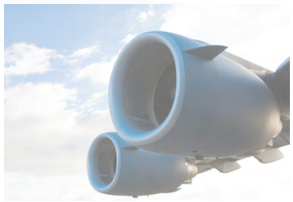
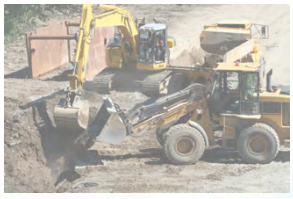




Infrastructure Management Group, Inc.

EVALUATING INNOVATIVE FINANCING OPPORTUNITIES FOR MIAMI-DADE TRANSIT

Miami-Dade County Citizens' Independent Transportation Trust

FINAL REPORT

IN ASSOCIATION WITH:

PLANNING AND ECONOMICS GROUP

BRINGING BUSINESS TO GOVERNMENT™

4733 Bethesda Avenue, Suite 600 Bethesda, MD 20814 www.IMGgroup.com (P) 301.907.2900 (F) 301.907.2906

TABLE OF CONTENTS

Executive Summary

Like many transit agencies across the U.S., Miami-Dade Transit (MDT) is facing severe challenges due to budget limitations, aging infrastructure, and demand for increased services. It has become apparent that realizing planned capital development, such as the Orange Line metrorail expansion, will not be possible through traditional grant and debt funding alone. The purpose of this report is to research the best practices in innovative transit funding, and provide a preliminary evaluation of the potential for MDT to utilize these innovative tools to deliver projects planned in its capital program. Detailed financial analysis of the innovative finance potential for specific projects is envisioned as a future phase of this assignment.

Methodology
Analysis for this report consisted of four major stages:

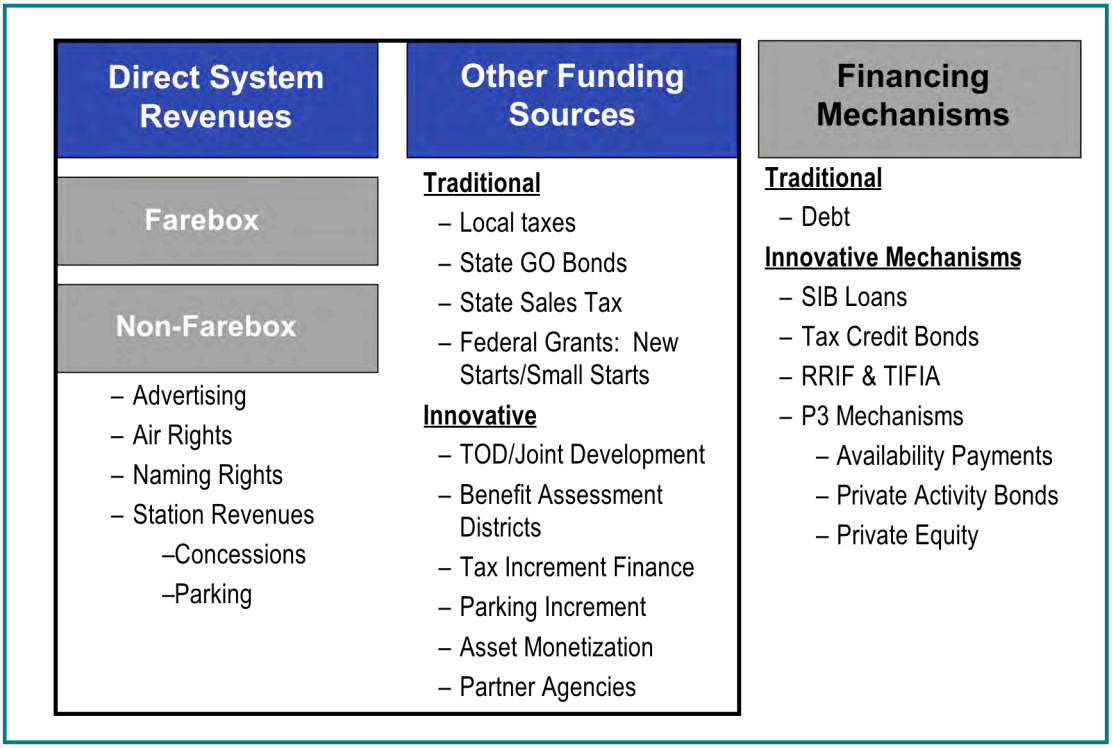
1) In the **data gathering** stage, we sought to understand the issues and challenges that MDT, the CITT, and the County face by conducting meetings with over 28 County staff, agency personnel, and other stakeholders. In addition, existing data and reports regarding MDT's capital program and budget issues were reviewed. We also gathered information about past innovative financing projects in Miami-Dade County. While we sought to understand legal and political challenges to innovative finance, the recommendations in this report are not constrained by these issues.

2) Based on a review of literature and the IMG Team's extensive background in innovative finance, potential **funding instruments and development techniques** were identified and described. These are the key tools that the County may use for innovative finance are divided into three categories:

    - Direct system revenues beyond farebox, including parking, concessions, advertising, naming rights, and air rights
    - Innovative funding sources, such as transit-oriented development (TOD), benefit assessment districts (BADs), tax-increment financing (TIF), and working with partner agencies
    - Innovative financing mechanisms that can be used to leverage funding streams, including subsidized loans from the Florida State Infrastructure Bank, the U.S. DOT Transportation Infrastructure Finance and Innovation Act (TIFIA) and Railroad Rehabilitation and Improvement Financing (RRIF) programs, availability payments, private activity bonds, and private equity. Public-private partnerships (P3) are a key part of these mechanisms.

    The figure below shows how these innovative financing tools link with traditional funding.

Potential Funding Sources and Financing Mechanisms



3) Transit agencies across the U.S. are seeking to implement innovative finance solutions, with new ideas and techniques constantly being developed and refined. The report in includes **best practice case studies** from seven innovative transit agencies detailing 16 projects that have innovative finance elements, and how the lessons learned can be applied to MDT as summarized below.

Agency	Best Practice Utilized
Washington Metropolitan Area Transportation Authority (WMATA)	TOD, BAD, P3
Metropolitan Atlanta Rapid Transit Authority (MARTA)	TOD, TIF
Bay Area Rapid Transit (BART)	TIFIA, Potential DBOM P3
Dallas Area Rapid Transit (DART)	TOD, P3
TriMet and Portland Streetcar	P3 with real estate compensation
Greater Cleveland Regional Transit Authority (GCRTA)	Naming Rights
Veolia Transportation	Private Operator
Pace Suburban Bus Service	Outsourcing contract
Denver Regional Transportation District (RTD)	P3, TOD

Many of the tools are not new to the County, which has had success with innovative finance on projects such as the Miami Intermodal Center, joint development projects at Dadeland North and South metrorail stations, and the Overtown station, among others.

The case study analysis found that real estate is the central component of much innovative finance, most often through the use of special assessment districts (TIF and BAD). Beyond real estate-related P3s, there are other forms of P3 experimentation; however, there have been few noteworthy successes to date. Although not a source of capital funding, private operations and outsourcing maintenance have provided benefits to transit agencies.

4) In the **compilation stage**, the findings from the first three phases were brought together to provide a guide to the CITT and MDT regarding which projects have the most innovative finance potential and the tools that are most likely to be successful for each. For this task, the Team reviewed the MDT capital plan and the People's Transportation Plan (PTP), and provided two filters to identify projects with potential for innovative finance:

   Level 1: Basic Project Selection
   About 23 projects passed this filter, which requires that projects are in the planning or development phase, have a cost of at least $20 million, and are discrete and well-defined.

   Level 2: High-Level Feasibility
   This consisted of a more detailed assessment of those projects passing the first filter to identify projects with high demand; assets, such as parking lots, that lend the project to joint development, potential to take advantage of special assessment districts, and have a development schedule and cost structure that are appropriate for one or more innovative instruments. In addition to the North and East-West corridors, six other projects passed this second filter, and their innovative financing potential is discussed in detail in the report.

Key Findings

Funding constraints will limit the County's ability to develop large transit projects such as heavy rail in the North and East-West corridors in the near future. However, there are opportunities to develop smaller transit projects, using both conventional as well as innovative financing and project delivery methods. Based on our review of other transit agencies and discussions with local stakeholders, it is clear that bringing innovative finance to MDT projects will be challenging, particularly in the short term due to the current economic downturn. Many of the most promising tools, such as special assessment districts, require an expanding economy and active real estate market to be successful, and can take many years to develop even in the best of circumstances. Therefore, in the short term, innovative financing will only support smaller projects, and apply to larger projects on a medium and long-range time scale. A focus on reducing MDT operating costs and keeping the existing system in a state of good repair will provide financial flexibility for future capital expansion.

The following projects have the most potential for implementation through innovative finance solutions, and deserve further analysis of their potential for implementation, including understanding which financing instruments provide the most appropriate leverage for available funds.

1. North Corridor. There are a number of innovative funding alternatives that could provide financial support for this project, including tax increment financing, joint development and parking opportunities. In particular, the two stations closest to the Broward County line have significant park-and-ride

potential. There could be opportunities to take advantage of the park-and-ride potential of the stations near the Broward County line at NW 215th and NW 199th street for future express bus service. Land is available for significant parking, with good access to I-95 and other highways. Private involvement in the park-and-ride lots would have potential to offset some of the cost of development. Joint development programs at other North Corridor stations may have potential, but will be more difficult to implement due to the current economic realities in the corridor. However, reduced real estate prices provide an opportunity to acquire land at low cost, and to implement TIF districts that will produce revenue for the project as property values rise, and help to set the groundwork for future selected joint developments. Furthermore, all of these options should be aggressively pursued in order to bring higher speed transit service to the corridor as quickly as possible.

2. East-West Corridor, Metrorail 8th Street Alignment. The density of development and robust economic activity in the region make the East-West Corridor 8th Street Alignment a strong candidate for innovative finance to support traditional funding planned for the project. Many of the planned stations have at least some potential for joint development and/or parking projects. Given the strong economy and real estate values adjacent to this alignment, a benefit assessment district for key stations, or for the entire line, may be possible. However, the available innovative financing alternatives would not be sufficient to significantly defray the cost of a heavy rail system.

3. East-West Corridor, State Road 836 Alignment. Miami Dade Expressway Authority (MDX) expressed a willingness to provide right-of-way and/or invest in capital for transit projects, so long as those projects are self-sustaining operationally MDX has specifically identified SR 836 for providing such services. Unlike the MDT system, which requires operating subsidies, the positive cash flow of the MDX toll roads provides a revenue stream that can be directed for capital projects involving transit uses. The East-West Corridor along 836 has a high potential for innovative finance options as a public project or a P3. MDX plans include dedicating right-of-way along 836 for rapid bus service and, potentially, investing toll revenues in the capital costs for stations. BRT service in MDX corridors could also provide an opportunity to include other innovative finance tools as part of the financing package to pay for capital and operating costs.

4. Partner with MDX and FDOT on Corridor Development. Regarding FDOT, funds and property may be available for local transit uses, as has occurred near the Miami Intermodal Center (MIC). The proposed 85-mile rail line along the South Florida East Coast Corridor (SFECC), currently in Phase 2 of study, provides an opportunity for linking with FDOT and using innovative finance tools. MDT is also a partner agency in this project.

5. Other Corridors. The project team also reviewed the South Miami-Dade Busway. The busway serves a congested and expanding corridor, creating the potential that corridor users will be willing to pay for improved service and access. This could take the form of additional park-and-ride lots, higher-speed transit, and transit-oriented development in the corridor. Furthermore, MDX has expressed willingness to invest in transit in the corridor if some access for cars could be permitted. All options for investment in the busway corridor should be analyzed for short and medium/long term innovative financing potential.

Next Steps

Three actions are recommended as next steps beyond this study to move MDT toward innovative finance solutions:

1. Request input on the future direction of the transit system and the conclusions of this report from Miami-Dade County, MDX, FDOT and other relevant parties. Our interviews with County staff found a wealth of ideas and interest in innovative finance techniques, and this input from the key action agencies will help to understand the potential for success.

2. Select projects for detailed innovative finance analysis. Based on our preliminary analysis in this report, four projects have high potential for innovative solutions. Phase II of this analysis would examine the potential revenue that could be generated through innovative techniques for each project, and the financing mechanisms most appropriate to leverage traditional and innovate funding sources to deliver the projects as quickly as possible. This analysis will enable decision makers to focus on innovative finance opportunities that have the maximum potential to enable projects to be completed ahead of schedule.

3. Review legal and contractual issues. Preliminary discussions with County attorneys found that the legal basis exists for most innovative financing techniques discussed in this report. However, a review of the legal process for high-likelihood projects is needed to determine feasibility. In addition, union and other contractual issues may affect the projects. While this report has not been constrained by legal or contractual issues, a next step is to identify any roadblocks so steps can be taken to clear the path for innovative finance.

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Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit

FINAL REPORT
December 2010

Prepared for:
Miami-Dade County Citizens' Independent Transportation Trust

Infrastructure Management Group, Inc.

Planning & Economics Group

Table of Contents

I. Executive Summary

Background and Purpose

The purpose of this report is to identify and analyze operating revenue enhancement opportunities for Miami-Dade Transit (MDT). MDT is the largest transit agency in the State of Florida and is the primary public transit agency in Miami-Dade County. It operates four modes: Metrorail, Metromover, Metrobus, and Special Transportation Services.

MDT is also responsible for construction and equipment programs and projects, which have been financed largely through proceeds of the Charter County System Transit Sales Surtax. This ½ cent tax and the People's Transportation Plan (PTP) were approved by the voters of Miami-Dade County in 2002. The voters also approved the establishment of the Citizens' Independent Transportation Trust (CITT) to oversee the expenditure of the surtax funds. The CITT commissioned this report.

The MDT Pro-Forma, which has been presented publicly on a number of occasions, looks at the long term expenses and revenues projected to be available to MDT. The Pro-Forma confirms that, as payment expenses for the bonds increase, the amount of surtax funds available for MDT operations and maintenance reduces significantly. The 2010 update of the Pro-Forma indicates that an operating funding gap will exist, beginning with $48 million in 2014.

The purpose of this report is to contribute to the discussion on how to close that projected funding gap. This initial effort is designed to survey the full range of revenue enhancement opportunities utilized locally, nationally and internationally, without filtering.

In a previous assignment, Infrastructure Management Group (IMG), with Planning and Economics Group (the "Research Team" or the "Team"), identified a number of potential and innovative tools for financing capital projects. The results of that analysis were presented in a report titled "Evaluation of Innovative Financing Opportunities for Miami-Dade Transit," in November 2009. This report identified several financing alternatives potentially applicable in Miami-Dade County, including joint development agreements, naming rights, park-and-rides, and partnerships with the Miami-Dade Expressway Authority (MDX), Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), and other agencies or municipalities.

The County is not alone in the significant short, medium, and long term challenge of ensuring that a financially sustainable transit system is serving its citizens. Fortunately many insights and precedents from efforts across the nation and around the world exist. The closing of the projected funding gap may well require the use of multiple techniques and sources with continued extensive interagency collaboration, in conjunction with finding operating efficiencies and controlling costs (which is not within the scope of this assignment).

This report's research can help to guide policy decisions, and the use of the techniques described within can lead to an even stronger ongoing financial outlook.

Methodology

The methodology for this assignment consisted of the following steps:

1. Review and summarize literature on transit revenue:
    - The Research Team conducted an extensive literature review using public research reports, academic studies, the news media, and information provided by transit providers and business partners.
    - A complete list of sources, including an annotation of key sources, is provided in the Appendix of this report.
    - One key source was the *Transit Cooperative Research Program Report 129: Local and Regional Funding Mechanisms for Public Transportation* (TCRP 129), which is the only comprehensive study examining the issue of transit operating revenue. TCRP 129 provides an excellent list of funding techniques and high-level overview of implementing the techniques. This report uses TCRP 129 as a source but goes beyond that work in the following ways:
        - The current report provides detailed descriptions regarding the actual use of each technique by transit properties.
        - This report provides the most recent research available – on many techniques, such as new advertising solutions, progress has been made since TCRP 129 was published.
        - This report includes a discussion of implementation issues specific to MDT, including current efforts to enact the techniques, local and state issues, and policy discussion.
    - Additionally, the Miami-Dade County Transit Development Plan for FY 2010-19, released in December of 2009, describes potential sources of funding for MDT.
        - The list of criteria for analysis of funding and financing options is comprehensive and provides a useful framework for considering funding options.
        - A matrix of alternative funding sources is included within the report detailing how the criteria for implementation are met. The report includes a brief list of example cities for each revenue source, but no details about the implementation of the revenue funding sources utilized.

2. Interview MDT and County staff:
    - In July 2010, the Team held a series of meetings with County staff at MDT, Office of Strategic Business Management (OSBM), Board of County Commissioners and staff, and representatives of the County Manager.

3. Interview selected transit properties and service providers:
    - The Research Team interviewed transit agencies using innovative or best practice revenue generation techniques.
    - The Team also interviewed representatives from the American Public Transit Association (APTA), transit advertising providers, and other relevant businesses serving the transit industry.

4. Collate and develop a comprehensive report from the findings:
    - In developing the Operating Revenue Enhancement Report, the Team sought to develop a comprehensive "menu" of funding options, detail the prevalence, description, best practices, strengths/weaknesses, and applications to MDT.

Key Findings

The following table lists the specific techniques and tools identified in our research and described in detail later in this report. They are divided into system revenues, which are generated by the operation of the transit system, and other revenue sources, which represent subsidies to fund the system from other sources.

When reviewing the potential applicability of the different techniques, it is important to consider that the use in a particular locale depends on a variety of factors, many unique to the particular area. A good understanding of these factors is an important prerequisite in the search for enhanced transit funding. The Research Team also found that several local and regional funding sources are successfully being used by some transit agencies to support public transportation but are not currently used in others. The successful implementation of new revenue techniques requires developing a consensus of current and future transportation needs, a defined program, a public education and advocacy campaign, a broad-based community leadership, and providing assurances that resources are spent well.

System Revenue	Other Revenue Sources

• Advertising & Marketing Revenues
  - Vehicle advertisements
  - GPS location-driven advertising
  - Domination advertising
  - Transit shelters and bench advertising
  - Internet-based ads
• Contract Revenues
• Concessions
• Naming Rights
• Right-of-Way and Air Rights Leasing
• Joint Development
• System Parking Fees
• Distance-Based Fares and Other Fare Structures
	• Property Taxes
	• Sales Taxes
	• Value Capture:
	  - Land Development Charges and Impact Fees
	  - Special Taxing Districts
	• Digital Technology, Web-Marketing and Social Media
	• Payroll Levy
	• Business License Fees
	• Franchise Fees
	• Car Rental Fees
	• Gas Surcharges: Motor Fuel Tax and Local Option Gas Tax
	• Real Estate Transfer Fees
	• Non-Transit Parking Fees
	• Tolling and Congestion Pricing
	• Utility Fees
	• Room and Occupancy Surcharges
	• Excise Fees
	• Vehicle Fees
	• Vehicle Miles Traveled (VMT) Fees

Conclusions

The research conducted for this report has led the Team to a number of conclusions:

1. The avenues for generating transit operating revenue are fairly well defined (generally sales and property taxes), and there is no single solution.

2. While important to maximize, system revenue sources alone have limited potential to fill the entire projected budget gap. Advertising, parking, and concessions represent limited revenue enhancement opportunities.

3. U.S. cities employ a wide mix of methods to close budget gaps, including creatively using revenue sources associated and not typically associated with transit such as utility fees and excise fees.

4. Value capture tools are among the most powerful non-tax revenue sources including direct tariffs on business and development through impact fees, special assessment districts, or payroll levies have the greatest revenue potential.

5. Tolling is a key potential new source for revenue, with the MDX conversion to open road tolling and the implementation of toll lanes on I-95 in the County by FDOT.

6. MDT does have a number of immediate enhancements MDT can quickly undertake to increase revenue, such as the following:
    - Aggressively pursue advertising solutions, such as bus and train wraps, domination advertising, and variable signage.
    - Reconsider selling naming rights for Metrorail and Metromover stations by revisiting the contracting options and developing partnerships.
    - Capitalize on MDT's right-of-way in highly-trafficked where advertising, billboards, and joint development opportunities are available.
    - Stay abreast of technology solutions that are at the cutting edge of transit partnerships – Wi-Fi, GPS-based advertising, social media, etc.

7. While transit funding techniques are fairly similar in the U.S. and overseas, transit is often viewed internationally transit as a federal responsibility, with accompanying funding support. In addition, many international properties aggressively pursue advertising solutions and contracting to improve financial resources.

8. Focusing upon revenues is only one side of the ledger. A complete view would also focus on operating expenses.

Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit Phase II

DRAFT REPORT
February 2012

Prepared for:
Miami-Dade County Citizens' Independent Transportation Trust

Infrastructure Management Group, Inc.

Planning & Economics Group

Table of Contents

I. Executive Summary

Background and Purpose

This report was requested by the Miami-Dade County Citizens' Independent Transportation Trust (CITT) as the third in a multi-year series of studies designed to help improve the financial outlook of Miami-Dade Transit (MDT). MDT is the largest transit agency in the State of Florida and is the primary public transit agency in Miami-Dade County. It operates four modes: Metrorail, Metromover, Metrobus, and Special Transportation Services. MDT is also responsible for construction and equipment programs and projects, which have been financed, in part, through proceeds of the Charter County System Transit Sales Surtax. This ½ cent tax and the People's Transportation Plan (PTP) were approved by the voters of Miami-Dade County in 2002. The voters also approved the establishment of the CITT to oversee the expenditure of the surtax funds.

The MDT Pro-Forma financial forecast, which has been presented publicly on a number of occasions, looks at the long-term expenses and revenues projected to be available to MDT. The Pro-Forma confirms that, as debt service expenses for surtax-backed bonds increase, the amount of surtax funds available for MDT operations and maintenance reduces significantly. The August 2011 update of the Pro-Forma indicates that an operating funding gap will exist, beginning with $36 million in 2014.

The purpose of this report is to build upon the Revenue Enhancement Opportunities Phase I report of 2010, which identified and evaluated the full spectrum of alternatives for increasing revenues for MDT. The Phase I report examined the sources of funds utilized to support transit locally, nationally and internationally, without filtering by factors such as feasibility or efficiency.

In a previous assignment, Infrastructure Management Group (IMG), with Planning and Economics Group (the "Research Team" or the "Team"), identified several financing alternatives potentially applicable in Miami-Dade County, including joint development agreements, naming rights, park-and-rides, and partnerships with the Miami-Dade Expressway Authority (MDX), Florida Department of Transportation (FDOT), Florida's Turnpike Enterprise (FTE), and other agencies or municipalities. The results of that analysis were presented in a report titled "Evaluation of Innovative Financing Opportunities for Miami-Dade Transit," delivered in November 2009.

This report, Phase II, goes beyond the Phase I framework to develop an implementation plan for the selected potential revenue streams that includes the required steps, responsibilities, cost, and challenges, as well as the likely range of revenue for MDT. This report shows the total potential revenue of the shortlisted revenue programs and how they contribute to fill in MDT's $36 Million deficit in FY 2014.

The goal of Phase II is to analyze the following potential system and non-system revenue enhancers:

1. System Revenue
    a. Advertising and marketing revenues, including domination advertising opportunities at rail and Metromover stations
    b. Naming Rights
    c. Right-of-Way Leasing, particularly for billboards and cell towers

    d. Premium fares for the new Airport Link
2. Non-System Revenue
    a. Land Development Charges—Impact Fees
    b. Business Licensing Fees
    c. Non-Transit Parking Fees
    d. Tolling
    e. Utility Fees
    f. Local Gas Tax

The Research Team was tasked to provide detailed information for each of these except for the three italicized revenue enhancements, which will be handled in-house by OCITT staff.

In addition, due to lack of sufficient data for analysis, revenue projections could not be made for Right-of-Way Leasing and Airport Link fares. The report does discuss key aspects of the available data in the Appendix.

Methodology

Based on Phase I research and additional literature reviews and discussions with County staff and outside experts, the Research Team developed an appropriate methodology for each of the seven revenue enhancement areas it was tasked with for Phase II work. These methodologies are detailed in the chapters below for each area and are summarized in this section.

For advertising, the Team first conducted an inventory of potential assets not currently being offered to advertisers that could generate revenue for MDT. Interviews were conducted with MDT and other County staff to assess the issues and implementation involved for each asset. The Team then utilized the industry best practice of estimating the media value of new advertising assets based on the number of "impressions" (i.e., the number of times the advertisement is viewed).

For business fees, tolling, and utility fees, the Team analyzed data regarding the current number of users and fees for each area. Models were developed for each source estimating the revenue that could be generated by either directing a portion of the revenue to MDT or adding an incremental fee that would be directed to MDT.

For all revenue enhancement areas, the Team reviewed ordinances, policies, and other documents to understand the procedures by which funds would be provided to MDT, and the issues that would affect implementation. Interviews with County staff, industry experts, and legal counsel advised this process.

Key Findings

Projected Revenue

The revenue enhancements analyzed fall into two general categories as follows:

Category 1: Market value assets

Advertising and naming rights revenues are based on estimation of the media value of assets that could be utilized for these purposes, but are not currently significant revenue sources for MDT. It is therefore possible to develop a range of likely revenue to MDT depending on assumptions of the market value. Where unit rates were available from past MDT or contracted marketing efforts, those rates were multiplied by the number of available opportunities. As shown in the following table, the Team identified a wide range of potential assets that MDT could use to increase advertising. Advertising and naming rights could yield between $3.46 and $13.66 million in annual revenue to MDT if all the reviewed advertising assets and naming rights were applied.

Revenue Source	Low Case		Base Case		High Case	
	Total Media Value	MDT Expected Revenues*	Total Media Value	MDT Expected Revenues*	Total Media Value	MDT Expected Revenues*
Metrorail Stations (including station pillars/billboards)	$ 708,000	$ 285,000	$ 2,407,000	$ 1,075,000	$ 3,204,000	$ 1,366,000
Metromover Station Ads (Station Pillars, interior walls, clocks, etc)	$ 559,000	$ 280,000	$ 1,822,000	$ 911,000	$ 1,762,000	$ 881,000
MetroMover Vehicle Interior Ads	$ 415,000	$ 249,000	$ 715,000	$ 429,000	$ 948,000	$ 569,000
Wrap Advertising on Metrorail Cars	$ 2,500,000	$ 1,500,000	$ 4,896,000	$ 2,938,000	$ 6,000,000	$ 3,600,000
Wrap Advertising on Metromover Cars	$ 650,000	$ 390,000	$ 1,218,000	$ 731,000	$ 1,575,000	$ 945,000
Surface Parking, Parking Garages, and Park and Rides (including parking pillars and wall ads; not including Kiosks)	$ 96,000	$ 48,000	$ 698,000	$ 349,000	$ 997,000	$ 499,000
Kiosks along Busway	$ 168,000	$ 101,000	$ 672,000	$ 403,000	$ 1,300,000	$ 780,000
Guideway Pillars	$ 140,000	$ 56,000	$ 2,852,000	$ 1,141,000	$ 8,069,000	$ 3,228,000
Wall Advertising on MDT Buildings	$ 120,000	$ 36,000	$ 480,000	$ 144,000	$ 1,080,000	$ 324,000
Naming Rights	$ 267,000	$ 200,000	$ 495,000	$ 371,000	$ 949,000	$ 712,000
Domination Advertising-MetroMover and MetroRail	$ 630,000	$ 315,000	$ 1,260,000	$ 630,000	$ 1,512,000	$ 756,000
Total Potential Media Value	**$ 6,253,000**	**$ 3,460,000**	**$17,515,000**	**$ 9,122,000**	**$ 27,396,000**	**$ 13,660,000**

*MDT expected revenues is a weighted average based on expected share of revenue from each revenue source. Each source has its own expected revenue percentage.

Category 2: Usage Fees

Tolling, business taxes, and utility fees are different in that they represent fee increases on the users of these services. The revenue potential, therefore, is dictated by the amount of increase in these fees and/or carve-out of existing revenue for transit that the County would apply. Since the amount of these increases is not known, rather than estimating potential total revenue to MDT from these sources, this report focuses on the revenue generated by an incremental use of such funds for transit (i.e., the impact of a 1% increase or a $1.00 fee). County leaders may then select a reasonable multiple for each fee to be provided to MDT.

The following table summarizes the potential revenue of the enhancements analyzed in this report.

Tolling

Tolling - Potential Revenues to MDT		
	Per 1% Surplus Carve Out	Per 1% toll increase
MDX	$1,141,000	$1,197,500
95 Express	$6,400	$171,400
Tolling Total	*$1,147,400*	$1,368,900

Local Business Fees

Business license fees per transaction vary from $37.50 to well over $100 depending on the business classification.[1] There are different rates based on whether a business lies in an incorporated or unincorporated area of the County.

On average, business taxes were $95.64 per transaction in fiscal 2010. A rise in average transaction cost of 1% with the same number of ratepayers as 2010 would yield just under $160,000. At this rate, it would require an average increase per transaction of 6.25% to raise an additional $1M annually. If the rates are raised by the maximum 5% currently allowed by law (see "Implementation" section), the additional revenue would be $799,720. As explained below, it is important to remember that even if these additional revenues were realized, it is unlikely that all of those revenues could be applied for MDT purposes.

Utility Fees: Water, Wastewater, and Electricity

1% Water Fee Increase - Potential Revenues*	
Average Monthly Bill	$31.00
Transportation Fee	$0.31
Monthly Transportation Fee Revenue	**$130,329**
Annual Transportation Fee Revenue	**$1,563,945**
1% Wastewater Fee Increase - Potential Revenues*	
Average Monthly Bill	$54.92
Transportation Fee	$0.55
Monthly Transportation Fee Revenue	**$185,815**
Annual Transportation Fee Revenue	**$2,229,779**
Electricity Account-Based Fee Potential Revenues*	
Account Type	**$1.00/account**
Residential Customers	$885,192
Commercial Customers	$120,379
Industrial Customers	$1,351
Monthly*	**$1,008,149**

[1] http://www.miamidade.gov/taxcollector/ol_home.asp

Annual*	$12,097,790
Electricity Usage Based Fee - Potential Revenues*	
Account Type	**Revenue per $0.0001 charged per kWh**
Residential	$1,253,327
Commercial	$1,377,268
Industrial	$71,232
Annual Kilowatt Hours (Thousands)	**$2,725,559**

* Figures based on annual averages and rounded.

Implementation Issues

Each chapter of this report contains details about the process and issues that will affect the implementation of the various revenue sources. The difficulty and cost of implementation varies widely depending on the rate setting rules and procedures, the legal authority for directing funds from each source to MDT, administrative and operating issues, and likely political obstacles.

For **advertising and naming rights**, most of the solutions could be implemented currently or with changes only to County zoning ordinances. Exceptions include assets with maintenance issues (such as guideway pillars). The table below summarizes the required steps for implementation of the advertising program.

Table 12
Analysis of Operating Revenue Enhancement Opportunities for Miami-Dade Transit
Summary of Required Steps for Implementation

Revenue Source	State Legislative Action	County/Municipal Legislative Action	New Physical Structures for Ads	Possible Extension of Current Contact	Significant Political Obstacles
Metrorail Stations (including station pillars/billboards)	✔	✔	✔	✔	✔
Metromover Station Ads (Station Pillars, interior walls, clocks, etc)				✔	✔
MetroMover Vehicle Interior Ads				✔	
Wrap Advertising on Metrorail Cars				✔	
Wrap Advertising on Metromover Cars				✔	
Surface Parking, Parking Garages, and Park and Rides (including parking pillars and wall ads; not including Kiosks)				✔	✔
Kiosks along Busway	✔	✔		✔	✔
Guideway Pillars	✔	✔		✔	✔
Wall Advertising on MDT Buildings	✔	✔		✔	✔
Naming Rights				✔	
Domination Advertising-MetroMover and MetroRail				✔	

Business fee changes can be implemented locally so long as the total increase does not exceed 5% every two years, per state rules. Additional increases would require state legislation. A second issue with business fees is that any funds, by law, would flow to the County General Fund, and could not be directly sent to MDT. A separate agreement or policy would be needed to provide MDT with funds equal to the amount collected for this purpose. There is a model for this with the County Maintenance of Effort, general funds provided to transit with the passage of the half-penny surtax.

Providing **tolling revenue** from the MDX system to MDT is at the discretion of the MDX board. However, the MDX board must operate within the constraints of its Indenture and bond covenants for debt it has issued for its toll road projects, which restrict the flow of funds from MDX tolls.

Procedurally, creating a dedicated source of revenue for transit through the implementation of a fee on **water, wastewater, or electric fees** is fairly straightforward and entirely controlled by the County. Politically, however, significant resistance could emerge due to the tenuous nexus between utility fees and transit and the potential regressive nature of the fees.

Conclusions

The research conducted for this report has led the Team to a number of conclusions:

1. The various revenue sources analyzed in this report could potentially generate substantial revenue for MDT. Advertising and tolling, in particular, have the most revenue potential.

2. Implementing many of the revenue sources will be challenging. Administrative, financial, and political obstacles exist to varying degrees for each potential revenue enhancement. Some of these obstacles are entirely within the control of Miami-Dade County officials, while others would require changes to state law. In addition, for advertising there are tradeoffs between revenue and the aesthetics of public spaces, as was seen when advertising along the South Miami-Dade Busway was stopped.

3. While important to maximize, system revenue sources alone have limited potential to fill the entire projected budget gap. Even in the most optimistic forecasts, half or more of the gap must be filled with other sources.

4. Tolling is a key potential new source for revenue, with the MDX conversion to open road tolling and the implementation of toll lanes on I-95 in the County by FDOT. However, restrictions in bond covenants will complicate implementation.

5. Focusing upon revenues is only one side of the ledger. A complete view would also focus on operating expenses.

AN ANALYSIS OF MIAMI-DADE TRANSIT'S OPERATING COST EFFICIENCY

VOLUME ONE, PEER REVIEW

Center for Urban Transportation Research
University of South Florida

Janet L Davis
Stephen L Reich

November 07, 2011

Table of Contents

Executive Summary

The Citizen's Independent Transportation Trust (CITT) requested assistance from researchers at the Center for Urban Transportation Research (CUTR) located at the University of South Florida (USF) in the conduct of an objective assessment of the relative efficiency of Miami-Dade Transit (MDT). MDT is the largest transit agency in Miami-Dade County and operates four transportation modes, including Metrorail, Metromover, Metrobus, and Special Transportation System. The MDT Pro Forma, which has been presented publicly on a number of occasions, looks at long term expenses and revenues projected to be available to MDT. The Pro Forma confirms, as payment expenses for bonds increase, the amount of surtax funds available for MDT operations and maintenance reduces significantly. The draft fiscal year 2012 Pro Forma indicates an operating funding gap of approximately $40 million beginning in 2014.

Financial pressures on all levels of government are a reality in the current economic downturn. The pressures on urban transit operations are no exception, and MDT has struggled with budgetary deficit issues prior to and after adoption of the surtax. Revisions to the original PTP, increasing cost pressures and accumulating debt service are just a few of the factors that require MDT to operate as efficiently as practical.

The CITT contracted with CUTR, through an interlocal agreement, to undertake an operating cost analysis to determine how efficiently MDT was running by means of comparing the agency with peer transit organizations and through a review of the recommendations made during previous studies and analyses performed for the agency that identified potential improvements. The effort included collaborative examination of MDT's efficiency from an operating cost perspective with active participation by CITT and MDT personnel.

This report presents the findings of the assessment of MDT's efficiency in relationship to peer transit agencies. An additional Final Report: Volume Two will report findings related to the documentation and review of previous studies.

CITT required that CUTR incorporate the methodology for screening and selecting peer agencies for comparison as presented in the Transit Cooperative Research Program (TCRP) recently released *TCRP Report 141*. The peer selection methodology incorporates the Web-based Florida Transit Information System (FTIS) software, which provides an interface to the full National Transit Database (NTD).

CITT and MDT staff participated in the process of screening potential peers using common factors that impact performance results between similar agencies, and it was determined that the review would be limited to transit agencies that directly operate service. Fixed-route bus, heavy rail, and automated guideway directly operated by MDT were selected for analysis. Each mode was to be evaluated independently of other modes

The peer-grouping methodology detailed in TCRP Report 141 was applied to each of the three transit modes operated by MDT. Screening criteria related to the operation of a heavy rail system were removed from the screening process to eliminate any potential impact of the operation of a rail system on bus operations. A total likeness score was calculated for each agency using FTIS to identify the

similarity of agencies to MDT. Following the peer grouping process for Metrobus, transit agencies that operated in the north and northeast (north of Baltimore, Maryland) were eliminated from the peer group to achieve a peer group that operated in a climate similar to Miami's. Ten bus peer agencies were selected for comparison. Based on TCRP Report 141, 7 of the 10 peer agencies achieved a total likeness score in the range of 0.50 to 0.74, and, therefore, represented a satisfactory match for the peer review.

The only two automated guideway systems publicly operated were used for Miami's Metromover peer comparison. While neither likeness score was ideal, the comparison did yield performance and trend information specific to the two peer mover systems.

Of the 13 heavy rail peers operating within the U.S., 12 were selected for the Metrorail peer comparison. New York City Transit was excluded from the peer group due to size and a total likeness score of 6.17. The total likeness scores of the 12 heavy rail systems that were selected for inclusion in the peer review ranged from 0.45 to 1.79, with only three agencies achieving a total likeness score in the satisfactory range. Given the higher level of dissimilarity within the heavy rail peer group, as compared to the bus peer group, caution will be exercised in analyzing the comparative data.

Data for MDT and the 24 peer agencies identified for use in the study were assembled from the FTIS system for directly operated service from reporting years 2004 through 2009 for bus, heavy rail, and automated guideway, as directed by CITT. Researchers made every attempt to ensure the integrity of the data used within the analysis. Where discrepancies where identified, researchers relied on data provided in NTD tables. NTD cautions users not to draw conclusions based solely on data contained in the database. In addition, researchers caution that while the NTD reporting process provides agencies with clearly defined parameters for reporting information, some activities are subject to the agency's interpretation of the nature of data requested and reported. Data for 2010 are not yet available from NTD; however, MDT provided researchers with an original set of 2010 NTD data forms that were submitted to NTD, followed by an updated version of the forms that contained a few revisions. While MDT considers the 2010 data to be robust, the data have not yet been published by NTD.

In addition to providing a structure for selection of a peer group, TCRP 141 identifies four primary areas, including cost efficiency; cost effectiveness; labor; and, maintenance, for consideration in comparing an agency's performance to the performance of the peer group. A number of these TCRP Report 141 factors were incorporated in the study along with efficiency and effectiveness measures contained in FTIS.

Each modal review contains an overview of general service metrics to establish the context for MDT's transit operation in comparison to the peer group and a summary of the results of the performance metrics applied to MDT and the peer groups. Individual peer agency data are included to provide context for general service metrics, while performance comparisons are based on the average of the peer group's metrics. Findings in regard to MDT's improved efficiency are summarized at the end of the modal section. An overview of select metrics that provides a side by side look at the performance of MDT's three modes is presented in the final section of the report.

Based on the Metrobus review and analysis of 10 peer agencies, Metrobus served one of the largest populations of the group, and while the Metrobus population grew, it grew at a rate less than the peer group average. Metrobus service area was smaller in size than the peer group average and remained relatively unchanged from 2004 through 2009. Metrobus provided more revenue hours, revenue miles, and passenger miles at a higher total operating cost than the peer group average throughout the period; however, the range of the difference fell slightly beginning in 2008 and declined further in 2009. Metrobus collected significantly more revenue from passenger fares than the peer group average throughout the period and operated more vehicles in maximum service and employed more employee full-time equivalents. The difference between Metrobus and the peer group average for vehicles operated and employees fell in 2008 and 2007, respectively. Despite the fact that the Metrobus fleet was slightly younger, Metrobus reported three times more vehicle system failures than the peer group average.

In relationship to the peer group from a performance perspective, Metrobus reported longer average trips, more passengers per load, and a higher farebox recovery in 2009, continuing trends observed prior to that year. Metrobus reported fewer maintenance employee full-time equivalents per vehicle operated and a lower operating cost per passenger mile than the peer group average in 2009, despite a slight upward trend in these factors compared to 2008. Metrobus fell further below the 2009 peer group average in attaining revenue miles between failures. In terms of operating costs, Metrobus continued to exceed the 2009 peer group average in cost per revenue hour, cost per passenger trip, subsidy per boarding, cost per vehicle operated in maximum service, and vehicle maintenance cost per vehicle mile at levels slightly higher than reported in 2008.

Based on 2010 data assembled to date, Metrobus reported lower operating costs in all areas; fewer maintenance employee full-time equivalents per vehicle operated; and, growth in average trip length, average passenger load, farebox recovery, and revenue miles between failures compared to 2009.

Based on the Metrorail review and analysis of 12 peer agencies, Metrorail served one of the smaller populations of the group, and while the Metrorail population grew, it grew at a rate less than the peer group average. Metrorail service area was smaller in size than the peer group average and remained relatively unchanged from 2004 through 2009. Metrorail consistently provided fewer revenue hours, revenue miles, and passenger miles at a lower total operating cost than the peer group average throughout the period, and the range of the difference grew slightly beginning in 2008. Metrorail collected significantly less revenue from passenger fares than the peer group average throughout the period, operated fewer vehicles in maximum service, and employed fewer employee full-time equivalents. The range of difference between Metrorail and the peer group average for employees and vehicles operated grew in 2007 and 2008, respectively. The Metrorail fleet was slightly older and reported three to four times more vehicle system failures than the peer group average.

In relationship to the peer group from a performance perspective, Metrorail reported longer average trips, continuing a trend observed prior to 2009. Metrorail exceeded the 2009 peer group average in maintenance employee full-time equivalents per vehicle operated and fell well below the 2009 peer group average in attaining revenue miles between failures. In terms of operating costs, Metrorail

continued to exceed the 2009 peer group average in cost per revenue hour, cost per passenger trip, and subsidy per boarding; although, levels were slightly below levels reported in 2008. Vehicle maintenance cost per vehicle mile fell below the 2009 peer group average as did the non-vehicle maintenance cost per transit way mile.

Based on 2010 data assembled to date, Metrorail reported lower operating costs per revenue hour and mile, a lower cost per vehicle operated in maximum service, and a lower non-vehicle maintenance cost per transit way mile as compared to 2009. In 2010 compared to 2009, Metrorail reported fewer maintenance employees per vehicle operated in maximum service, more revenue miles between failures, growth in average trip length, and an increase in farebox recovery.

Based on the Metromover review and analysis of two peer agencies, Metromover served the largest population of the group, and the Metromover population grew at a rate slightly larger than the peer group average. Metromover service area was more than two times the size of the peer group average and remained relatively unchanged from 2005 through 2009. Metromover consistently provided more revenue hours, revenue miles, and passenger miles at a higher total operating cost than the peer group average throughout the period. Metromover offers free passage and, therefore, collected no passenger fare revenue. Metromover operated more vehicles in maximum service and employed more employee full-time equivalents than the peer group average. The range of difference between Metromover and the peer group average for vehicles operated and employees grew in 2009. The Metromover fleet was slightly older until 2009, when Metromover procured new vehicles, which reduced the age of the fleet to almost half of the peer group average. Despite the reduction in age of the fleet, in 2009 Metromover vehicle system failures were more than eight times the peer group average.

In relationship to the peer group from a performance perspective, Metromover reported longer average trips and more passengers per load in 2009, continuing trends observed prior to that year. Metromover exceeded the 2009 peer group average in maintenance employee full-time equivalents per vehicle operated and fell well below the 2009 peer group average in attaining revenue miles between failures. In terms of operating costs, Metromover exceeded the 2009 peer group average operating cost per vehicle operated in maximum service and the non-vehicle maintenance cost per transit way mile, continuing trends observed prior to 2009. Metromover operating cost per revenue hour and mile, operating cost per passenger trip and mile, operating cost per capita, and subsidy per boarding fell below the peer group average throughout the entire period.

Based on 2010 data assembled to date, Metromover reported lower operating costs per revenue hour and mile, lower operating costs per passenger trip and mile, a lower cost per vehicle operated in maximum service, and a lower non-vehicle maintenance cost per transit way mile as compared to 2009. In 2010 compared to 2009, Metromover reported fewer maintenance employees per vehicle operated in maximum service, more revenue miles between failures, growth in average trip length, and a decrease in subsidy per boarding.

AN ANALYSIS OF MIAMI-DADE TRANSIT'S OPERATING COST EFFICIENCY

VOLUME TWO, REPORT SYNTHESIS

Center for Urban Transportation Research
University of South Florida

Janet L Davis
Stephen L Reich

January 30, 2012

Table of Contents

Executive Summary

The Citizen's Independent Transportation Trust (CITT) requested assistance from researchers at the Center for Urban Transportation Research (CUTR) located at the University of South Florida (USF) in the conduct of an objective assessment of the relative efficiency of Miami-Dade Transit (MDT). MDT is the largest transit agency in Miami-Dade County (MDC) and operates four transportation modes, including Metrorail, Metromover, Metrobus, and Special Transportation System. The MDT Pro Forma, which has been presented publicly on a number of occasions, looks at long term expenses and revenues projected to be available to MDT. The Pro Forma confirms, as payment expenses for bonds increase, the amount of surtax funds available for MDT operations and maintenance reduces significantly. The draft fiscal year 2012 Pro Forma indicates an operating funding gap of approximately $40 million beginning in 2014.

Financial pressures on all levels of government are a reality in the current economic downturn. The pressures on urban transit operations are no exception, and MDT has struggled with budgetary deficit issues prior to and after adoption of the surtax. Revisions to the original People's Transportation Plan (PTP,) increasing cost pressures and accumulating debt service are just a few of the factors that require MDT to operate as efficiently as practical.

The CITT contracted with CUTR, through an interlocal agreement, to undertake an operating cost analysis to determine how efficiently MDT was running by means of comparing the agency with peer transit organizations and through a review of the recommendations made during previous studies and analyses performed for the agency that identified potential improvements. The effort included collaborative examination of MDT's efficiency from an operating cost perspective with active participation by CITT and MDT personnel.

An Analysis of Miami-Dade Transit's Operating Cost Efficiency: Volume One, Peer Review presented an assessment of MDT's efficiency in relationship to peer transit agencies. Each modal review contained an overview of general service metrics to establish the context for MDT's transit operation in comparison to the peer group as well as a summary of the results of the performance metrics applied to MDT and the peer groups. Individual peer agency data were included to provide context for general service metrics, while performance comparisons were based on the average of the peer group's metrics. Findings in regard to MDT's improved efficiency were summarized at the end of the modal section. An overview of select metrics that provided a side by side look at the performance of MDT's three modes was presented in the final section of Volume One.

In relationship to the established peer group, which consisted of 10 transit bus agencies, Metrobus reported longer average trips, more passengers per load, and a higher farebox recovery in 2009, continuing trends observed prior to that year. Metrobus reported fewer maintenance employee full-time equivalents per vehicle operated and a lower operating cost per passenger mile than the peer group average in 2009, despite a slight upward trend in these factors compared to 2008. Metrobus fell below the 2009 peer group average in attaining revenue miles between failures. In terms of operating costs, Metrobus continued to exceed the 2009 peer group average in cost per revenue hour, cost per passenger trip, subsidy per boarding, cost per vehicle operated in maximum service, and vehicle

maintenance cost per vehicle mile at levels slightly higher than reported in 2008. Based on 2010 data assembled to date, Metrobus reported lower operating costs in all areas; fewer maintenance employee full-time equivalents per vehicle operated; and, growth in average trip length, average passenger load, farebox recovery, and revenue miles between failures compared to 2009.

Metrorail, in relationship to the established peer group, which consisted of 12 heavy rail agencies, reported longer average trips, continuing a trend observed prior to 2009. Metrorail exceeded the 2009 peer group average in maintenance employee full-time equivalents per vehicle operated and fell well below the 2009 peer group average in attaining revenue miles between failures. In terms of operating costs, Metrorail continued to exceed the 2009 peer group average in cost per revenue hour, cost per passenger trip, and subsidy per boarding; although, levels were slightly below levels reported in 2008. Vehicle maintenance cost per vehicle mile fell below the 2009 peer group average as did non-vehicle maintenance cost per transit way mile. Based on 2010 data assembled to date, Metrorail reported lower operating costs per revenue hour and mile, a lower cost per vehicle operated in maximum service, and a lower non-vehicle maintenance cost per transit way mile as compared to 2009. In 2010 compared to 2009, Metrorail reported fewer maintenance employees per vehicle operated in maximum service, more revenue miles between failures, growth in average trip length, and an increase in farebox recovery.

In relationship to the established peer group that included two agencies that operated an automated guideway, Metromover reported longer average trips and more passengers per load in 2009, continuing trends prior to that year. Metromover exceeded the 2009 peer group average in maintenance employee full-time equivalents per vehicle operated and fell well below the 2009 peer group average in attaining revenue miles between failures. In terms of operating costs, Metromover exceeded the 2009 peer group average operating cost per vehicle operated in maximum service and the non-vehicle maintenance cost per transit way mile, continuing trends observed prior to 2009. Metromover operating cost per revenue hour and mile, operating cost per passenger trip and mile, operating cost per capita, and subsidy per boarding fell below the peer group average throughout the entire period. Based on 2010 data assembled to date, Metromover reported lower operating costs per revenue hour and mile, lower operating costs per passenger trip and mile, a lower cost per vehicle operated in maximum service, and a lower non-vehicle maintenance cost per transit way mile as compared to 2009. In 2010 compared to 2009, Metromover reported fewer maintenance employees per vehicle operated in maximum service, more revenue miles between failures, growth in average trip length, and a decrease in subsidy per boarding.

The CITT was interested in examining CUTR's efforts in assisting MDT to establish efficient and effective operations. This report, referred to as *An Analysis of Miami-Dade Transit's Operating Cost Efficiency: Volume Two, Report Synthesis,* presents the findings related to the documentation and review of previous studies.

CUTR previously assisted MDT in development of Fleet Management Plans for Metrorail, Metromover, and Metrobus; conducted manpower assessments within several areas as well as a comprehensive staffing analysis; and, performed materials management, facilities, rail and bus operational reviews. In

order to avoid duplication of effort, this study relied on previous recommendations and findings that were produced over the last ten years.

CUTR scheduled and conducted a project initiation meeting with CITT and MDT management to discuss the project, review the scope of work, and establish a schedule for the conduct of the study, feedback and input. Researchers reviewed previous work performed by CUTR for MDT and identified relevant findings and recommendations. The body of work was classified into three distinct categories: analysis of a specific activity/metric, such as "Technical Memorandum: Fares," that generally produced a summary of findings; development of mandated plans, such as fleet and equipment management plans, that involved technical assistance from CUTR and rarely included findings or recommendations; and operational reviews, such as "Rail Rehabilitation, Phase I – Metrorail," that included significant findings and detailed recommendations.

The following reports, which are directly relevant to the project, are included in the review:

CUTR Reports	
I.	Rail Rehabilitation Report, Phase I Final Report, January 2001
II.	13(c) Strategic Task Force, June 2001
III.	Efficiency Review, September 2001
IV.	Rail & Mover Rehabilitation Report, Phase II Final Report, April 2002
V.	Metrorail Fleet Management Plan, Revision 2, December 2002
VI.	Metrorail Operations Plan, Revision 7, February 2003
VII.	Mechanic Manpower Analysis, June 2003
VIII.	Metromover Fleet Management Plan, Revision III, June 2003
IX.	Metrobus Maintenance Program Review & Recommendations, Phase One, March 2004
X.	Materials Management Analysis & Recommendations, November 2004
XI.	Comprehensive Bus Operational Analysis, Final Recommendations Report, December 2004
XII.	Metrobus Fleet Management Plan, Revision II, January 2005
XIII.	Technical Memorandum: Fares, March 2005
XIV.	Facilities Maintenance Division Equipment & Maintenance Plan, June 2005
XV.	Technical Memorandum: Operating Costs, November 2005
XVI.	Service Standards RTC Presentation, November 2005
XVII.	Facilities Division FY 2004 Work Order Analysis, March 2006
XVIII.	Track & Guideway Division Equipment & Maintenance Plan, April 2006
XIX.	Subsidy Policy Peer Review & Analysis, July 2006
XX.	Metrobus Maintenance Program Review & Recommendations, Phase Two, September 2006
XXI.	Field Engineering Systems Maintenance, April 2007
XXII.	Organizational Review & Peer Comparison, January 2010

CUTR synthesized and organized findings and recommendations from this previous work and shared the results with MDT and CITT management for their review and comment. MDT identified managers and functional staff best suited for follow-up discussions, interviews, and data requests. CUTR conducted a series of meetings with the designated individuals to review previously published recommendations on increasing operational efficiency. The sessions focused on identifying recommendations that had been implemented as well as determining the implications of the adopted recommendations; exploring

alternative actions taken in lieu of recommendations; and, attempting to quantify results of adopted recommendations and alternative actions.

CUTR assembled the findings of the reports, meetings with MDT and CITT staff, and available data collected to produce this document. Each report was reviewed individually and is summarized in chronological order. The original project for which the report was produced is described in detail, followed by a listing of findings and recommendations, if applicable. Adjacent to each recommendation is a statement detailing action, if any, taken to date to implement the recommendation. For those projects that incorporated data analysis, every attempt was made to update the analysis using available data.

CUTR conducted operational reviews of Metrorail, 13(c) Practices, Metromover, Metrobus, Materials Management, Bus Service, Facilities Engineering & Systems Maintenance, and the MDT Organizational Structure. For most operational reviews, a task force composed of select MDT personnel assisted in the evaluation of MDT's performance. Where applicable, MDT performance was reviewed in comparison to peer agency practices and organizational structures. Organizational reviews often generated a variety of recommendations that most frequently involved MDT operating practices and procedures. Recommendations varied in scope from agency-wide reform, such as action necessary to establish minimum qualifications for rail maintenance classifications, to division-specific actions, such as normalizing Metrorail fleet mileage.

Many of the recommendations were accepted and implemented by the agency. Metrorail and Metromover normalized fleet mileage, Materials Management established performance metrics for critical parts, and Metrobus began tracking cost per mile. Some recommendations were accepted by the agency but were not implemented due to a conflicting county policy, as was the case with recommendations regarding expansion of contracting versus in-house service. For some recommendations, MDT chose to accept an alternative action, e.g., Metrobus decided to use a PC-based system rather than a portable, wireless system due to reliability concerns.

CUTR assisted MDT in the development of mandated plans, including the Metrorail Fleet Management Plan, Metrorail Operations Plan, Metromover Fleet Management Plan, Metrobus Fleet Management Plan, Facilities Maintenance Division Equipment & Maintenance Plan, and Track & Guideway Division Equipment & Maintenance Plan. The fleet management plans are essentially a statement of the processes and practices of the division by which MDT establishes current and projected revenue vehicle fleet size and operating spare ratio. The plans are structured to present the demand for service and methodology for analysis of that demand, address the supply of vehicles, explain the balance between the demand for and supply of vehicles, and provide a summary of the maintenance plan. MDT is required to submit an updated plan to the Federal Transit Administration (FTA) when significant change in service occurs.

The equipment and maintenance plan is a statement of the processes and practices by which MDT establishes proper maintenance of facilities, machinery, and equipment. The plan is structured to describe the organization of the responsible division, detail the assignment of responsibility for

maintenance, outline inspections and routine maintenance actions to ensure proper care and maximum useful life, and present the record-keeping system used to maintain permanent records of maintenance and inspection activity. FTA does not routinely require the submission of equipment and maintenance plans.

CUTR produced the following analyses for MDT: Efficiency Review, Mechanic Manpower Analysis, Technical Memorandum: Fares, Technical Memorandum: Operating Costs, Service Standards, Facilities Work Orders, and Subsidy Policy. Each analysis included a summary of findings, which are presented in the overviews along with updated metrics, where appropriate.

Tying CUTR's findings and recommendations to improved efficiency and effectiveness on the part of MDT is highly speculative, given the fact that this body of work spans ten years. Nonetheless, the picture of the agency that emerges today differs significantly from the agency that operated in 2000, and many of the changes are consistent with actions recommended at some point in time by CUTR.

Structural changes undertaken by MDT appear to have achieved the most significant improvement in the organization. MDT restructured the organization and established a Knowledge Management group specifically tasked with evaluating the volumes of data collected. Various performance measures with targets have been established and are tracked in the MDT Scorecard, referenced in the MDT budgets, published in the Transit Services Monthly Report, and posted in the Transit Service office. Metrorail, Metrobus, Metromover, Facilities, and Materials Management actively work to achieve targets. Metromover technicians have immediate access to all data concerning vehicle and wayside performance through the Enterprise Asset Management System (EAMS), which is on track to become functional in other divisions in the near future. Maintenance processes are evaluated using Lean Six Sigma, and maintenance personnel have learned to value trend analysis and its use in improving maintenance. Materials Management tracks and reports stock-outs for critical bus and rail parts and has doubled warranty dollars collected due to defects. Most MDT employees have computer access to a variety of statistical reports as well as MDT policies and procedures.

While MDT has been unable to establish minimum qualifications for maintenance classifications, the agency was successful in achieving a 24-month waiting period for the exercise of 13(c) classification seniority for employees who voluntarily leave a trainee position or are returned for cause by the employer after a 30-day calendar period. In addition, the Transit Workers Union (TWU) participated in a formal incentive program for TWU employees based on improved attendance.

MDT integrated the use of fleet management plans and equipment & maintenance plans into the regular planning process. In the past, the plans were completed to fulfill an FTA mandate. At present, the plans serve to provide the agency with structured maintenance procedures that reflect actual day-to-day processes.

In 2009, MDT formally adopted service standards. With service standards in place, MDT is better positioned to determine service productivity and eliminate and/or add routes based on specific criteria. If minimum system-wide productivity standards are not met, MDT will conduct a thorough evaluation of all routes to identify areas of opportunity to achieve improved productivity and efficiency. Metrobus

and Metrorail consistently achieved the on-time performance service standard. Metromover and Metrorail consistently reported fewer complaints than service standard mandates, and Metrobus accidents decreased to an all-time low.

MDT also established a fare policy that allows for fare increases at regular intervals based on current economic conditions. Farebox recovery rates for Metrobus and Metrorail grew to all-time highs.

MDT's FY 2010 organizational structure reflected a reduction of 519 positions compared to FY 2008; MDT's full-time and part-time employees logged 1.4 million fewer work hours, and total operating expenses fell by $37 million. Reductions in operating costs were noted in all areas with the exception of general administration. Vehicle operations accounted for 70.3 percent of the total reduction.

Over the past ten years scores of recommendations were made and many were adopted, modified or not incorporated into operations. The MDT agency of today is running more efficiently, has cut operating costs, decreased personnel, established service standards, and has incorporated technology.

MDT does appear to be moving in the right direction even though the progression has been slow. Achievement of system-wide efficiency and effectiveness is often a slow process due to external obstacles and internal barriers. With limited resources available, MDT will most certainly be challenged in the future to do more with less. MDT must continue to focus on institutionalizing the commitment to provide quality service that is cost efficient and effective.