro and bus facilities. Other projects include light rail and MARC station improvements and bus procurement. The local funding focused largely on bus replacements and facility and equipment upgrades.

MTA indicates that of the $162 million in ARRA funding, approximately $57 million, or 35%, of the funding has been expended. ARRA spending by local jurisdictions appears to be occurring at a slightly slower rate than at the State level. **DLS recommends that MTA discuss with the committees its progress in spending the ARRA funds and how local jurisdictions are doing in meeting the federal deadlines.**

Fiscal 2011 to 2016 *Consolidated Transportation Program*

The fiscal 2012 allowance totals $361.3 million, a decrease of $9.8 million compared to the fiscal 2011 working appropriation. There is also $37.2 million in non-State sourced revenue, largely in local funds being contributed to State projects. As shown in **Exhibit 7**, funding for major projects totals $173.9 million, or 44%, of the total. System preservation accounts for the next largest share of the funding totaling $132 million, or 33%, of the total.

Exhibit 7
Major Funding by Category
($ in Millions)

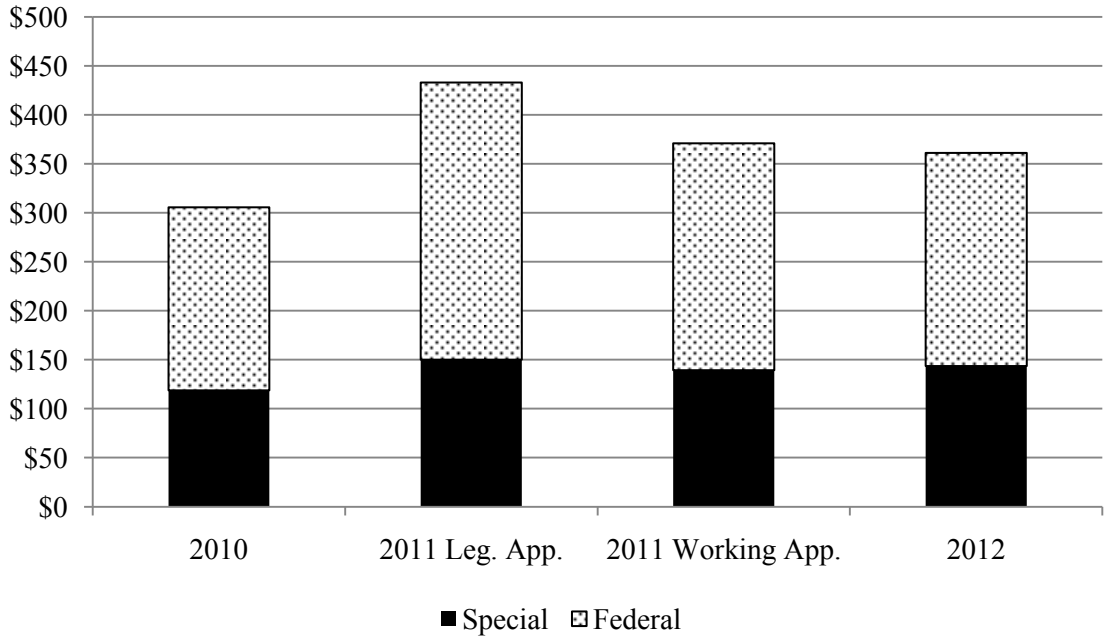


Source: Maryland Department of Transportation, 2011-2016 *Consolidated Transportation Program*

Fiscal 2011 and 2012 Cash Flow Analysis

The fiscal 2011 working appropriation is $61.8 million less than the legislative appropriation as shown in **Exhibit 8**. The change in the working appropriation is largely due to changes in the spend rate of various projects. The fiscal 2012 allowance decreases $9.8 million due to cash flow changes in a number of projects. There is a $10.3 million increase for the construction of a Takoma/Langley park Transit Center due to an ARRA grant.

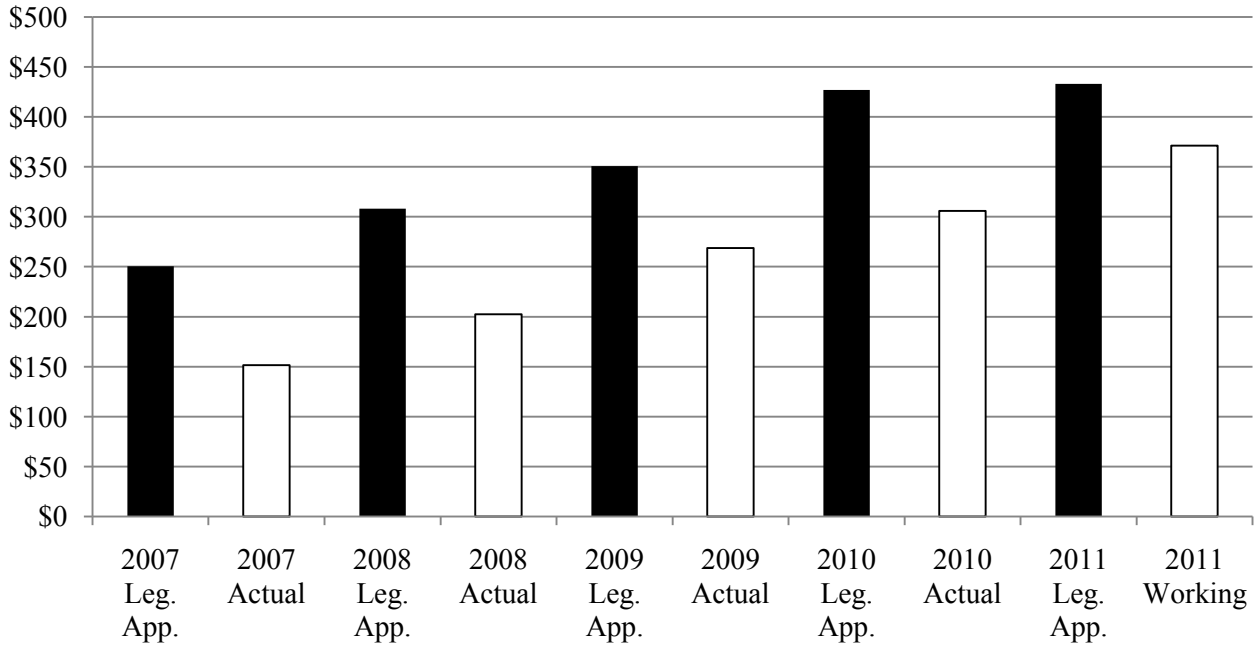
Exhibit 8
Cash Flow Changes
Fiscal 2010-2012
($ in Millions)



Source: Maryland Department of Transportation, 2011-2016 *Consolidated Transportation Program*

As shown in **Exhibit 9**, the department has had difficulty in spending its legislative appropriation. It should be noted that the fiscal 2009 figure reflects reductions to the capital program due to the substantial write-down in revenues. In general, the department has actually spent anywhere from 61 to 77% of its legislative appropriation in a given fiscal year. The spend rate has been increasing over time; however, the agency"s ability to spend its capital appropriation remains a problem. The impact on the financial forecast is that the department has to increase its bond sales to meet the projected spending that the agency then never realizes. As a result, the department closes the fiscal year with a sizable fund balance and typically issues more debt than is required. The unintended benefit is that the department can reduce its bond sales and issue less debt than it forecast which helps with the department"s, and the State"s, debt measures in the short-term. **DLS recommends that MTA and MDOT discuss MTA's ability to spend its legislative appropriation and what can be done to more accurately reflect the capital spending needs for MTA.**

Exhibit 9
MTA Capital Spending
Fiscal 2007-2011
($ in Millions)



MTA: Maryland Transit Administration

Source: Department of Legislative Services

Exhibit 10 shows the major projects funded in fiscal 2012. The projects listed total $202 million and represent 66% of the funding in those categories. **DLS recommends that MTA discuss why projects identified in the construction program are greater than the total of $174 million found at the beginning of MTA's capital section in the CTP.**

Exhibit 10
Major Construction Projects
Funded in Fiscal 2012
($ in Thousands)

Project	2012 $	Total $	Completion of Fiscal Year Cash Flow
Maryland Rail Commuter (MARC) Maintenance, Layover, and Storage Facilities – funding for the acquisition and planning of a midday storage and maintenance facility	$12,500	$49,042	2014
MARC Frederick Extension	2,076	59,187	2012
MARC Edgewood Station Improvements	2,463	5,697	2013
MARC Improvements on Camden, Brunswick, and Penn Lines – ongoing program of improvements on MARC lines	8,785	178,523	Ongoing
MARC Locomotive Overhaul – conduct mid-life overhaul of electric locomotives	6,472	123,502	2014
MARC Growth and Investment Plan – implements projects identified in the MARC Growth and Investment Plan	6,867	176,123	Ongoing
Paul S. Sarbanes Transit Center and MARC Station Relocation – two-phase project to provide a fully integrated transit center at the Silver Spring Metrorail Station	36,133	94,836	2012
MARC Halethorpe Station Improvements – platform and access improvements to improve service and reduce boarding times	7,000	29,860	2103
Light Rail Vehicle Mid-life Overhaul	11,711	145,836	2016
Metro Railcar Overhaul	2,446	34,879	Ongoing
Metro Rail Car Truck Assembly Overhaul	6,508	19,500	2013
Metro Subway Train Control Signaling System Replacement	2,383	25,050	2015
Metro Subway Fire and Security Management Systems	1,995	69,000	2012
Metro Subway Electrical Substation Improvements	2,700	12,461	2013
Metro Subway Interlocking Renewals	3,840	11,110	2014
Bus Procurement – purchase 40-foot buses to be used in an annual replacement program of buses in service of 12 or more years	28,510	202,049	Ongoing
Locally Operated Transit Systems Capital Procurement Projects (Local Jurisdictions) – the Maryland Transit Administration provides funding to local jurisdictions in rural and small urban areas for transit vehicles, equipment, and facilities	24,934	221,967	Ongoing
Mobility Vehicle Procurement – procure paratransit service vehicles	2,850	39,653	2013
Replacement of Fare Collection Equipment and Implement SmartCard	2,656	101,227	2013
Agencywide Roof Replacement	6,559	21,488	2016
Southern Maryland Commuter Bus Initiative – several park and ride lots in Southern Maryland	10,060	36,140	2014

Project	2012 $	Total $	Completion of Fiscal Year Cash Flow
Takoma/Langley Park Transit Center	10,300	25,428	2014
Central Maryland Transit Maintenance Facility	2,500	8,319	2013
Total	**$202,248**	**$1,690,877**	

Source: Maryland Department of Transportation, 2011-2016 *Consolidated Transportation Program*

Projects Moved from the Development and Evaluation Program to the Construction Program

One project, the Takoma/Langley Park Transit Center, was moved from the Development and Evaluation program to the construction program. An ARRA grant of $12.3 million moved the project from the Development and Evaluation program to the construction program.

Issues

1. Paying for the Major Transit Lines

The State continues to move forward with plans for the construction of three major transit lines, the Purple Line and Corridor Cities Transitway (CCT) in the Washington metropolitan region and the Red Line in Baltimore City and Baltimore County. The locally preferred options for the Red and Purple Line were selected in summer 2009 with the CCT expected to be announced once Montgomery County has completed its master plan.

The project schedule for the Purple and Red Lines are identical with the CCT following close behind. **Exhibit 11** shows that the Red and Purple Lines could conceivably begin construction in 2014. MTA has submitted its New Starts application to the Federal Transit Administration (FTA) for the Red Line, with the Purple Line soon to follow, which includes draft financial details and planning information. The New Starts application is largely graded on the technical aspects of the project. If approved, the New Starts designation would allow the project to move into the next phase of the process. In addition, it would also allow for the project to be eligible for federal funding for the final design. The final environmental impact statement (FEIS) is expected to be completed in the winter of 2012. Once the FEIS is completed, and if FTA approves the application, the next step is to reach a full funding grant agreement with FTA. At the time of the full funding grant agreement in 2012, the State must be prepared to submit a finalized financial plan to show how it intends to pay for the project.

Exhibit 11
Timeline of Milestones for Red and Purple Lines

Select Locally Preferred Option	Summer 2009
Contingent on Federal Transit Administration (FTA) New Starts Approval	
Initiate Preliminary Engineering Activities	Winter 2011
Final Environmental Impact Statement Decision/ Record of Decision	Winter 2012
Contingent on FTA-approved Funding	
Initiate Final Design Activities	Winter 2012
Receive Full Funding Grant Agreement	Winter 2012
Begin Right of Way, Permitting, and Agreements	2013
Begin Construction	2014

Source: Maryland Transit Administration

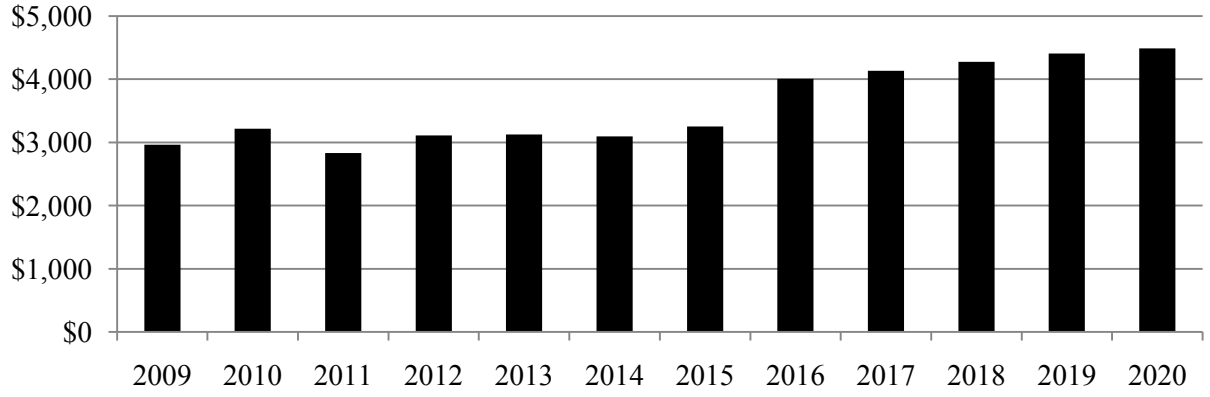
Financing the Costs

To enter into the next phase of design for the project, the department has to receive approval from FTA to enter into the New Starts program. There are several technical documents that need to be submitted to FTA as well as a financial plan. By spring 2011, the department should know whether or not it can begin the next phase of engineering for the Red and Purple Line projects. It should be noted that the cost of the Red Line is now projected to be $2.2 billion which accounts for future inflation, instead of the previous estimate of $1.8 billion in today"s dollars.

MTA has submitted its financial plan documents for the Red Line to FTA for review. The financial plans need to demonstrate that the department can meet all of its existing transit obligations as well as the construction of all three transit lines. There are several aspects of the plan that have implications for the State and the other modes of transportation. Specifically:

- ***MDOT Assumes an Increase in Revenue Totaling $757 Million in Fiscal 2016:*** As shown in **Exhibit 12**, net revenues to the TTF, including federal funds, are assumed to increase by $757 million in fiscal 2016. The financial plan submitted to FTA was based upon the CTP approved by the legislature in the 2010 session for fiscal 2010 to 2015. The department states that there is always this type of an increase in the first year after the CTP because revenues are projected using a mathematical regression model based upon historical trends instead of projecting revenues from the end of the six-year forecast. When comparing the fiscal 2016 estimate of revenues in the current financial forecast to the amount in the Red Line financial plan, the difference in net revenues is closer to $1 billion.

Exhibit 12
Net TTF Revenues Including Federal Funds
Fiscal 2009-2020
($ in Millions)



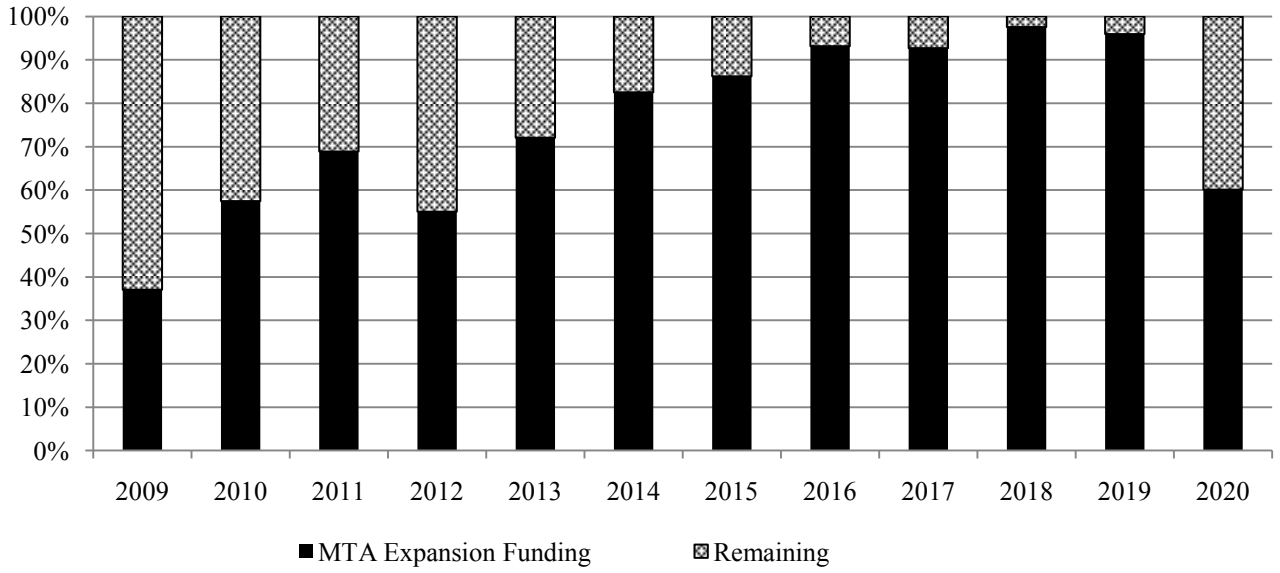
TTF: Transportation Trust Fund

Source: Red Line Financial Plan

Regardless of how the increase in revenue is estimated in the Red Line financial plan, the department‟s ability to pay for the transit lines relies on the need for an increase in revenue totaling at least $800 million. If the economy recovers and revenues begin to grow at more historical rates, then the gap in revenue estimates could be slightly smaller; however, the department has already assumed an economic recovery in its financial forecast diminishing the likelihood of additional revenues from economic growth. The financial plan does not indicate how exactly the additional funding would be realized. It would appear that the department is presuming that the General Assembly will provide for such a revenue increase; otherwise, the construction of the transit lines is not affordable. For perspective, an $800 million increase in revenue would require a motor fuel tax increase of approximately 27 cents.

- ***Most of the Additional Revenue Is Required for the MTA Expansion Capital Budget:*** Of the additional revenue that is assumed, most of that funding would be used for the expansion portion of the capital budget. In looking at the expansion budget as shown in the financial plan, **Exhibit 13** shows that almost all of the funding in the expansion budget is for MTA transit lines. MTA‟s share of the department‟s State-funded total capital expansion budget would reach a high point of 98% in fiscal 2018. While not explicitly stated, it is clear that capital expansion funding of highways and the other modes will not be increasing in the coming years under the financial plan. The department indicates that there are ebbs and flows between highway and transit capital spending during expansion projects.

Exhibit 13
Comparison of Expansion Budget Spending
Fiscal 2009-2020



Source: Red Line Financial Plan

- ***Only $300 Million Is Assumed in Funding for the CCT:*** The financial plan assumes that the CCT will only cost $300 million. This is a decision assumed in the financial plan despite a locally preferred alternative for the CCT not having been selected. For the CCT to be constructed as anything other than a low cost Bus Rapid Transit alternative would require alternative or private financing.

- ***Federal Aid Assumptions:*** There are two issues regarding federal aid assumptions. First, the New Starts is a competitive nationwide program. It is not clear that the State will be able to obtain funding for one of the major transit lines, let alone all three lines. Second, the department assumes that it will receive 50% in federal aid for the construction of the transit line. New Start funding is appropriated from the federal general fund. Given the efforts to reduce the federal deficit and the political changes on Capitol Hill, the department may not receive a 50% match in federal funds. In its efforts to constrain spending, the House Republicans have proposed reduced funding levels for the New Starts program in federal fiscal 2011. If the department receives less than 50%, then it may have to use even more funding from the expansion budget, at the expense of other priorities, raise more revenue, or issue more debt.

- ***Operating Budget Impacts:*** The financial plan makes an assumption that the operating cost of just the Red Line is approximately $39.7 million in fiscal 2020 when operation begins. It is likely that the Purple Line cost will be comparable, and the financial plan assumes approximately $20.0 million for the CCT. In total, the additional operating cost for the three major transit lines could approach $100.0 million, before accounting for fare revenue. This would then grow each fiscal year consuming a higher portion of available cash. As evidenced by the recent arbitrator‟s decision, the personnel cost of operating a transit system is expensive.

Conclusion

In summary, the department‟s financial plan assumes either an unprecedented economic recovery or that the General Assembly will raise at least $757 million in new revenues for construction of the Red and Purple Line. The financial plan also assumes that a low cost alternative for the CCT will be constructed, despite the lack of any input from the local jurisdiction or legislature. Even with a nearly $800 million increase in revenues, nearly all of it would be used for transit projects. This would limit future expansion for highway and other projects. Moreover, at least $100 million in revenue will be needed to operate the three transit lines.

DLS recommends that MTA and MDOT discuss the transit financial plan and specifically address:

- **what is the source of the $757 million in additional revenue identified in the Red Line financial plan;**

- **how much will be available for future capital spending for new highway projects and other modes;**

- **what are the assumptions for the CCT project; and**
- **what would be the source of operating budget funding if the transit lines are constructed.**

2. Union Compensation Increases Due to Arbitrator's Decision

Overview of Decision

MTA had been in negotiations with its largest union, Local 1300, regarding wage and pension benefits through fiscal 2012. MTA and the union were unable to come to an agreement and entered into binding arbitration as provided for in statute. **Exhibit 14** shows the binding arbitration decision had two major components: effective wage increases totaling 11.5% between January 2009 and July 2011; and a 40% increase in the maximum pension benefit per month of service.

Exhibit 14
MTA Union Wage and Pension Benefit Increases

Effective Wage Increase:	**11.5%**			
Total Cost:	**$19,300,000**			
	FY 2009	**FY 2010**	**FY 2011**	**FY 2012**
January 1, 2009	2.75%			
January 1, 2010		2.75%		
October 1, 2010			2.75%	
July 1, 2011				2.75%

Pension Increase:	**40.0%**	
Total Cost:	**$15,900,000**	
Benefit based on the lesser of:		
	Previous	**New**
Monthly benefit	$58	$80
Annual benefit	$696	$960
or:		
Average top 3 earning years in last 10 years times, multiplied by years of service, multiplied by:	1.6%	1.7%

Source: Department of Legislative Services

The total cost of the arbitrator‟s decision from fiscal 2010 to 2012 is $35.8 million. The total cost of the wage increase is $19.3 million with a 2.75% increase on January 1, 2009 and 2010, October 1, 2010, and July 1, 2011. This translates into a 5.5% increase from fiscal 2011 to 2012. The pension enhancement is expected to cost $15.9 million, with the major change an increase in the benefit paid per month which raises the total maximum payment for annual service from $696 to $960. (The MTA union pension benefit is calculated based upon the number of years served, times the average top 3 earning years in the last 10 years of service, times the multiplier of .017, divided by 12 or $80, whichever is the lesser amount.) There were other provisions and changes to the agreement, but the major monetary changes were noted previously.

Issues

The arbitrator‟s decision raises two issues. First, State employees have not received a cost-of-living adjustment or merit increase since fiscal 2009, and that increase was offset by a five-day furlough. Union employees were not subject to the statewide furlough because they were considered part of essential operations. While the arbitrator‟s decision to increase pay and benefits for union employees was based upon comparable transit systems, there is an inequity in terms of the compensation received by other State employees.

A second issue is that there was a pension enhancement for union employees. The pension enhancement further eroded the funded status of MTA‟s pension system and further increased the annual contribution to the system. The accrued liability increased 26.0% as a result of the arbitrator‟s decision, and the unfunded liability increased 35.0% to $263.3 million. Based upon the department‟s most recent financial audit, the MTA pension system (which has 2,681 current employees and 1,238 retirees) is funded at 38.2% with a total accrued liability of $426.0 million. Typically, any pension system with a funding ratio below 60.0% is considered to be severely distressed.

Comparison with State Employee Plans and Potential Changes

The State has undertaken a comprehensive review of State employee benefits because of the underfunded status of the pension system and the associated budgetary impacts. Options to improve the funded status of the State pension system have included reductions in future employee benefits or increases in employee contributions. The fiscal 2012 allowance includes several changes to retiree health insurance and pension benefits. Due to the low funded status of the union pension plan, changes similar to what is being considered for other State employees should be considered for MTA‟s pension system.

For example, MTA union employees do not contribute to their pension benefit. It should be noted that the pension for these employees is capped at $960 annually for each year of service and is not adjusted for inflation like the State benefit. One could consider the cap on the pension benefit a trade-off for not contributing; however, when compared to 17 other transit systems, only 4 did not require an employee contribution, including WMATA. Any efforts to provide for an employee contribution would need to be done through the contract negotiation process and would need to be viewed as an effort to increase the pension plan‟s funded status as opposed to an effort to reduce the State‟s costs. MTA does indicate that this might also be accomplished through a statutory change to

the Transportation Article, but an opinion from the Attorney General‟s office would need to be first solicited.

In terms of health insurance, individual MTA plan participants did not pay a premium for the health maintenance organization plan or dental coverage (employees with spousal or dependent coverage pay a premium). The differences in the co-pays required between the State and MTA health care plans had been minimal; however, with the changes in the health plans for prescription drugs provided for in the allowance, State employees will likely pay more. The agency funds its health care costs for current and retired employees on a pay-as-you-go basis similar to the State. As a result, the funded ratio for its Other Post Employment Benefits (OPEB) is 0%. There are 2,451 current employees with union health benefits and 1,238 retirees in the union health insurance plan. Based upon MDOT‟s comprehensive annual financial report, the annual required contribution for its OPEB liability was $44.2 million in fiscal 2010, but only $10.9 million was actually paid. This represents just the annual cost with nothing applied toward the unfunded liability.

Budget Impact

The arbitrator‟s decision to increase wages and benefits results in additional spending for the MTA which ultimately reduces the department‟s compliance with farebox recovery. For MTA to improve the funded status of its pension system, it will either need to obtain concessions from the unions in future contract negotiations or begin to fund the accrued liability of the pension system. Any efforts to increase State funding of the pension system is difficult due to the funding constraints facing the TTF; however, the department may need to consider such action which would also further reduce the farebox recovery level. Increasing the State contribution to the MTA pension system could reduce funding elsewhere in the department‟s budget or in other modes.

Recommendation

Given the emphasis on making employee benefits more sustainable and the increasing cost to the TTF to subsidize these costs, the budget committees may want to consider what can be done to make the MTA pension plan more sustainable. Furthermore, the Governor has proposed changes to the State employee system to put it on a more sustainable path. This could include, at a minimum, requiring MTA employees to begin contributing to the pension system. In addition, MTA should consider implementing changes to its health insurance plan for union employees similar to actions taken for the State employee plan. For any change to the structure of health or retirement benefits, MTA will need to negotiate those changes with the union. **DLS recommends that the MTA discuss with the budget committees the following:**

- **the impact of the arbitrator's decision and what it means for future negotiations;**
- **the status of its pension plans and OPEB obligation;**
- **what steps, including requiring employee contributions for pension and employee contributions, may be undertaken similar to other State actions.**

DLS also recommends that committee narrative be adopted that would require MTA to report on how it intends to put the MTA's union pension system on a sustainable path in light of the recent arbitration decision and what actions can be taken so that union health benefits are comparable to State employees.

3. MTA Farebox and Fare Increases

Statute requires MTA to have a farebox recovery rate of 35% for Baltimore Core services. The rate was lowered to 35% in 2008 from 40% largely because the department was unable to meet the farebox recovery rate. Since the farebox recovery rate was lowered to 35%, MTA still has not been able to meet the statutory requirement. The main reason that MTA has not been able to meet its statutory requirements, is that annual operating expenditures have been growing faster than annual operating revenues.

In looking at expenditures, MTA indicates that there are three main cost drivers:

1. **Union Labor Expenses** – MTA"s union workforce, with its binding collective bargaining rights, represents 77% of the agency"s workforce. In fiscal 2012, union personnel expenditures accounted for 37% of all expenditures. Furthermore, the most recent decision from the arbitrator on union wages will result in union labor costs having a higher growth rate than the overall MTA budget.

2. **Diesel Fuel** – MTA is the second largest purchaser of special fuel in the State and the largest in State government. In fiscal 2010, MTA purchased 7.4 million gallons of diesel fuel, costing $16.9 million. The volatility in fuel prices and use represents a sizable expenditure risk for the department. To reduce the agency"s reliance on special fuels, an effort has been made to move toward hybrid-electric buses and increasing the use of biodiesel fuel.

3. **Repair Parts** – To continually maintain an aging system with three unique modes of transit requires regular maintenance and a large inventory of spare parts that are unique to the system and often need to be reengineered. The cost of purchases for these parts and maintaining the equipment is becoming increasingly expensive.

Revenues are driven by fares which are driven by ridership. MTA indicates that research shows that ridership increases are a result of service availability and quality, with economic trends as secondary factors. As shown in **Exhibit 15**, ridership growth and fare revenue have not kept pace with expenditure growth in recent years; therefore, any improvements to the farebox recovery rate changes have had to be made to the expenditure side of the equation. As the exhibit shows, fiscal 2009 was the only year where expenditure reductions were made to improve the farebox recovery rate. In every other year, expenditure growth easily outpaced revenue growth.

Exhibit 15
Farebox Recovery Expense and Revenue Growth Rates and Farebox Recovery Rates
Fiscal 2006-2010

	2006	2007	2008	2009	2010
Expenditure Growth Rate	3.0%	11.0%	8.0%	-3%	2.0%
Farebox Revenue Growth Rate	1.0%	6.0%	0.0%	1.0%	-6.0%
Farebox Recovery Rate	33.0%	32.0%	29.0%	31.0%	28.0%

Source: Maryland Transit Administration

The problem with MTA not meeting the statutory farebox recovery requirement, besides not complying with the law, is that it requires a greater subsidy from the TTF. In a time where demands exceed available revenues, should the TTF continue to subsidize the operation of the MTA below the statutory requirement?

There are three alternatives: increase fares, reduce expenditures, or a combination of both. MTA indicates that expenditures would need to be reduced by $53.0 million in fiscal 2012, growing to $79.1 million in fiscal 2016 to maintain the 35% farebox recovery requirement. Such a reduction in service would likely result in further declines in ridership, which would require additional cuts to meet the farebox recovery requirement. Conversely, MTA estimates that raising fares 40 cents to $2.00, generating $17.5 million, would allow MTA to meet the farebox recovery requirement through fiscal 2014. Then a smaller 10 cent fare increase would be required to maintain farebox recovery. It should be noted that fares have only been raised twice in the past 15 years.

In its report, MTA indicates that it has made efforts to constrain spending through overtime and administrative reductions, but the effort to increase ridership per the Governor‟s directive mean that any efficiency savings are not enough to offset expenditure increase. **DLS recommends that MTA discuss with the budget committees why it does not raise fares or reduce spending to meet the statutory farebox recovery requirement. DLS recommends that the budget committees add a Budget Reconciliation and Financing Act provision specifying that the one-way fare for Baltimore City service should be no less than $2.00 beginning in fiscal 2012.**

4. MARC Third Party Contract

MARC service on the Camden and Brunswick lines is contracted with CSX. Since fiscal 2008, CSX has been assessing financial penalties as an incentive for MTA to find another operator for the service with the goal of exiting contract service at the end of fiscal 2010. Moving

freight is the primary business of CSX, and it is looking to get out of the business of passenger rail. MTA has budgeted $47.7 million in fiscal 2012 to pay CSX for access to its rails and to operate the service. This cost also includes $3.0 million in penalty payments.

MTA began the process of identifying a third party contractor for MARC by issuing a request for information (RFI) in fiscal 2008 and a request for proposals (RFP) in fiscal 2009. The intention was that the third party contractor would provide service on the Camden and Brunswick lines, maintain the rolling stock and facilities, and provide for a 12-month transition period between CSX and the new contractor. It is not clear where a third party would perform the maintenance activities that would be required in the contract. Several prime and sub contractors responded to the RFI. The department then issued the RFP. Due to feedback from various potential bidders, several amendments were made to the original RFP. In the fall of 2010, MTA made the decision to rebid the contract due to a lack of competition.

It would appear that at least the two issues helped to limit the pool of potential bidders. First, the statutory limit for MTA‟s liability is uncapped, unlike the State which is limited to $200,000. Furthermore, any company that contracts with MTA is required to hold a $5 million liability insurance policy. The private sector may desire that the State take on a larger share of the liability or not want to hold such a large liability insurance policy. In the past, departmental legislation was introduced to limit MTA‟s liability to $1 million, but that legislation never passed. It is easy to see why the private contractor may want to reduce its risk should an accident happen given the number of passengers MARC carries and the unlimited liability threshold. To cap the amount of MTA‟s liability would require legislation, most likely this session, due to the need to procure a vendor quickly.

A second issue has to do with whether or not one contractor can perform both the operating and maintenance functions. Another option for performing this service would be to have two separate contracts, one for service and one for maintenance. There could also be variations on this concept. By dividing the contract for services, there may be greater interest from the private sector; however, there are potential issues with having two different contractors providing the service and maintenance.

At this time, it is not quite clear what the timeline for a new procurement would be. This is partially due to the need to complete another RFI and to integrate those responses into any future RFP. Furthermore, the department will need to make decisions on liability and service delivery models. What is clear is that the department does not have a contractor in place and that it likely will not during fiscal 2012, which means that the State will continue to pay penalties to CSX. **DLS recommends that MTA and MDOT discuss with the budget committees in further detail why the procurement was pulled, what changes it feels need to be made to create a more competitive procurement, and the proposed timeline for identifying a third party contractor given the financial penalties.**

Operating Budget Recommended Actions

1. Adopt the following narrative:

   Union Pension Sustainability: Based upon the Maryland Department of Transportation fiscal 2010 *Comprehensive Annual Financial Report*, the Maryland Transit Administration"s (MTA) union pension system had a funded ratio of 38.2% at the end of fiscal 2010. In addition, it had an unfunded Other Post Employment Benefits (OPEB) liability that totaled $431.5 million at the end of fiscal 2009. To provide greater sustainability to the pension system, MTA should submit a report to the budget committees that provides information on the following:

   - what actions it will take to improve the funded ratio of the union pension system;
   - the viability of having employees contribute to the system;
   - what steps MTA can take without having to go through contract negotiations and what actions have to be negotiated;
   - how it will begin to address its OPEB liabilities; and
   - the impact of its pension obligations on the operating budget and farebox recovery.

   MTA should also discuss what actions can be taken so that union health insurance benefits are more comparable to benefits received by State employees.

Information Request	**Author**	**Due Date**
Benefits Sustainability	MTA	December 1, 2011

PAYGO Budget Recommended Actions

1. Concur with Governor"s allowance.

Updates

1. Corrective Actions to the MARC "Hell Train"

On June 21, 2010, MARC train 538 operated by Amtrak departed Union Station in Washington, DC with approximately 1,200 passengers on seven bi-level passenger coaches and one single level coach propelled by one electric locomotive. The temperature outside that day was approximately 90 degrees fahrenheit. Shortly after its departure, the train became disabled, and there was no air conditioning for the passengers. A battery back-up system was available to power the public address system and the train"s emergency lighting.

Approximately 30 minutes after the train broke down, an Amtrak foreman arrived, but the train could not be restarted. By this time, the temperature in the train had reached an uncomfortable level. After 40 minutes, a second train had arrived to take the train back to Union Station, but the brakes on the train could not be released. At this point, passengers began to remove windows, seeking relief from the heat. After 90 minutes, individuals began to self-evacuate the train, and the back-up battery ran out making communication difficult. A second train arrived 120 minutes later to remove almost all of the passengers. According to press accounts, many passengers faulted MARC officials for not communicating with them what was happening.

In response to the incidents on the MARC train, MTA ordered a review of the actions taken by MARC officials and Amtrak in response to the incident. A final report was submitted on December 15, 2010, outlining a number of corrective actions. **Exhibit 16** shows some of the corrective actions identified in the report. It should be noted that MTA recently went to the Board of Public Works (BPW) to change the MARC schedule to increase the frequency of service and reduce the length of trains, as recommended in the report. It is anticipated that this will cost $2.0 million and already is included in the fiscal 2012 allowance.

Exhibit 16
Corrective Actions Identified in MTA Report

Corrective Action	Specific Actions
Address conditions that put additional strain on electronic components with the engine compartment, utilize "protect" locomotives where practicable and reduce length of train sets.	MARC and Amtrak have implemented modified maintenance procedures that require more frequent cleaning. Provide a "protect" locomotive on larger train sets during extreme weather conditions. Develop a proposal to decrease the length of train sets in favor of more frequent service.
Establish lines of communications with senior Amtrak operations staff.	MARC has established additional lines of communication with senior Amtrak operations staff.
Provide additional training for train crews in incident management; dispatch additional Amtrak managers to the scene.	Amtrak will conduct training for train crews on Incident Command System procedures in the passenger railroad environment.
Dispatch MTA personnel to the scene when a train is disabled and passenger comfort and convenience is at risk.	MTA has implemented a "go-team" approach in which a team of senior managers are dispatched to the scene of a disabled train or the nearest accessible location.
Provide additional training for train crews in emergency communication procedures, and extend Transit Information Center hours to cover MARC service hours.	Amtrak and MARC will identify methods to improve on-board communication when normal systems fail, such as a portable public address system. MTA has also reallocated its existing staff to extend the hours of the Transit Information Center until 11:00 p.m. on weeknights
Request Amtrak to review protocols for dispatching Amtrak Police and local responders; dispatch additional Amtrak managers to the scene, and dispatch MARC personnel to the scene when a train is disabled.	Amtrak and MTA will dispatch experienced incident managers to the scene to assist the crew and Amtrak Police.

MARC: Maryland Area Regional Commuter
MTA: Maryland Transit Administration

Source: Maryland Transit Administration

Appendix 1

Current and Prior Year Budgets

Current and Prior Year Budgets
Maryland Transit Administration
($ in Thousands)

	General Fund	Special Fund	Federal Fund	Reimb. Fund	Total
Fiscal 2010					
Legislative Appropriation	$0	$539,868	$56,094	$0	$595,962
Deficiency Appropriation	0	0	0	0	0
Budget Amendments	0	10,394	7,681	0	18,075
Cost Containment	0	-2,320	0	0	-2,320
Reversions and Cancellations	0	-1,433	0	0	-1,433
Actual Expenditures	**$0**	**$546,509**	**$63,775**	**$0**	**$610,284**
Fiscal 2011					
Legislative Appropriation	$0	$551,090	$62,736	$0	$613,826
Cost Containment	0	0	0	0	0
Budget Amendments	0	0	0	0	0
Working Appropriation	**$0**	**$551,090**	**$62,736**	**$0**	**$613,826**

Note: Numbers may not sum to total due to rounding.

Fiscal 2010

Actual fiscal 2010 expenditures for MTA totaled $610.3 million an increase of $14.3 million compared to the legislative appropriation.

Special fund budget amendments increased the appropriation by a net $10.4 million for:

- $11.7 million increase for salary and fringes that were misbudgeted;
- $6.6 million increase to pay for back union wages as a result of an arbitrator"s decision;
- $6.8 million increase for insurance costs due to liability claims;
- $2.0 million increase for various contractual services;
- $1.9 million increase in union pension costs due to the arbitrator"s decision;
- $3.5 million increase in maintenance costs across the agency;
- $14.7 million decrease in diesel fuel due to prices being less than estimated;
- $3.1 million decrease in utilities;
- $2.1 million decrease in statewide programs due to annualization savings from commuter bus reductions, decreases in grant funding, and increased use of federal funds;
- $1.0 million decrease in Mobility expenditures due to smaller than expected ridership growth;
- $0.7 million decrease in overtime expenditures; and
- $0.5 million decrease in other miscellaneous reductions.

Special fund cost containment totaled $2.3 million for reductions by BPW for vacant positions and the statewide furlough.

Special fund cancellations totaled $1.4 million for health insurance, lower diesel fuel costs, overtime, and contractual expenditures.

Federal fund budget amendments increased by $7.7 million including $7.1 million for MARC operating maintenance expenditures, $0.6 million for grants to locally operated transit systems, and $38,500 for a grant from the Transportation Security Administration for the National Explosives Detection Canine Team Program.

Object/Fund Difference Report
MDOT – Maryland Transit Administration

Object/Fund	FY 10 Actual	FY 11 Working Appropriation	FY 12 Allowance	FY 11 - FY 12 Amount Change	Percent Change
Positions					
01 Regular	3,012.50	3,012.50	3,012.50	0.00	0%
02 Contractual	16.00	15.00	16.00	1.00	6.7%
Total Positions	**3,028.50**	**3,027.50**	**3,028.50**	**1.00**	**0%**
Objects					
01 Salaries and Wages	$ 272,727,967	$ 267,307,322	$ 296,936,020	$ 29,628,698	11.1%
02 Technical and Spec. Fees	1,181,921	903,419	903,419	0	0%
03 Communication	1,110,856	1,230,787	1,133,012	-97,775	-7.9%
04 Travel	380,682	117,039	111,055	-5,984	-5.1%
06 Fuel and Utilities	12,421,169	13,919,451	12,936,457	-982,994	-7.1%
07 Motor Vehicles	65,830,197	62,429,230	62,489,266	60,036	0.1%
08 Contractual Services	184,983,190	197,792,142	207,896,899	10,104,757	5.1%
09 Supplies and Materials	7,683,637	5,820,074	6,776,487	956,413	16.4%
10 Equipment – Replacement	205,445	82,002	72,756	-9,246	-11.3%
11 Equipment – Additional	433,816	111,621	41,059	-70,562	-63.2%
12 Grants, Subsidies, and Contributions	57,480,873	56,949,542	56,999,542	50,000	0.1%
13 Fixed Charges	5,844,118	7,163,904	6,919,116	-244,788	-3.4%
Total Objects	**$ 610,283,871**	**$ 613,826,533**	**$ 653,215,088**	**$ 39,388,555**	**6.4%**
Funds					
03 Special Fund	$ 546,509,225	$ 551,090,387	$ 593,480,442	$ 42,390,055	7.7%
05 Federal Fund	63,774,646	62,736,146	59,734,646	-3,001,500	-4.8%
Total Funds	**$ 610,283,871**	**$ 613,826,533**	**$ 653,215,088**	**$ 39,388,555**	**6.4%**

Note: The fiscal 2011 appropriation does not include deficiencies. The fiscal 2012 allowance does not include contingent reductions.

Fiscal Summary
MDOT – Maryland Transit Administration

Program/Unit	FY 10 Actual	FY 11 Wrk Approp	FY 12 Allowance	Change	FY 11 - FY 12 % Change
01 Transit Administration	$ 55,622,227	$ 51,495,729	$ 53,685,749	$ 2,190,020	4.3%
02 Bus Operations	275,751,984	273,965,250	294,825,042	20,859,792	7.6%
04 Rail Operations	197,999,032	206,780,279	220,679,022	13,898,743	6.7%
05 Facilities and Capital Equipment	303,102,905	366,103,000	357,357,701	-8,745,299	-2.4%
06 Statewide Programs Operations	80,910,628	81,585,275	84,025,275	2,440,000	3.0%
08 Major IT Development Projects	2,684,351	5,110,000	4,006,000	-1,104,000	-21.6%
Total Expenditures	**$ 916,071,127**	**$ 985,039,533**	**$ 1,014,578,789**	**$ 29,539,256**	**3.0%**
Special Fund	$ 665,298,621	$ 690,524,387	$ 737,081,143	$ 46,556,756	6.7%
Federal Fund	250,772,506	294,515,146	277,497,646	-17,017,500	-5.8%
Total Appropriations	**$ 916,071,127**	**$ 985,039,533**	**$ 1,014,578,789**	**$ 29,539,256**	**3.0%**

Note: The fiscal 2011 appropriation does not include deficiencies. The fiscal 2012 allowance does not include contingent reductions.

Appendix 4

Budget Amendments for Fiscal 2011

Maryland Department of Transportation
Maryland Transit Administration – Operating

Status	Amendment	Fund	Justification
Pending	$793,001	Special	Funds received from the Maryland Transportation Authority for it to operate two bus routes on the InterCounty Connector.
Projected	10,579,000	Special	Funds for the union arbitration award for the local 1300 union employees.
Projected	28,143	Reimbursable	Funds from the Maryland Emergency Management Agency, specifically to provide funding for new and/or replacement protective equipment for patrol officers.
Projected	1,761,838	Federal	Additional assistance to local transit properties through Maryland.
Projected	-2,000	Federal	Reduction in funds for the canine program.
Projected	-154,531	Special	Debt service schedule for the BWI/MARC garage.
Total	**$13,005,451**		

BWI MARC: Baltimore/Washington International Thurgood Marshall Airport/Maryland Area Regional Commuter

Source: Maryland Department of Transportation

Appendix 5

Budget Amendments for Fiscal 2011

Maryland Department of Transportation
Maryland Transit Administration – Capital

Status	Amendment	Fund	Justification
Pending	-$10,824,746	Special	Adjusts the amended appropriation to agree with the anticipated expenditures for the current year as reflected in the CTP.
	-50,997,000	Federal	
	-61,821,746	Total	

CTP: *Consolidated Transportation Program*

Source: Maryland Department of Transportation

Appendix 6

An Evaluation of Commuter Rail Service Delivery Methods

Department of Legislative Services
Office of Policy Analysis
Annapolis, Maryland

March 2011

Contributing Staff

Writer
Matthew S. Katz

Reviewer
David B. Juppe
Jonathan D. Martin

For further information concerning this document contact:

Library and Information Services
Office of Policy Analysis
Department of Legislative Services
90 State Circle
Annapolis, Maryland 21401

Baltimore Area: 410-946-5400 ● Washington Area: 301-970-5400
Other Areas: 1-800-492-7122, Extension 5400
TDD: 410-946-5401 ● 301-970-5401
Maryland Relay Service: 1-800-735-2258
E-mail: libr@mlis.state.md.us
Home Page: http://mlis.state.md.us

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Executive Summary

This paper examines whether Maryland Area Regional Commuter (MARC) service should be operated by a third-party contractor or directly by the State. As the State‟s current contract with CSX imposes financial penalties for each additional year that it operates MARC service, the State is looking to hire a new contractor very shortly.

Specifically, the paper compares MARC service over the period from 2002-2008 to six other commuter railroads in the northeast United States, looking at both financial and qualitative measures of rail performance. Financial performance is measured on a per-unit basis, considering cost per passenger trip, as well as cost per in-service mile traveled. Qualitative measures include on-time performance, as well as customer evaluations of rail service.

Other service providers examined include Virginia Railway Express (VRE), the Massachusetts Bay Transportation Authority (MBTA), the Southeastern Pennsylvania Transportation Authority (SEPTA), New Jersey Transit (NJ Transit), the Metropolitan Transportation Authority – Metro-North (Metro-North) and the Long Island Rail Road (LIRR). Three of these railroads – MARC, VRE, and MBTA – are operated by a third-party contractor, while the other four are directly operated by the transit agency.

Costs are measured on a per-unit basis, divided by both unlinked passenger trips (individual train boardings, with transfers counted as separate trips) and vehicle revenue miles (miles traveled in revenue service). This indicates how efficiently the railroad is utilizing its resources. On-time performance measures the percentage of trains that arrive within 5 minutes and 59 seconds of their scheduled arrival, while customer satisfaction ratings indicate how riders perceive the railroad‟s service.

Per-unit cost appears to be closely linked with system size. Smaller systems, such as VRE and MARC have higher per-unit costs, a result of having fewer riders among whom to divide their base level administrative and operational costs. Medium-sized systems, such as SEPTA and MBTA, incur comparable base costs, but have greater numbers over which those costs can be divided. Large systems, like NJ Transit, Metro-North, and LIRR, have additional variable costs associated with providing higher levels of service. These railroads must operate more trains and hence should have staffing and administrative burdens outstripping those of other railroads.

The drivers of on-time performance and customer satisfaction are less apparent. These appear to be directly dependent on local circumstances, which are difficult to quantify or measure. However, line ownership plays a likely role. Two of the three railroads with the lowest on-time performance percentage operate entirely on rails that they do not own. In these situations, the commuter railroad is a secondary user, and the line owner may prioritize its traffic over commuter rail.

Findings

- The per-capita commuter rail ridership rate in Washington, DC is the lowest among major metropolitan areas in the northeast United States.

- MARC is the second smallest of the major commuter rail systems in the northeast, with ridership most comparable to VRE.

- Within this sample, smaller systems have higher per-unit operating costs, though these costs generally decline as system size expands. Costs generally increase once more after a system reaches an annual ridership between 35,000,000 and 45,000,000 unlinked passenger trips.

- Cost predictability is likely to be important, particularly for smaller systems. One potential means of accomplishing this is through contract operation.

- A State takeover of MARC service would entail numerous up-front and long-term costs:

  - Training

  - Equipment purchases

  - Employee hiring

  - Facilities construction

- Significant ridership growth would likely be required to justify direct State operation of MARC.

An Evaluation of Commuter Rail Service Delivery Methods

Introduction

The Maryland Area Regional Commuter (MARC) service is soliciting bids for a new private operator on two of its three lines. Currently, service on these lines is provided by CSX, which charges the State an escalating financial penalty for each year it continues as operator. Primarily a freight service provider, CSX views passenger train operation as inconsistent with its business model. Though MARC has chosen to seek another outside contractor, this is only one possible model for providing service. In other states, commuter railroads are directly operated by either the state government or the local transit agency. This paper seeks to determine which model is preferable for Maryland, based on comparisons of cost and service efficiency on comparable commuter railroads in the northeast. Specifically, this paper examines the period from 2002-2008 and presents recommendations based on the practices of the commuter railroads studied.

Background

On May 1, 2009, the Maryland Transit Administration (MTA) issued a request for proposal soliciting bids for companies to operate MARC service under contract. Service is currently provided by two contract operators – CSX and Amtrak – on tracks owned by both companies. Amtrak owns and operates service on the Penn Line, which shares Northeast Corridor tracks with other Amtrak trains. This service operates from Perryville, Maryland to Washington Union Station in Washington, DC. Service on the Brunswick and Camden lines is owned and operated by CSX. The Brunswick line connects Martinsburg, West Virginia with DC, while the Camden line connects Baltimore Camden Station with Washington Union Station. Each railroad provides a train crew for its respective routes and is responsible for maintenance of rolling stock. The rail lines charge MTA an annual fee for track access.

General Information

Commuter rail systems in the United States serve to connect lower population density suburban areas with urban centers. These systems operate according to a fixed schedule, and many do not offer service on weekends or overnight. Peak travel levels usually occur during the traditional morning and evening rush hours. In the United States, commuter rail service is traditionally administered by government entities and quasi-governmental organizations and financed through a combination of operating revenues along with state, local, and federal assistance. Rail operations may be directly run by transportation agency employees or operated under contract by a third party. Commuter rail systems often utilize right-of-way (tracks) shared with or owned by other rail services. When right-of-way is owned by a private entity, commuter rail service may be prioritized behind services offered by the line owner, often resulting in service delays.

Scope of Survey

This paper evaluates rail operations on seven major northeastern commuter railroads. In addition to MARC, these providers include Virginia Railway Express (VRE), the Southeastern Pennsylvania Transportation Authority (SEPTA), New Jersey Transit (NJ Transit), the Metropolitan Transit Authority – Metro-North, (Metro-North), the Metropolitan Transit Authority – Long Island Rail Road (LIRR), and the Massachusetts Bay Transportation Authority (MBTA). Railroads will be further divided between directly operated systems and contract operated ones to determine if either model provides more efficient service.

A number of factors make these systems a good sample for comparison. Given their location in the northeastern United States, each of these systems operates in relatively comparable weather conditions and geography. Each system serves a region primarily built around service jobs, where the vast majority of workers live outside of the urban center. As shown in **Exhibit 1**, each of these systems serves a metropolitan area of significant population, with ridership measured by unlinked passenger trips[1]. The trips per person figure is not a precise measure since census-designated regions do not precisely match up with commuter rail coverage. Also, in certain regions, ridership may be artificially increased or decreased by the number of alternatives available.

Exhibit 1
Region Size and Transportation Usage
Calendar 2008

Region	Population (2000 Census*)	Unlinked Passenger Trips (Commuter Rail)	Annual Trips Per Person
Boston (MA-NH-RI)	7,298,695	39,207,383	5.37
New York (NY-NJ-CT-PA)	21,361,797	267,068,376	12.50
Philadelphia (PA-NJ-DE-MD)	6,207,223	34,504,018	5.56
Washington/Baltimore (DC-MD-VA-WV)	7,572,647	11,481,136	1.52

*Combined Statistical Area, as defined by the U.S. Office of Management and Budget

[1] Means of counting ridership based on individual vehicle boardings. Each boarding of a transit vehicle is counted separately, even if multiple boardings/transfers are required to reach a final destination.

Compared to other regions, the per-capita utilization of commuter rail is far lower in Washington, DC. This is due in part to the availability of other mass transit options. Unlike in other cities, the Washington, DC subway system (Metro) extends into the suburbs, providing a second rail option for commuters. There are also considerable numbers of commuters that drive into the city for work, forgoing mass transit options.

Commuter Rail Systems

The rail systems being compared also fall under similar external constraints. All commuter railroads are subject to the same federal regulations governing equipment, workforce, and operations. With the exception of VRE and LIRR, each shares the Northeast Corridor with Amtrak and is subject to the same operational restrictions for this line. All of the railroads use a unionized labor force and are subject to similar collective bargaining and cost constraints.

Commuter rail systems fund a portion of their operating budgets directly from fare revenues. The remainder of the budget is funded through a combination of state, local, and sometimes federal monies. State and local governments generally designate certain types of tax revenue for transportation and pay the balance from general revenues. Common practice is to designate a percentage of sales tax revenues for transportation expenditures. For example, MBTA receives 20% of its revenues from the State"s 5% sales tax, while other states dedicate smaller or larger relative percentages.

States also use proceeds from road user fees to fund mass transit. Most commonly, these fees take the form of gasoline taxes and road/bridge tolls. Money from these sources is either directly used to finance public transit or is placed in a trust fund for future apportionment among various transportation agencies. Certain railroads also qualify for federal funds, either through the Urbanized Area Formula program or others. Systems in the northeast have also received funding from an influx of Homeland Security grants in the wake of the September 11 attacks. Unlike most state level funding, federal funding is often conditional and has specific requirements on how it can be spent.

Exhibit 2 summarizes which entities own the rails on which commuter railroads operate, as well as who provides service. Detailed descriptions of the other systems, including track ownership details when available, follow under their respective subheadings.

Exhibit 2
Line Operators and Ownership

Rail System	Operator	Line Ownership
MARC	Amtrak, CSX	Amtrak, CSX
VRE	Amtrak[1]	CSX, Norfolk Southern
MBTA	Amtrak (2002-2003) Massachusetts Bay Commuter Railroad Company[2] (2003-2008)	Amtrak, CSX, MassDOT
SEPTA	Direct Operation	Amtrak, City of Philadelphia, CSX, SEPTA
NJ Transit	Direct Operation	Amtrak, Conrail, NJ Transit, Norfolk Southern
Metro-North	Direct Operation – MTA	Amtrak, Argent Ventures, ConnDOT, MTA, Norfolk Southern
Long Island Rail Road	Direct Operation – MTA	MTA

DOT: Department of Transportation
MARC: Maryland Area Regional Commuter
MBTA: Massachusetts Bay Transportation Authority
MTA: Metropolitan Transit Authority
NJ: New Jersey
SEPTA: Southeastern Pennsylvania Transportation Authority
VRE: Virginia Railway Express

[1]As of 2010, operated by Keolis, Inc.
[2]Three-party partnership including Veolia Transportation, Bombardier Transportation and Alternate Concepts, Inc.

Virginia Railway Express

VRE serves the Washington, DC suburbs of northern Virginia. The system operates two lines, the Manassas line and the Fredericksburg line, both of which terminate at Washington Union Station. Service is provided under the auspices of the Northern Virginia Transportation Commission, an independent public agency established by Virginia to administer transportation, as well as by the Potomac and Rappahannock Transportation Commission, the multi-jurisdictional transit agency for Prince William County and Manassas. Right-of-way access is leased from CSX and Norfolk Southern. During the period studied, Amtrak provided

both train crews and light maintenance under contract. In 2009, VRE entered into a five-year contract with Keolis, a transportation company primarily owned by SNCF, the French National Railway Corporation. Keolis took over operations in late 2010.

Massachusetts Bay Transportation Authority

MBTA serves eastern Massachusetts, connecting suburban and outlying communities with Boston. Prior to 2009, MBTA operated as an independent public benefit corporation, administered by a Board of Trustees. This was legislatively changed in 2009 when MBTA became part of the Massachusetts Department of Transportation[2]. The system operates 12 lines into two main Boston stations – North Station and South Station. Lines are owned by the State of Massachusetts (MBTA and Massachusetts Turnpike Authority), Amtrak, and CSX. Amtrak operated commuter rail service on MBTA prior to 2003. Service was subsequently provided under contract by the Massachusetts Bay Commuter Railroad Company. This company is a joint partnership of three other transportation companies – Veolia, Bombardier, and Alternate Concepts.

Southeastern Pennsylvania Transportation Authority

SEPTA is the regional transit authority for the metropolitan Philadelphia area, operating multiple types of mass transit. It is structured as a regional municipal authority, similar to a public benefit corporation and administered by an appointed Board of Directors. Commuter service between Philadelphia and its suburbs is directly operated by SEPTA, as well as regional rail service between Trenton, NJ and Wilmington, DE. There are 13 lines served by SEPTA, which owns 54% of the right-of-way. Access to 39% of the trackage is leased from Amtrak, with 5 lines and 2% leased from CSX and the City of Philadelphia, respectively.

New Jersey Transit

NJ Transit operates an extensive multi-modal transit network serving points throughout New Jersey and parts of New York. It is structured as an independent public agency, administered by an appointed board of directors. NJ Transit‟s rail operations link New Jersey‟s major cities and suburbs with New York City via NY Pennsylvania Station. The railroad consists of 11 lines, with a majority owned directly by NJ Transit. Access to select lines is leased from Amtrak, Conrail, and Norfolk Southern. Service is primarily directly operated, though certain Amtrak trains honor NJ Transit tickets, and are officially considered purchased transportation. NJ Transit also provides service for Metro-North under contract.

Metropolitan Transit Authority – Metro-North

Metro-North operates three main lines east of the Hudson River and contracts with NJ Transit to provide service on routes west of the Hudson. The Metropolitan Transit Authority,

[2] MBTA and the Massachusetts Turnpike Authority were absorbed into MassDOT as part of a larger reorganization, meant to eliminate waste and streamline services.

which operates Metro-North service, is a public benefit corporation chartered by the State of New York. Right-of-way is owned by a combination of entities, including directly by the Metropolitan Transit Authority, the Connecticut Department of Transportation, Amtrak, Norfolk Southern, and NJ Transit. Additionally, the three main lines east of the Hudson are owned by Argent Ventures, a private real estate company that also owns Grand Central Terminal. Metro-North leases access to these lines, with a contract option to purchase them in 2017.

Metropolitan Transit Authority – Long Island Rail Road

LIRR serves the entirety of New York‟s Long Island, providing service into Manhattan via terminals in Manhattan, Queens, and Brooklyn. The busiest of these three terminals is NY Pennsylvania Station, which is shared with Amtrak and NJ Transit. Like Metro-North, LIRR is operated by the Metropolitan Transit Authority. Right-of-way is wholly owned by the Metropolitan Transit Authority and is divided into 11 passenger branches, based off of two main lines.

Methodology

This paper analyzes the six commuter railroads using four principal performance measures from the Transit Cooperative Research Program *Guidebook for Developing a Transit Performance Measurement System*, which was developed by the Federal Transit Administration in conjunction with the Transportation Research Board. It provides ways to quantify and compare key concepts, including service efficiency, cost effectiveness, and rider satisfaction.

Financial data comes from the National Transit Database. This is a standardized federal reporting system, meant to facilitate the distribution of grants and other funds. Qualitative information was provided by the individual railroads, which accounts for the lack of standardization among the items.

Though the raw data from rail systems is not directly comparable, due to differing local circumstances, it does provide a relative sense of scale. As measured by average annual ridership over the period from 2002-2008, MARC is the second-smallest commuter rail system in the northeast. Though it carries slightly more than double the amount of VRE, MARC has only one-fifth the ridership of the next largest system, SEPTA, and only 7% of LIRR‟s. **Exhibit 3** provides a relative sense of scale, showing both system ridership and ridership as a percentage of the biggest northeastern system, LIRR.

Exhibit 3
Average Annual Unlinked Passenger Trips
Calendar 2002-2008

	VRE	MARC	SEPTA	MBTA	NJ Transit	Metro-North	LIRR
Average Trips	3,365,344	6,935,826	32,069,980	39,073,389	72,938,387	75,919,244	98,778,015
Percent of LIRR	3.41%	7.02%	32.47%	39.56%	73.84%	76.86%	100.00%

LIRR: Long Island Rail Road
MARC: Maryland Area Regional Commuter
MBTA: Massachusetts Bay Transportation Authority
NJ: New Jersey
SEPTA: Southeastern Pennsylvania Transportation Authority
VRE: Virginia Railway Express

Operating Expense Per Vehicle Revenue Mile

This measure assesses the service efficiency of rail operations, looking at the share of operating expenditures used for each in-service mile traveled by an individual railcar. It looks at the ability of a railroad to maximize revenue-earning mileage, with a lower number representing greater per-unit efficiency.

As shown in **Exhibit 4,** MARC"s operating expense per vehicle revenue mile shows a general upward trend from year-to-year. While it is largely consistent with the average for all rail systems, costs spike in 2008. Over the full seven-year period, MARC"s cost averages $0.35 more than the average for all rail providers. Much of this difference can be attributed to a price spike in 2008, itself a result of a $13 million increase in contract costs. This spike is partially attributable to the financial penalty for retaining CSX as operator, though over 50% of the increase is attributable to increased vehicle operations costs.

Exhibit 4
Operating Expense Per Vehicle Revenue Mile
Calendar 2002-2008

	Average Vehicle Revenue Miles	2002	2003	2004	2005	2006	2007	2008	Average Cost
Contract Op.		**$11.35**	**$12.22**	**$14.51**	**$15.36**	**$15.68**	**$17.16**	**$18.45**	**$14.96**
MARC	4,903,139	11.69	12.23	13.61	13.82	14.47	15.39	18.26	14.21
MBTA	22,622,356	8.47	8.78	9.81	9.83	9.99	10.00	10.76	9.66
VRE	1,767,320	13.90	15.66	20.11	22.44	22.59	26.08	26.34	21.02
Direct Op.		**$11.41**	**$12.38**	**$13.04**	**$13.40**	**$13.20**	**$13.77**	**$14.08**	**$13.04**
NJ Transit	55,532,579	9.73	10.55	11.47	11.53	11.61	12.25	12.44	11.37
Metro-North	52,874,137	12.11	12.90	13.57	13.73	13.74	14.17	14.50	13.53
LIRR	59,886,194	13.59	14.63	15.42	16.08	16.04	16.50	16.42	15.53
SEPTA	15,941,410	10.22	11.43	11.71	12.27	$11.40	12.14	12.97	11.74
Average (All)		**$11.39**	**$12.31**	**$13.67**	**$14.24**	**$14.26**	**$15.22**	**$15.96**	**$13.86**

LIRR: Long Island Rail Road
MARC: Maryland Area Regional Commuter
MBTA: Massachusetts Bay Transportation Authority
NJ: New Jersey
SEPTA: Southeastern Pennsylvania Transportation Authority
VRE: Virginia Railway Express

When compared to other contractor-operated rail services for calendar 2002-2008, MARC averages a per-unit cost $0.75 less than the average for all providers. However, there is a wide dispersion in costs among the three rail lines, with MBTA averaging $5.30 less than the average, and VRE $6.05 more. When taken in conjunction with the ridership figures in Exhibit 4, one can see that per-unit costs generally declined as the ridership numbers increased. While costs for MBTA and MARC seem to trend upward at a comparable rate, VRE‟s year-to-year costs increase much more dramatically, particularly when compared to the other five rail systems. Most of this growth in costs appears to come from maintenance and service expenses, and not from a growth in contract costs.

System scale also appears to play a role. The first column of Exhibit 3 illustrates the significant difference in operational mileage among MARC, VRE, and MBTA. In part, this is because MBTA provides weekend service, while MARC and VRE do not. Furthermore, MBTA service covers a much larger geographic area over many more lines, meaning that while having comparable requirements, MARC and VRE have significantly fewer vehicle revenue miles to divide costs by.

The average cost for direct-operated lines is $1.92 lower than that of contract-operated lines over the period from calendar 2002-2008. All of the direct-operated line yearly costs are greater than that of MBTA, but lower than that of VRE. Unlike MARC and VRE, the other lines offer weekend service, in addition to having a much higher service volume. Furthermore, MARC delivered comparable service efficiency to the other rail providers both public and private, until calendar 2008, when costs spiked.

Ultimately, this wide dispersion among the various systems seems to indicate that costs are highly dependent on individual railroad circumstances. There usually are high fixed costs associated with rail operations, primarily the result of equipment and staffing needs. Every railroad incurs similar fixed costs, though larger railroads can diffuse those costs over their greater service quantities.

Operating Expense Per Unlinked Passenger Trip

This measure evaluates the cost effectiveness of service provision on a rail line, looking at the share of operating expenditures used per passenger boarding. If a person must ride multiple trains to reach a destination, each vehicle boarded counts separately. A lower number represents greater per-passenger efficiency. **Exhibit 5** shows this measure for each system evaluated, as well as an average for all systems.

Exhibit 5
Operating Expense Per Unlinked Passenger Trip
Calendar 2002-2008

	Avg. Operating Expenditure	2002	2003	2004	2005	2006	2007	2008	Average
Contract Operated		**$7.45**	**$7.58**	**$8.56**	**$8.89**	**$9.14**	**$9.92**	**$10.52**	**$8.87**
MARC	$69,965,990	9.00	9.26	9.86	9.91	10.00	10.25	11.85	10.02
VRE	37,312,932	8.45	8.60	10.37	10.97	11.50	13.64	13.30	10.97
MBTA	$218,683,126	4.90	4.89	5.44	5.80	5.92	5.86	6.43	5.60
Direct Operated.		**$7.15**	**$7.83**	**$8.46**	**$8.67**	**$8.50**	**$8.78**	**$9.07**	**$8.35**
SEPTA	$188,667,081	5.46	5.96	6.15	6.12	5.33	5.89	6.28	5.89
NJ Transit	$635,377,399	7.16	8.20	9.04	9.10	9.09	9.02	9.05	8.67
Metro-North	$717,741,309	8.19	8.66	9.34	9.58	9.79	10.08	10.33	9.43
LIRR	$931,803,223	7.78	8.48	9.33	9.89	9.80	10.13	10.61	9.43
Average (All)		**$7.28**	**$7.72**	**$8.50**	**$8.77**	**$8.78**	**$9.27**	**$9.69**	**$8.57**

LIRR: Long Island Rail Road
MARC: Maryland Area Regional Commuter
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Expense per unlinked passenger trip for MARC is consistently higher than the average for the other systems for the period from calendar 2002-2008. The data generally trends upward over the seven-year period, a trend which is consistent with other systems. Costs for MARC spiked in calendar 2008, a result of a $13 million increase in contract costs. However, while the data for NJ Transit, LIRR, Metro-North, and MARC is relatively similar, VRE has much higher per-passenger costs, while SEPTA and MBTA each have consistently lower costs.

Similar to the per-revenue mile costs, there is a wide dispersion among the three contract operated systems. Both MARC and VRE have a much closer per-unit cost on a per-passenger trip basis, however, than they do on a per-mile basis. Costs trend upward a comparable rate for both MBTA and MARC, though VRE costs climb more rapidly toward the end of the data set. Of the three, though, MARC is the only one experiencing consistent ridership growth, as VRE ridership has stagnated, while MBTA ridership declined before again growing. These trends are shown in **Exhibit 6**.

Exhibit 6
Unlinked Passenger Trips
Calendar 2002-2008

	2002	2003	2004	2005	2006	2007	2008
MARC	5,955,071	6,334,820	6,699,215	6,884,083	7,274,762	7,505,226	7,897,602
VRE	2,735,025	3,179,996	3,447,944	3,654,271	3,569,664	3,386,974	3,583,534
MBTA	39,266,885	40,570,102	39,965,738	37,890,179	37,797,601	38,815,838	39,207,383
SEPTA	30,823,507	30,023,056	30,284,624	31,680,006	34,150,997	33,496,406	34,031,264
NJ Transit	64,342,232	64,618,238	68,794,119	72,613,757	75,394,695	80,297,388	84,508,279
Metro-North	73,130,281	72,573,435	72,255,844	74,267,167	76,527,572	79,719,700	82,960,711
LIRR	100,504,000	97,958,000	96,202,000	95,519,000	99,520,000	102,143,717	99,599,386

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Of the directly operated systems, SEPTA provides the lowest per-unit costs, greatly exceeding that of the other three railroads. Ridership levels are comparable between SEPTA and MBTA, suggesting that there may be a critical mass of riders required for per-trip efficiencies to increase, without the associated need to increase overall system costs.

On-time Performance

On-time performance measures the percentage of trains that arrive at their final destination no later than 5 minutes and 59 seconds after their scheduled arrival. This number is a recommended reporting standard, used by all of the transit agencies for which data is presented. As MBTA uses a different standard, considering a train late if it arrives later than 4 minutes and 59 seconds after schedule, its data has been omitted. However, certain transit agencies also employ additional thresholds for customer relations purposes. For example, VRE guarantees its riders on-time service, offering a free trip if a train arrives more than 30 minutes behind schedule.

While there is a numerical standard, on-time performance is not an absolute measure. First of all, it is dependent on the timing system that a railroad employs. If train arrival and departure timing is automatic, then there is little room for inaccuracy. If such timing is performed manually, or if computerized timers can be manually adjusted, then there are incentives for employees to artificially inflate the number of on time arrivals. Second, on-time performance is a measure that does not distinguish among times of day or how full a train is. Trains arriving during the morning and evening rush hours are more likely to be delayed due to increased travel volume, but this statistic does not capture when delays occur.

Third, this measure only looks at the number of trains delayed, not at the number of people on those trains. A delayed, full rush-hour train has a greater impact on riders than a delayed, half-full midday train does. Lastly, this measure does not account for the relative length of delays. All trains that arrive greater than 5 minutes and 59 seconds after scheduled arrival simply count as late, and there is no weighting or extra value given based on length of delay. On-time performance is shown below in **Exhibit 7**.

Exhibit 7
On-time Performance
Calendar 2002-2008

	2002	2003	2004	2005	2006	2007	2008	Average
Contract Op.	91.6%	89.0%	87.5%	83.5%	86.3%	88.5%	85.5%	87.4%
MARC	92.0%	90.0%	88.0%	89.0%	91.0%	89.0%	87.0%	89.4%
VRE	91.2%	88.0%	87.0%	77.9%	81.6%	88.1%	83.9%	85.4%
MBTA*								
Direct Op.	93.8%	92.2%	93.4%	93.4%	94.2%	94.5%	94.1%	93.6%
SEPTA	87.7%	84.7%	89.3%	88.5%	90.7%	91.5%	90.2%	88.9%
NJ Transit	96.1%	94.6%	95.6%	95.3%	95.0%	94.5%	93.6%	95.0%
Metro-North	97.3%	96.4%	96.1%	97.5%	97.8%	97.7%	97.5%	97.2%
LIRR	94.0%	93.1%	92.7%	92.2%	93.3%	94.1%	95.1%	93.5%
Average (All)	93.0%	91.1%	91.4%	90.1%	91.6%	92.5%	91.2%	91.6%

LIRR: Long Island Rail Road
MARC: Maryland Area Regional Commuter
MBTA: Massachusetts Bay Transportation Authority
NJ: New Jersey
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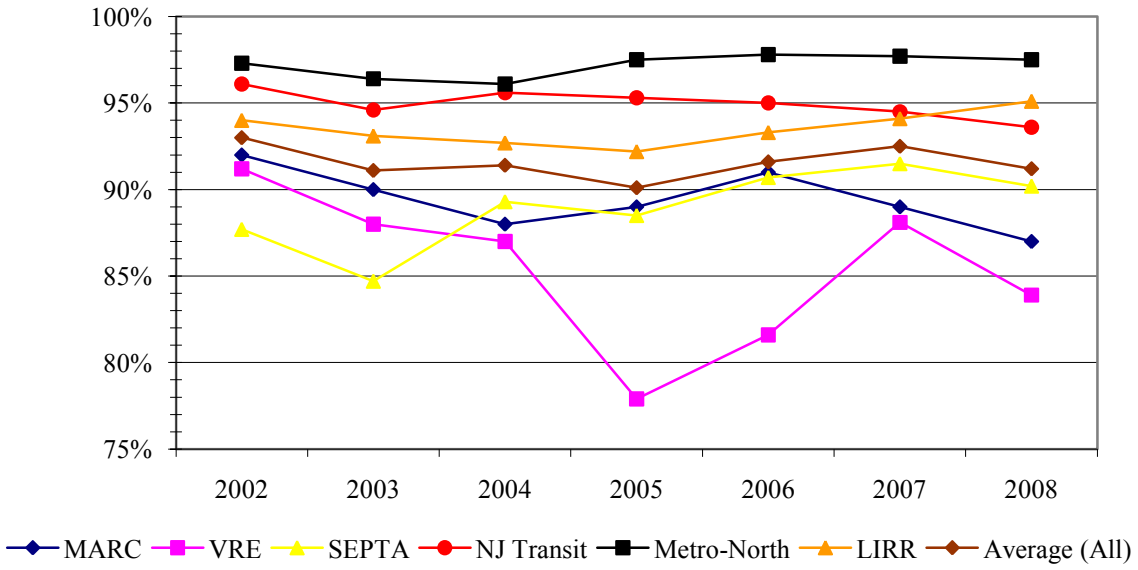
* Massachusetts Bay Transportation Authority (MBTA) data not included due to inconsistent measurement standard. MBTA considers a train late if it arrives greater than 4 minutes, 59 seconds after scheduled arrival.

On-time performance for MARC is a few percentage points shy of the overall average for commuter rail in the northeast. However, there is an overall downward trend in the data from the beginning of the period to the end of the period, as shown in **Exhibit 8**. Variation from year to year is slight, though, moving only by a percentage point or two. While an upward trend would generally be preferable, there are many different factors that contribute to overall on-time performance. This makes it difficult to draw significant meaning from small gradations.

Exhibit 8
On-time Performance Trends



LIRR: Long Island Rail Road
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The effects of line ownership can be seen in the data. Unlike other railroads, MARC and VRE depend entirely on leased access to rail lines to deliver service. These two fall below the average on-time performance for other railroads, where tracks are partially or wholly owned by the operator. Since rail owners control the flow of traffic over their lines, and often prioritize their own operations over that of their lessees, it is likely that this accounts in part for the performance difference between MARC, VRE, and the other railroads.

On-time performance for MARC is most noticeably different from that of the three railroads serving New York City – NJ Transit, Metro-North, and LIRR. In a July 2010 article, the New York Times analyzed the performance claims of the three New York City railroads[3]. While the overall numbers were accurate, the article emphasized that on-time performance does not account for the time of day at which delays occurred. Since most delays happened during the morning and evening rush hours, these delays affect substantial numbers of passengers.

[3] Grynbaum, Michael M. and Gebeloff, Robert. "95% of Trains Are on Time? Riders Beg to Differ". The New York Times. Published 26 July 2010. <http://www.nytimes.com/2010/07/27/nyregion/27ontime.html>

Customer Satisfaction Ratings

This measure looks at customer perceptions of commuter rail service, as determined by data from customer surveys. Specifically, it tries to ascertain whether riders are provided with an overall experience that they deem satisfactory. To an extent, answers are driven by subjective personal understandings of what is a satisfactory experience, though surveys often provide respondents with a number of factors by which they can evaluate overall performance.

Survey methodologies vary among railroads, as do measurement scales used on the surveys. Most railroads use either a direct response survey, wherein forms are distributed to customers and returned for counting, or a telephone survey, where residents are called and asked to participate. Both use a relatively large, randomly selected sample population, meaning that the survey captures a representative cross-section of riders. However, as with any survey data, there is the potential for selection bias. The individuals who participate in the study are the ones who care enough to take the time and, therefore, are likely to have reasonably strong opinions about commuter rail.

Data for the full seven-year period was provided by MARC, Metro-North, LIRR, and VRE. Single-year omissions in the data for these railroads indicate that the data for that year was deemed statistically insignificant or otherwise found faulty. NJ Transit provided full data but only had figures for the year 2005. MBTA provided data for 2008 but was unable or unwilling to provide data for prior years. SEPTA did not conduct customer satisfaction research during the period in question and thus has been omitted from the following charts.

Northeastern commuter railroads report customer satisfaction data using two different measurement scales. Four railroads – MARC, MBTA, and NJ Transit, as well as the LIRR pre-2008 – report an average level of satisfaction using a numerical scale. This method asks respondents to rate service on a scale, with higher numbers corresponding with a higher level of satisfaction. The number provided is the average score for all respondents, either using a question that asked the rider to rate overall performance, or from averaging the scores provided for all other questions. NJ Transit and LIRR use a 0-10 scale, while MBTA and MARC use a 1-5 scale, though these were rescaled to correspond with the other two. The results of these surveys are shown in **Exhibit 9**.

Exhibit 9
Customer Satisfaction Scores
Calendar 2002-2008

Satisfaction Scores	2002	2003	2004	2005	2006	2007	2008
MARC	7.50	5.75	7.00	7.25	7.75	7.75	–
MBTA							6.70
NJ Transit[1]	–	–	–	5.80	–	–	–
LIRR[2]	6.70	6.40	6.10	6.40	6.60	6.70	–
Average (All)	**7.10**	**6.10**	**6.60**	**6.50**	**7.20**	**7.20**	**6.70**

LIRR: Long Island Rail Road
MARC: Maryland Area Regional Commuter
MBTA: Massachusetts Bay Transportation Authority
NJ: New Jersey

[1]Data only available for 2005.
[2]Data only available for 2005.

Both VRE and Metro-North use a percentage scale to measure customer satisfaction. Instead of looking at relative levels of satisfaction, this measure looks at the aggregate number of riders that are satisfied with their experience, regardless of the level of satisfaction. This number is then expressed as a percentage of total riders based on the sample population. There are a number of different scoring „anchors" used for these measures, all standardized for the purpose of this chart. VRE uses an A-F scale, the same as is used in schools. Metro-North uses three grade levels – "very satisfied," "satisfied," and "not satisfied." These same anchors were used by LIRR in 2008. This data is shown in **Exhibit 10**.

Exhibit 10
Customer Satisfaction Rating

Satisfied/Unsatisfied	2002	2003	2004	2005	2006	2007	2008
VRE[1]	98.4%	97.0%	95.1%	94.9%	92.3%	--	96.5%
Metro-North[2]	–	93.0%	89.0%	90.0%	92.0%	93.0%	94.0%
LIRR[2]	–	–	–	–	–	–	89.0%
Average (All)	**98.4%**	**95.0%**	**92.0%**	**92.4%**	**92.2%**	**93.0%**	**93.2%**

LIRR: Long Island Rail Road
VRE: Virginia Railway Express

Counts A, B, or C response as "satisfied" and D/F as "unsatisfied"
Available responses: "very satisfactory," "satisfactory," and "not satisfied"

The customer satisfaction scores for MARC compare favorably with other systems that report using the same measurement system. With the exception of 2003, the evaluations are generally consistent and seem to trend mildly upward. Note, however, that rescaling the data may slightly distort it, though both the upward trend and high scores received by MARC are still valid.

Analysis

The data suggests that financial efficiency is most closely correlated with system size, rather than operating model. Similarly, the data also suggests that qualitative measures – on-time performance and customer satisfaction – are more closely linked to location-specific circumstances, such as line ownership, than they are to the operating model. Data for the six systems studied is presented in summary form in **Exhibit 11.**

Exhibit 11
Summary Information

	Region Population	Trips Per Capita	Average Unlinked Passenger Trips	Average. Vehicle Revenue Miles	Track Ownership	Average Expense Per Unlinked Passenger Trip	Average Operating Expense Per Revenue Mile	Average On-time Performance
Contract Operated								
MARC	7,572,647	1.52	6,935,826	4,903,139	**Not Owned**	$10.02	$14.21	89.4%
VRE	7,572,647	1.52	3,365,344	1,767,320	**Not Owned**	$10.97	$21.02	85.4%
MBTA	7,298,695	5.37	39,073,389	22,622,356	**Partially Owned**	$5.60	$9.66	
Direct Operated								
SEPTA	6,207,223	5.56	32,069,980	15,941,410	**Partially Owned**	$5.89	$11.74	88.9%
NJ Transit	21,361,797	12.5	72,938,387	55,532,579	**Partially Owned**	$8.67	$11.37	95.0%
Metro-North	21,361,797	12.5	75,919,244	52,874,137	**Partially Owned**	$9.43	$13.53	97.2%
LIRR	21,361,797	12.5	98,778,015	59,886,194	**Owned**	$9.43	$15.53	93.5%

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Financial Efficiency

More than any other factor, it appears that system size is the strongest driver of per-unit costs. For contract operated systems, rail operation and maintenance costs are set by contractual agreement. This means that the majority of these costs are fixed, though the terms of the contract can include some variable costs. For example, the current MARC contract with CSX requires MARC to pay for fuel price spikes. However, overhead and administrative costs are borne directly by the transit system and are subject to variation in a way that contract costs are not. Conversely, a greater share of costs are variable in a directly operated system, as operations costs are not predetermined by contract, and the railroad must directly bear all cost increases. Overall, variable costs appear to follow a predictable pattern, rising when ridership and other service demands rise.

Generally, there is a base-level startup cost associated with rail operations. Regardless of ridership levels, service providers must pay staff salaries and conduct basic administrative operations, as well as maintaining and operating trains. However, as ridership grows, those costs can be divided over a greater number of people. This is reflected in **Exhibit 12**. This chart correlates per-unit costs with overall system size, as measured by average annual unlinked passenger trips over the seven-year period. In smaller systems, per-trip costs decrease as the number of trips increases. This pattern is followed until ridership reaches a point at which overall spending must increase in order to accommodate additional demand.

Exhibit 12
Unlinked Passenger Trip Efficiency

	VRE	MARC	SEPTA	MBTA	NJ Transit	Metro-North	LIRR
Average Trips	3,365,344	6,935,826	32,069,980	39,073,389	72,938,387	75,919,244	98,778,015
Cost/Trip	$10.97	$10.02	$5.89	$5.60	$8.67	$9.43	$9.43

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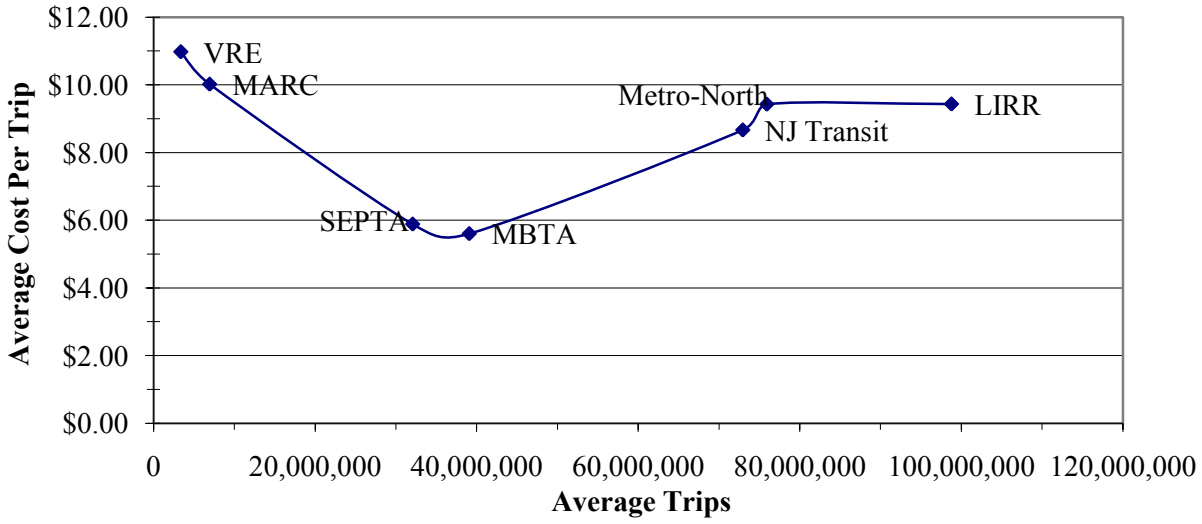
Looking specifically at the financial information, it appears that MBTA provides the most efficient service on a per-mile basis, while MBTA and SEPTA provide the most cost-effective service per passenger trip. However, MBTA is run by a contractor, while SEPTA is directly operated by the transit authority. Both of these agencies operate an expansive transit network, and carry comparable

numbers of passengers on an annual basis, though MBTA averages nearly 7,000,000 more vehicle revenue miles per year.

It is impossible to determine a precise ridership level at which costs stop declining and begin to rise. Each railroad has unique individual circumstances which determine where this point is. However, from this sample of seven systems, one can infer a general range between 35,000,000 and 45,000,000 unlinked passenger trips in which costs appear to begin rising. This cost curve is demonstrated in **Exhibit 13**.

Exhibit 13
Unlinked Passenger Trip Cost Curve
Seven-year Average



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Dividing operating costs by vehicle revenue miles yields a similar result. **Exhibit 14** correlates the per-mile operational cost with overall system size, as measured by average annual vehicle revenue miles over the seven-year period. However, the order of systems is different from the preceding exhibit, since NJ Transit averages more annual revenue miles than Metro-North.

Exhibit 14
Vehicle Revenue Mile Efficiency

	VRE	MARC	SEPTA	MBTA	Metro-North	NJ Transit	LIRR
Average Miles	1,767,320	4,903,139	15,941,410	22,622,356	52,874,137	55,532,579	59,886,194
Cost/Mile	$21.02	$14.21	$11.74	$9.66	$13.53	$11.37	$15.53

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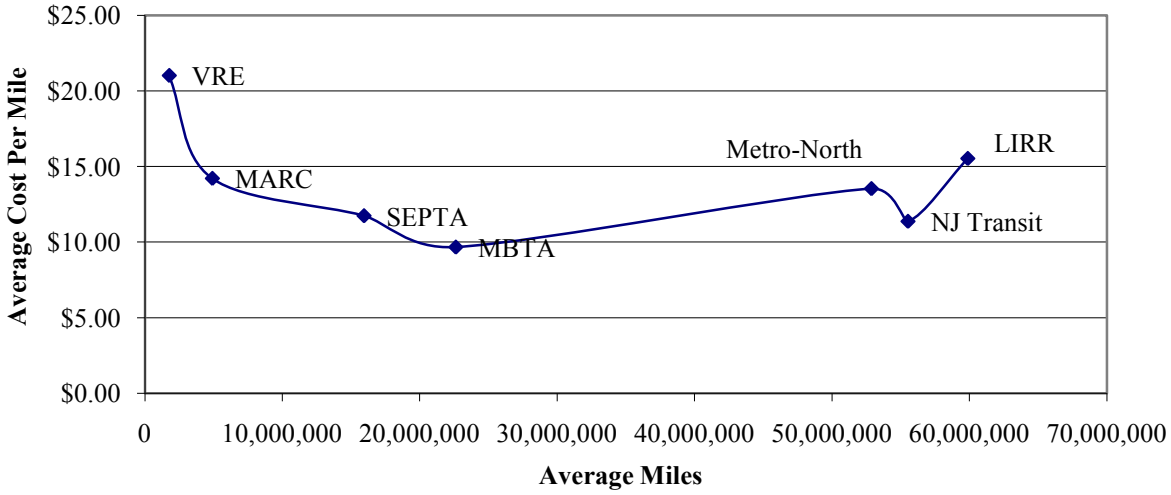
This data yields a cost curve that arcs downward twice, though still demonstrating a similar trend overall. As with the previous measure, the per-unit costs are comparable for both large and small systems. The costs for mid-sized systems are lower, but also comparable. This can be seen in **Exhibit 15**.

When a system is small and, therefore, on the declining side of the cost curve, it is likely in the system"s interest to make future costs as predictable as possible. Unanticipated expenses have the potential to drive up per-unit costs, particularly if significant in size. Contract operation has the potential to control costs and enhance budgetary predictability, as long as the agreement is designed with significant fixed cost components. In addition, contract operation should eliminate the cost of developing in-house expertise and facilities for railroad operation. Since railroad operation is the primary job of a contractor, it already possesses the infrastructure and expertise needed to operate commuter rail.

Exhibit 15
Vehicle Revenue Mile Cost Curve
Seven-year Average



LIRR: Long Island Rail Road
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Qualitative Measures

On-time performance is an imperfect measure of the service quality on a given railroad. Numbers can be artificially inflated and do not account for the time of day or how full a delayed train is. However, on-time performance data is the best available metric for determining the operational efficiency of a railroad. Local circumstances, such as line capacity and infrastructure are shapers of on-time performance, along with line ownership.

Generally, railroads which own either all or part of the lines on which they operate have higher on-time performance than those which do not. **Exhibit 16** shows the relationship between on-time performance and ownership. Two of the three worst performing lines do not own the track on which they operate, while the third, SEPTA, owns a part of its tracks.

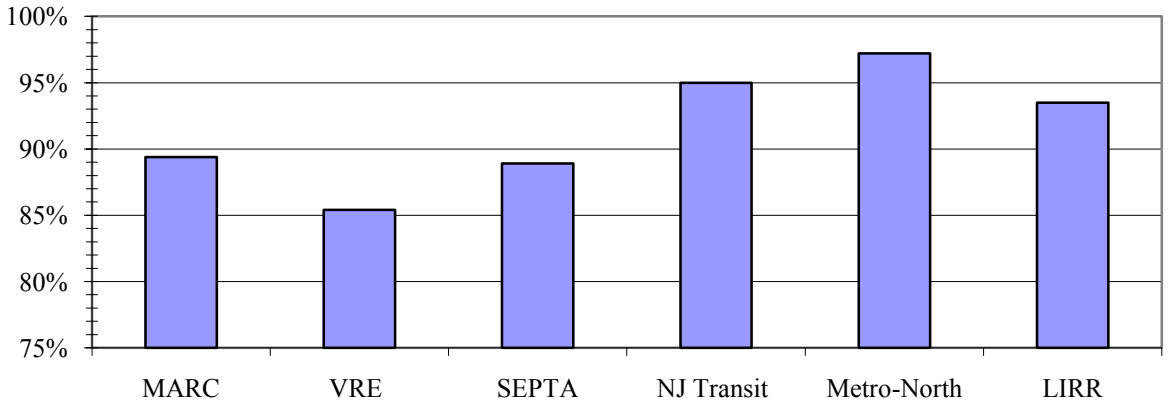
Exhibit 16
Vehicle Revenue Mile Efficiency

	MARC	VRE	SEPTA	NJ Transit	Metro-North	LIRR
On-time Percent	89.4%	85.4%	88.9%	95.0%	97.2%	93.5%
State Line Owner	Not Owned	Not Owned	Partially Owned	Partially Owned	Partially Owned	Owned

LIRR: Long Island Rail Road
MARC: Maryland Area Regional Commuter
NJ: New Jersey
SEPTA: Southeastern Pennsylvania Transportation Authority
VRE: Virginia Railway Express

The average on-time performance figures all fall within 10.0% of one-another. As shown in **Exhibit 17**, nearly 15.0% of VRE trains arrived at their destination late during the calendar 2002 to 2008 period, while only 2.8% of Metro-North trains were late during the same time.

Exhibit 17
Relative On-Time Performance
Calendar 2002-2008



LIRR: Long Island Rail Road
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Conclusion

MARC service, at the system's current size, appears to be best suited for operation by a third-party contractor. If MARC were to explore the possibility of direct operation, an in-depth analysis would have to be performed, which would include but not be limited to the following factors:

- the MTA would have to account for the full costs associated with takeover;
- the agency would incur significant up-front costs when bringing operations in-house, in terms of both facilities and personnel;
- the State would have to deal with higher short-term costs due to inexperience and decreased efficiency; and
- as the State would not own the rail lines, there would still be the problem of potential delays.

Any cost savings would not be realized until many years hence and likely would require substantial ridership growth.