

Miami-Dade Transit Facilities Maintenance Division Equipment & Maintenance Plan



Roosevelt Bradley
Director

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List of Acronyms

| | |
|-------|---|
| ASME | American Society of Mechanical Engineers |
| CBF | Central Bus Facility |
| CITT | Citizen's Independent Transportation Trust |
| CUTR | Center for Urban Transportation Research |
| CWF | Coral Way Facility |
| DBPR | Department of Business and Professional Regulation |
| DPM | Department of Procurement Management |
| EAMS | Enterprise Asset Management System |
| FPTA | Florida Public Transportation Association |
| FTA | Federal Transit Administration |
| FY | Fiscal Year |
| GIS | Geographic Information Systems |
| GSA | General Services Administration |
| MDT | Miami-Dade Transit |
| MM | Metromover |
| MR | Metrorail |
| MRR | Maintenance Request Form |
| MTA | Maryland Transit Administration |
| NAESA | National Association of Elevator Safety Authorities |
| NEF | Northeast Facility |
| OSHA | Occupational Safety and Health Administration |
| PM | Preventative Maintenance |
| PRK | Park & Ride |
| PTP | People's Transportation Plan |
| QEI | Quality Elevator Inspection |
| RTA | Regional Transportation Authority |
| RTD | Regional Transportation District |
| SDB | South Dade Busway |
| SFWMD | South Florida Water Maintenance Division |
| STS | Special Transportation Services |
| TEA | Transit Equipment Inventory |
| TFMCC | Transit Facilities Maintenance Control Clerks |
| TOS | Transit Operating System |
| WLF | William Lehman Facility |

Miami-Dade Transit Facilities Maintenance Division Equipment & Maintenance Plan

Introduction

This document is a statement of the processes and practices by which Miami-Dade Transit (MDT) establishes proper maintenance of facilities, machinery, and equipment through the Facilities Maintenance Division. It describes the organization of the Facilities Maintenance Division, details the assignment of responsibility for facility and equipment maintenance, outlines inspections and routine maintenance actions designed to ensure the proper care and maximum useful service life of facilities and equipment, and presents the record-keeping system used to maintain permanent records of maintenance and inspection activity for buildings and equipment.

Facilities Maintenance Division processes and practices, as outlined in this plan, comply with Federal Transit Administration (FTA) Circular 5010.1C, Chapter II, 3e(5) and Circular 9030, Chapter V 5e.

This plan is a living document based on current realities and assumptions and is, therefore, subject to future revision. This plan is updated on a regular basis to assist in the planning and operation of MDT Facilities Maintenance Division.

The Facilities & Equipment Maintenance Plan is structured to present an overview of MDT Facilities Maintenance Division followed by a discussion of current operating practices for facilities and equipment in terms of preventive maintenance, rehabilitation and renovation, and replacement in Section Two. Section Three of the plan identifies facilities and equipment inventories and estimates current and future demands for preventive maintenance and repairs. Section IV translates the identified demands into maintenance manpower requirements. Warranty recovery maintenance plan requirements, including identification, recovery, and enforcement, are presented in Section V. The maintenance plan is summarized in Section VI.

I. Overview of MDT Facilities Maintenance Division

Miami-Dade Transit

The Facilities Maintenance Division is responsible for the maintenance of facilities, machinery, and equipment for Miami-Dade Transit (MDT), the transit department within Miami-Dade County government. MDT, which is the 16th largest public transit system in the country and the largest transit agency in Florida, is responsible for marketing and providing all public transit services in the County.

The Miami-Dade County integrated public transportation system consists of four major components:

- Metrobus fleet, providing service 24 hours per day and connecting most areas of Miami-Dade County;
- Metrorail, an electrically powered, elevated rapid transit system that operates 20 hours per day stretching over 22 miles, from Dadeland through Hialeah to the Palmetto Expressway in Medley;
- Metromover, a 4.4-mile elevated people mover system, operating 20 hours per day, that serves Miami's downtown Central Business District, including Omni and Brickell; and,
- Paratransit, which provides two services: Medicaid Transportation and Special Transportation Services (STS).

MDT's annual operating budget is funded through direct operating revenues (passenger fares, passes, etc.), non-operating revenue that includes advertising, joint development leases, etc., the State of Florida's Department of Transportation and the Transportation Disadvantaged Trust Fund, and Miami-Dade County government. Funding for the capital budget falls into two categories: funds for rehabilitation or replacement of existing capital assets and funds spent for acquisition of new capital assets or expansion. A combination of federal, state, and local sources provide funding for these categories.

On November 5, 2002, Miami-Dade County voters approved a one-half percent increase in the sales tax to be used exclusively for improving transportation in Miami-Dade County and the creation of a Citizen's Independent Transportation Trust (CITT) to implement the People's Transportation Plan (PTP). PTP mandated service enhancements include free fares for all residents 65 or older or who are Social Security beneficiaries; free Metromover for all passengers; 24-hour service on Metrorail, Metromover, STS, and 11 Metrobus routes; and, more

frequent Metrorail and Metrobus service in peak and off-peak periods, Metrobus route extensions, and other schedule adjustments to improve on-time performance.

The significant growth that MDT has experienced over the years is expected to continue into the future. MDT's unified transit system daily boardings of 270,000 are projected to increase to 300,000 within the next three years as the Metrobus fleet expands from 760 to 1,190 buses in the next five years. A new maintenance facility will be available next year; approximately 3,000 bus passenger solar-energized shelters will be installed; and, the South Miami-Dade Busway will be opened all the way to Florida City. Projected fiscal year (FY) 2004 increases in operating miles for Metrobus, Metrorail, and Metromover are illustrated in the following table:

| Mode | Operating Miles | Actual New Miles | % Increase | PTP % Increase |
|--------------------|------------------------|-------------------------|-------------------|-----------------------|
| Metrobus | | | | |
| FY 2003 before PTP | 30,413,828 | | | |
| FY 2003 with PTP | 33,497,300 | 3,083,500 | 10.1% | |
| FY 2004 with PTP | 37,172,166 | 3,674,866 | 11.0% | 22.2% |
| Metrorail | | | | |
| FY 2003 before PTP | 7,549,172 | | | |
| FY 2003 with PTP | 8,869,600 | 1,320,428 | 17.5% | |
| FY 2004 with PTP | 9,523,660 | 654,060 | 7.4% | 26.2% |
| Metromover | | | | |
| FY 2003 before PTP | 1,028,215 | | | |
| FY 2003 with PTP | 1,108,678 | 80,463 | 7.8% | |
| FY 2004 with PTP | 1,276,500 | 167,822 | 15.1% | 24.1% |

Brief History

Facilities Maintenance Division was organized in the late sixties when a small group of maintenance personnel within bus maintenance was assigned responsibility for maintenance of MDT's Central bus facilities under the direction of bus personnel. Facilities Maintenance Division was tasked with maintenance oversight of the existing transit system. Initially, most maintenance work was contracted-out, and Facilities Maintenance Division provided contract oversight to ensure the quality of the contractors' performance. In the early 1980s, significant growth occurred in the Miami-Dade Transit system. New bus garages and operations centers were constructed at Coral Way and Northeast, and the Metrorail system opened in 1984. Eight Mechanics were hired to maintain the first

ten miles of the new Metrorail system, and Facilities Maintenance, as a division, was assigned to Rail Operations.

Since 1984, Facilities Maintenance Division has operated under the direction of Rail Operations, a consolidated Rail Operations/Bus Maintenance Department, Transit Engineering, and in 2003, Rail Services, where it resides today.

Activities of the Facilities Maintenance Division are directed by the General Superintendent of Power, Facilities, and Control Systems Maintenance (pending reclassification), who reports to the Assistant Director Rail Services. As MDT's transit system gradually expanded, a greater percentage of work was accomplished in-house, and in FY 2004 the Division budget includes a total 113 staff, functionally divided into 4 major operating areas: Rail/Mover Maintenance, Bus Maintenance, Contract Maintenance, each under the supervision of a manager, and Maintenance Scheduling.

Present inventories indicate that Facilities Maintenance Division is responsible for the maintenance of 123 buildings, stations and parking areas totaling 7.4 million sq ft and occupying 343 acres in addition to over 5,100 individual pieces of equipment.

Mission

In 1996, key staff within MDT's Facilities Maintenance Division developed the division's mission statement for inclusion in the Rail Operations Facilities Maintenance Strategic Plan. The staff wanted the statement to reflect the Division's responsibilities (to avail facilities for use by customers and employees) and goals (safe and secure facilities).

“To ensure the availability of safe, reliable, efficient and secure facilities and equipment for MDT customers and employees”

Purpose/Philosophy

Facilities Maintenance Division provides safe and secure transit facilities and equipment for Metrobus, Metrorail, and Metromover customers and employees, while ensuring courtesy and convenience to customers at all times. Factors such as safety considerations, time constraints, budget demands, and workload conditions, are primary concerns in the prioritization, review, and scheduling of all maintenance work processed by the Division.

Objectives

- Facility Availability – to ensure facilities, including stations, support buildings, maintenance shops, office and parking facilities are operational and available to customers and employees
- Equipment Availability – to ensure that facility equipment, including elevators, escalators, and station and shop equipment, is maintained for maximum availability
- Facility Appearance – to ensure that all facilities, including stations, support facilities, office and parking facilities, are clean and present a safe and comfortable environment for customers and employees
- Facility Improvements – to modify or change existing facilities in support of on-going operations within engineering and building code requirements

Span of Control

The Facilities Maintenance Division is responsible for a variety of in-house and contracted services for Miami-Dade County properties. These services include but are not limited to:

Items common to most facilities identified below include: emergency generators, lighting, HVAC, and power distribution systems.

Maintenance of Facilities and Fixed Equipment

**Central Division
N.W. 32nd Avenue
Miami, FL 33142
27 acres**

***Administration
3300 N.W. 32nd Avenue
Miami, FL 33142***

- Administrative services, personnel, transit information, scheduling, service management, bus operations, and human resources
- 0.40 acres
- 30,000 sq ft
- 315 parking spaces
- Constructed in 1969
- Emergency Generator (Maintained by GSA)

Transportation
3300 N.W. 32nd Avenue
Miami, FL 33142

- Dispatch area, drivers' room, locker area, Superintendent's office, supervisors' rooms, secretarial space, conference room, and bus operator training area
- 0.17 acres
- 15,000 sq ft
- Constructed in 1985
- Emergency Generator (Maintained by GSA)

Warehouse
3331 N.W. 32nd Avenue
Miami, FL 33142

- Materials Management long-term storage holding area
- 3,300 sq ft
- Constructed in 1983

Paratransit Regulation and Services
3000 N.W. 32nd Avenue
Miami, FL 33142

- Building houses Passenger Transportation Regulatory Department, the Paratransit Technical Support Group, and Paratransit Services
- 3,800 sq ft
- Purchased in 1980

Operations & Inspection Garage
3411 N.W. 31st Street
Miami, FL 33142

- Bus maintenance facility that provides general repair, preventive maintenance, air conditioning repairs, dynamometer testing, front end alignment testing and repair, body shop repair, and tire replacement/repair. Major equipment includes:
 - Hydraulic and electric bus lifts
 - Shop air compressors
 - Overhead cranes
 - Other shop equipment to support vehicle repair
 - Fueling and cleaning systems that operate nightly to prepare for next-day operations
 - Bus Wash Facility
- 0.98 acres
- 50,000 sq ft
- 75 parking spaces
- Constructed in 1983

Central Major Overhaul Garage
3295 N.W. 31st Street
Miami, FL 33142

- Bus maintenance facility that provides body work, major overhaul, and parts rebuilding. Major equipment includes:
 - Overhead cranes
 - Steam cleaners
 - Sheet metal benders
 - Paint booth extractors
 - Bus jacks
 - A/C compressors
 - Drill presses
 - Fume extractors
 - Welding machines
 - Emergency Generator (Maintained by GSA)
- 89,100 sq ft
- 99 parking spaces
- Originally constructed in 1969, remodeled in 1983

Metrobus Maintenance Control
3311 N.W. 31st Street
Miami, FL 33142

- Offices for Metrobus Maintenance Control staff and Facilities Division staff
- 0.25 acres
- 5,900 sq ft
- Constructed in 1983

Materials Management Warehouse
3401 N.W. 31st Street
Miami, FL 33142

- Main warehouse of parts for MDT
- Houses various building systems:
 - Lighting
 - HVAC
 - Loading docks
 - Power distribution
- 37,000 sq ft
- Constructed in 1985

**Coral Way Division
2275 S.W. 74th Avenue
Miami, FL 33147
18 Acres**

Transportation

- Provides a dispatch area, drivers' room, Superintendent's offices, training room, and offices for instructors
- Public services and access are provided by Special Transportation Services (STS), which is housed on the 2nd floor of the Transportation Building
- 11,700 sq ft
- Constructed in 1981

Maintenance Building & Service Area

- Bus maintenance facility for regular maintenance, repair, inspections, and minor bus painting that houses:
 - Hydraulic and electric bus lifts
 - Shop air compressors
 - Oil and water separators
 - Bus painting equipment
 - Chassis dynamometer
 - Optical wheel alignment machinery
 - Other shop equipment to support vehicle repair
 - Lunch room, and office space for superintendent, foreman, and clerks
 - Two drive-thru bus washers
 - Fuel facility to dispense diesel, gasoline, oil, water, and air
 - Employee locker room
 - Foreman's office
 - Cyclone vacuum system
 - Steam cleaning facilities
 - Cleaning tanks for small and large bus parts
 - Steam cleaners for heavy grease removal
 - Emergency generators, which are maintained by General Services Administration (GSA)
 - 78,900 sq ft
 - 298 parking spaces
 - Bus parking: 116 - 30 ft; 158 - 40 ft; and, 25 - 60 ft
 - Opened July 19, 1981

**Northeast Division
360 N.W. 185th Street
Miami, FL 33179
19.5 Acres**

Transportation

- Provides a dispatch area, drivers' room, Superintendent's offices, training room, and offices for instructors
- Transit Customers Services is housed in the Transportation Building
- 12,000 sq ft
- Opened December 1985

Maintenance Building & Service Area

- Bus maintenance facility for regular maintenance, repair, servicing, inspections, complete bus painting that houses:
 - Inspection pits with hydraulic lifts
 - Body repair and paint shop
 - Metal and machine shops
 - Mechanics training classroom
 - Parts Storage area
 - Lunch room, and office space for superintendent, foreman, and clerks
 - Electric bus lifts
 - Shop air compressors
 - Other shop equipment to support vehicle repair
 - Two drive-thru bus washers
 - Fuel facility to dispense diesel, gasoline, oil, water, and air
 - Employee locker room and foreman's office
 - Cyclone vacuum system
 - Steam cleaning facilities
 - Cleaning tanks for small and large bus parts
 - Steam cleaners for heavy grease removal
 - Emergency generators (maintained by GSA)
- 79,000 sq ft
- 287 parking spaces
- Bus parking: 219 spaces
- Opened December 1985

South Miami-Dade Busway

- 8.2-mile roadway for Metrobus running adjacent to US 1 extending from Dadeland South Metrorail Station to S.W. 200 Street
- 30 Busway Stations totaling 40,000 sq ft are located along the Busway
- Each Station location contains a shelter, benches, lighting, bus bay lanes, storm drainage, an approximately 10' wide asphalt bike path, and approximately 6' wide concrete sidewalk, and an approximately 11' wide concrete station base.
- Detailed information on each Busway Station is presented below.

South Miami-Dade Busway Stations

| Station Name | Station Length | Total Length | Trash Receptacles At Station | Telephones At Station | Kiosks At Station |
|--------------|----------------|--------------|------------------------------|-----------------------|-------------------|
| SW 104 SB | 60' | 255' | 2 | 1 | 1 |
| SW 104 NB | 60' | 250' | 2 | 1 | 1 |
| SW 112 SB | 40' | 250' | 1 | 1 | 1 |
| SW 112 NB | 40' | 250' | 1 | 1 | 1 |
| SW 117 SB | 40' | 200' | 1 | 1 | 0 |
| SW 117 NB | 40' | 200' | 1 | 1 | 1 |
| SW 124 SB | 40' | 250' | 1 | 1 | 1 |
| SW 124 NB | 40' | 250' | 1 | 1 | 1 |
| SW 128 SB | 40' | 240' | 1 | 1 | 1 |
| SW 128 NB | 40' | 240' | 1 | 1 | 1 |
| SW 136 SB | 80' | 330' | 2 | 2 | 1 |
| SW 136 NB | 60' | 330' | 2 | 2 | 1 |
| SW 144 SB | 80' | 300' | 2 | 2 | 1 |
| SW 144 NB | 80' | 300' | 2 | 2 | 1 |
| SW 152 SB | 80' | 380' | 2 | 2 | 1 |
| SW 152 NB | 80' | 340' | 2 | 2 | 1 |
| SW 160 SB | 40' | 250' | 1 | 1 | 1 |
| SW 160 NB | 40' | 210' | 1 | 1 | 1 |
| SW 168 SB | 40' | 275' | 1 | 1 | 1 |
| SW 168 NB | 40' | 250' | 1 | 1 | 1 |
| SW 173 SB | 60' | 270' | 2 | 1 | 1 |
| SW 173 NB | 60' | 270' | 2 | 1 | 1 |
| Indigo SB | 80' | 620' | 2 | 2 | 1 |
| Indigo NB | 80' | 610' | 2 | 2 | 1 |
| SW 184 SB | 60' | 260' | 2 | 1 | 1 |
| SW 184 NB | 60' | 290' | 2 | 1 | 1 |
| Marlin SB | 40' | 230' | 1 | 1 | 1 |
| Marlin NB | 40' | 285' | 1 | 1 | 1 |
| SW 200 SB | 80' | 300' | 2 | 2 | 1 |
| SW 200 NB | 80' | 310' | 2 | 2 | 1 |
| 30 Stations | 1,700' | 8,795' | 46 | 40 | 29 |

Note: SB = Southbound and NB = Northbound; Electricity, water, janitorial or storage rooms, and restrooms are not available at the Stations

Busway Phase II

Busway Phase II, an extension of the existing South Miami-Dade Busway, will continue the Busway south 11.48 miles beyond the existing Busway in Cutler Ridge. The extension is part of the Florida Public Transportation Association (FPTA) Bus Rapid Transit effort.

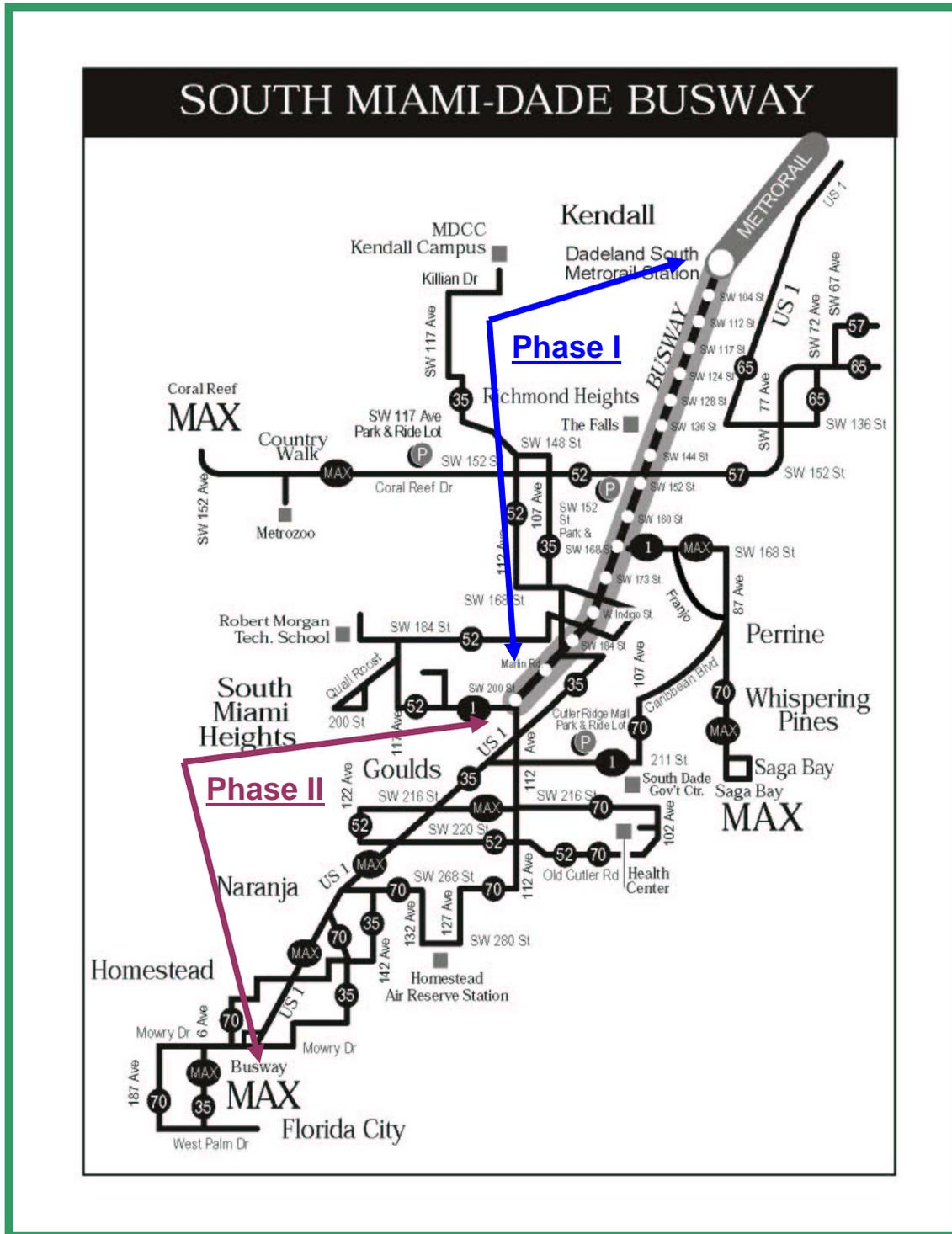
MDT is developing this project in two parts. Segment One extends the Busway 5 miles to SW 264 Street; Segment Two, consisting of 6.48 miles, will reach SW 344 Street.

Construction plans include:

- 5 (five) bridges, which are maintained by South Florida Water Management District (SFWMD)
- 12 (twelve) additional bus stations replete with amenities, such as telephones and newspaper racks
- Landscaping the length of the project with plants native to Florida
- Continuation of the South Florida Greenway, a bike path spanning the southern end of the state

The total investment for construction of this transportation project is an estimated \$43 million. Full responsibility for Busway Phase II is being undertaken by MDT, including engineering and construction of the 11-mile extension. The project is expected to be completed in 2006.

A map of the South Miami-Dade Busway, which highlights Phase I and Phase II, follows:



Park & Ride Lots

Serving the South Miami-Dade Busway:

- *Busway / S.W. 152 Street:* 126 parking spaces
30-year Memorandum of Understanding between MDT and Miami-Dade Parks in November 1999 for joint use of parking lot, which adjoins Palmetto Golf Course; MDT prepaid rent for first 10 years to facilitate modifications, re-design, and lighting improvements, which increased parking spaces from 76 to 126 for MDT and provide 264 spaces for Parks; Construction began in June 2002 and was completed in February 2003
- *Busway / S.W. 168 Street:* 149 parking spaces
Site, which is leased by MDT from a private landowner, opened on December 16, 2002
- *Busway / S.W. 244th Street:* 100 parking spaces
100-space Park & Ride Lot was recently constructed on the 0.96 acre site, which is leased by MDT from a private landowner, will be available for parking when Busway construction reaches the location

Serving Other Bus Routes:

- *S.W. 152nd Street at Florida's Turnpike:* 125 parking spaces
Since 1975, MDT has used the 2.5 acre Park & Ride Lot containing 125 parking spaces; County may use the lot for transportation purposes
- *Kendall Hammocks Town Centre, S.W. 104th Street and 142nd Avenue:* 50 parking spaces
Privately owned lot leased by MDT for a nominal fee
- *Golden Glades at State Road 7 & NW 163rd Street:* 1,370 parking spaces
Florida Department of Transportation lot leased by MDT; oldest and most heavily used Park & Ride facility in Miami-Dade County
- *Miami-Dade College, S.W. 104th Street and 113th Avenue:* 50 parking spaces
Lot located on Miami-Dade College campus leased by MDT

Bus Terminals

Government Center Bus Bay
30 S.W. 1st Avenue (Flagler & S.W. 1st Street)
Miami, FL 33130

- Lighting
- Signage
- Paving
- Landscaping

163rd Street Mall
1421 N.E. 163rd Street
Miami, FL 33162

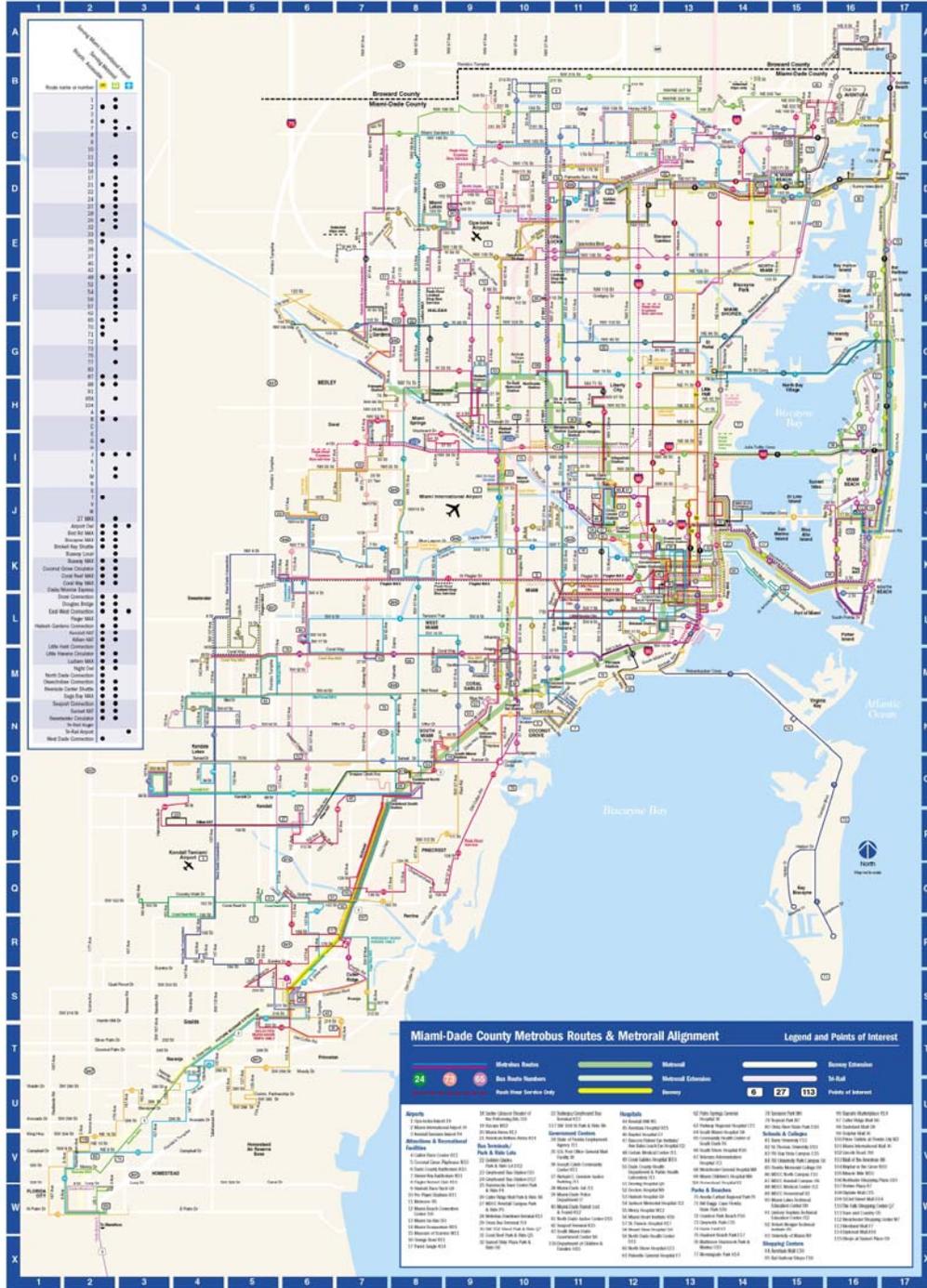
- Lighting

Bus Stops

- 9,200 County-wide (as of December 2004)
- +/-12 shelters
- All signage installation and maintenance

Miami-Dade Transit bus routes are identified on the following map of Miami-Dade County:

Miami-Dade Transit Bus Routes



Transit Information 305-770-3131
 Transit Information for residents south of SW 216 Street 305-891-3131
 TTY/TDD (for the hearing impaired) 305-654-6530
 Comments/Complaints 305-654-6586
 Metropass Outlets 305-770-3131
 Metropass (as employee benefit) 305-884-7567
 Golden Passport 305-884-7567
 Website www.miamidade.gov/transit

**William Lehman Center
6601 N.W. 72nd Avenue
Miami, FL 33166**

Operations and Maintenance Building houses:

- Administrative offices
- Clerical and records space
- Maintenance of Way servicing and staging areas
- Major and small parts storage
- Electronics and major component repair
- Inspection areas for vehicle maintenance and Maintenance of Way equipment
- Train Control
- Communications Center
- Blowdown area
- Production shop facilities for heavy repairs
- Traction Power Substation, which supplies all power to the yard and other buildings on site and serves as the link-up between the yard and Florida Power and Light Company
- Three Train Control and Communications satellite buildings
- Vehicle Wash Facility for cleaning trains
- Three storage warehouses
- Irrigation System
- Industrial Waste System, including two oil/water separators and twenty-seven pits
- Site storm drainage
- Major equipment includes:
 - Overhead cranes
 - JIV cranes
 - Wheel truing machine
 - Wheel boring machine
 - Wheel press
 - Vehicle lifts
 - Air compressors
 - Mobile emergency generators
 - A/C chillers, cooling towers, and units
 - Water pumps
 - Exhaust fans
 - Halon systems
 - Sprinkler pre-action systems
- 81 acres
- 228,873 sq ft
- Constructed in 1983

Metrorail Line & Tail Track

- 22.9-mile double track, single line, electrically powered elevated rapid transit system
- Facilities responsible for:
 - Maintenance and removal of graffiti on support columns
 - Maintenance of asphalt bike path
 - Maintenance of bike path bridge
 - All Metrorail signage installation and maintenance
 - Liaison with Public Works for landscape maintenance functions
 - Large debris removal
 - Men's and Ladies' Restrooms
 - Septic Tank and Drain field
 - Power Distribution and Lighting
 - A/C Systems
 - Fire Sprinkler System
 - Fire Suppression System (Halon)
 - Exhaust Fans

Metrorail Stations

- 22 Stations stretching over 22 miles, from Dadeland South Station to the Palmetto Station in Medley
- Major equipment housed at all stations includes:
 - Exhaust fans
 - Sump pumps
 - Storm drains
 - Fire Suppression System (Halon)
 - Deluge system
 - Fire sprinkler system
 - Plumbing fixtures
 - Electrical distribution panels
 - Lighting fixtures
 - Station emergency lighting power system/power distribution fed from Train Control and Communications UPS
 - Lightning protection systems
 - Various components that provide passengers with access to the Metrorail system
 - Operating support systems such as Train Control, Traction Power, as well as Rest Room facilities
 - Irrigation systems
 - Water features
 - Industrial waste system, including oil/water separator
 - Septic Tank and Drain field
- Station Structural Inspections are performed by the Transit Bridge Inspection Section at prescribed intervals
 - Repairs are completed by the Transit Track & Guideway Division

| Metrorail Station | Station Sq Ft | Acres | Date Station Opened | Station Parking Area Sq Ft | Busbay/ Parking Area Sq Ft |
|--------------------------------|---------------|-------|---------------------|----------------------------|----------------------------|
| Dadeland South | | | May 1984 | | |
| 9090 So Dixie Hwy | 33,101 | 6.85 | | | |
| Dadeland South | | | May 1984 | | 98,244 |
| 9150 Dadeland Blvd | | | | | |
| Dadeland North | | | May 1984 | | 136,880 |
| 8300 So Dixie Hwy | 43,646 | 10.70 | | | |
| South Miami | | | May 1984 | | 56,400 |
| 5801 So Dixie Hwy | 30,466 | 6.34 | | | |
| University | | | May 1984 | 328,175 | |
| 5500 Ponce de Leon | 31,286 | 2.06 | | | |
| Douglas Road | | | May 1984 | | 141,530 |
| 3100 Douglas Rd | 37,603 | 3.80 | | | |
| Coconut Grove | | | May 1984 | | 117,709 |
| 2780 S.W. 27 th Ave | 31,286 | 4.16 | | | |
| Vizcaya | | | May 1984 | | 57,600 |
| 3205 S.W. 1 st Ave | 31,286 | 2.26 | | | |
| Brickell | | | May 1984 | | |
| 785 S.W. 1 st Ave | 43,430 | 1.08 | | | |
| Government Center | | | May 1984 | | |
| 138 N.W. 1 st St | 126,393 | N/A | | | |
| Overtown/Arena | | | May 1984 | | 43,920 |
| 100 N.W. 6 th St | 32,161 | 2.07 | | | |
| Culmer | | | May 1985 | | 63,938 |
| 711 N.W. 11 th St | 33,276 | 3.61 | | | |
| Civic Center | | | May 1985 | | |
| 1501 N.W. 12 th Ave | 38,846 | N/A | | | |
| Santa Clara | | | May 1985 | | 84,720 |
| 2050 N.W. 12 th Ave | 37,304 | 4.15 | | | |
| Allapattah | | | May 1985 | | 66,135 |
| 3501 N.W. 12 th Ave | 32,121 | 5.21 | | | |
| Earlington Heights | | | May 1985 | | 48,600 |
| 2100 N.W. 41 st St | 42,752 | 5.90 | | | |
| Brownsville | | | May 1985 | | 214,956 |
| 5200 N.W. 27 th Ave | 37,304 | 9.58 | | | |
| Martin L King, Jr. | | | May 1985 | | 36,520 |
| 6205 N.W. 27 th Ave | 37,304 | 8.75 | | | |
| Northside | | | May 1985 | | 143,650 |
| 3150 N.W. 79 th St | 37,304 | 5.61 | | | |
| Tri-Rail | | | May 1985 | | |
| 1125 East 25 th St | 30,666 | N/A | | | |
| Hialeah | | | May 1985 | | 198,820 |
| 125 East 21 st St | 31,286 | 7.68 | | | |
| Okeechobee | | | May 1985 | | 112,460 |
| 2005 W Okeechobee | 51,606 | 11.05 | | | |
| Palmetto | | | May 2003 | | |
| 7701 N.W. 79 th Ave | 12,000 | 5.00 | | | |

Metrorail Station Map



Pedestrian Overpasses

- **Vizcaya Metrorail Station**
3205 S.W. 1st Avenue, Miami, FL 33129
 - 7,565 sq ft
 - Lighting
 - Storm Drainage
- **Hialeah Metrorail Station**
125 East 21st Street, Hialeah, FL 33010
 - 2,048 sq ft
 - Power Distribution and Lighting
 - Storm Drainage
- **Douglas Road**
3100 Douglas Road, Miami, FL 33134
 - 1,400 sq ft
 - Power Distribution and Lighting
 - Storm Drainage

Gap Tie Stations

- **Gaptie #1 (I-95)**
So Miami Avenue/SW 19th Rd, Miami, FL 33130
 - 80 acres
 - Lighting, A/C, landscape, and maintenance
 - Power Distribution
 - Emergency Plumbing Fixtures
 - Fire Suppression System (Halon)
- **Gaptie #2 (Culmer)**
350 NW 11th Terrace, Miami, FL 33136
 - 4.60 acres
 - Lighting, A/C, landscape, and maintenance
 - Power Distribution
- **Gaptie #3 (Okeechobee)**
1,345 feet west of Okeechobee Station, Hialeah, FL 33010
 - 2.70 acres
 - Lighting, A/C, landscape, and maintenance
 - Power Distribution
 - Emergency Plumbing Fixtures

Parking Garages

- Parking Garages contain complex building systems that include:
 - Lighting
 - Fire Sprinkler System
 - Ventilation
 - Power distribution and emergency power

- Electric roll-up doors
 - Metal doors
 - Parking curb stops, parking striping, and numbers
 - Building and Site Storm Drainage Systems
 - Water Pipe and Distribution
 - Sump Pumps
 - Irrigation System
 - Industrial Waste System with oil/water separators
 - Restrooms and Plumbing Systems
- Structural Inspections are performed by the Transit Bridge Inspection Section at prescribed intervals
 - Repairs are completed by the Transit Track & Guideway Division
- **South Miami – Joint Venture**
5949 Sunset Drive, South Miami, FL 33143
MDT collects parking revenue and retains a portion. The only maintenance provided includes elevator inspection and repair.
 - 471,720 sq ft
 - 1,001 parking spaces
 - Opened to the public in May 1984
- **Earlington Heights – Joint Maintenance by GSA and MDT**
2100 N.W. 41st Street, Miami, FL 33142
GSA maintains the parking garage.
 - 330,000 sq ft
 - 95 parking spaces
 - Opened to the public in December 1984
- **Dadeland South – Joint Venture**
9090 South Dixie Highway, Miami, FL 33156
MDT pays 61% of operating costs but provides no maintenance.
 - 1,000 parking spaces
 - Opened to the Public in 1984
- **Okeechobee**
2005 W Okeechobee Road, Hialeah, FL 33010
Facilities Maintenance Division provides all maintenance, cleaning, and repairs.
 - 510,858 sq ft
 - 993 parking spaces
 - Opened to the public in May 1985
- **Dadeland North**
8300 South Dixie Highway, Miami, FL 33143
Facilities Maintenance Division provides all maintenance, cleaning, and repairs.
 - 2,700,000 sq ft
 - 2,159 parking spaces
 - Opened to the public in October 1994
- **Martin Luther King, Jr.**
6205 N.W. 27th Avenue, Miami, FL 33147
 - 423,360 sq ft
 - 627 parking spaces
 Opened to the public in 1985; after recent remodeling, reopened with Facilities providing all maintenance, cleaning, and repairs

Metromover Stations

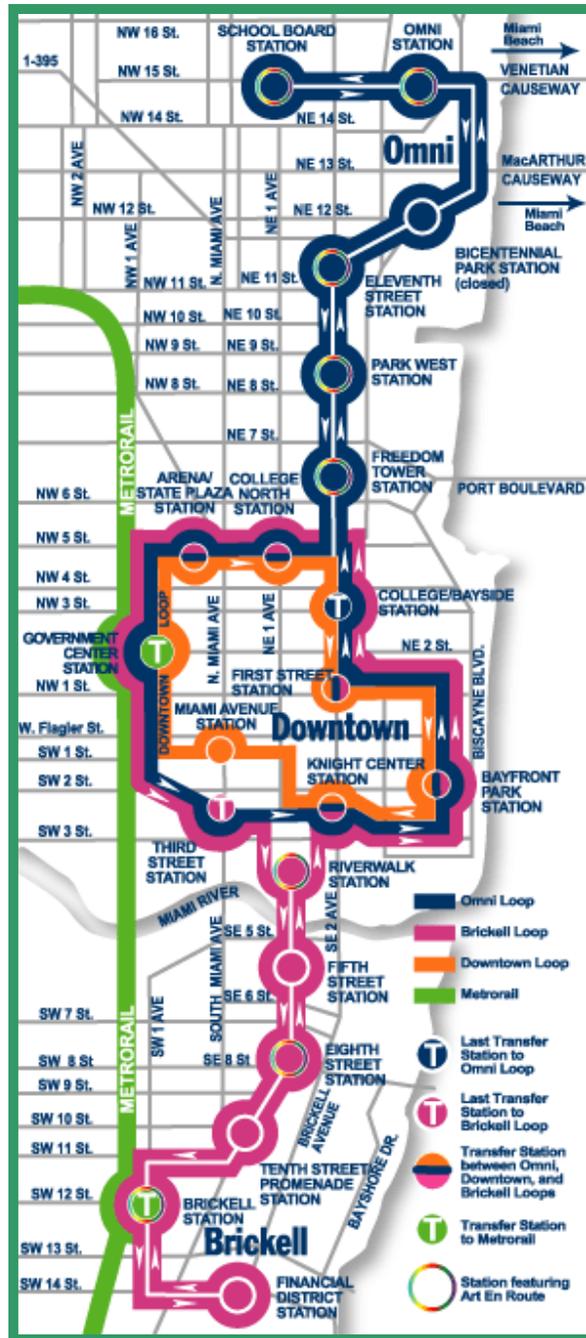
- 21 Stations from Omni to Brickell
- Major equipment at all stations includes:
 - A/C Units
 - Exhaust Fans
 - Sump Pumps
 - Storm Drains
 - Fire Suppression Systems
 - Fire Sprinkler System
 - Plumbing System
 - Electrical Distribution Panels
 - Lighting Fixtures
 - Lightning Protection System
 - Mens' and Ladies' Restrooms
- Each Station contains various complex building systems, which provide access to the Metromover system
- Omni Station Bus Drivers' Lounge approximately 800 sq ft in size
- Station Structural Inspections are performed by the Transit Bridge Inspection Section at prescribed intervals
 - Repairs are completed by the Transit Track & Guideway Division

| Metromover Station | Sq Ft | Opened |
|----------------------------------|--------------|---------------|
| Miami Avenue | | April |
| 90 So Miami Avenue | 5,973 | 1986 |
| Third St/Fort Dallas Park | | April |
| 250 So Miami Avenue | 5,011 | 1986 |
| Knight Center | | April |
| 100 S.E. 2 nd Street | 6,803 | 1986 |
| Bayfront Park | | April |
| 150 Biscayne Boulevard | 25,744 | 1986 |
| First Street | | April |
| 225 N.E. 1 st Street | 4,879 | 1986 |
| College Park/Bayside | | April |
| 225 N.E. 3 rd Street | 11,755 | 1986 |
| College North | | April |
| 100 N.E. 5 th Street | 9,613 | 1986 |
| Arena/State Plaza | | April |
| 90 N.W. 5 th Street | 11,524 | 1986 |
| Freedom Tower | | May |
| 600 N.E. 2 nd Avenue | 14,030 | 1994 |
| Park West | | May |
| 800 N.E. 2 nd Avenue | 15,950 | 1994 |
| Eleventh Street | | May |
| 1098 N.E. 2 nd Avenue | 19,810 | 1994 |
| Bicentennial Park | | May |
| 1191 Biscayne Boulevard | 15,615 | 1994 |
| Omni | | May |
| 1455 Biscayne Boulevard | 9,351 | 1994 |
| School Board | | May |
| 50 N.E. 15 th Street | 3,159 | 1994 |
| Fifth Street | | May |
| 35 S.E. 5 th Street | 7,056 | 1994 |
| Eighth Street | | May |
| 59 S.E. 8 th Street | 4,606 | 1994 |
| Tenth Street | | May |
| 1011 S.E. 1 st Avenue | 2,139 | 1994 |
| Government Center ¹ | | April |
| 138 N.W. 3 rd Street | | 1986 |
| Brickell | | May |
| 1001 S.W. 1 st Avenue | 4,244 | 1994 |
| Financial District | | May |
| 50 S.E. 14 th Street | 2,498 | 1994 |
| Riverwalk | | May |
| 88 S.E. 4 th Street | 7,056 | 1994 |

Metromover Stations are identified on the following map:

¹ Included in Metrorail Station data

Metromover Station Map



Metromover Maintenance Facility
100 S.W. 1st Avenue
Miami, FL 33130

- Houses various functions related to maintenance and repair of Metromover vehicles:
 - Vehicle maintenance, storage, and repair area
 - Office areas
 - Parts and tool inventory area
 - Switch gear and electronic control room
 - Machine shop
- Major equipment includes:
 - Air compressor
 - Pneumatic lift
 - Portable vehicle lift
 - Packaged A/C units
 - Exhaust fans
 - Carbon monoxide exhaust systems
 - Power Distribution
 - Lighting
 - Fire Sprinkler System
 - Building and Site Storm Drainage System
 - Water Pipe and Distribution
 - Irrigation System
 - Industrial waste System with oil/water separator
 - Restrooms
 - Plumbing Systems
 - Waste Oil Collector Tank
- 33,718 sq ft
- 0.39 acres
- Constructed in 1985

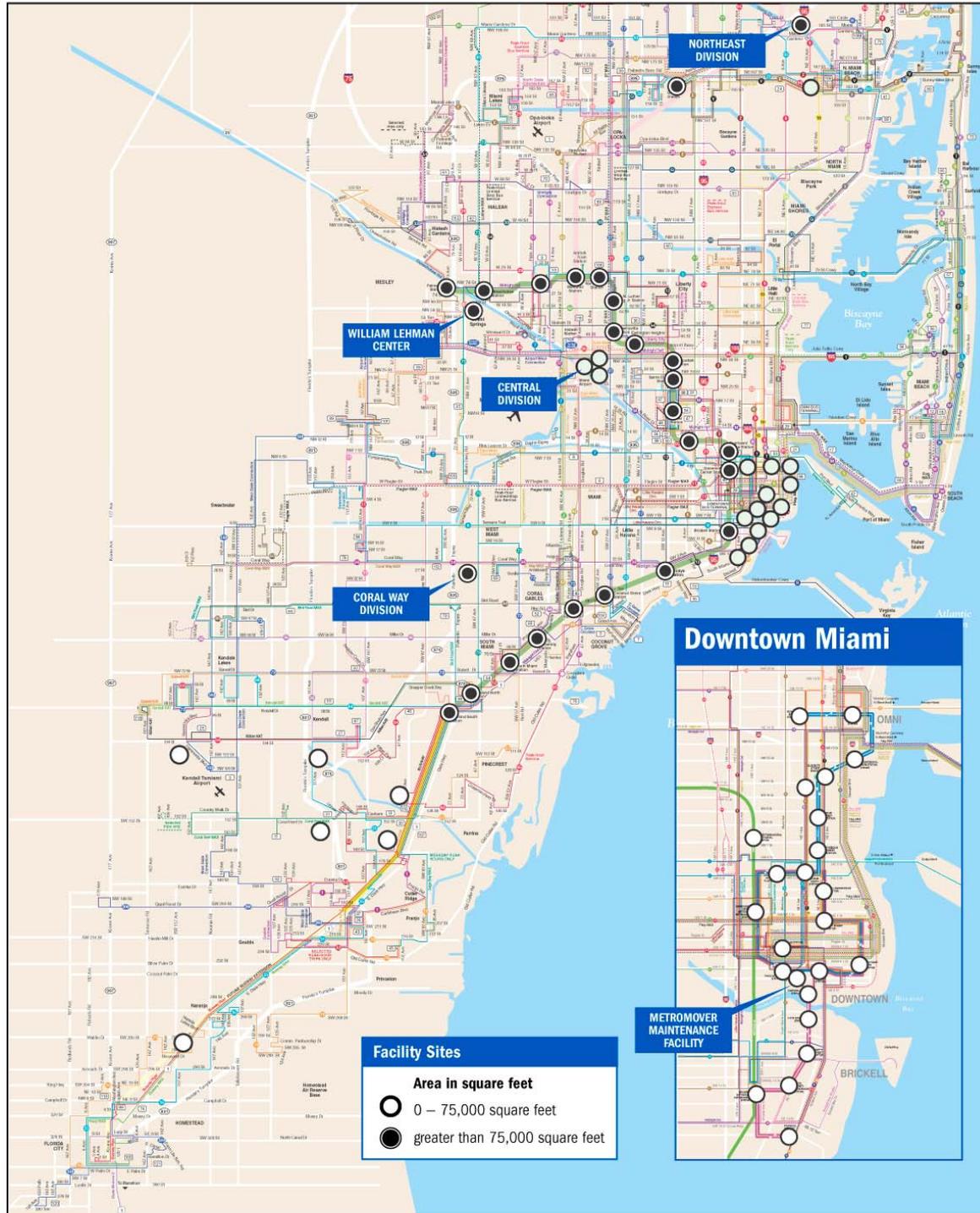
Elevators & Escalators

| <u>Location</u> | <u>Facility</u> | <u>Elevators</u> | <u>Escalators</u> |
|-------------------|-------------------|------------------|-------------------|
| Dadeland South | Metrorail Station | 1 | 3 |
| Dadeland North | Metrorail Station | 1 | 2 |
| Dadeland North | Parking Garage | 4 | |
| South Miami | Metrorail Station | 1 | 1 |
| South Miami | Parking Garage | 4 | |
| University | Metrorail Station | 1 | 1 |
| Douglas Road | Metrorail Station | 1 | 2 |
| Douglas Road | Skywalk | 2 | |
| Coconut Grove | Metrorail Station | 1 | 1 |
| Vizcaya | Metrorail Station | 1 | 1 |
| Brickell | Metrorail Station | 1 | 3 |
| Government Center | Metrorail Station | 6 | 14 |
| Overtown | Metrorail Station | 1 | 1 |
| Culmer | Metrorail Station | 1 | 1 |
| Civic Center | Metrorail Station | 4 | 4 |

| | | | |
|----------------------------|-----------------------|----|----|
| Santa Clara | Metrorail Station | 3 | 3 |
| Allapattah | Metrorail Station | 1 | 2 |
| Earlington Heights | Metrorail Station | 1 | 2 |
| Earlington Heights | Parking Garage | 2 | |
| Brownsville | Metrorail Station | 3 | 3 |
| Martin Luther King, Jr. | Metrorail Station | 3 | 3 |
| Martin Luther King, Jr. | Parking Garage | 2 | |
| Martin Luther King, Jr. | Overpass | 1 | |
| Northside | Metrorail Station | 3 | 3 |
| Tri-Rail | Metrorail Station | 2 | 3 |
| Hialeah | Metrorail Station | 1 | 1 |
| Hialeah | Overpass | 2 | |
| Okeechobee | Metrorail Station | 4 | 6 |
| Arena/State Plaza | Metromover Station | 1 | 1 |
| College North | Metromover Station | 1 | 1 |
| College Bayside | Metromover Station | 1 | 1 |
| First Street | Metromover Station | 1 | 1 |
| Bayfront Park | Metromover Station | 1 | 1 |
| Knight Center | Metromover Station | 1 | 4 |
| Financial District | Metromover Station | 1 | 1 |
| Third Street | Metromover Station | 1 | |
| Miami Avenue | Metromover Station | 1 | |
| Freedom Tower | Metromover Station | 1 | 1 |
| Park West | Metromover Station | 1 | 1 |
| Eleventh Street | Metromover Station | 1 | 1 |
| Bicentennial Park | Metromover Station | 1 | 1 |
| Omni | Metromover Station | 1 | 2 |
| School Board | Metromover Station | 1 | 1 |
| Riverwalk | Metromover Station | 2 | |
| Fifth Street | Metromover Station | 2 | |
| Eighth Street | Metromover Station | 1 | 1 |
| Tenth Street | Metromover Station | 1 | 1 |
| Brickell | Metromover Station | 2 | 1 |
| Metromover | Freight | 1 | |
| Northeast Bus Facility | 1-Passenger/1-Freight | 2 | |
| Central Bus Administration | 2-Passenger/1-Freight | 3 | |
| Coral Way Bus Facility | 1-Passenger/1-Freight | 2 | |
| William Lehman Center | 2-Passenger/1-Freight | 3 | |
| Total | | 92 | 80 |

Facilities Maintenance Division maintains buildings and equipment at 123 individual sites within Miami-Dade County ranging from Bus Park & Ride Lots to Metrorail Stations. Using Geographic Information Systems (GIS), each location maintained by Facilities Maintenance Division is charted on the following map of Miami-Dade County. Facilities are categorized in terms of number of square feet from 0 to 75,000 sq ft and greater than 75,000 sq ft. The breadth of Facilities Maintenance Division's span of responsibility generally extends to the Miami-Dade County Line in the north, south, west and east.

Facilities Maintained by MDT Facilities



The following table provides a summary view of Facilities Maintenance Division's scope of responsibility within Miami-Dade Transit:

| Function | Locations | Acreage | Sq Ft | Auto Parking Spaces | Bus Parking Spaces | Elevators | Escalators |
|--------------------------------|-----------|--------------|------------------|---------------------|------------------------------------|-----------|------------|
| Central Bus Division | 8 | 27.0 | 234,100 | 489 | | | 3 |
| Administration | | | | | | | |
| Bus Maintenance | | | | | | | |
| Bus Overhaul | | | | | | | |
| Maintenance Control | | | | | | | |
| Materials Mgmt Storage | | | | | | | |
| Materials Mgmt Warehouse | | | | | | | |
| Paratransit | | | | | | | |
| Transportation | | | | | | | |
| Northeast Bus Division | 2 | 19.5 | 91,000 | 287 | 219 | | 2 |
| Bus Maintenance | | | | | | | |
| Transportation | | | | | | | |
| Coral Way Bus Division | 2 | 18.0 | 90,600 | 298 | 25-60 ft 158-49 ft 116-30 ft | | 2 |
| Bus Maintenance | | | | | | | |
| Transportation | | | | | | | |
| Busway Stations | 30 | | 40,000 | | | | |
| Park & Ride Lots | 7 | 3.5 | | 1,970 | | | |
| Bus Terminals | 2 | | | | | | |
| Bus Stops (County-wide) | 8,800 | | | | | | |
| Metrorail | | | | | | | |
| Maintenance | 1 | 81.0 | 228,873 | | | | 3 |
| Gaptive Stations | 3 | 87.3 | | | | | |
| Metrorail Stations | 22 | 105.9 | 862,427 | | | | 41 |
| Bus Bays & Parking | 17 | | 1,950,257 | | | | 60 |
| Parking Garages | 3 | | 3,634,218 | 3,765 | | | 12 |
| Pedestrian Overpasses | 4 | | 11,013 | 4,766 | | | 5 |
| Metromover | | | | | | | |
| Maintenance | 1 | 0.4 | 33,718 | | | | 1 |
| Metromover Stations | 21 | | 186,816 | | | | 23 |
| | | | | | | | 20 |
| Total | | 342.6 | 7,363,022 | 11,575 | 518 | 92 | 80 |

Property Value

In February 2004, the Miami-Dade County Risk Management provided the Facilities Maintenance Division with property insurance schedules for all facilities under their jurisdiction. The property insurance schedule for Metrobus, Metromover, and Metrorail, excluding bus, rail, and mover fleets, exceeds \$1 billion and is detailed in the following table.

Property Insurance Schedule – February 2004

| <i>Area</i> | <i>Metrobus</i> | <i>Metromover</i> | <i>Metrorail</i> |
|-------------------------|---------------------|----------------------|------------------------|
| Operations & Inspection | \$19,508,284 | | |
| Administrative Offices | \$8,446,612 | | |
| Maintenance and Admin | \$7,506,916 | \$10,300,073 | |
| Vehicle Wash Facility | \$4,079,188 | | \$2,302,423 |
| Transportation | \$3,582,239 | | |
| Major Overhaul | \$3,501,241 | | |
| Parts Storage | \$1,979,550 | | |
| Service Building | \$1,661,263 | | |
| Stations | \$1,522,500 | \$47,568,302 | \$441,670,237 |
| Fuel Clean | \$1,515,960 | | |
| Light Vehicle Repair | \$896,207 | | |
| Cyclone Cleaner | \$534,420 | | |
| Service Island | \$471,548 | | |
| Steam Cleaning Building | \$282,015 | | |
| Tire Service | \$264,794 | | |
| Guard Booths | \$84,426 | | |
| Guideway | | \$119,978,008 | \$271,785,393 |
| Power Distribution | | \$5,373,452 | |
| Fare Collection | | \$3,015,213 | |
| Graphics | | \$929,594 | |
| Escalator Covers | | \$745,544 | |
| Parking Garages | | | \$77,065,690 |
| Storage Building | | | \$47,140,290 |
| Palmetto Yard Facility | | | \$10,366,367 |
| Traction Power Facility | | | \$3,397,711 |
| Warehouse Building | | | \$1,229,448 |
| Fire Pump Building | | | \$475,842 |
| Trailers (2) | | | \$92,511 |
| Division Total | \$55,837,163 | \$187,910,186 | \$855,525,912 |
| Total | | | \$1,099,273,261 |

In addition to responsibility for maintenance of buildings and equipment, Facilities Maintenance Division provides oversight for a variety of service contracts designed to maintain and enhance stations, bus stops, parking garages, office space, and maintenance facilities.

Contract Services

At the present time, contractual services include: elevator/escalator inspection and repair, janitorial services, extermination services, walk off mats and dust control products, landscaping & lawn maintenance services, portable chemical toilets, waste collection services, and pigeon control services.

Following is a detailed summary of the contractual requirements of each of the current contracts managed by the Facilities Maintenance Division.

Elevators/Escalators

The elevator contractor is responsible for completing all repairs, which are subject to verification and inspection by MDT Elevator Contract staff. (Appendix A: Elevator/Escalator Inspection Form)

Pursuant to the contract, the elevator contractor must respond to elevator and escalator repair requests within one hour during weekday working hours. Response for elevator repairs during all other times is two hours. The contractor is not required to respond to escalator repair calls after weekday working hours. In most cases, inoperable escalators remain out of service until the next business day. All work completed after those hours is paid on an overtime basis.

All elevators and escalators under maintenance contract are subject to “minimum maintenance check schedule and preventive maintenance frequency.” The frequency is weekly for Escalators and Traction Elevators and bi-weekly for Hydraulic Elevators.

In addition to responding to day-to-day demands, such as breakdowns, elevator contract staff performs the following statutory inspections of elevators and escalators:

- Annual Inspections
An inspection report is completed and maintained in the office as a public record
- Accident Inspections

After an accident, the equipment is shut down until it is inspected by an elevator inspector. An inspection report is prepared, and a record is maintained in the office as a public record.

- Permitted Inspections
 The Florida Administrative Code and ASME A17.1 stipulate the jobs requiring issuance of a “permit” by the *Authority Having Jurisdiction*. Upon completion of the work, the elevator must be inspected by an elevator inspector. Only after satisfactory completion of the inspection is the equipment put back into service.
- Public Complaints
 Public complaints are received via the internet and are transmitted to respective departments for corrective action and a satisfactory reply to the complainant. Complaints are also received through telephone calls and public contracts. All complaints are diligently addressed.

Elevator/Escalator Daily Logs (Appendix B), prepared by Elevator Contract staff, are used as a record for inspection and serve as the basis for the Monthly Activity Report (Appendix C), which is forwarded to the Department of Business and Professional Regulation in Tallahassee Florida. The Daily Log is also used to verify various activities, such as invoicing from equipment maintenance contractors and for compiling performance measurements for all elevator and escalator equipment each month.

Janitorial Service

Facilities Maintenance Division is responsible for janitorial services at all Metrobus, Metrorail, and Metromover facilities, including stations, maintenance buildings, offices, and parking facilities. Janitorial services are provided through contractors under the supervision of MDT Facilities Property Managers. There are currently four (4) janitorial service contracts:

1) South Dade Busway

Description: 30 Stations along 8.2-mile South Dade Busway, which runs parallel and adjacent to US 1 or South Dixie Highway between and including the SW 104 Street stations near Kendall-Pinecrest and the SW 200 Street stations in Cutler Ridge, as well as the SW 152nd Street Park & Ride lot adjacent to the southbound SW 152 Street station at 117th Avenue.

Stations areas: Stations areas generally lie from the cross street to the first light pole on the opposite side of the station and consist of everything that lies in between to include: kiosk, light bollards, landscaped/grassy areas, station structure itself, asphalt bike path approximately 10 feet wide, bus bay lanes,

concrete sidewalk approximately 6 feet wide, concrete station base approximately 11 feet wide, and trash cans.

| Number of Stations | Total Length | Trash Receptacles | Phones | Kiosks |
|--------------------|--------------|-------------------|--------|--------|
| 31 | 8,845 | 47 | 40 | 29 |

Park & Ride Lots: SW 152nd Street, approximately 10,000 sq ft parking area, including: 2 wheelchair-accessible asphalt pathways to the SW 152nd Southbound Station.

Schedule & Personnel Requirements for Stations/Park & Ride Lot:

Daily Shift

| | |
|-----------------|-----------------------------------|
| Frequency | 365 days per year |
| Monday-Friday | 5 am - 9 am; 3 pm - 7 pm |
| Saturday-Sunday | 8 am – Noon |
| Personnel | 1 Working Supervisor + 3 Cleaners |

Heavy Crew

| | |
|-----------|-----------------------------------|
| Frequency | 52 weeks per year |
| Fridays | 7 pm - 1 am |
| Saturdays | 8 am - 6 pm |
| Sundays | 8 am - 6 pm |
| Personnel | 1 Working Supervisor + 4 Cleaners |

2) Metrorail Stations, Parking Facilities, and William Lehman Maintenance Facility

Daily, weekly, bi-monthly, semi-annual work activities for each location are specified in the Metrorail Southline janitorial contract. Specific locations and schedules included within the contract are identified in the following tables.

Locations:

| Metrorail Locations | Station | Station Parking Lots | Stations Parking Garages | Station Pedestrian Overpass |
|---------------------|---------|----------------------|--------------------------|-----------------------------|
| GROUP I | | | | |
| Dadeland South | X | X | | |
| So Miami | X | X | X | |
| University | X | X | | |
| Douglas Road | X | X | | X |
| Coconut Grove | X | X | | |
| Vizcaya | X | X | | X |
| Brickell | X | | | |
| Dadeland North | X | X | X | |

| | | | | |
|-------------------------|---|---|---|---|
| Tail Track | X | | | |
| GROUP II | | | | |
| Government Center | X | X | | |
| Overtown | X | X | | |
| Culmer | X | X | | |
| Civic Center | X | | | |
| Santa Clara | X | X | | |
| Allapattah | X | X | | |
| Earlington Heights | X | X | X | |
| Martin Luther King, Jr. | X | X | X | |
| Northside | X | X | | |
| Tri Rail | X | | | |
| Hialeah | X | X | | X |
| Okeechobee | X | X | X | |
| Palmetto | X | X | | |
| Lehman Center Complex | X | X | | |
| GROUP III | | | | |
| Brownsville | X | X | | |

Schedule & Personnel Requirements:

| Daily Shifts per Station | Hours |
|--------------------------|--------------|
| Monday - Friday | |
| Shift Number 1 | 7 am - 10 am |
| Shift Number 3 | 4 pm - 7 pm |
| Shift Number 4 | 4 pm - 8 pm |
| Shift Number 5 | 7 am - 3 pm |
| Shift Number 7 | 3 pm - 11 pm |

| Location | Days | Shifts | Minimum Staffing |
|---------------------------|-----------|-------------|------------------|
| Dadeland South | 7 days | 5 & 4 | |
| Dadeland North | 7 days | 1 & 4 | |
| Dadeland North Garage | 7 days | 6 pm - 9 pm | |
| So Miami | 7 days | 1 & 4 | |
| So Miami Garage | 7 days | 6 pm - 9 pm | |
| University | 7 days | 1 & 4 | |
| Douglas Road | 7 days | 1 & 4 | |
| Douglas Road Overpass | 7 days | 3 pm - 4 pm | |
| Coconut Grove | 7 days | 1 & 4 | |
| Vizcaya | 7 days | 1 & 3 | |
| Vizcaya Overpass | Mon – Fri | 3 pm - 4 pm | |
| Brickell | 7 days | 1 & 4 | |
| Overtown | 7 days | 1 & 4 | |
| Culmer | 7 days | 1 & 4 | |
| Civic Center | 7 days | 5 & 4 | |
| Santa Clara | 7 days | 1 & 4 | |
| Allapattah | 7 days | 1 & 4 | |
| Earlington Heights | 7 days | 1 & 4 | |
| Earlington Heights Garage | 7 days | 3 pm – 4 pm | |

| | | | |
|------------------------------------|-----------|--------------|---|
| Brownsville | 7 days | 1 & 4 | |
| Martin Luther King, Jr. | 7 days | 1 & 4 | |
| Martin Luther King, Jr. | | | |
| Garage | 7 days | 3 pm – 4 pm | |
| Northside | 7 days | 1 & 4 | |
| Tri Rail | 7 days | 1 & 4 | |
| Hialeah | 7 days | 1 & 4 | |
| Hialeah Overpass | 7 days | 3 pm – 4 pm | |
| Okeechobee | 7 days | 1 & 4 | |
| Okeechobee Garage | 7 days | 6 pm – 9 pm | |
| Palmetto | 7 days | 1 & 4 | |
| Government Center | Mon – Fri | 6 am - 2 pm | 3 |
| Government Center | Mon – Fri | 2 pm - 10 pm | 2 |
| Government Center | Sat –Sun | 4 pm - 12 am | 1 |
| Government Center | Mon – Fri | 7 am - 4 pm | 2 |
| Government Center | Mon – Fri | 4 pm - 12 am | 2 |
| Revenue/Money Room | 7 days | 1 & 3 | 1 |
| Tail Track Building | 7 days | 2 | 1 |
| Lehman Center Complex ¹ | 7 days | 5 & 7 | 2 |

¹ Includes: Guardhouses, Traction Power Buildings, Main Building, which contains entire 1st floor, stockroom, and 2nd floor both east and west mezzanine areas, tower are, and all detached buildings, structures, trailers, etc.

| Additional Manpower Requirements | Days | Shifts | Minimum Staffing |
|----------------------------------|------------|--------------|------------------|
| Metrorail Supervision | 7 days | 6 am - 1 am | 2 |
| Revenue Supervision | 7 days | 7 am - 11 pm | 1 |
| Special Elevator Cleaning | Bi-monthly | Once | |
| Special Support Facilities | Bi-monthly | 9 am - 3 pm | 5-Once |

Heavy Crews

| | |
|------------------|------------------------------------|
| Frequency | 52 weeks per year |
| Mon-Fri | 7 pm - 1 am |
| Personnel | 1 Working Supervisor + 20 Cleaners |
| Lehman - Revenue | |
| Sat-Sun | 6 pm - 11 pm |
| Personnel | 1 Working Supervisor + 4 Cleaners |

3) MDT Offices and Garages

The janitorial contract for MDT offices and garages requires shift work and heavy work to be performed by daily shift cleaners and a separate heavy work crew. Janitorial services at each site include the perimeter of the building, all outside walkways and adjacent landscaped areas, all entrances, and perimeter fencing. The daily shift work schedules and minimum required personnel listed below are stipulated in the contract:

| Location | Minimum Number Cleaners | Days Per Year | Shift Hours | Sites To Clean |
|---|-------------------------|---------------------|--------------------------|---|
| Metrobus Northeast Division | | | | |
| Transportation | 1 | 365 | 7 am-3 pm | Trans/Rev/Guard |
| | 1 | 365 | 3 pm-11pm | Trans/Rev/Guard |
| Garage | 1 | 365 | 7 am-3 pm | Garage/Fuel Island |
| | 1 | 365 | 3 pm-11 pm | Garage/Fuel Island |
| | 1 | 365 | 11 pm-7 am | Garage/Fuel Island/ Rev/Guard/1 st Floor Trans |
| Metrobus Central Division | | | | |
| Transportation | 1 | 365 | 7 am-3 pm | Trans (M-F) Trans/Rev/Guard/ Alley (S-S) |
| | 1 | 365 | 3 pm-11 pm | Trans/Rev/Guard/ Alley |
| O & I Garage | 2 | 365 | 7 am-3 pm | Garage/Fuel |
| | 1 | 365 | 3 pm-11 pm | Garage/Fuel/Guard |
| | 1 | 365 | 11 pm-7 am | Garage/Fuel/Guard |
| Fiberglass/Roving | 1 | 52 Weeks M-F +H* | 7 am-3 pm | Fiberglass/Guard/ Revenue/Alley/ Perimeter Fence |
| | 1 | 52 Weeks M-F +H | 6 am-2 pm-H | |
| Major Overhaul | 2 | 52 Weeks M-F +H | 7 am-3 pm 6 am-2 pm-H | Garage |
| Administration | 2 | 52 Weeks M-F | 8 am-12 pm 1 pm-5 pm | Bldg/Perimeter/ Bus Shelter/Patio |
| Facilities 3311 NW 31 st St | 1 | 52 Weeks M-F | 12 pm-4 pm | Bldg/Perimeter |
| Facilities Stockroom | 1 | 52 Weeks M-F | 11 am-12 pm | Bldg/So. Outside |
| Materials Mgmt 3401 NW 31 st St | 1 | 52 Weeks M-F | 8 am-11 am 1 pm-4 pm | Bldg/So. Outside |
| Metrobus Coral Way Division | | | | |
| Transportation | 1 | 365 | 7 am-3 pm | Trans/Guard |
| | 1 | 365 | 3 pm-11 pm | |
| Garage | 1 | 365 | 7 am-3 pm | Garage/Fuel/Rev |
| | 1 | 365 | 3 pm-11 pm | Garage/Fuel/Rev |
| | 1 | 365 | 11 pm-7 am | Garage/Fuel/Rev/ Guard/1 st Floor Trans |
| Supervisor, Non-Working | 2 | 365 | 7 am-3 pm | All sites to be supervised on each shift |
| | 1 | 365 | 3 pm-11 pm | |
| | 1 | 52 Weeks | 8 am-4 pm | |

*Indicates Holidays: New Year's Day, Dr. Martin Luther King, Jr. Birthday, Washington's Birthday, Memorial Day, Fourth of July, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving, Christmas

One minimum 5-man work crew and 1 non-working supervisor are used to perform and complete all of the heavy duty thorough deep cleaning and major floor care work tasks required to ensure that the Metrobus garage environments are maintained properly. The contract requires that floor care cleaners, who are assigned in addition to the daily cleaners and supervisors, be fully trained and qualified. Specific weekly, monthly, and semi-annual task are outlined in the contract.

The heavy cleaning work schedules and minimum required personnel listed below are stipulated in the contract:

| <u>Location</u> | <u>Minimum Number Cleaners</u> | <u>Work Day</u> | <u>Shift Hours</u> | <u>Buildings</u> |
|--------------------|--------------------------------|-----------------|--------------------|-----------------------------------|
| Northeast Division | 5 | Monday | 8 am-4 pm | All |
| Central Division | 5 | Tuesday | 8 am-4 pm | Admin/Rev/Trans/ T. Guard/Fuel |
| | 5 | Wednesday | 8 am-4 pm | O&I/Guard/Fiberglass |
| Coral Way Division | 5 | Thursday | 8 am-4 pm | 3401/3311/Mo |
| | 5 | Friday | 8 am-4 pm | All |

4) Metromover Sites

The janitorial services contract for Metromover sites requires the contractor to provide managerial, janitorial, subcontractor and related services in the form of necessary management supervision, manpower, equipment, materials, and supplies. Daily, weekly, bi-monthly, semi-annual work activities for each location are specified in the janitorial contract, and special elevator cleaning is scheduled bi-monthly. Weekly manpower requirements as well as a listing of locations included in the contract are illustrated in the following tables:

| <u>Location</u> | <u>Shift Hours</u> | <u># Cleaners</u> | <u>Days Per Week</u> |
|------------------------|--------------------|-------------------|----------------------|
| Metromover Stations | 9 am-6 pm | 8 | 7 |
| | 7 am-9 am | 2 | 5 |
| Metromover Maintenance | 7 am-4 pm | 1 | 7 |
| Daily Supervisor | 7 am-6 pm | 1 | 7 |
| Heavy Crew | 7 pm-1 am | 3 | 5 |
| Heavy Crew Supervisor | | 1 | 5 |

| <u>Locations</u> | <u>2 Cleaners Assigned to Elevators/Platforms 7 am-9 am</u> |
|----------------------------------|---|
| Miami Avenue Station | |
| Park West Station | X |
| Third Street Station | |
| 11 th Street Station | |
| Knight Center/World Trade Center | |
| Bicentennial Park Station | X |
| Bayfront Park | |
| Omni Station and Bus Bay | |
| First Street | X |
| School Board Station | X |
| College/Bayside | X |
| Riverwalk Station | |
| College North | X |
| Fifth Street Station | |
| Arena/State Plaza | X |
| Eighth Street Station | |
| Tenth Street Station | |
| Financial District Station | |
| Freedom Tower Station | X |
| Brickell Station | |
| Train Wash Building | |
| Metromover Maintenance Facility | |

Janitorial Contractors' failure to perform work as specified in the contract results in liquidated damages deductions in Contract payment. In addition, the Contractors' failure to perform resulting in deductions in contract payment, as specified in the contract, more than three times during any one-month period, may be considered grounds for automatic default.

Extermination Services

Miami-Dade County established a two (2) year contract, which includes two (2) extensions of one (1) year each, for integrated pest management services. Facilities Maintenance Division ensures the Contractor's work efforts are effective and efficient through the implementation of an Integrated Pest Management (IPM) Program. Exterminating services are provided at each transit facility and station on a monthly basis. Callback service is provided for recurring problems.

Walk Off Mats and Dust Control Products

Miami-Dade County has established a twenty-four (24) month contract for the rental and purchase of various types of walk off mats and dust control products,

which any County department or agency may use. Facilities Maintenance Division is responsible for verifying delivery, placement, and pick up of clean, new or like new walk off mats and dust mops in carried quantities and multiple exchange frequencies as stipulated.

Landscaping & Lawn Maintenance Services

On June 29, 2000, the Board of County Commissioners transferred all responsibility for Rail/Mover Station landscape maintenance from the Parks and Recreation Department to the Miami-Dade Public Works Department Right-of-Way Aesthetic and Assets Management Division.

The Parks and Recreation Department was assigned station landscape maintenance responsibility in 1986 as a cost saving measure. The Parks and Recreation annual budget for Rail/Mover Station landscape maintenance decreased from \$1.5 million in 1986 to approximately \$590,000 in 2000. Annual service frequencies originally included:

- Mowing/edging - stations – 18 times
- Hedge trimming - stations – 6 times
- Ground cover and flower beds - stations – 12 times; rights-of-way – 6 times
- Trees – only upon complaint
- Weed/litter control – 18 times
- Pest and insect control – not performed
- Fertilization – not performed
- Irrigation maintenance – only repairs; no regular maintenance

In October 2000, the budget increased to \$1,180,000 and mowing cycles increased to 24 annually. The South Dade Busway was added to the agreement in April 2001 at a cost of \$340,000 for the same mowing frequencies as Rail/Mover.

In April 2003, MDT and Public Works Right-of-Way and Assets Management met to formulate a landscape plan. As a result of the meeting, MDT and Public Works agreed to the following:

- MDT would design and prepare technical specifications for a system-wide Rail/Mover irrigation system
- Public Works would ensure that the present contract included all requirements for proper Rail/Mover Station landscape maintenance, including maintenance of the I-95 gap tie area
- Public Works would prepare a proposal for a low cost/low maintenance Rail/Mover station landscape refurbishment project

The new contract, which commenced in November 2003, was formulated and unanimously approved by the BCC Governmental Operations and Environment Committee for full BCC action on April 22, 2003. The new contract includes all areas from the South Dade Busway north to the Palmetto Station. Service frequencies remain at 24 times per year with no irrigation maintenance, no pest/insect control, and no fertilization. Public Works can provide tree-trimming services through an alternative source, if MDT provides a budget code for costs. The new contract is less restrictive than the previous contract and enhances the ability of smaller firms to compete at lower costs due to reduced bonding requirements and expansion of geographic zones from four (4) to eight (8).

Miami-Dade County established a twelve (12) month contract for the landscaping & lawn maintenance of all areas other than stations for MDT. Facilities Maintenance Division is responsible for providing continuing inspections of the sites to ensure that maintenance is adequate and methods of performing work are in compliance with contract specifications. Facilities Maintenance Division is also required to advise the contractor of work discrepancies and deficiencies and to prepare a Vendor Non-Performance Report (Appendix D) for submission to the Department of Procurement Management (DPM) should the contractor fail to correct deficiencies within twenty-four (24) hours. Repeated failures on the part of the contractor can result in payment deductions as well as termination of the contract by default.

The contract includes a detailed description of the requirements and frequency, where appropriate, of each of the following:

- Tasks
 - Mowing
 - Weed eating
 - Edging
 - Raking
- Ground Covers
- Pruning, Raising and Hedge-Trimming
- Weeds and Vibe Control
- Litter Control
- Leaf Removal
- Clean Up
- Plant Damage Due to Contractor Negligence
- Insect Control

The contractor is restricted from mowing or trimming any grass within five (5) feet of the electrified third rail anywhere in the Palmetto Yard at any time without the required MDT provided escort. Facilities Maintenance Division coordinates this

activity with the contractor. In addition, the contractor must provide landscape maintenance services for MDT through sufficient supervision, manpower, equipment, and materials for each service cut within the allotted time period at each location as specified in the following table:

| <u>Location</u> | <u>Address</u> | <u>Allotted Time Period (Days)</u> |
|---|---|------------------------------------|
| Northeast Division Yard | 360 NE 185 th Street | 1 |
| Northeast Division Slope | 360 NE 185 th Street | 1 |
| Golden Glades Park & Ride | West Side 441 / East Side State Road #9 | 2 |
| Central Division Complex | 3300 NW 32 nd Avenue (31 st - 33 rd St Between Flagler Street and SW 1 st Street | 2* |
| Downtown Bus Terminal | and West Side of the Federal Building | ≤1/2 |
| Coral Way Division | 2700 SW 72 nd Avenue | 1 |
| SW 152 nd Street Park & Ride | SW 152 nd Street and SW 117 th Avenue | ≤1/2 |
| Bird Road Park & Ride Lot | Bird Road at SW 89 th Avenue | ≤1/2 |
| Lehman/Palmetto Yard | 6601 NW 72 nd Avenue | 2* |
| Metromover Maintenance Building | 100 SW 1 st Avenue | 1 |

*Indicates days are continuous

Chemical Portable Toilets

Miami-Dade County has established a twenty-four (24) month contract for the rental of portable chemical toilets, which any County department or agency may use, for routine events, special events, and during emergency situations. The Facilities Maintenance Division is responsible for contract oversight of the Transit Department's use of portable chemical toilets.

Primary responsibilities of contract oversight include:

- Verifying portable chemical toilets are maintained and delivered to the County in excellent condition
- Ensuring the contractor conforms to all Occupational Safety and Health Administration (OSHA), State and County regulations in the performance of contractual obligations
- Confirming that all unusable material and debris are removed from the premises at completion
- Participating in required demonstrations of equipment during evaluation periods and in training on the appropriate use of materials or products, if necessary
- Interfacing with the contractor regarding rental and maintenance of equipment

Waste Collection Services

Waste collection is accomplished through a long-standing Interdepartmental Agreement with Solid Waste with payment made through an internal transfer.

Pigeon Control Services

Miami-Dade County has pre-qualified bidders for pigeon control services for various County departments for a two (2) year period with the County's option to renew for two (2) additional years the group of contractors who are qualified to do bird control, primarily pigeon control.

MDT sites likely to need this service include the following:

- 21 Miami-Dade Transit Metrorail Stations
- 20 Miami-Dade Transit Metromover Stations
- Miami-Dade Transit Metromover Maintenance Building
- Miami-Dade Transit Metrorail Maintenance Building
- Miami-Dade Transit Metrobus Facilities
 - Northeast Garage, Transportation, and Fuel Island Buildings
 - Central O&I Garage and Fuel Island, Major Overhaul, Central Warehouse, Central Transportation, and Central Administration Building
 - Coral Way Division, Garage, Transportation, and Fuel Island

Organization

The Facilities Maintenance Division operates 24 hours a day, 7 days a week under the direction of the General Superintendent (pending reclassification), MDT Facilities Maintenance, who reports to the Assistant Director, Rail Services. Maintenance of MDT facilities, machinery, and equipment is accomplished by a total of 113 Facilities Maintenance Division staff.

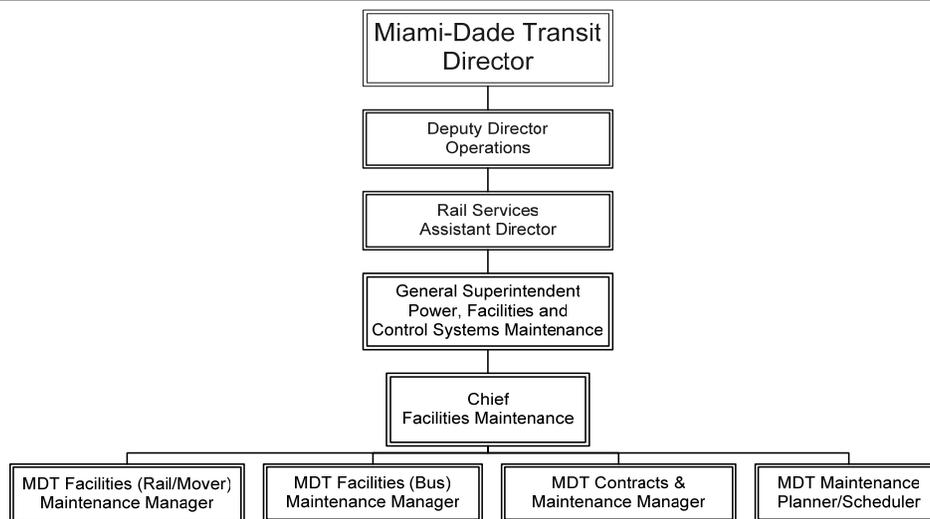
General Superintendent, Power, Facilities and Control Systems Maintenance (Pending Reclassification)

The General Superintendent, Power, Facilities and Control Systems Maintenance functions as an executive manager in a highly technical as well as administration position that involves oversight of complex operations, including traction power, facilities maintenance and train control:

- Develops and established divisional goals, objectives, policies, and procedures
- Directs the activities of subordinate Chief Supervisors, Managers, and Supervisors in diagnosis, testing, inspection, preventive maintenance, repair, and retrofit of Power, Facilities, and Control Systems Maintenance equipment and facilities
- Oversees the overall maintenance plans and procedures for Power, Facilities, and Control Systems Maintenance to include the supervision of elevator/escalator permitting for Metrorail, Metrobus, and Metromover
- Reviews operating and maintenance records and develops additional preventive maintenance procedures
- Participates in budgetary forecasts, staff estimates and material requirements, monitors expenditures ensuring that funds are expended optimally, and participates in annual and long-range forecasts for operational needs
- Coordinating activities with other departments within Miami-Dade County and with other agencies
- Reviews Disciplinary Action Reports and chairs Grievance Hearing with employees and their representatives
- Advises the Assistant Director on all progress, as well as problems related to the Power, Facilities, and Control Systems Maintenance Division's objectives

In addition to an Administrative Secretary, who performs a variety of complex secretarial and clerical duties, five staff members report directly to the General Superintendent:

- One (1) Chief, Facilities Maintenance
- One (1) Manager, MDT Facilities (Rail/Mover) Maintenance
- One (1) Manager, MDT Facilities (Bus) Maintenance
- One (1) Manager, MDT Contracts & Maintenance
- One (1) MDT Maintenance Planner/Scheduler



Chief, Facilities Maintenance

The Chief, Facilities Maintenance supervises and directs the maintenance of Metrorail and Metromover stations, Metrobus Busway, parking facilities and garages, as well as Metrorail, Metromover, and Metrobus maintenance and administrative facilities. The Chief's primary responsibilities include:

- Establishing policies, procedures, goals, and objectives for Facilities Maintenance Division operations

- Developing work schedules and quality standards
- Supervising elevator and escalator permitting
- Developing and administering an annual budget
- Reviewing and approving requests for the procurement of materials and supplies
- Coordinating activities with other departments within Miami-Dade County and with other agencies
- Ensures permitting of all facilities and equipment

Rail/Mover and Bus Facilities Maintenance

The Managers of MDT Maintenance share functions. The Manager of Rail/Mover Facilities Maintenance is responsible for the management and supervision of Metrorail and Metromover transit facility buildings and grounds, while the Manager of Metrobus Maintenance is responsible for management and supervision of Metrobus transit facility and grounds. The Managers' work focuses on supervising and coordinating the maintenance and repair of a large and geographically dispersed transit facilities and grounds. The Managers exercise a considerable degree of independent judgment and professional managerial knowledge in the application of principles and practices of industrial technology of plant and building maintenance engineering. Related responsibilities include:

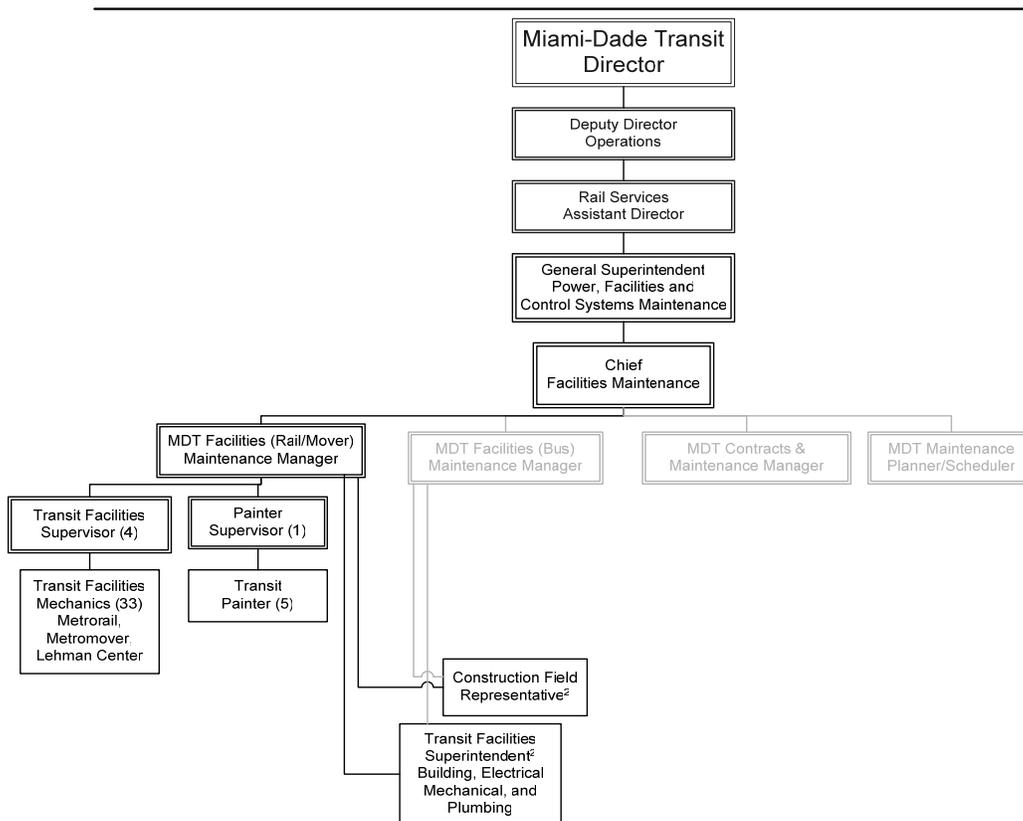
Directing maintenance, engineering and craft maintenance of transit facilities

- Administering professional, technical trades related planning to maintain the safe, secure operational status of transit facilities
- Overseeing facility maintenance to include maintaining the physical structure and major systems including HVAC, electrical, plumbing and general aesthetics such as painting, carpet replacement as well as general maintenance of locks and building equipment
- Directing the work of Transit Facilities Superintendents, Transit Facilities Supervisors, Transit Facilities Mechanics, Transit Painters Supervisor, Transit Painters and Contractors to assure the adherence to schedules and quality standards
- Supervising preventative maintenance program and makes recommendations for building and plant equipment repairs and improvements
- Estimating time, labor and materials required for jobs

- Making recommendations regarding hiring, discipline and promotion of subordinates

Rail/Mover Facilities Maintenance

Employees who report directly to the Manager of Rail/Mover Facilities Maintenance include:



- One (1) Construction Field Representative² responsible for the review of construction documents and assisting Superintendents in oversight of major building construction from the design phase through completed construction and guarantee period

² Position reports to Manager of Rail/Mover Facilities as well as to Manager of Facilities Bus Maintenance

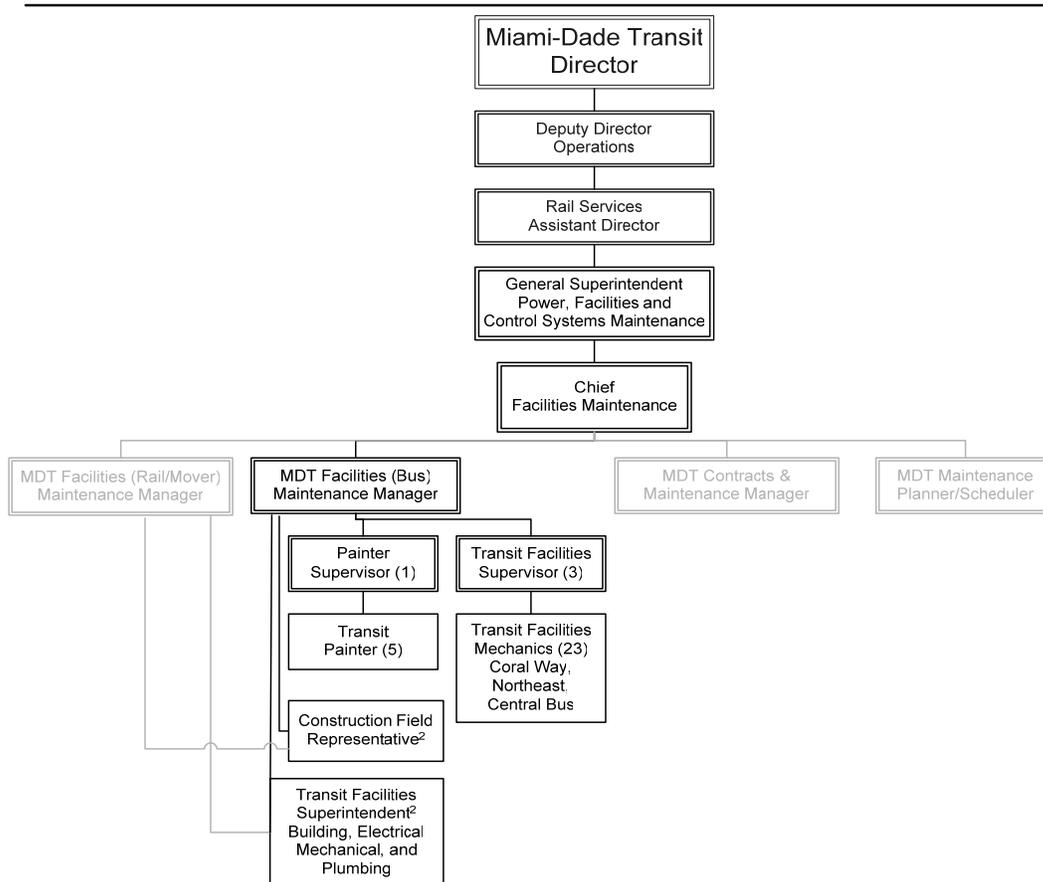
- One (1) Transit Facilities Superintendent – Building², who qualifies MDT as General Contractor by possession of a State Building Contractor; procures building permits as required; ensures that structural inspections of stations and parking garages are performed by the bridge inspection section at prescribed intervals and that subsequent repairs are completed by track & guideway; and plans and reviews the work of mechanics performing building related duties in accordance with standard practices and the Florida Building Code
- One (1) Transit Facilities Superintendent – Mechanical², who qualifies MDT as Mechanical Contractor by possession of a State Mechanical Contractor; procures mechanical permits as required; and plans and reviews the work of journeymen A/C mechanics performing mechanical related duties in accordance with standard practices and the Florida Building Code
- One (1) Transit Facilities Superintendent – Plumbing², who qualifies MDT as Plumbing Contractor by possession of a State Plumbing Contractor; procures plumbing permits as required; and plans and reviews the work of journeyman plumbers performing plumbing related duties in accordance with standard practices and the Florida Building Code
- One (1) Transit Facilities Superintendent – Electrical², who qualifies MDT as Electrical Contractor by possession of a State Electrical Contractor; procures electrical permits as required; and plans and reviews the work of journeyman electricians performing electrical related duties in accordance with standard practices and the Florida Building Code
- Four (4) Transit Facilities Supervisors, who direct the activities of thirty-three (33) Transit Facilities Mechanics assigned to Metrorail, Metromover, and the Lehman Center in the construction, maintenance, and repair of transit buildings and associated maintenance equipment
 - Thirty-three (33) Transit Facilities Mechanics, who perform specialized mechanical work in a manual trade or skilled craft; maintain and repair machinery and electrical equipment such as pumps, engines, motors and electrical apparatus; and, maintain and repair the physical plant of transit facilities. In the past, Transit Facilities Mechanics were required to possess skilled trade licenses prior to hiring. The present day training program for Transit Facilities Mechanics is driven by MDT's interpretation of a 13(c) Arbitration Award. The 13(c) Arbitration Award indicated that the agency must hire candidates who are qualified or could become qualified via training. The 13(c) Arbitration Award clearly stops short of indicating

the process by which a candidate can become qualified. In response to the Arbitration Award, MDT determined that it was the responsibility of the agency to provide the training in order to make the candidate qualified. Vacant positions are bid based on seniority. There are no minimum technical or mechanical aptitude or previous experience requirements. Successful candidates are introduced to their new positions at training programs that span 35 hours each week for nine (9) weeks for each of the four (4) disciplines (plumbing, electrical, HVAC, and building maintenance). The candidates complete the training program and are then assigned to facilities, where they remain on probation for a period of year.

- One (1) Painter Supervisor, who direct the activities of five (5) Transit Painters in the painting of MDT buildings, parking lots, fixtures, and equipment
 - Five (5) Transit Painters who work at the journeyman level in the painting of MDT buildings, parking lots, fixtures and equipment and perform skilled painting and tile work tasks in accordance with standard trade practices.

Bus Facilities Maintenance

Employees who report directly to the Manager of Facilities (Bus) Maintenance include:



- One (1) Construction Field Representative² responsible for the review of construction documents and assisting Superintendents in oversight of major building construction from the design phase through completed construction and guarantee period
- One (1) Transit Facilities Superintendent – Building², who qualifies MDT as General Contractor by possession of a State Building Contractor; procures building permits as required; and plans and reviews the work of mechanics performing building related duties in accordance with standard practices and the Florida Building Code
- One (1) Transit Facilities Superintendent – Mechanical², who qualifies MDT as Mechanical Contractor by possession of a State Mechanical Contractor; procures mechanical permits as required; and plans and reviews the work

of journeymen A/C mechanics performing mechanical related duties in accordance with standard practices and the Florida Building Code

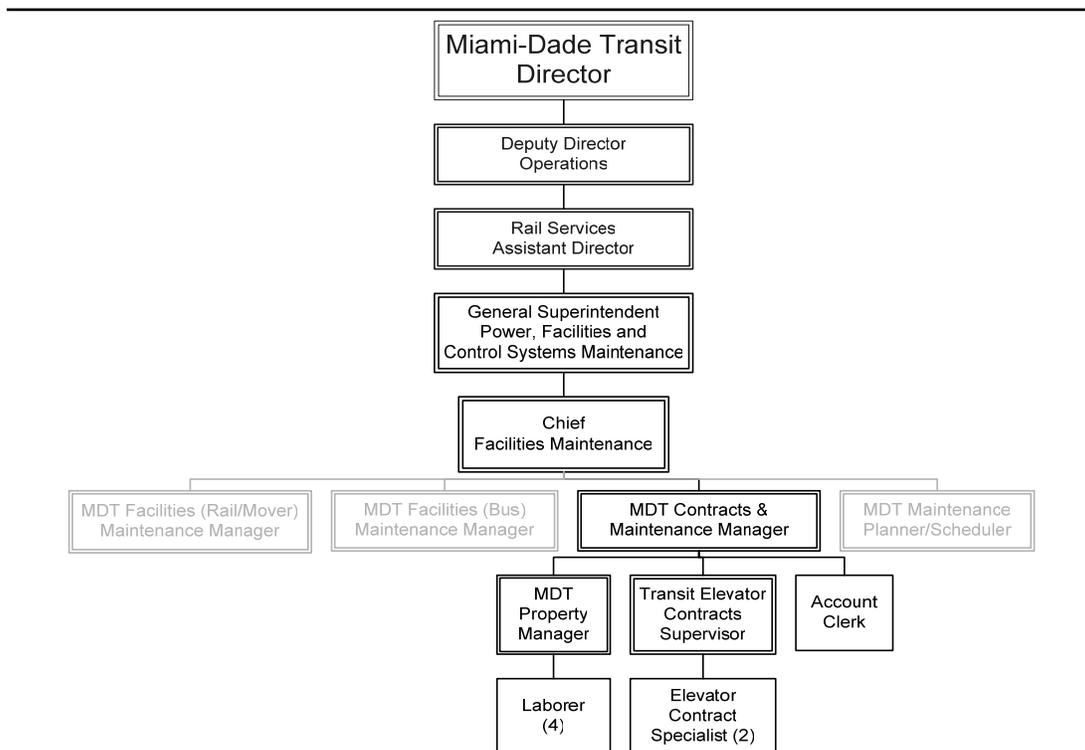
- One (1) Transit Facilities Superintendent – Plumbing², who qualifies MDT as Plumbing Contractor by possession of a State Plumbing Contractor; procures plumbing permits as required; and plans and reviews the work of journeymen plumbers performing plumbing related duties in accordance with standard practices and the Florida Building Code
- One (1) Transit Facilities Superintendent – Electrical², who qualifies MDT as Electrical Contractor by possession of a State Electrical Contractor; procures electrical permits as required; and plans and reviews the work of journeymen electricians performing electrical related duties in accordance with standard practices and the Florida Building Code
- Three (3) Transit Facilities Supervisors who direct the activities of twenty-three (23) Transit Facilities Mechanics assigned to Central Bus, Coral Way, and Northeast in the construction, maintenance, and repair of transit buildings and associated maintenance equipment
 - Twenty-three (23) Transit Facilities Mechanics who perform specialized mechanical work in a manual trade or skilled craft; maintain and repair machinery and electrical equipment such as pumps, engines, motors and electrical apparatus; and, maintain and repair the physical plant of transit facilities
- One (1) Painter Supervisor, who direct the activities of five (5) Transit Painters in the painting of MDT buildings, parking lots, fixtures, and equipment
 - Five (5) Transit Painters who work at the journeyman level in the painting of MDT buildings, parking lots, fixtures and equipment and perform skilled painting and tile work tasks in accordance with standard trade practices.

MDT Contracts & Maintenance

The Manager of MDT Contracts & Maintenance assists the General Superintendent (pending reclassification) in maintaining effective contract control and directs the supervision of Facilities Maintenance Division contract services and personnel. The following responsibilities fall within the Contracts & Maintenance Manager's role:

- Direct the supervision of elevator/escalator permitting for Metrorail, Metromover, and Metrobus preventive maintenance contracts
- Manage the supervision and quality of service contract administration
- Direct property management supervision relative to personnel assignments, personnel performance, disciplinary, and labor relations matters
- Formulate specifications and cost evaluations for elevator maintenance, janitorial, exterminating, waste collection, and walk-off mat contracts
- Prepare and monitor Facilities Maintenance Division budget
- Acts as lead Division Administrator responsible for completion of high level administrative tasks including: draft response letters to complaints received from the public and from Miami-Dade County and Miami-Dade Transit management, prepare high level budget, personnel, and project status reports

Employees who report to the Manager of Contracts & Maintenance include:



- One (1) Transit Elevator Contract Supervisor who, as a State and Quality Elevator Inspection (QEI) Certified Inspector, performs the required inspections for the State Bureau of Elevator Inspections, provides record-

keeping, reports, and certificates of operation for elevators/escalators; investigates, as required, all elevator/escalators reported to have malfunctioned to determine if contract maintenance service is required; monitors the elevator Contractor's performance for safety as well as preventive maintenance in accordance with contract specifications; represents MDT in accident litigation; and, directs the activities of two (2) Elevator Contract Specialists

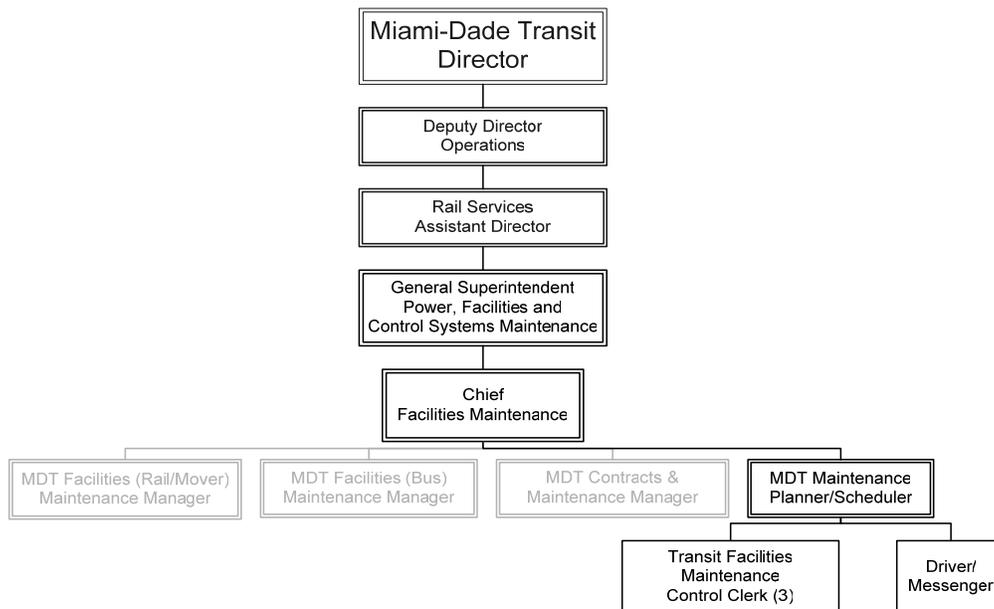
- Two (2) Elevator Contract Specialists, who possess valid State of Florida Certificates of Competency and QEI Certification as Elevator Inspectors, and are responsible for assisting in the supervision and management of contract services for the maintenance, repair, modernization and installation of vertical transportation systems, escalators, moving walks and other conveyance systems, and performance of state-mandated elevator/escalator inspections
- One (1) Account Clerk, who performs specialized clerical work in the application of elementary bookkeeping principles to the maintenance of accounting or fiscal records; checks and codes invoices; prepares vouchers for payment; and, maintains voucher register
- Six (6) MDT Property Managers, who perform specialized work in property management and contract administration for MDT; conduct daily inspections of Metrorail and Metromover stations and facilities and field inspections of Metrobus facilities, sites, and park and ride lots to monitor the performance of janitorial, waste collection, landscape maintenance, and pest extermination contractors; review and approve contractor invoices; prepare contractor performance reports; and, through a lead-worker, supervise four (4) laborers responsible for performing light and heavy manual laboring tasks in a variety of construction and maintenance activities

Planning/Scheduling

The MDT Maintenance Planner/Scheduler is responsible for planning, scheduling, and coordinating large volume repair and maintenance work for the Facilities Maintenance Division. Included in the Planner/Scheduler's responsibilities are the following:

- Assists with analysis of workloads and employee availability
- Assists with prioritization of repair and maintenance work
- Assists with preparation and monitoring of workload schedules
- Review schedules to meet changing priorities

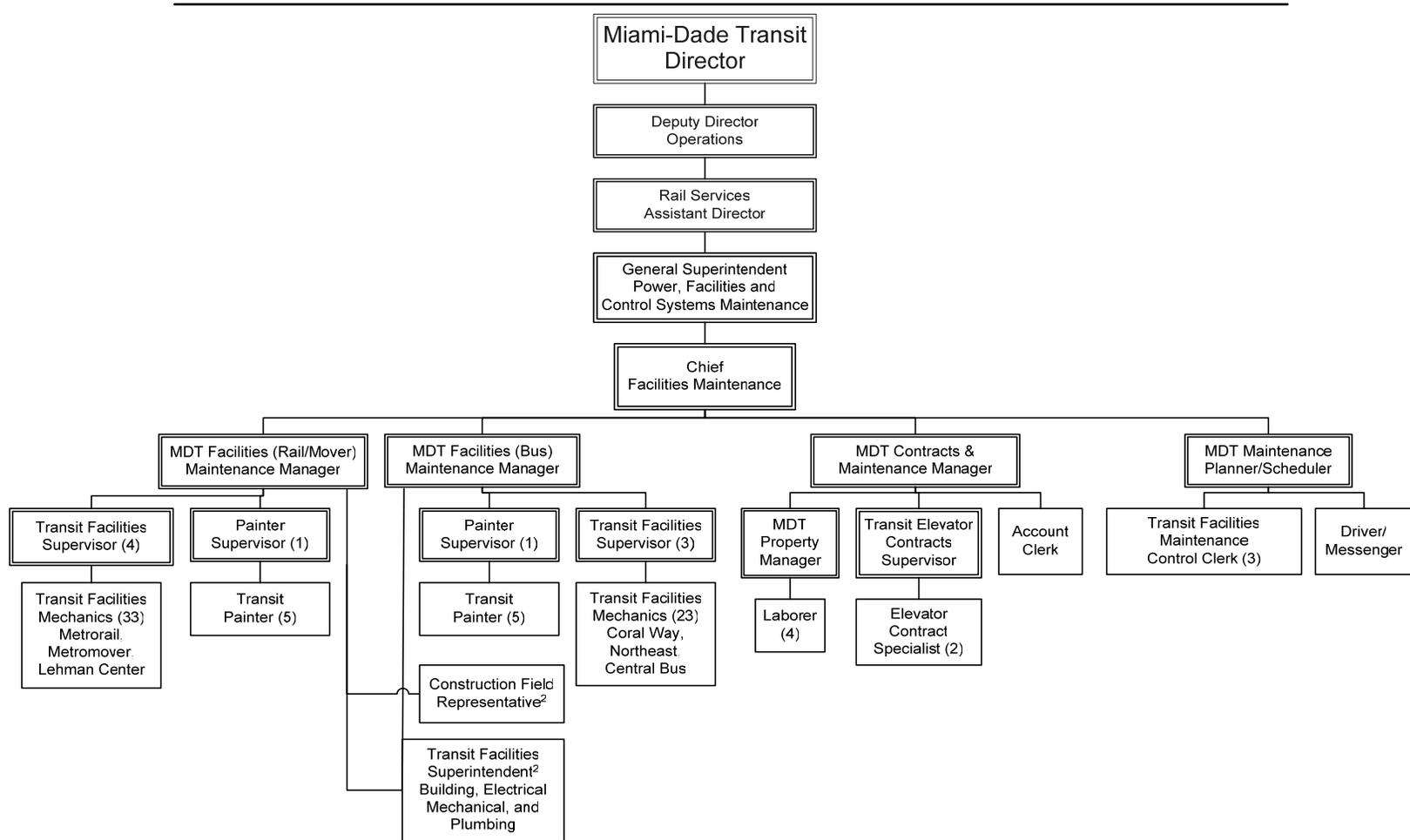
Employees who report to the MDT Maintenance Planner/Scheduler include:



- Three (3) Transit Facilities Maintenance Control Clerks (TFMCC) responsible for performing advanced specialized clerical work in compiling repair records on equipment; initiating repair orders for scheduled, unscheduled, and preventive maintenance; maintaining detailed records of equipment replaced, repaired or overhauled; and, entering and retrieving information from a computerized information system
- One (1) Driver/Messenger, who operates a passenger vehicle, van, light truck or similar vehicle to deliver and pick up critical parts and supplies in order to allow skilled mechanics to continue project work. In addition, this incumbent transports mail, packages, records, materials, equipment, documents, and other supplies at various County and vendor locations; and, performs routine clerical tasks

The Facilities Maintenance Division Table of Organization is located on the following page.

Miami-Dade Transit Facilities Maintenance Division Table of Organization



II. Current Operating Practices

Facilities & Equipment

Facilities Division Maintenance Program Policy

The philosophy and goals of the Facilities Division Maintenance Program Policy are to maximize cost effectiveness of maintenance efforts consistent with safe operations through a proper balance of preventive maintenance, corrective maintenance, and systems improvements, where necessary. An outline of the MDT Facilities Maintenance Division Maintenance Program Policy is provided in Appendix E. The mission of the maintenance program is accomplished through the following objectives:

- Eliminate increases in equipment failure rates due to age
- Increase availability and reliability of equipment through identification and modification of existing design
- Improve efficiency of maintenance operations through:
 - Facility/equipment enhancing capital investments
 - Re-design of maintenance processes
 - Enhancement of the skills of the workforce, and
 - Application of state-of-the-art repair and maintenance techniques

Safety

- Of primary concern, and above all other concerns is ensuring that the entire system, including transit facilities, stations, and maintenance garages operate safely at all times

Reliability

- System reputation and ridership depend on overall performance
- Excessive facility-related equipment failures are unacceptable and must be kept to a minimum
- To maintain a high standard of reliability, all required maintenance must be performed at proper intervals
- Scheduled overhaul or replacements are in place to extend the life and/or dependability of the equipment maintained by the Facilities Maintenance Division
- To assist in lowering component failures, the maintenance engineering process of identification of problems and equipment modification in the event of ongoing

equipment malfunctions through MDT's Change Review Board must be supported

Quality

- Safe and reliable performance can only be achieved if quality work is performed
- Quality increases reliability and safety
- Safety, reliability, and quality are inseparable, dependent concepts essential to the provision of first class transit service

Cleaning

- Clean, well-maintained facilities are essential to providing quality service to MDT customers and are a tangible reflection of MDT's commitment to customer service

The Facilities Maintenance Division continues to strive to meet all preventive maintenance schedules at a 100% on-time completion rate and corrective maintenance requirements achievable with allocated resources.

When maintenance repairs are required as a result of in-service failures, it is difficult to compensate for the absence of the equipment. Service quality suffers, and the cost of repairing failed equipment can be more expensive than planned repairs. The approved MDT Facilities Maintenance Division Program Policy strives to minimize unscheduled corrective maintenance to avoid the accompanying service quality degradation.

Preventive Maintenance

Facilities Maintenance Division performs scheduled (preventive) maintenance, which includes scheduled replacement of specific components and/or systems to improve the reliability of equipment, as well as unscheduled (corrective) maintenance, which includes repairs required as a result of in-service failures.

The Facilities Maintenance Division scheduled maintenance program is designed to maintain equipment reliability by detecting potential defects and correcting them before they fail. It also permits servicing of equipment that requires lubrication, measurement, and adjustment. Equipment is withdrawn from service at regular calendar-based intervals to permit scheduled preventive maintenance (PM) actions.

Facilities Maintenance staff compiled an inventory that includes all equipment maintained by the Division staff. Each piece of equipment is identified by type, location, model number, serial number and any other identifier that could be used to locate the equipment and track maintenance of the equipment. Facilities Maintenance Superintendents, who are the trade qualifiers for Facilities Maintenance Division, along with the Maintenance Managers created preventive maintenance procedures for all inventoried equipment based on manufacturers' recommendations and professional experience.

Primary locations, inventoried equipment, and projected manhours to facilitate preventive maintenance identified within the equipment inventory include the following:

Metrobus

| <i>Area</i> | <i>Inventoried Equipment</i> | <i>Projected Manhours</i> |
|----------------------|-------------------------------------|----------------------------------|
| Central Bus Facility | 979 | 14,387 |
| Northeast Facility | 912 | 8,613 |
| Coral Way Facility | 470 | 6,749 |
| South Dade Busway | 96 | 448 |
| Park & Ride Lots | 39 | 366 |
| Total Equipment | 2,496 | 30,563 |

Metrorail/Metromover

| <i>Area</i> | <i>Inventoried Equipment</i> | <i>Projected Manhours</i> |
|---------------------------------|-------------------------------------|----------------------------------|
| Metrorail-North & South | 2,430 | 11,355 |
| William Lehman Facility | 393 | 3,239 |
| Metromover | 1,026 | 5,674 |
| Total Equipment | 3,849 | 20,267 |
| Bus/Metrorail/Metromover | 6,345 | 50,830 |

A total of 108 individual PMs were developed; 42 are shared by bus and rail/mover; 46 are specific to bus; and, 20 are specific to rail equipment. A Facilities Maintenance Division Master PM Listing is included in Appendix F.

Rail and Bus Maintenance Control (Maintenance Control) schedule all PM requirements for Facilities Maintenance Division equipment and equipment calibration. Maintenance Control prepares the PM schedule using an on-time

adherence window of five days before and five days after the target inspection date. To achieve on-time adherence, Transit Facilities Mechanics are required to perform the PM on the day scheduled by Maintenance Control, as indicated on the PM calendar.

Bus and Rail Maintenance Control Clerks, under the direction of Maintenance Control, complete a package for each PM to be completed during the month that contains:

1. Summary listing of all equipment scheduled to receive a PM during the month
 - a. Sorted by location
 - b. Contains specific inspection due dates
2. Facilities Maintenance PM Transmittal Memo
 - a. To be completed by the Supervisor after PM inspections are accomplished
 - b. To be forwarded to the Planner/Scheduler and Maintenance Control along with completed PM Work Orders
3. Preventive Maintenance (PM) Work Order for each location scheduled for preventive maintenance (forms were recently revised to include actual labor hours used to complete the PM)
 - a. Specifies equipment, location, and activities required
 - b. Provides a description of work actually accomplished and discrepancies found

Maintenance Control delivers the required PM packages to the Scheduler/Planner, who forwards them to the appropriate Transit Facilities Supervisor. The Transit Facilities Supervisors oversee the scheduled PM activities, sign the PM verification forms, note any additional work (repairs) required, and return the finished PM packages to Maintenance Control. Transit Facilities Maintenance Control Clerks input all information from the PM packages into the computerized information system, Transit Equipment Inventory (TEA), update computerized equipment maintenance records, and issue work orders for any repairs noted on the PM.

The scheduled maintenance program is based on the following types of inspections:

- Daily Facility PM
- Weekly Facility PM (PM-A)
- Monthly Facility PM (PM-B)
- Quarterly Facility PM (PM-C)

- Semi-annual Facility PM (PM-D)
- Annual Facility PM (PM-E)

The following table summarizes the findings from a review of Metrorail and Metromover PM inspections completed from 1999 through July 2002.

PMs and Labor Hours, 1999-Projected 2002

| <i>Year</i> | <i>PMs</i> | | | <i>Manhours</i> | | |
|-------------------|------------------|-------------------|--------------|------------------|-------------------|--------------|
| | <i>Metrorail</i> | <i>Metromover</i> | <i>Total</i> | <i>Metrorail</i> | <i>Metromover</i> | <i>Total</i> |
| 1999 | 1,169 | 170 | 1,339 | 6,118 | 1,634 | 7,752 |
| 2000 | 621 | 170 | 791 | 2,236 | 401 | 2,637 |
| 2001 | 1,086 | 395 | 1,481 | 4,925 | 1,680 | 6,606 |
| 2002 ¹ | 1,201 | 374 | 1,575 | 5,195 | 1,211 | 6,406 |
| Avg. | 1,019 | 277 | 1,297 | 4,618 | 1,232 | 5,850 |

¹Actual Oct-Jul projected to 12 months

A detailed review of the Metrorail data indicated that daily PM inspections accounted for over 78% of all inspections completed from 1999 through 2002, but only accounted for approximately 42% of labor hours required, which could reflect the increase in level of effort required for the less frequent but more demanding PM inspections.

Metrorail PM labor hours, when presented by location, highlighted the complex needs of the Palmetto Yard and the Lehman Center. Both Dadeland Metrorail Stations and the South Miami Metrorail Station appeared to require more PM labor hours than the other stations. These three stations contain significant bus bays and parking areas and all have parking garages.

Within Metromover, daily PM inspections accounted for almost half of all inspections completed during from 1999 through 2002, but only accounted for approximately 21% of labor hours required. As was the case with Metrorail, the data reflect the increase in level of effort required for the less frequent but more demanding PM inspections.

Metromover PM labor hours by location illustrated a higher level of maintenance commitment for the Riverwalk Station, the Fifth Street Station, and for Metromover Maintenance. The high maintenance requirement for Metromover maintenance is understandable due to the complexities associated with the shop; however, both Riverwalk and Fifth Street Stations are relatively new, having opened in May 1994 during Phase II, and both stations are rather modest in size in comparison to other stations; however, due to considerable elevation of both stations, there is increased difficulty for maintenance accessibility.

Facilities Maintenance Division year-to-date “compliance rates” for scheduled PMs for Metromover, Metrorail North and South lines, and the William Lehman Facility ranged from 50% to 100% during the time period from October 2002 through June 2003. The Facilities Maintenance Division target for completion of scheduled PMs for all equipment in all areas is 100%. Facilities PMs were not performed consistently or routinely within Metrobus in the past; therefore, PM data are not available. However, the Facilities Maintenance Managers and Superintendents recently surveyed preventive maintenance and life cycle requirements for all equipment, which were subsequently incorporated into an inventory of all equipment within Metrobus, Metrorail, and Metromover. Detailed preventive maintenance procedures were developed for each piece of equipment identified.

The Facilities Maintenance Managers are working closely with Rail and Bus Maintenance Control to incorporate the revised PM parameters into Maintenance Control data collection, data monitoring, and data evaluating systems. It is anticipated that this process will be completed well in advance of the integration of the new Enterprise Asset Management System (EAMS). Throughout MDT, a variety of both manual and automated systems are used for managing inventory, purchasing, creating and tracking work orders, labor allocation and other maintenance and materials management functions. Most systems are not interfaced and do not communicate with one another, which causes data to be duplicated and results in the production of inconsistent reporting throughout MDT. The TEA, used on the rail side, is a 20-year old mainframe application that is costly to maintain and difficult for personnel to use. Preliminary work has been completed within MDT, and the current plan is to replace the TEA with EAMS in late 2006.

Elevators & Escalators

All MDT vertical and horizontal transportation equipment (elevators and escalators) is maintained under the supervision of a Transit Elevators Contracts Supervisor with the assistance of two Elevator Contract Specialists. Elevator Contract staff hold National Association of Elevator Safety Authorities (NAESA) International certification, a Certificate of Competency from the Florida Department of Business and Professional Regulation (DBPR), QEI certification, and are Certified Elevator Inspectors.

Elevator Contract staff are responsible for:

- Preventive maintenance
- Inspections
 - Annual inspections
 - Pre/post maintenance and repair inspections
 - Safety tests
 - After all accidents

The Contractor is responsible for completing and performing preventive maintenance on all repairs, which are subject to inspection by Elevator Contract staff.

While Elevator Contract staff is typically on-site between the hours of 7 a.m. and 6 p.m., Monday through Friday, all are on-call 24-hours a day and carry pagers.

The County, through GSA, recently resumed the authority of jurisdiction over all elevators and related equipment throughout the County to include private facilities as well as County-owned facilities. MDT continues to conduct inspections, as in the past, with the exception that GSA issues permits and certificates and serves as the central collection entity for all inspection reports.

A schedule of annual inspections has been in place since the inception of the elevators and escalators, and 100% of annual inspections are completed as specified. Since most elevators are connected to the fire suppression system, MDT Communications personnel routinely check fire alarm systems in conjunction with elevator/escalator inspections. Work is designated into four zones: machine rooms, elevator cab, elevator pit, and the hoistway. A specific checklist of all items related to passenger safety has been developed for each zone and is used in conducting each inspection. After completed Inspection Reports (Appendix A) are signed by the Manager, Contracts & Maintenance, they are forwarded to GSA Miami-Dade County and the agency with authority for enforcement and records, as well as to the elevator contractor. The elevator contractor has 60-days to correct all violations. Elevator Contract staff follow-up with the elevator contractor

to ensure that all violations have been corrected and complete a “call-back” inspection to verify the completed work.

A recent change in the law requires that a licensed inspector witness all safety tests, including those conducted by the Contractor, due to the nature of the tests and the type of equipment required to conduct the tests. Elevator contract staff witness annual safety tests for hydraulic and traction elevators as well as a 5-year safety test for traction elevators. The safety test for escalators is done in conjunction with the annual inspection.

Pursuant to the contract, the elevator contractor must respond to elevator and escalator repair requests within one hour during weekday working hours. Response for elevator repairs during all other times is two hours. The contractor is required to respond to escalator repair calls after weekday working hours only at the Omni and Brickell Metromover Stations. All work completed at other locations after those hours is paid on an overtime basis.

Florida law requires that Elevator Contract staff maintain an Elevator/Escalator Daily Log (Appendix B). These logs are maintained by all Elevator Contract staff and are located in the Elevator Contract Supervisor’s office. They are used to establish completed maintenance and inspection as well as to verify invoicing from the elevator contractor.

While Property Managers are not responsible for oversight of the Elevator/Escalator contract, they are authorized to report problems to the contractor and do contact the elevator contractor during evening and weekend hours, as necessary.

Contract Services Oversight

Property Managers are responsible for oversight of the following contract services:

- Janitorial Services
- Extermination Services
- Walk Off Mats and Dust Control Products
- Landscaping and Lawn Maintenance Services
- Chemical Portable Toilets
- Waste Collection Services

Property Managers generally work alone on rotating shifts throughout the week. Each Property Manager works to complete onsite inspections of twelve (12) Metrorail or Metromover stations on a weekly basis and documents the results using MDT Facilities Maintenance Property Manager Metrorail or Metromover

Custodial/Maintenance Reports (Appendix H). Daily inspections of Metrobus, Metrorail, and Metromover buildings are carried out to monitor the quality of the contractors' performance, which is documented through the use of a Property Manager's Buildings Report (Appendix H). Property Managers record significant activities during each shift on the Property Manager Shift Log (Appendix I), review and approve contractor invoices, prepare contractor performance reports, conduct meetings with contractors, provide required safety training, assist in the development of specifications for various service contracts, correspond with contractors regarding performance, maintain records pertaining to service contract provisions, and supervise subordinate laborer personnel. Property Managers are on-call 24 hours a day, 7 days a week and carry pagers.

Property Manager Station and Facility Inspections Reports are the primary source of information for maintenance conditions and generation of work orders for station and facility repairs. These reports are often used by the County Attorney's Office in court cases as evidence of facility appearance and/or conditions on a particular date.

Corrective Maintenance

When maintenance repairs are required as a result of failures, it is difficult to compensate for the absence of the equipment. Service quality suffers, and the cost of repairing the failed equipment can be more expensive than the planned repairs. The approved MDT Facilities Maintenance Program Policy (Appendix E) strives to minimize unscheduled corrective maintenance to avoid the accompanying service quality degradation.

The Facilities Maintenance Division makes every effort to achieve an excellent preventive maintenance program for routinely inspecting, cleaning, adjusting, testing, calibrating, and repairing equipment to prevent failures.

Corrective maintenance within Facilities Maintenance Division is driven by work orders with approximately 700 work orders initiated on a monthly basis. Transit Facilities Maintenance Control Clerks (TFMCC) are the recipients of requests for work orders, which are submitted by the following groups or individuals:

Work Orders Generated

- Facilities Maintenance Supervisors and Mechanics
- Wackenhut Security
 - Submit Maintenance Request Form (MRR) (Appendix J)
- Safety and Security
 - Complete safety inspection

- Issue a report to the appropriate Maintenance Manager
- Maintenance Manager forwards report to Planner/Scheduler
- Planner/Schedule highlights work order request and forwards to TFMCC
- TFMCC issues work order and lists work order numbers on copy of safety inspection
- Metrorail/Metromover Public Daily Log Reports (Appendix K)
 - Daily Log Reports are forwarded to Planner/Scheduler on a daily basis
 - Planner/Scheduler forwards to TFMCC
 - TFMCC verifies work order with Central Operations and provides a work order number for tracking
- Property Managers
 - Forward inspection reports to Maintenance Manager/Contracts Manager who checks for safety sensitive issues
 - Maintenance Manager forwards report to Planner/Scheduler
 - Planner/Scheduler forwards to TFMCC
 - TFMCC issues work order
- Transit Operating System (TOS) Reports (Appendix L)
 - MDT Customer Services forwards customer complaints to the Manager of Contracts and Maintenance
 - Manager forwards copy of customer complaint to Planner/Scheduler
 - Planner/Scheduler forwards customer complaint to TFMCC
 - TFMCC issues work order
- Metrobus Maintenance Garage Personnel
 - Fax work order request directly to TFMCC
 - TFMCC issues work order
- Traction Power Wayside Equipment Malfunction Report (Appendix M)
 - Traction Power forwards report to Planner/Scheduler
 - Planner/Scheduler forwards Traction Power Report to TFMCC
 - TFMCC issues work order
- Train Control Wayside Equipment Malfunction Report (Appendix N)
 - Train Control forwards Train Control Report to Planner/Scheduler
 - Planner/Scheduler forwards Train Control Report to TFMCC
 - TFMCC issues work order
- Scheduled PMs (discussed in detail previously)
- Various county departments, divisions, and the general public
 - Planner/Scheduler forwards information to TFMCC
 - TFMCC issues work order

Only Transit Facilities Maintenance Control Clerks are permitted to prepare Work Orders (Appendix O). Written work orders include: the name of the requestor, work order number, facility/garage, area, date requested, assigned to, date assigned, recipient, and a description of the job. Back up information is attached to the work order when it is available. The Transit Facilities Maintenance Control

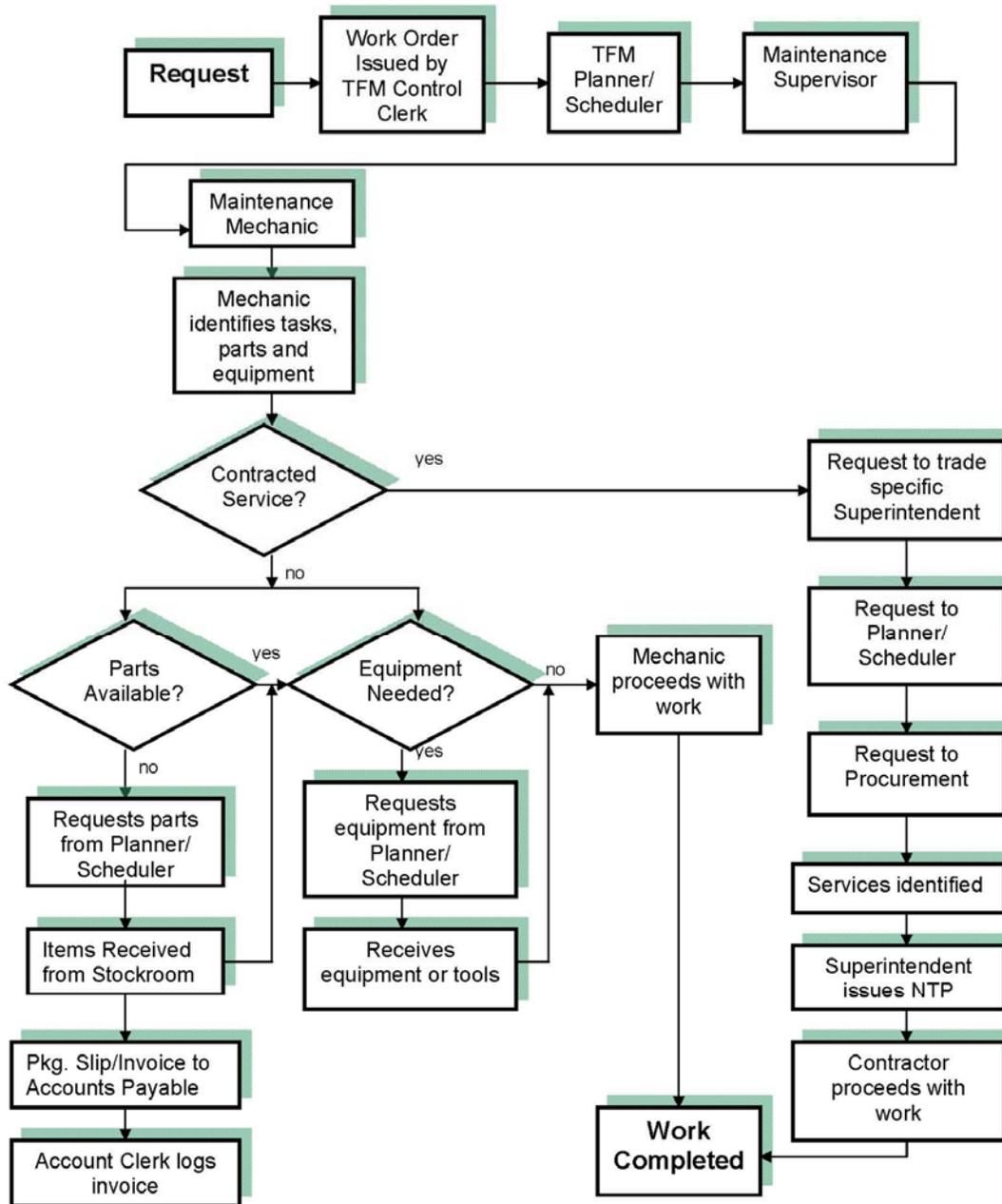
Clerk inputs the work order into the computerized information system and files a control copy of the work order in numerical order.

The flow of work orders is as follows:

1. Work Order issued by TFMCC to Planner/Scheduler
2. Planner/Scheduler distributes Work Order to Maintenance Supervisor
3. Maintenance Supervisor issues Work Order to Maintenance Mechanic
4. Maintenance Mechanic
 - a. Identifies job tasks
 - b. Checks stockroom for parts
 - c. If parts available, proceeds with work
 - i. If parts unavailable, requests parts from Planner/Scheduler
Items received from stockroom
 - ii. Packing slip/invoice received for process of payment to accounts payable
 - iii. Account Clerk logs invoices in booklet
 - d. If equipment or tools are needed, requests from Planner/Scheduler
 - e. If contracted services are required, submits request to Superintendent in respective trade
 - i. Superintendent submits request to Planner/Scheduler
 - ii. Planner/Scheduler submits request to procurement
 - iii. Contracted services identified
 - iv. Superintendent issues notice to proceed
 - f. If rental equipment is needed, submits request to Planner/Scheduler
 - g. Completes work

Following is a graphic representation of the flow of work orders.

Work Order Flow



Work Orders Closed

After the Maintenance Mechanic completes the Work Order, both the Maintenance Mechanic and the Maintenance Supervisor sign off and submit the Work Order to the Planner/Scheduler for “close out.” The Planner/Scheduler forwards the Work Order to the TFMCC for input into the computerized information system and filing.

Work orders are opened on a daily basis, and on each Tuesday the Planner/Scheduler issues a Weekly Report (Appendix P) of pending open work orders and completed work. All work orders must be completed within six (6) months. While any work order that is not completed within the six (6) months period must be reissued with a new work order number, the original outstanding work order is tracked.

Beginning with FY 2004, labor hours required to complete the work will be indicated on the work order.

Following is a summary of work orders generated and closed for FY 2002:

Work Orders – 2002

| Work Order | Work Orders Generated | Work Orders Closed |
|-------------------|------------------------------|---------------------------|
| Metrobus | 4,182 | 4,010 |
| Metrorail | 2,378 | 2,098 |
| Metromover | 924 | 884 |
| Planner/Scheduler | 107 | 71 |
| Rail Wackenhut | 117 | 108 |
| Total | 7,708 | 7,171 |

In the past, Facilities Maintenance Division did not consistently or routinely track labor hours or labor costs generated for corrective maintenance. Nonetheless, Maintenance Control was able to provide 1998 labor hours and labor costs by repair type and facility for Metrobus. A summary of that 1998 data is presented in the following tables:

Metrobus – Repairs by Type, 1998

| # by Type | # % of Total | Repair Type | Labor Hours | Labor Cost | Labor Hours % of Total | Labor Cost % of Total |
|-----------------|--------------------|-------------------------|----------------|---------------|---------------------------------|--------------------------------|
| 196 | 9.2% | A/C Systems | 1,077.6 | 17,996 | 10.8% | 12.8% |
| 179 | 8.4% | Air Systems | 506.7 | 7,684 | 5.1% | 5.5% |
| 130 | 6.1% | Buildings & Carpentry | 775.5 | 8,596 | 7.8% | 6.1% |
| 516 | 24.2% | Electrical Systems | 2,374.7 | 30,764 | 23.8% | 21.9% |
| 38 | 1.8% | Fluid Systems | 102.1 | 1,276 | 1.0% | 0.9% |
| 7 | 0.3% | Fire Protection Systems | 31.1 | 108 | 0.3% | 0.1% |
| 62 | 2.9% | Fuel System | 160.8 | 2,756 | 1.6% | 2.0% |
| 3 | 0.1% | Grounds | 14.5 | 130 | 0.1% | 0.1% |
| 125 | 5.9% | Hydraulic System | 875.5 | 14,450 | 8.8% | 10.3% |
| 143 | 6.7% | Locks | 334.3 | 6,630 | 3.4% | 4.7% |
| 451 | 21.1% | Mechanical System | 2,369.8 | 29,728 | 23.8% | 21.1% |
| 227 | 10.6% | Plumbing System | 692.2 | 11,428 | 6.9% | 8.1% |
| 22 | 1.0% | Pneumatic System | 117.0 | 1,580 | 1.2% | 1.1% |
| 21 | 1.0% | Paint | 473.5 | 6,890 | 4.7% | 4.9% |
| 2 | 0.1% | Roof | 6 | 60 | 0.1% | 0.0% |
| 12 | 0.6% | Vent System | 62.4 | 614 | 0.6% | 0.4% |
| 2,134 | | Total | 9,973.7 | \$140,690 | | |

Metrobus – Repairs by Division, 1998

| # by Type | # % of Total | Division | Labor Hours | Labor Cost | Labor Hours % of Total | Labor Cost % of Total |
|-----------------|--------------------|-------------|----------------|---------------|---------------------------------|--------------------------------|
| 1,046 | 49.0% | Central Bus | 4,923.3 | 59,762 | 49.4% | 42.5% |
| 619 | 29.0% | Northeast | 2,983.9 | 51,748 | 29.9% | 36.8% |
| 469 | 22.0% | Coral Way | 2,066.5 | 29,180 | 20.7% | 20.7% |
| 2,134 | | Total | 9,973.7 | \$140,690 | | |

Rehabilitation, Renovation and Replacement

Elevators/Escalators

Elevator Contract staff assess the condition of all vertical transportation equipment for repair and replacement. The actual useful life of an elevator can range from 30-40 years in a good environment to slightly more than 20 years in a harsh environment, such as outdoors. Replacement cycles are also affected by new Safety Codes for Elevators and Escalator and other requirements. Capital needs are identified on an annual basis and routed through Rail Services to MDT Management Services for consideration and approval.

Mechanical/Plumbing/Electrical/Buildings

Facilities Superintendents, working directly with Maintenance Managers and Mechanics, use a variety of tools and available information to establish rehabilitation, renovation, and replacement needs.

The Facilities Maintenance Division staff evaluates the condition of each facility and compile a priority list of required repairs and replacements, review outstanding work orders to establish residual needs, assess the equipment inventory to determine equipment needs based on replacement cycles, and analyze the capital program to identify additional needs due to system and/or service expansion. Improvements, identified by specific trade, i.e., mechanical, plumbing, electrical, and building, are prioritized and serve as the proposed corrective maintenance program. In conjunction with the Chief, Facilities Maintenance, in-house resources are examined to determine whether work will be done in-house or contracted out. Budgetary requirements are identified and incorporated into operating and capital budget requests that are forwarded through Rail Services for consideration and approval.

III. Demand

Facilities & Equipment

The Facilities Maintenance Division maintenance managers, staff and Superintendents established an inventory of existing equipment based on a detailed review of all equipment located throughout assigned MDT facilities. The inventory and corresponding preventive maintenance assignments were developed in conjunction with Bus and Rail Maintenance Control and corresponded to the manhour requirements established in the Facilities Master Preventive Maintenance List (Appendix F). Categories included in the inventory are as follows:

- Area
 - Central Bus Facility (CBF)
 - Coral Way Facility (CWF)
 - Metromover (MM)
 - Metrorail (MR)
 - Northeast Facility (NEF)
 - Park & Ride (PRK)
 - South Dade Busway (SDB)
 - William Lehman Facility (WLF)
- Location
 - Building
 - Station
 - Functional division
- Sub-location
 - Room
 - Roof
 - Bay
- Trade designation
 - Building
 - Electrical
 - Mechanical
 - Plumbing
- Equipment # & Sub-description
- Assigned PM # Based on Master PM List
- Equipment Description
- Equipment Manufacturer
- Equipment Model
- Equipment Serial Number
- Equipment Installation Date

- Equipment Service Life
- Equipment Quantity
- Staff Requirements for Preventive Maintenance
- Preventive Maintenance Schedule in Terms of *Manhour* Requirements

Inventory by Type and Service Life

Staff conducted a thorough analysis of the inventory to determine the type of preventive maintenance needed and the scope of maintenance requirements. A total of 5,882 preventive maintenance inspections were identified with annual and monthly inspections comprising over 80% of the inspections.

| <i>Type of PM</i> | <i>Number</i> | <i>% / Total</i> |
|--------------------------|----------------------|-------------------------|
| Annual | 3,031 | 46.5% |
| Monthly | 2,321 | 35.6% |
| Quarterly | 627 | 9.6% |
| Semi-Annual | 480 | 7.4% |
| Weekly | 52 | 0.8% |
| Daily | 5 | 0.1% |
| Total | 6,516 | |

When equipment requires multiple PM schedules, e.g., monthly inspections in addition to an annual inspection, the annual inspection actually replaces one of the monthly inspections. For that equipment, staff would conduct only 11 of the 12 monthly inspections plus one annual inspection. A review of the actual inspection schedule identified 5,514 pieces of equipment (86.9%) where a single PM schedule was mandated and 831 pieces of equipment that required multiple PMs (13.1%). A sample PM is attached as Appendix G.

While the majority of equipment is maintained by facilities staff, some specialized equipment requires the use of certified contract personnel for completion of preventive maintenance activities. The Facilities Maintenance Division identified 837 pieces of equipment that are maintained solely by a contractor (13.2%) and 795 pieces of equipment serviced by Facilities staff in addition to a contractor (12.5%).

Staff determined that the current inventory includes a total of 6,345 individual pieces of equipment that require 50,830 manhours of maintenance on the part of Facilities staff annually. Most of the equipment maintained by Facilities staff has a service life that ranges from 10 to 25 years (83.9%), with over half of the equipment in the 15 to 25 year range (60.1%). Regular preventive maintenance

on this type of low turnover equipment is critical in order to maintain acceptable operation over many years.

| <i>Service Life</i> | <i>Number</i> | | <i>% of Total</i> | | <i>Manhours per Equip</i> |
|---------------------|------------------|-----------------|-------------------|-----------------|---------------------------|
| | <i>Equipment</i> | <i>Manhours</i> | <i>Equipment</i> | <i>Manhours</i> | |
| 30 Days | 23 | 138.0 | 0.4% | 0.3% | 6.0 |
| 2 Years | 87 | 1,044.0 | 1.4% | 2.1% | 12.0 |
| 5 Years | 19 | 115.0 | 0.3% | 0.2% | 6.1 |
| 6 Years | 103 | 580.0 | 1.6% | 1.1% | 5.6 |
| 7 Years | 23 | 312.0 | 0.4% | 0.6% | 13.6 |
| 8 Years | 434 | 1,815.3 | 6.8% | 3.6% | 4.2 |
| 10 Years | 989 | 14,642.0 | 15.6% | 28.8% | 14.8 |
| 12 Years | 521 | 3,523.5 | 8.2% | 6.9% | 6.8 |
| 15 Years | 1,040 | 5,369.1 | 16.4% | 10.6% | 5.2 |
| 20 Years | 1,230 | 13,094.0 | 19.4% | 25.8% | 10.6 |
| 25 Years | 1,543 | 4,249.5 | 24.3% | 8.4% | 2.8 |
| 30 Years | 253 | 5,322.0 | 4.0% | 10.5% | 21.0 |
| 40 Years | 78 | 594.0 | 1.2% | 1.2% | 7.6 |
| Not Applicable | 2 | 32.0 | 0.0% | 0.1% | 16.0 |
| Total | 6,345 | 50,830.4 | | | 8.0 |

Roll-up of PM Activities by Facility

Because resources are limited, effective allocation of manpower is important in the maintenance planning process, especially given the number of facilities and extensive preventive maintenance requirements identified. A review of area needs indicates that while Metrorail has the most equipment in the inventory, manhour requirements are highest at the Central Bus Facility.

| <i>Facilities</i> | <i>Number</i> | | <i>% of Total</i> | | <i>Manhours per Equip</i> |
|-------------------------|------------------|-----------------|-------------------|-----------------|---------------------------|
| | <i>Equipment</i> | <i>Manhours</i> | <i>Equipment</i> | <i>Manhours</i> | |
| Metrorail | 2,430 | 11,355 | 38.3% | 22.3% | 4.7 |
| Metromover | 1,026 | 5,674 | 16.2% | 11.2% | 5.5 |
| Central Bus Facility | 979 | 14,387 | 15.4% | 28.3% | 14.7 |
| Northeast Facility | 912 | 8,613 | 14.4% | 16.9% | 9.4 |
| Coral Way Facility | 470 | 6,749 | 7.4% | 13.3% | 14.4 |
| William Lehman Facility | 393 | 3,239 | 6.2% | 6.4% | 8.2 |
| South Dade Busway | 96 | 448 | 1.5% | 0.9% | 4.7 |
| Park & Ride | 39 | 366 | 0.6% | 0.7% | 9.4 |
| Total | 6,345 | 50,830 | | | 8.0 |

When grouped by bus or rail, bus facilities report less equipment but nearly twice the preventive maintenance manhours required by rail facilities.

| Facilities | Number | | % of Total | | Manhours per Equip |
|-----------------------|------------------|-----------------|-------------------|-----------------|---------------------------|
| | Equipment | Manhours | Equipment | Manhours | |
| Central Bus Facility | 979 | 14,387 | 39.2% | 47.1% | 14.7 |
| Northeast Facility | 912 | 8,613 | 36.5% | 28.2% | 9.4 |
| Coral Way Facility | 470 | 6,749 | 18.8% | 22.1% | 14.4 |
| South Dade Busway | 96 | 448 | 3.8% | 1.5% | 4.7 |
| Park & Ride | 39 | 366 | 1.6% | 1.2% | 9.4 |
| Total | 2,496 | 30,563 | | | 12.2 |
| % of Total Bus + Rail | 39.3% | 60.1% | | | |

| Facilities | Number | | % of Total | | Manhours per Equip |
|-------------------------|------------------|-----------------|-------------------|-----------------|---------------------------|
| | Equipment | Manhours | Equipment | Manhours | |
| Metrorail | 2,430 | 11,355 | 63.1% | 56.0% | 4.7 |
| Metromover | 1,026 | 5,674 | 26.7% | 28.0% | 5.5 |
| William Lehman Facility | 393 | 3,239 | 10.2% | 16.0% | 8.2 |
| Total | 3,849 | 20,267 | | | 5.3 |
| % of Total Bus + Rail | 60.7% | 39.9% | | | |

Another category of equipment maintained by the Facilities Maintenance Division, but not included in the equipment inventory, is elevators/escalators. While a specific contractor is responsible for completing all repairs, those repairs are subject to inspection and verification by MDT Elevator Contract staff. Elevator/escalator preventive maintenance and safety inspection requirements total 209 hours annually with 84 additional hours every five years for inspection of the traction elevators.

Annual Elevator/Escalator PM Hourly Requirements

| Type | Quantity | Annual Total | | Safety Total | | PM+Safety Total |
|--------------------|-----------------|---------------------|--------------|---------------------|--------------|------------------------|
| | | PM | Hours | PM | Hours | |
| Hydraulic Elevator | 65 | 0.5 | 32.5 | 1.0 | 65.0 | 97.5 |
| Traction Elevator | 21 | 0.5 | 10.5 | 1.0 | 21.0 | 31.5 |
| Escalator | 80 | 1.0 | 80.0 | 0.0 | 0.0 | 80.0 |
| Total | 166 | 2.0 | 123.0 | 2.0 | 86.0 | 209.0 |

Additional PM Hourly Requirements @ 5-Year Intervals

| Type | Quantity | 5-Year | |
|-------------------|-----------------|---------------|--------------------|
| | | PM | Total Hours |
| Traction Elevator | 21 | 4.0 | 84.0 |

Roll-up of PM Activities by Trade

Four specific trades are used to classify Facilities Maintenance Division activities: building, electrical, mechanical, and plumbing. Identifying specific needs within each area by trade enables maintenance managers to allocate manpower requirements effectively. Electrical and mechanical equipment account for over 80% of the total equipment and required manhours. Mechanical maintenance needs, in terms of manhours, are almost three times electrical manhour requirements.

| Trade | Equipment | % of Total | Manhours | % of Total |
|--------------|------------------|-------------------|-----------------|-------------------|
| Building | 159 | 2.5% | 3,378 | 6.6% |
| Electrical | 2,510 | 39.6% | 11,531 | 22.7% |
| Mechanical | 2,861 | 45.1% | 30,851 | 60.7% |
| Plumbing | 815 | 12.8% | 5,071 | 10.0% |
| Total | 6,345 | | 50,830 | |

There appear to be differences in needs based on trade even within the Bus Facilities. The Central Bus and the Coral Way Facilities show a high level of need for mechanical manhours versus electrical manhours, while the Northeast Facility shows similar mechanical and electrical needs. The Park & Ride Lots as well as the South Dade Busway require only electrical manhours.

| Central Bus Facility | Equipment | % of Total | Manhours | % of Total |
|-----------------------------|------------------|-------------------|-----------------|-------------------|
| Building | 72 | 7.4% | 1,706 | 11.9% |
| Electrical | 219 | 22.4% | 1,435 | 10.0% |
| Mechanical | 569 | 58.1% | 10,811 | 75.1% |
| Plumbing | 119 | 12.2% | 436 | 3.0% |
| Total | 979 | | 14,387 | |

| Northeast Facility | Equipment | % of Total | Manhours | % of Total |
|---------------------------|------------------|-------------------|-----------------|-------------------|
| Building | 32 | 3.5% | 768 | 8.9% |
| Electrical | 360 | 39.5% | 3,590 | 41.7% |
| Mechanical | 366 | 40.1% | 3,516 | 40.8% |
| Plumbing | 154 | 16.9% | 739 | 8.6% |
| Total | 912 | | 8,613 | |

| Park & Ride | Equipment | % of Total | Manhours | % of Total |
|------------------------|------------------|-------------------|-----------------|-------------------|
| Electrical | 39 | 100.0% | 366 | 100.0% |

| South Dade Busway | Equipment | % of Total | Manhours | % of Total |
|--------------------------|------------------|-------------------|-----------------|-------------------|
| Electrical | 96 | 100.0% | 448 | 100.0% |

| Total Bus Facilities | Equipment | % of Total | Manhours | % of Total |
|-----------------------------|------------------|-------------------|-----------------|-------------------|
| Building | 106 | 4.2% | 2,506 | 8.2% |
| Electrical | 970 | 38.9% | 8,539 | 27.9% |
| Mechanical | 1,130 | 45.3% | 18,187 | 59.5% |
| Plumbing | 290 | 11.6% | 1,332 | 4.4% |
| Total | 2,496 | | 30,563 | |

Metrorail and Metromover are quite similar in electrical and mechanical manhour needs, while the William Lehman Facility indicates no building manhour requirements and minimal plumbing requirements.

| Metrorail | Equipment | % of Total | Manhours | % of Total |
|------------------|------------------|-------------------|-----------------|-------------------|
| Building | 45 | 1.9% | 680 | 6.0% |
| Electrical | 940 | 38.7% | 2,137 | 18.8% |
| Mechanical | 1,200 | 49.4% | 6,794 | 59.8% |
| Plumbing | 245 | 10.1% | 1,745 | 15.4% |
| Total | 2,430 | | 11,355 | |

| William Lehman Facility | Equipment | % of Total | Manhours | % of Total |
|--------------------------------|------------------|-------------------|-----------------|-------------------|
| Building | 0 | 0.0% | 0 | 0.0% |
| Electrical | 118 | 30.0% | 299 | 9.2% |
| Mechanical | 136 | 34.6% | 2,423 | 74.8% |
| Plumbing | 139 | 35.4% | 517 | 16.0% |
| Total | 393 | | 3,239 | |

| Metromover | Equipment | % of Total | Manhours | % of Total |
|-------------------|------------------|-------------------|-----------------|-------------------|
| Building | 8 | 0.8% | 192 | 3.4% |
| Electrical | 482 | 47.0% | 557 | 9.8% |
| Mechanical | 395 | 38.5% | 3,448 | 60.8% |
| Plumbing | 141 | 13.7% | 1,477 | 26.0% |
| Total | 1,026 | | 5,674 | |

| Total Rail Facilities | Equipment | % of Total | Manhours | % of Total |
|------------------------------|------------------|-------------------|-----------------|-------------------|
| Building | 53 | 1.4% | 872 | 4.3% |
| Electrical | 1,540 | 40.0% | 2,992 | 14.8% |
| Mechanical | 1,731 | 45.0% | 12,664 | 62.5% |
| Plumbing | 525 | 13.6% | 3,739 | 18.4% |
| Total | 3,849 | | 20,267 | |

Despite the differences observed above, when combined, total manhour needs for bus facilities and rail facilities by trade are quite similar as indicated below.

| Facility | Equipment % of Total | | | |
|-------------------------|-----------------------------|-------------------|-------------------|-----------------|
| | Building | Electrical | Mechanical | Plumbing |
| Central Bus Facility | 7.4% | 22.4% | 58.1% | 12.2% |
| Northeast Facility | 3.5% | 39.5% | 40.1% | 16.9% |
| Park & Ride | 0.0% | 100.0% | 0.0% | 0.0% |
| South Dade Busway | 0.0% | 100.0% | 0.0% | 0.0% |
| Metrorail | 1.9% | 38.7% | 49.5% | 10.1% |
| William Lehman Facility | 0.0% | 30.0% | 34.6% | 35.4% |
| Metromover | 0.8% | 47.0% | 38.5% | 13.7% |
| Total Bus Facilities | 4.2% | 38.9% | 45.3% | 11.6% |
| Total Rail Facilities | 1.4% | 40.0% | 45.0% | 13.6% |

| Facility | Manhours % of Total | | | |
|-------------------------|----------------------------|-------------------|-------------------|-----------------|
| | Building | Electrical | Mechanical | Plumbing |
| Central Bus Facility | 11.9% | 10.0% | 75.1% | 3.0% |
| Northeast Facility | 8.9% | 41.7% | 40.8% | 8.6% |
| Park & Ride | 0.0% | 100.0% | 0.0% | 0.0% |
| South Dade Busway | 0.0% | 100.0% | 0.0% | 0.0% |
| Metrorail | 6.0% | 18.8% | 59.8% | 15.4% |
| William Lehman Facility | 0.0% | 9.2% | 74.8% | 16.0% |
| Metromover | 3.4% | 9.8% | 60.8% | 26.0% |
| Total Bus Facilities | 8.2% | 27.9% | 59.5% | 4.4% |
| Total Rail Facilities | 4.3% | 14.8% | 62.5% | 18.4% |

Routine Maintenance

On an annual basis, Superintendents, Maintenance Managers, and Maintenance Supervisors review scheduled preventive maintenance, work orders cleared throughout the year, outstanding work orders, and equipment replacement schedules to identify priority needs and plan the workload for the upcoming fiscal year. Maintenance needs to be accomplished through the capital program during the year are identified and, where possible, are removed from the list of outstanding maintenance needs. The remaining work items are assigned to the appropriate area, i.e., mechanical, electrical, plumbing or building, and a work plan to meet the outlined maintenance needs by facility or type of facility is established. Every effort is used to coordinate activities within areas to maximize efficient and effective use of personnel and resources. An example of the work plan for the current year is as follows:

Metrorail Stations

| Mechanical | Plumbing | Electrical | Building |
|---|---|---|---|
| <p>Elevators</p> <ul style="list-style-type: none"> • All exhaust ventilators in elevator rooms will be replaced by in-house mechanics to eliminate elevator pumps and controls from overheating • Long-term solution: elevator contractor will need to install oil-cooling radiators outside of the pit <p>Train Control Rooms</p> <ul style="list-style-type: none"> • Electrical outlets need to be installed in each control room to facilitate installation of portable air conditioning required to maintain cooling in case of system failure or replacement • System obsolescence requires the maintenance of a significant inventory of parts given that vendors do not stock these items and the manufacturing process requires up to six weeks <p>Battery Rooms</p> <ul style="list-style-type: none"> • Air conditioning requirements of the battery rooms at all control rooms are being reviewed to determine the best course of action <p>Fire Pump System</p> <ul style="list-style-type: none"> • Complete system overhaul | <p>General</p> <ul style="list-style-type: none"> • Refurbish all bathrooms • Replace water outlets with box-type assemblies • Replace drinking fountains and water outlets for hose bibs and allocate deferred maintenance budget • Re-pipe corroded water service lines and re-design water pipe and distribution to adequately supply emergency plumbing fixtures • Replace all emergency plumbing fixtures with OSHA approved emergency fixtures • Supply industrial waste system with a Code/DERM approved oil/water separator for all elevators and escalators • Re-design elevator and escalator sump pumps to accommodate facilities • Redo North Side drain field • Replace clean-out and access panels • Upgrade feature fountains | <p>Train Control Rooms</p> <ul style="list-style-type: none"> • Comply with needs for electrical power outlets for portable emergency A/C units <p>Communication Rooms</p> <ul style="list-style-type: none"> • Comply with needs for electrical power outlets for portable emergency A/C units <p>General</p> <ul style="list-style-type: none"> • Replace corroded electrical conduits and electrical panel bottoms • Remove all existing electrical violations • Implement infrared PM program; carry out infrared PMs of electrical panels, motor control centers and transformers • Implement PMs on untested ATS; train maintenance mechanics, replace ATS that are beyond repair, repair ATS requiring parts, and replace obsolete ATS • Instruct maintenance mechanics beyond basic instructions provided in training modules; emphasis on electrical safety and compliance with OSHA regulations; maintenance mechanics will obtain a Miami-Dade County electrical maintenance license • Update all electrical panel directories • Instruct maintenance mechanics on all PMs to be performed on electrical equipment • Provide single line power schematics (AUTOCADD) at every station | <p>General</p> <ul style="list-style-type: none"> • Dadeland North Parking Garage concrete repairs • Roofing repairs and short-term re-roofing • Replace broken or corroded doors at all facilities • Bench repairs and replacements |

Rail Maintenance Facility

| Mechanical | Plumbing | Electrical | Building |
|---|--|---|---|
| <p>Train Lifts</p> <ul style="list-style-type: none"> • Overhaul of entire system is planned for near future; training will be implemented to assist new mechanics in the areas of maintenance and repair • Refresher courses on lift function and required preventive maintenance need to be established for long-term mechanics <p>Equipment</p> <ul style="list-style-type: none"> • Specific PM sheets containing manufacturer's schedule of maintenance requirements on a computer-generated template form need to be implemented and distributed to mechanics with results entered into a computerized maintenance file <p>A/C System</p> <ul style="list-style-type: none"> • System is due for replacement; a comprehensive package to replace the two main air handlers has been assembled and is awaiting the procurement process <p>Fire Pump System, Underground Fuel Tanks</p> <ul style="list-style-type: none"> • Plan and budget for replacement | <p>General</p> <ul style="list-style-type: none"> • Install water saver fixtures, trims and faucets • Replace corroded plumbing, sanitary and water lines • Re-pipe flush valves and water distribution pipes to accommodate conventional flush valves • Add additional access to concealed plumbing systems • Re-design and redo industrial waste system • Replace floor drains with Code/DERM approved bucket type floor drains • Replace interceptors with Code/DERM approved oil/water separators of sufficient size • Re-design and replace train wash with modern water conservation system | <p>General</p> <ul style="list-style-type: none"> • Install emergency lighting and additional exit signs throughout to bring up to Life and Safety 101 • Equip all EXIT stairs with battery packs as an additional safety back-up in case of power failure • Install affixed generator to carry emergency lighting loads as well as essential loads required by communication recovery systems and the remote Train Control and communication buildings • Remove all identified electrical violations upon detection • Provide necessary power to meet personnel needs in the west mezzanine: new panel and step-down transformers along with power poles to connect to office furniture • Replace all wiring to the site lighting luminaries (high mast lighting) • Instruct maintenance mechanics on all PM to be performed on electrical equipment • Update all electrical panel Directories • Provide single line power schematics (AUTOCADD) | <p>New Buildings</p> <ul style="list-style-type: none"> • 2 New Storage Building for Facilities Maintenance <p>General</p> <ul style="list-style-type: none"> • Reconfigure employee parking lot to render additional parking spaces to accommodate the growing number of new employees |

Metromover Stations

| Mechanical | Plumbing | Electrical | Building |
|--|---|---|----------|
| <p>Control Rooms</p> <ul style="list-style-type: none"> • Immediate replacement of all A/C equipment with two independent A/C systems at each facility to maintain uninterrupted service (three stations completed) • Need trained personnel with appropriate equipment for installations • New battery equipment should have a provision for cooling • Install emergency receptacle for temporary emergency A/C connection | <p>General</p> <ul style="list-style-type: none"> • Replace all plumbing fixtures with Code- required water saver fixtures, trims and faucets • Re-pipe underground water service • Established scheduled cleaning program for French drains and catch basins • Install Code/DERM approved oil/water separators for each elevator and escalator • Replace vehicle wash system • Re-pipe sanitary and water pipe and distribution | <p>Fare Collection Equipment</p> <ul style="list-style-type: none"> • Comply with safety code and where connected through GFI for protection of customers <p>Omni Station</p> <ul style="list-style-type: none"> • Rewire portions to eliminate long-standing lighting problems <p>Metromover Bridge over Miami River</p> <ul style="list-style-type: none"> • Complete replacement of navigational lights <p>General</p> <ul style="list-style-type: none"> • Remove all existing electrical violations as detected • Replace electrical wiring of required air conditioning units • Carry out infrared PMs of electrical panels, motor control centers and transformers • Update all electrical panel Directories • Instruct maintenance mechanics on all PM to be performed on electrical equipment • Provide single-line power schematics (AUTOCADD) | |

Metromover Maintenance Facility

| Mechanical | Plumbing | Electrical | Building |
|--|--|--|---|
| <p>A/C System</p> <ul style="list-style-type: none"> • Main A/C requires replacement due to severe corrosion resulting from proximity to ocean • Establish 10-year replacement cycle for A/C and ventilation system <p>Lifts</p> <ul style="list-style-type: none"> • Develop replacement program for lifts and air compressors | <p>General</p> <ul style="list-style-type: none"> • Replace floor drains for industrial waste system with bucket type/sand trap floor drains • Replace outdated oil/water separator with a Code/DERM approved oil/water separator • Replace all plumbing fixtures with water saver Code required fixtures • Re-pipe underground water service pipes • Place oil storage tank on a pump out schedule • Design and install French drains with adequate percolation rate | <p>General</p> <ul style="list-style-type: none"> • Remove all existing electrical violations as detected • Carry out infrared PMs of electrical panels, motor control centers and transformers • Update all electrical panel Directories • Instruct maintenance mechanics on all PM to be performed on electrical equipment • Provide single-line power schematics (AUTOCADD) | <p>General</p> <ul style="list-style-type: none"> • Construct new employee parking lot to accommodate the growing number of new employees |

Parking Garages

| Mechanical | Plumbing | Electrical | Building |
|------------|---|------------|----------|
| | <p>General</p> <ul style="list-style-type: none"> • Schedule pump-out, cleaning and jetting for French drains, catch basins, area and floor drains • Replace trench drains, area and floor drain covers or grates • Re-pipe water service lines through concrete floors | | |

Metrobus Parking Garages

| Mechanical | Plumbing | Electrical | Building |
|------------|---|------------|--|
| | <p>General</p> <ul style="list-style-type: none"> • Design and install new French drains to provide adequate percolation rate • Replace covers for catch basins, clean-outs, meter boxes and trench drains • Comply with Code/DERM requirements • Design and install ejector pump systems in areas of flooding | | <p>General</p> <ul style="list-style-type: none"> • Reconfigure employee parking lots to render additional parking spaces to accommodate the growing number of new employees |

Metrobus Garages

Mechanical

Hydraulic Lifts

- Develop plan – overhaul vs replace with above ground

Electric Lifts

- Multiple types at each facility is a major maintenance problem; policy review and decision; provide factory training to mechanics

Air Compressors

- Implement budget for life cycle costing
- Consider purchase of portable trailer mounted compressors
- Replace air piping at Central O/I immediately

A/C System

- Need additional in-house resources to maintain system
- Allocate funding for cleaning and sanitizing ductwork every 5 to 8 years

Plumbing

General

- Completely refurbish bathrooms with water conservation fixtures, trims and valves
- Upgrade emergency fixtures and supply lines to OSHA standards
- Re-pip underground and corroded lines and install Code required back-flow preventors where necessary
- Replace inoperable bus washers with new water conservation systems

Electrical

General

- Replace all battery room lighting with explosive proof luminaries
- Remove all existing electrical violations as they are detected

Building

CBF O&I Ceiling

- General construction

CBF O&I Bathroom

- Floor removal

CBF Generator Service Ramp

- Welding

CBF Auditorium Patio

- Concrete repairs

New Buildings

- New battery charging buildings at each Bus Facility

Administration Office Buildings

| Mechanical | Plumbing | Electrical | Building |
|---|--|--|---|
| <p>A/C System</p> <ul style="list-style-type: none"> • Engineer comprehensive plan to retrofit entire A/C control system throughout CAB • Fund replacement equipment until plan formulated • Provide sufficient in-house mechanics with appropriate training to maintain system | <p>General</p> <ul style="list-style-type: none"> • Refurbish bathrooms • Replace plumbing fixtures, trims and faucets with water conservation type • Re-pipe all galvanized and corroded water lines • Replace plumbing control valves and provide for access panels | <p>General</p> <ul style="list-style-type: none"> • Remove all existing electrical violations as detected • Carry out infrared PMs of electrical panels, motor control centers and transformers • Update all electrical panel Directories • Instruct maintenance mechanics on all PM to be performed on electrical equipment • Provide single-line power schematics (AUTOCADD) | <p>CAB Computer Room</p> <ul style="list-style-type: none"> • General construction exterior wall |

Busway

| Mechanical | Plumbing | Electrical | Building |
|------------|----------|------------|--|
| | | | <p>General</p> <ul style="list-style-type: none"> • Sidewalks • Concrete driveways • Fence repairs |

Gap Tie Stations and Tail Track Building

| Mechanical | Plumbing | Electrical | Building |
|------------|--|------------|----------|
| | <p>General</p> <ul style="list-style-type: none"> • Water service pipes should be upgraded to supply emergency plumbing fixtures per OSHA requirements • Re-pipe corroded water service lines through concrete slabs • Replace plumbing fixtures with water conservation type and hose outlets with box type | | |

Miscellaneous

| Mechanical | Plumbing | Electrical | Building |
|------------|----------|------------|--|
| | | | <p>General</p> <ul style="list-style-type: none"> • Concrete repairs • General repairs <p>Downtown Fences</p> <ul style="list-style-type: none"> • Replace damaged chain link with iron decorative <p>Fencing</p> <ul style="list-style-type: none"> • General repairs <p>Elevator Floors</p> <ul style="list-style-type: none"> • Welding <p>All Facilities (ramps, striping, etc)</p> <ul style="list-style-type: none"> • ADA Compliance |

MDT's commitment to facility maintenance is reflected in the Facilities Maintenance Division operating budget, which is projected to exceed \$20 million this fiscal year.

| <i>Item</i> | <i>Previous Year</i> | <i>Fiscal 2003-2004 Budget</i> | <i>Exp/Enc 11/30/2003</i> | <i>Base</i> | <i>Fiscal 2004-2005 Core</i> |
|-------------------------------|--------------------------|--|-------------------------------|-------------|--------------------------------------|
| 001 Salaries | 4,093,515 | 5,231,120 | 726,444 | 5,914,718 | 5,914,718 |
| 010 Fringe Benefits | 969,685 | 1,403,136 | 176,042 | 1,728,517 | 1,728,517 |
| 031 Departure Incentive P | 3,875 | | 968 | | |
| 210 Accounting & Auditing | 125 | | | | |
| 215 Temporary Help Agency | 8,903 | | | | |
| 220 Electrical Services | 829,154 | 890,000 | 145,859 | 980,200 | 980,200 |
| 221 Water and Disposal Se | 787,506 | 900,700 | 144,742 | 947,500 | 947,500 |
| 223 Industrial Service Re | 3,964,924 | 4,080,400 | 720,431 | 4,597,585 | 4,597,585 |
| 224 Other Outside Contractu | 762,136 | 201,700 | 86,319 | 800,000 | 800,000 |
| 240 Outside Contractual S | 6,966 | | 449 | | |
| 241 Equipment Maintenance | 115 | | | | |
| 242 Parks Maintenance | | 11,700 | | 12,000 | 12,000 |
| 244 Outside Maintenance: B | 4,037,746 | 3,899,000 | 335,034 | 4,212,800 | 4,212,800 |
| 246 Rail/Aircraft/Boat/Br | 40,499 | | 24,356 | | |
| 253 Communication Equipme | 330 | 15,000 | | 18,000 | 18,000 |
| 254 Heavy Equipment Renta | 135,631 | 55,000 | 1,032 | 62,000 | 62,000 |
| 260 GSA Charges | 223,346 | 30,000 | 28,551 | 30,000 | 30,000 |
| 262 General County Suppor | 7,323 | | | | |
| 266 Clerk of Courts | 4,226 | | | | |
| 310 Telecommunications | 118 | | 16 | | |
| 312 Travel | 3,698 | | | | |
| 313 Automobile Reimbursem | 893 | | | | |
| 314 Advertising | 1,647 | | | | |
| 316 Mailing Services | 74 | | | | |
| 319 Petty Cash & Change F | 2,405 | 13,000 | | 13,000 | 13,000 |
| 320 Training | 1,521 | | | | |
| 321 Reimbursements & Refu | 982 | | -204 | | |
| 322 Taxes, Licenses & Perm | 19,777 | 46,000 | 1,664 | 56,000 | 56,000 |
| 330 Miscellaneous | 286,942 | 120,000 | 53,843 | 120,000 | 120,000 |
| 430 Automotive Repair & M | 1,287 | | | | |
| 431 Bldgs, Rdwys, & Struc | 153,116 | 226,800 | 4,429 | 257,200 | 257,200 |
| 432 Equipment & Non-Capit | 68,352 | 63,300 | 120 | 64,400 | 64,400 |
| 433 Inventory, Materials, | 10,659 | | 708 | | |
| 435 Other Repair & Mainte | 63,012 | 145,400 | 1,944 | 150,300 | 150,300 |
| 450 Construction Material | 14,319 | 43,300 | | 58,000 | 58,000 |
| 470 Office Supplies & Min | 11,218 | 7,500 | 636 | 8,500 | 8,500 |
| 492 Institutional, Medica | 1,734 | | 1,969 | 10,000 | 10,000 |
| 493 Clothing & Uniforms | 4,284 | 8,300 | 55 | 28,155 | 28,155 |
| 496 Other Materials & Sup | 221 | 6,300 | | 7,300 | 7,300 |
| 950 Major Machinery, Equi | 3,837 | | | | |
| Total | 16,526,101 | 17,397,656 | 2,455,407 | 20,076,175 | 20,076,175 |
| Increase versus Previous Year | | 5.3% | | | 15.4% |

The operating budget, presented above, reflects an increase of 5.3% in Fiscal Year 2003/2004 and an increase of 15.4% for Fiscal Year 2004/2005. The largest line item increases were observed in outside contractual services, construction material, clothing/uniforms, and major machinery.

Replacement and Rehabilitation Projects Programmed/Needs

Elevators/Escalators

All elevators and escalators are currently in excess of 20 years of age and perform under severe weather conditions in an environment prone to heavy use and vandalism. While all vertical and horizontal transportation equipment complied with the Elevator Safety Code at the time of installation, the State of Florida is considering adopting the Safety Code for Elevators and Escalators, American Society of Mechanical Engineers (ASME) A17.1-2000, which will have the following immediate impacts on the existing equipment:

- All elevators and escalators will be required to meet the new Code
- Safety brushes must be installed on all elevators
- Friction tests (Performance Index) must be conducted

In addition, the technology of the existing elevators is outdated. Replacement of elevators is a time consuming process that requires extensive planning to minimize service interruption and inconvenience to customers. Furthermore, throughout the replacement process, special transportation must be provided to facilitate the transport of the handicapped, elderly, and strollers and comply with ADA mandates. Immediate requirements include:

| Action | Item | Time Frame | Projected Cost |
|---------------|--|-------------------|-----------------------|
| Replace | 5 Elevator cabs/8 platforms | FY 2004/2005 | \$100,000 |
| Upgrade | 4 Facility Fire Alarm Systems | FY 2004/2005 | \$140,000 |
| Replace | Steps in 4 escalators | FY 2004 | \$228,000 |
| Upgrade | Existing elevators to comply with 2002 safety code: install step level monitor & skirt brushes | | \$0 |

Replacement of all elevators and escalators, including some electrical, civil, and building work will involve a substantial cost, estimated at approximately \$36 million. Elevator Contract staff recommend that all existing elevators and escalators be replaced based on heavy-duty elevators and escalator design

guidelines developed by the American Public Transportation Association.³ Projected capital needs identified by the Facilities Maintenance Division include the following for 2004 through 2008:

³ APTA-RT-RP-FS-007-02

| Identified Capital Need | (\$000s) | | | | | Total |
|--|-------------|-------------|-------------|-------------|-------------|--------------|
| | 2004 | 2005 | 2006 | 2007 | 2008 | |
| Replacement Tools & Equipment (Rail) | 137.6 | 240.2 | 240.2 | 240.2 | 240.2 | 1,098.6 |
| Facilities Roof Projects | 1,853.2 | 4,630.6 | 0.0 | 0.0 | 0.0 | 6,483.8 |
| Replace Shop Product Reels | 10.5 | 10.5 | 0.0 | 20.5 | 0.0 | 41.6 |
| Reseal Parking Lots and Paint Lines and Numbers | 500.0 | 410.8 | 0.0 | 0.0 | 0.0 | 910.8 |
| Level and Resurface Shop Floors | 523.8 | 0.0 | 0.0 | 0.0 | 0.0 | 523.8 |
| New Guard Houses | 131.0 | 0.0 | 0.0 | 0.0 | 0.0 | 131.0 |
| Replace and Install Window & Storm Shutters CAB | 517.5 | 0.0 | 0.0 | 0.0 | 0.0 | 517.5 |
| Renovate Mechanics' Locker Rooms and Bathrooms | 387.6 | 0.0 | 0.0 | 0.0 | 0.0 | 387.6 |
| Renovate Fuel Islands, Locker Rooms and Bathrooms | 291.2 | 0.0 | 0.0 | 0.0 | 0.0 | 291.2 |
| Replace Roof at Central O & I | 387.6 | 0.0 | 0.0 | 0.0 | 0.0 | 387.6 |
| Outdoor Escalator Canopies-Metromover Station | 519.6 | 0.0 | 0.0 | 0.0 | 0.0 | 519.6 |
| Replace Roof at Central Fuel Island and Bus Washer | 0.0 | 22.5 | 194.3 | 0.0 | 0.0 | 216.8 |
| Bus Facilities Tools & Equipment | 200.9 | 288.6 | 288.6 | 288.6 | 288.6 | 1,355.3 |
| Construct Building for Facilities Maintenance Personnel | 2,900.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2,900.0 |
| Replace Existing 1301 Halon Systems with New Gas | 500.0 | 1,042.0 | 1,042.0 | 1,042.0 | 1,042.0 | 4,667.9 |
| Replace Vehicle Wash Systems-Rail, Bus & Mover | 750.0 | 821.2 | 821.2 | 821.2 | 821.2 | 4,034.9 |
| Replace Plumbing Fixtures at Metrobus Facilities | 150.0 | 149.7 | 149.7 | 149.7 | 149.7 | 748.8 |
| Replace Employee Wash Basins | 128.0 | 67.1 | 67.1 | 67.1 | 67.1 | 396.2 |
| Upgrade Plumbing Equipment to Meet New Requirements | 350.0 | 447.5 | 447.5 | 447.5 | 447.5 | 2,140.2 |
| Replacement of Hydraulic Lifts-Rail/Bus | 1,400.0 | 1,500.0 | 326.2 | 0.0 | 0.0 | 3,226.2 |
| Replacement of A/C Units, Ventilation Fans, and Chillers (Bus) | 25.0 | 293.2 | 293.2 | 293.2 | 293.2 | 1,197.8 |
| Paint Facilities | 877.9 | 1,097.4 | 1,097.4 | 1,097.4 | 1,097.4 | 5,267.4 |
| Purchase Vans for Facilities Personnel | 180.0 | 0.0 | 0.0 | 0.0 | 0.0 | 180.0 |
| Replace Shop Product Reels | 10.5 | 13.7 | 13.7 | 13.7 | 13.7 | 65.2 |
| Replace Fuel Dispensers | 0.0 | 27.0 | 233.6 | 0.0 | 0.0 | 260.6 |
| Canopies for Bus Stops at Metrorail Stations | 6,000.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6,000.0 |
| Fencing for Rail and Mover Locations | 11.5 | 11.5 | 11.5 | 121.5 | 30.0 | 186.0 |
| Emergency Back-up System (Rail) | 156.5 | 0.0 | 0.0 | 0.0 | 0.0 | 156.5 |
| Sump Pump Installation in Manholes | 78.5 | 78.5 | 0.0 | 0.0 | 0.0 | 157.0 |
| Replace Station Roofs | 27.4 | 27.4 | 0.0 | 0.0 | 0.0 | 54.8 |
| Metrorail Station Refurbishments | 4,129.4 | 4,037.2 | 3,658.0 | 0.0 | 0.0 | 11,824.6 |
| Escalator and Elevator Refurbishments | 250.0 | 250.0 | 250.0 | 250.0 | 250.0 | 1,250.0 |
| Replace Elevator CAB Panels | 250.0 | 0.0 | 0.0 | 0.0 | 0.0 | 250.0 |
| Oil Water Separators | 434.5 | 0.0 | 0.0 | 0.0 | 0.0 | 434.5 |
| Paint Stations | 269.1 | 339.4 | 339.4 | 339.4 | 339.4 | 1,626.8 |
| Replace A/C Systems Metromover | 100.0 | 86.6 | 86.6 | 86.6 | 86.6 | 446.4 |
| Replace Elevators Rail, Bus and Inner Loop Mover Stations | 844.6 | 1,128.1 | 1,128.1 | 1,128.1 | 1,128.1 | 5,357.0 |
| Emergency Back-up Generators (Bus) | 378.6 | 156.5 | 0.0 | 0.0 | 0.0 | 535.1 |
| Replace Escalators Rail and Mover Stations | 3,233.5 | 4,114.2 | 4,114.2 | 4,114.2 | 4,114.2 | 19,690.2 |
| Flood Mitigation @ Lehman and Sidewalk Repairs @ Rail Stations | 403.2 | 403.2 | 0.0 | 0.0 | 0.0 | 806.5 |
| Replace Fire Sprinkler Heads @ Dadeland North Parking Garage | 130.0 | 114.5 | 0.0 | 0.0 | 0.0 | 244.5 |
| Plumbing Renovations | 275.0 | 241.6 | 241.6 | 241.6 | 241.6 | 1,241.5 |
| Portable Emergency Generators & Emergency Lighting-Rail/Mover | 316.9 | 0.0 | 0.0 | 0.0 | 0.0 | 316.9 |
| Upgrade Illumination & Power Distribution - Rail and Mover | 993.8 | 1,242.2 | 1,242.2 | 1,242.2 | 1,242.2 | 5,962.8 |
| Replace A/C Systems Metrorail Train Control Rooms | 270.0 | 270.0 | 270.0 | 274.6 | 0.0 | 1,084.6 |
| Replace Canopy at South Miami Station | 200.0 | 0.0 | 0.0 | 0.0 | 0.0 | 200.0 |
| Lehman Center Employee & Car Cleaner Platforms | 350.0 | 0.0 | 0.0 | 0.0 | 0.0 | 350.0 |
| | \$31,834.4 | \$23,563.0 | \$16,556.4 | \$12,279.4 | \$11,892.8 | \$96,126.0 |

On November 5, 2002, Miami-Dade County voters overwhelmingly supported the People's Transportation Plan by a margin of 2 to 1. In effect, voters approved a sales tax increase (6.5 percent to 7 percent) solely dedicated to transportation. The surtax is expected to generate \$160 million in fiscal year 2004 and grow by 5 percent annually for a comprehensive grassroots transportation plan. Implementation of the associated set of projects and programs that have been committed to the residents, labeled the People's Transportation Plan (PTP), is being overseen and monitored by the Citizen's Independent Transportation Trust (CITT).

Facilities-related projects ratified by the CITT include:

- Bus Washer & Bus Vacuum Replacement (\$4,619,000)
- Station Refurbishments & Facilities Roof Project (\$22,545,000)
- Replace Hydraulic Lifts & Piston Lifts (\$3,600,000)
- Replace Vehicle Washers (\$1,000,000)
- Upgrade Illumination (\$2,982,000)
- Replace Elevators & Escalators (\$7,616,000)

The final schedule for these projects and initiatives is dependent upon the cash flow included in the Pro Forma. The Department is in the process of prioritizing all projects and initiatives.

Potential Future Projects

In addition to those projects previously identified in the capital program and the People's Transportation Plan, other facilities-related projects have been identified for future consideration. The current listing of projects, which appear to have potential for development in the future includes:

- Additional Pedestrian Overpasses (4)
- Additional Bus Garages
- Busway Expansion
 - SW 200th Street
 - SW 296th Street
 - Bird Rd/SW 89th Av
- Additional Park & Ride Sites
 - SW 296/US1, properties acquired
 - Busway/SW 344 Street, under design
 - Busway/244th Street, ready to open
 - Busway/200 Street, under design
 - Busway/Quail Roost Drive, under negotiation

- SW 8 Street/89th Court, land acquired
- Dadeland North, beginning land acquisition
- Dadeland North/Dadeland South
- 7th Avenue Hub Park & Ride Garage, design underway
- Parking Garage Expansion
 - Dadeland North Metrorail Parking Garage
- Parking & Development Projects
 - Douglas Road
- Bus Terminal
 - Miami Beach Terminal near Convention Center

IV. Maintenance Requirements

Preventive Maintenance

Assuming no future growth, current preventive maintenance requirements total 50,830 manhours within facilities. In the absence of established work standards, a methodology had to be established to determine the number of maintenance personnel to complete the PMs.

A review of the *2001-2003 National Transit Database: Employee Work Hours* produced the following information concerning non-vehicle maintenance employees:

| Mode | Non-Vehicle Maintenance | | | | | | | |
|--------------|--------------------------------|----------------|----------------|----------------|------------------------------|-------------|-------------|----------------|
| | Employee Work Hours | | | | Actual Employee Count | | | |
| | 2001 | 2002 | 2003 | Average | 2001 | 2002 | 2003 | Average |
| Metromover | 76,683 | 84,169 | 83,332 | 81,395 | 48 | 50 | 52 | 50 |
| Metrorail | 334,149 | 367,151 | 382,774 | 361,358 | 172 | 184 | 192 | 183 |
| Metrobus | 132,225 | 130,597 | 139,631 | 134,151 | 63 | 62 | 67 | 64 |
| Total | 543,057 | 581,917 | 605,737 | 576,904 | 283 | 296 | 311 | 297 |

Source: NTD 2001, Table 21; NTD 2002, Table 18, and NTD2003, Table 18

Actual hours per employee along with the average hours per employee from 2001 through 2003 are presented below.

| Mode | Non-Vehicle Maintenance | | | |
|--------------|--------------------------------|----------------|----------------|----------------|
| | Hours per Employee | | | |
| | 2001 | 2002 | 2003 | Average |
| Metromover | 1,597.6 | 1,683.4 | 1,602.5 | 1,627.8 |
| Metrorail | 1,942.7 | 1,995.4 | 1,993.6 | 1,977.2 |
| Metrobus | 2,098.8 | 2,106.4 | 2,084.0 | 2,096.4 |
| Total | 1,918.9 | 1,965.9 | 1,947.7 | 1,944.2 |

Unfortunately, this category of employees includes all “non-vehicle” maintenance employees, a group which is comprised of a variety of clerical, inventory, and track & guideway, and train control/traction power employees in addition to facilities maintenance. While the data do show wide differences in hours per employee across the three divisions, inferences regarding specific facilities hours cannot be drawn.

Over the course of several years as part of three separate studies, the Center for Urban Transportation Research at the University of South Florida (CUTR) calculated annual productive hours for Metrorail, Metromover, and Metrobus Maintenance staff. CUTR's findings were as follows:

| <i>Department</i> | <i>Productive Hours</i> |
|--------------------------|--------------------------------|
| Metrorail | 1,452 |
| Metromover | 1,442 |
| Metrobus | 1,555 |
| Average | 1,483 |

Calculations of productive manhours for preventive maintenance activities by trade were made for each of the areas within Facilities Maintenance Division. Staff requirements for each facility are illustrated below.

***Facilities Staff Requirements
@ 1,483 Productive Hours***

| <i>Facility</i> | <i>Building</i> | <i>Electrical</i> | <i>Mechanical</i> | <i>Plumbing</i> | <i>Total</i> |
|-----------------------------|------------------------|--------------------------|--------------------------|------------------------|---------------------|
| Central Bus Facility | 1.2 | 1.0 | 7.3 | 0.3 | 9.7 |
| Northeast Facility | 0.5 | 2.4 | 2.4 | 0.5 | 5.8 |
| Coral Way Facility | 0.0 | 1.8 | 2.6 | 0.1 | 4.6 |
| Park & Ride | 0.0 | 0.2 | 0.0 | 0.0 | 0.2 |
| South Dade Busway | 0.0 | 0.3 | 0.0 | 0.0 | 0.3 |
| Total Bus Facilities | 1.7 | 5.8 | 12.3 | 0.9 | 20.6 |
| Metrorail | 0.5 | 1.4 | 4.6 | 1.2 | 7.7 |
| William Lehman Facility | 0.0 | 0.2 | 1.6 | 0.3 | 2.2 |
| Metromover | 0.1 | 0.4 | 2.3 | 1.0 | 3.8 |
| Total Rail Facilities | 0.6 | 2.0 | 8.5 | 2.5 | 13.7 |
| Total Rail & Bus Facilities | 2.3 | 7.8 | 20.8 | 3.4 | 34.3 |

Unscheduled Corrective Maintenance

Actual repair hours within the Facilities Division are unavailable; therefore, a methodology had to be developed to project estimated corrective maintenance hours.

During the course of a recent peer review with three agencies determined to be similar to Miami-Dade Transit through use of cluster analysis methodology, CUTR was presented with the opportunity to interface with facility maintenance managers at Denver Regional Transportation District (Denver RTD), Baltimore Maryland Transit Administration (Baltimore MTA), and Cleveland Regional Transportation Authority (Cleveland RTA).

Denver RTD reported a split of 50% for PM and 50% for repair. They also indicated that they are in the process of developing annual capital programs for consolidation into a 5-year TDP in an effort to get equipment replaced on a cycle.

Baltimore MTA said their PM/repair split was 50% for PM and 50% for repair due to the age of their equipment. They reported difficulty in accomplishing PMs as a result of a high corrective maintenance rate.

Cleveland RTA indicated they currently have a split of 30% for PM and 70% for repair. They are going through a transition process with their PM program. The current card file is being replaced with a computerized maintenance management system for transit facilities. Cleveland RTA has established a PM/repair goal of 75% for PM and 25% for repair.

Facilities staff at the three agencies identified achieving a PM/Repair split in which PM activities represented a majority of work hours as a priority.

Three factors were considered in determining the appropriate Facilities Division PM/repair split.

- The recently completed inventory identifies a large increase in the number of PM manhours required as compared with actual PM hours reported within Metrorail and Metromover facilities from 1999-2002.
- It appears that equipment, where installation dates were available, has been in operation well beyond its service life, which could drive a higher than expected corrective maintenance rate. This is particularly obvious with Metromover and Metrorail facilities where equipment installation dates were available.

- Metrorail and Metromover facilities did report 100% PM completion rates for a variety of PM inspections during the reporting period from October 2002 through June 2003.

While a 50/50 PM/repair split should be unnecessary over the long term, in order to tackle the mandates of the recently completed inventory, identified manhour needs justify the use of a 50/50 split. Projected staffing needs based on a 50/50 split total 69 employees as presented in the following tables.

| Total Bus Facilities | Equipment | PM Manhours | Repair Manhours | Total Manhours | Staff @ 1,483 Hours |
|-----------------------------|------------------|------------------------|----------------------------|---------------------------|------------------------------------|
| Building | 106 | 2,506 | 2,506 | 5,011 | 3.4 |
| Electrical | 970 | 8,539 | 8,539 | 17,079 | 11.5 |
| Mechanical | 1,130 | 18,187 | 18,187 | 36,373 | 24.5 |
| Plumbing | 290 | 1,332 | 1,332 | 2,664 | 1.8 |
| Total | 2,496 | 30,563 | 30,563 | 61,127 | 41.2 |

| Total Rail Facilities | Equipment | PM Manhours | Repair Manhours | Total Manhours | Staff @ 1,483 Hours |
|------------------------------|------------------|------------------------|----------------------------|---------------------------|------------------------------------|
| Building | 53 | 872 | 872 | 1,744 | 1.2 |
| Electrical | 1,540 | 2,992 | 2,992 | 5,984 | 4.0 |
| Mechanical | 1,731 | 12,664 | 12,664 | 25,328 | 17.1 |
| Plumbing | 525 | 3,739 | 3,739 | 7,478 | 5.0 |
| Total | 3,849 | 20,267 | 20,267 | 40,534 | 27.3 |

| Total Bus + Rail Facilities | Equipment | PM Manhours | Repair Manhours | Total Manhours | Staff @ 1,483 Hours |
|------------------------------------|------------------|------------------------|----------------------------|---------------------------|------------------------------------|
| Building | 159 | 3,378 | 3,378 | 6,755 | 4.6 |
| Electrical | 2,510 | 11,531 | 11,531 | 23,063 | 15.6 |
| Mechanical | 2,861 | 30,851 | 30,851 | 61,701 | 41.6 |
| Plumbing | 815 | 5,071 | 5,071 | 10,142 | 6.8 |
| Total | 6,345 | 50,830 | 50,830 | 101,661 | 68.6 |

The current Table of Organization for the Facilities Division reflects allocations of 33 Transit Facilities Mechanics assigned to Metrorail & Metromover facilities and 23 Transit Facilities Mechanics assigned to Metrobus facilities. Based on available manhours of 1,483 productive hours per Transit Facilities Mechanic,

current manhours available for all PM and repair activities total 83,048 hours. In the absence of additional manpower resources, the Facilities Division lacks 18,613 manhours required to complete 100% of PM and repair requirements, if resources are reallocated within the Facilities Division based on the manhour needs identified in the inventory.

| <i>Transit Facilities Mechanics</i> | <i>Metrorail & Metromover</i> | <i>Metrobus</i> | <i>Total</i> |
|--|--|------------------------|---------------------|
| Current Employees | 33 | 23 | 56 |
| Hours/Employee | 1,483 | 1,483 | 1,483 |
| Available Manhours | 48,939 | 34,109 | 83,048 |
| Projected PM Hours Required | 20,267 | 30,563 | 50,830 |
| Projected Repair Hours Required | 20,267 | 30,563 | 50,830 |
| Projected Total Hours Required | 40,534 | 61,127 | 101,661 |
| Hours Available Minus Hours Required | 8,405 | -27,018 | -18,613 |
| % Total Hours Able to Complete | 120.7% | 55.8% | 81.7% |

If the Facilities Divisions focuses efforts to complete 100% of PMs, approximately 63.4% of repairs can be completed by the current complement of mechanics.

| <i>Transit Facilities Mechanics</i> | <i>Metrorail & Metromover</i> | <i>Metrobus</i> | <i>Total</i> |
|--|--|------------------------|---------------------|
| <i>If Complete 100% PMs</i> | 20,267 | 30,563 | 50,830 |
| Hours Available for Repairs | 28,672 | 3,546 | 32,218 |
| % Repairs Able to Complete | 141.5% | 11.6% | 63.4% |

Completion of 80% of PMs would increase the number of hours available for repairs to allow completion of approximately 83.4% of required repairs.

| <i>Transit Facilities Mechanics</i> | <i>Metrorail & Metromover</i> | <i>Metrobus</i> | <i>Total</i> |
|--|--|------------------------|---------------------|
| <i>If Complete 80% PMs</i> | 16,214 | 24,451 | 40,664 |
| Hours Available for Repairs | 32,725 | 9,658 | 42,384 |
| % Repairs Able to Complete | 161.5% | 31.6% | 83.4% |

Contractor Maintenance

Contractor maintenance generally falls into two categories: ongoing and as needed. Ongoing service contracts include the following:

| <i>Ongoing Service Contracts</i> | <i>FY 2003/04 Allocation</i> | <i>FY 2004/05 Core</i> |
|---|---|-----------------------------------|
| Janitorial Services | \$3,441,000 | \$3,900,000 |
| Landscape Maintenance | \$2,056,600 | \$2,179,000 |
| Elevator/Escalator Maintenance | \$1,600,000 | \$1,798,000 |
| Extermination Services | \$33,700 | \$58,700 |
| Waste Collection | \$317,000 | \$317,500 |
| Parking Facility Maintenance | \$531,000 | \$600,000 |

Typical contracts for maintenance and repair service on an as needed basis include:

Typical "As Needed" Contracts

- Air Conditioning
- Electrical
- Fencing
- Roofing
- Welding
- Roll Up Door Repairs
- Bridge Crane Inspections & Repairs
- Concrete & Asphalt Paving
- Fire Protection Inspections
- Major Construction Projects
- Equipment Installations

V. Warranty Recovery

The MDT Materials Management Division administers warranty recovery and is responsible for identification, recovery, and enforcement of warranty control for all items procured for Metrorail, Metromover, and Metrobus that are distributed through the warehouse and stockrooms.

Identification

- Materials Management develops, implements, and provides training for warranty procedures, including all instructions and forms and assists in training and coordination of warranty activities between division staff and outside vendors
- The history, usage, and reasons for division problem areas are investigated by Materials Management in detail
- Materials Management monitors the reliability of high failure rate of items to detect defects, which may result in facility-wide correction campaigns and product retrofits
- Materials Management utilizes computerized warranty control functions interfacing with Inventory Management, Equipment Management Systems, Information Management Systems, and Time Share Options

Recovery

- Materials Management has established and manages the warranty division/vendors relationship, and controls and directs all warranty and recovery activity
- Disputed warranty claims and processes to be used for retrofits and corrective campaigns are negotiated by Materials Management

Enforcement

- Materials Management prepares bid and proposal warranty provisions to maximize division benefits and to ensure that vendor's warranties are equitable to manufacturers' industry warranties
- Periodic visits to technical services/vendors to inspect and ensure the integrity of the warranty recovery process and vendor quality product line are performed by Materials Management
- Materials Management enforces and reviews division contracts/bid awards for federal compliance

- In conjunction with Management Information Services (MIS) staff, Materials Management creates, designs, implements, and maintains the Warranty Information Data Base System
- Materials Management negotiates and discusses with corporations, manufacturers, vendors, maintenance engineering, and maintenance management staff on cost savings, complex, sensitive, and highly-technical division issues

At the present time, Materials Management warranty recovery functions do not include the Facilities Maintenance Division. Concurrent with the implementation of the EAMS, Facilities Maintenance Division and MDT Materials Management will develop warranty recovery procedures for Facility Maintenance Division specific items. The process will mirror the existing one, which has proven to be highly successful. At the present time, it is anticipated that EAMS will be implemented for Facilities Maintenance Division at the end of 2006; however, implementation could occur sooner if the project moves ahead faster than expected.

VI. Facilities Division Maintenance Plan

The mission of the Facilities Maintenance Division is “to ensure the availability of safe, reliable, efficient and secure facilities and equipment for MDT customers and employees.” That responsibility includes the maintenance and repair of more than 6,300 individual pieces of equipment as well as 123 buildings, stations and parking areas totaling 7.4 million square feet and occupying 343 acres of land. In addition to maintenance of facilities and fixed equipment, the span of Facilities control includes contractual services such as elevator/escalator inspection and repair, janitorial services, extermination services, walk off mats and dust control products, landscaping and lawn maintenance services, portable chemical toilets, waste collection services, and pigeon control services.

The Division operates 24 hours a day, 7 days a week under the direction of a General Superintendent (pending reclassification) who reports to the Assistant Director, Rail Services. Maintenance of MDT facilities, machinery, equipment, and contract oversight is accomplished through the efforts of 108 Facilities staff.

The philosophy and goals of the Facilities Division Maintenance Program Policy are to maximize cost effectiveness of maintenance efforts consistent with safe operations through a proper balance of preventive maintenance, corrective maintenance, and systems improvements, where necessary.

The Facilities Maintenance Division’s commitment to continuous improvement is exemplified in the development of a Facilities Equipment and Maintenance Plan, extensive update of the existing equipment inventory, and recent documentation of repair activities. Toward that end, the Facilities Maintenance Division has identified a number of activities to be undertaken within the next two years not only to maintain but also to enhance the quality service that has become standard within the Facilities Division.

Objective 1: Facility Availability

To ensure facilities, including stations, support buildings, maintenance shops, office and parking facilities are operational and available to customers and employees:

1. Identify installation dates and begin the work of prioritizing equipment replacement based on:
 - i. Age of equipment
 - ii. Repair needs
 - iii. Current capital program

2. Establish criteria to be used in the decision-making process to determine whether work is done in-house or contracted-out
3. Track the completion time of each work order from time open to time closed

Objective 2: Equipment Availability

To ensure that facility equipment, including elevators, escalators, and station and shop equipment, is maintained for maximum availability:

1. Establish target for preventive maintenance requirements
2. Reallocate manpower based on identified preventive maintenance and repair needs
3. Refine the equipment inventory to include detailed information on equipment location
4. Incorporate repair data into the maintenance planning process
 - i. Establish improvement goal based on performance to date
5. Establish an interim process to identify and track warranties until EAMS is on-line
 - i. Create list of existing warranties
 - ii. Establish mechanism to add new warranties to database
 - iii. Incorporate warranty check prior to implementing repair work
 - iv. Designate a facilities staff member to coordinate warranty work

Objective 3: Facility Appearance

To ensure that all facilities, including stations, support facilities, office and parking facilities, are clean and present a safe and comfortable environment for customers and employees:

1. Develop 2-3 customer satisfaction questions concerning facility safety and cleanliness for inclusion in the bi-annual Miami-Dade Transit customer survey
2. Track customer complaints
 - i. Number, nature and location of complaints
 - ii. Time required to resolve complaint or correct deficiency
 - iii. Identify actions taken in areas similar to the area that was the subject of the complaint (pro-active)

Objective 4: Facility Improvements

To modify or change existing facilities in support of on-going operations within engineering and building code requirements

1. Coordinate data collection efforts with IT staff to ensure the new EAMS system provides timely and relevant information
 - i. Utilize available data in maintenance planning process
2. Analyze a potential discrepancy in trade requirements from facility to facility identified in the equipment inventory preventive maintenance manhour needs

Implementation Monitoring

The process of developing the Facilities Maintenance Division Equipment and Maintenance Plan has provided the Division with a wealth of detailed information concerning not only the facilities and equipment under the Division's span of control but also with a knowledge base that can be used to improve the operations.

Throughout the next year, the Facilities Maintenance Division will establish benchmarks for each of the improvement activities identified above and will formally report their progress in each of the areas to the Assistant Director, Rail Services, at the end of the year.

The annual report will let the Facilities Maintenance Division know where they are in all aspects of their mission. It will also serve as the foundation of the Facilities Maintenance Division's Maintenance Plan for the future.

Appendices

| | |
|------------|---|
| Appendix A | Elevator/Escalator Inspection Report |
| Appendix B | Elevator/Escalator Daily Log |
| Appendix C | Monthly Activity Report |
| Appendix D | Vendor Non-Performance Report |
| Appendix E | MDT Facilities Division Maintenance Program Policy |
| Appendix F | Facilities Master Preventive Maintenance Listing |
| Appendix G | Sample PM |
| Appendix H | Property Manager Metrorail/Metromover Custodial Maintenance Reports |
| Appendix I | Property Manager Buildings Report |
| Appendix J | Property Manager Shift Log |
| Appendix K | Maintenance Request Form (MRR) |
| Appendix L | Metrorail/Metromover Central Operations Daily Log |
| Appendix M | Transit Operating System (TOS) Report |
| Appendix N | Traction Power Wayside Equipment Malfunction Report |
| Appendix O | Train Control Wayside Equipment Malfunction Report |
| Appendix P | Facilities Work Order |
| Appendix Q | Weekly Report |

Appendix A
Miami-Dade Transit
Elevator/Escalator Inspection Report

Elevator/Escalator Inspection Report

State of Florida
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION
 Division of Hotels and Restaurants • Bureau of Elevator Safety
 Northwood Centre, 1940 North Monroe Street, Tallahassee, FL 32399-1013
 Phone: 850-488-9097 www.hospitalityeducation.org Fax: 850-922-6208

SERIAL NUMBER

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

ELEVATOR INSPECTION REPORT

TYPE OF INSPECTION

1 - Inspector 2 - Initial
 3 - Callback 4 - Construction
 5 - Complaint 6 - Alteration
 7 - Monitoring 8 - TOP (Temporary Operating Permit)
 9 - Accident

DBPR USE ONLY

PERMIT FEE AMOUNT COLLECTED

Building Name _____

Building Address _____

City _____

Zip Code _____

TEMPORARY OPERATION PERMIT NUMBER _____

NOTICE TO ELEVATOR OWNER

Successfully passing an initial inspection authorizes use of a copy of this form as a temporary certificate of operation until receipt of the original certificate of operation issued by the Department of Business and Professional Regulation or for a maximum of sixty (60) days, whichever occurs first.

DEFINITIONS

OEI - Qualified Elevator Inspector
 COC - Certificate of Competency

NOTICE TO CERTIFIED ELEVATOR INSPECTOR

Completed inspection report must be returned to the Bureau of Elevator Safety within five (5) working days of inspection.

CERTIFIED ELEVATOR INSPECTOR (CEI) #

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

PERSON RECEIVING THIS REPORT

Print Name _____ Title _____

Signature _____ Phone Number _____

A - MAJOR VIOLATIONS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

B - MINOR VIOLATIONS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |

VIOLATIONS

| | | | | | | | | | |
|-----------------|--|--|--|--|--|--|--|--|--|
| IN MACHINE ROOM | | | | | | | | | |
| IN HOISTWAY | | | | | | | | | |
| IN PIT | | | | | | | | | |
| IN/ON CAB | | | | | | | | | |
| ESCALATORS | | | | | | | | | |

COMMENTS

SUPERVISOR OF CONSTRUCTION

I certify that as the elevator company supervisor, I directly supervised the construction or installation of this elevator.

Signature _____

Print Name _____

Phone _____

OEI# _____ COC# _____

Or see attached elevator installation affidavit.

ELEVATOR INSPECTOR CALLBACK

I certify the violations cited on the previous inspection report have been corrected.

Signature _____

Print Name _____

Phone _____

OEI# _____

ELEVATOR INSPECTOR

I certify that I have personally performed or witnessed:

Routine inspection

Periodic tests as prescribed by ASME A17.1

Acceptance inspection of new or altered installation as recommended by the ASME A17.2 Inspectors Manual

Signature _____

Print Name _____

Phone _____

OEI# _____

Installation meets or exceeds minimum standards of Chapter 399, Florida Statutes, and Chapter 30 of the Florida Building Code adopted by Rule 9B-3.047, Florida Administrative Code.

DO NOT WRITE BELOW THIS LINE

INSPECTION DATE

| | | |
|-------|-----|------|
| Month | Day | Year |
| 0 | 0 | 00 |
| 1 | 1 | 01 |
| 2 | 2 | 02 |
| 3 | 3 | 03 |
| 4 | 4 | 04 |
| 5 | 5 | 05 |
| 6 | 6 | 06 |
| 7 | 7 | 07 |
| 8 | 8 | 08 |
| 9 | 9 | 09 |

TEMPERARY OPERATION PERMIT NUMBER

DBPR Form HR 5023-003 (2001 November 9)

CENTRAL OFFICE COPY

Appendix B
Miami-Dade Transit
Facilities Maintenance Division
Elevator/Escalator Daily Log

Appendix C
Miami-Dade Transit
Facilities Maintenance Division
Monthly Activity Report

Monthly Activity Report

Miami-Dade County, Florida



Office of Elevator Safety
General Services Administration
Facilities and Utilities Management Division
11805 SW 26th Street, Suite 207
Miami, Florida 33175
Phone: 786-315-2889; Fax: 786-315-2958

To: Ms. Cathy White
Bureau of Elevator Safety
Fax No.: (850) 922-6208

Monthly Activity Report

Subject: Elevator Inspections for the Month of :

1. Re-inspections Performed (Routine-Semi Annual)
2. Initial Inspections Performed (only a Completed New Unit)
3. Call back Inspections Performed (Any Alteration-Re-Insp.)
4. Construction Inspections Performed (Pre-Const. /Failed Initial)
5. Complaints
6. Accident Inspections Performed
7. Elevator Sealed From Public Use (Tagged/Taken out of Service)
8. New Elevator/ Escalator Permits Issued
9. Alterations Permits Issued
10. Temporary Operation Permits Issued (Construction)
11. Number of Accidents Reported
12. Number of Elevators/ Escalators
13. Total of Certificates Issued

TOTAL INSPECTIONS LINES (1 THROUGH 6)

Representative of Contracted Agency

Date

Appendix D
Miami-Dade Transit
Vendor Non-Performance Report

Appendix E
Miami-Dade Transit
Facilities Maintenance Division
Maintenance Program Policy

**MIAMI-DADE TRANSIT
FACILITIES MAINTENANCE DIVISION
MAINTENANCE PROGRAM POLICY**

Effective Date: _____

Page 1 of 9

I. CONTENT:

- 1.0** Maintenance Program Philosophy/Goal
- 2.0** Purpose of Maintenance Program
- 3.0** Maintenance Program Objectives
- 4.0** Types of Maintenance
- 5.0** Maintenance Program Accomplishment
- 6.0** Maintenance Program Efficiency
- 7.0** Scheduled Maintenance Applications
- 8.0** Scheduled Inspection/Tasks Specifications
- 9.0** Deviations from Maintenance Program Specifications
- 10.0** Maintenance Program Records
- 11.0** Maintenance Program Revisions
- 12.0** Maintenance Program Revisions Justification
- 13.0** Conditional Maintenance Program Revisions

II. POLICY

- 1.0 Maintenance Program Philosophy/Goal:**
 - o Maximize cost effectiveness of maintenance efforts consistent with safe operations through a proper balance of preventive maintenance, corrective maintenance and hardware/software improvement.
- 2.0 Purpose of Maintenance Program:**
 - o To maintain the designed safety and reliability levels of the equipment.

- The Maintenance Program recognizes that maintenance cannot correct deficiencies in the designed safety and reliability levels of equipment. At best, the maintenance program can only prevent deterioration from the design levels. If those inherent levels are found to be unsatisfactory in service, design modification is necessary to obtain improvement.

3.0 Maintenance Program Objectives:

- To ensure realization of design safety and reliability levels of equipment.
- To restore safety and reliability to their inherent levels when deterioration has occurred.
- To obtain the information needed to improve design of item whose inherent reliability proves inadequate.
- To accomplish these objectives at minimum total cost, including maintenance costs and the costs of residual failures.

4.0 Types of Maintenance:

- Planned/Scheduled Maintenance:
 - PMs and Modifications
- Nonscheduled Maintenance:
 - Correction of discrepancies found during PMs, modifications, other unscheduled maintenance, normal operations or data analysis.
- Planned, Non Scheduled Maintenance:
 - At times, discrepancies found during PMs, modifications, or other unscheduled maintenance, normal operations or data analysis, can be deferred and a shop visit planned and scheduled for a later time to correct the discrepancy. Discrepancies affecting safety or operational reliability cannot be deferred.

5.0 Maintenance Program Accomplishment:

- Scheduled Tasks-Modifications:
 - Accomplished in accordance with plan.

- Objective: to improve safety, reliability or maintainability.
- o Scheduled Tasks – PM inspections:
 - Accomplished at specified intervals.
 - Objective: to prevent deterioration of equipment from designed safety and reliability levels.
 - Types of Tasks:
 - * Lube/Serviceing
 - * Operations/Visual Check
 - * Inspection/Functional Check
 - * Condition Testing and Recording
 - * Restoration
 - * Discard
- o Nonscheduled Tasks:
 - Accomplished as required.
 - Generated from:
 - * Scheduled Tasks
 - * Malfunction Reports
 - * Data Analysis
 - Objective: restore equipment to acceptable safety and reliability levels.

6.0 Maintenance Program Efficiency:

- o Schedules only those tasks necessary to meet stated objectives.
- o Does not schedule tasks that will increase maintenance costs without a corresponding increase in reliability or safety.

7.0 Scheduled Maintenance Application:

- o Track System scheduled maintenance program will be such that the trackwork system meets or exceeds standards specified in the MIAMI-DADE TRANSIT RAIL OPERATIONS (DIVISION) STANDARD OPERATING PROCEDURES, P.M. GP-03 (Safety Standards for Inspection and Maintenance of Track).
- o All fixed, mobile and transportable equipment used in the delivery and maintenance of MDTA Rail and People Mover (Automated

Guideway) transit service will have periodic preventive maintenance inspections and servicing.

- PM Inspections and servicing will consist of routine tasks as described above under Program Content, Scheduled Tasks.
- Campaign Inspections are short term inspections of specific hardware items for the purpose of assessing status or condition. Such inspections can be initiated by the maintenance engineer, maintenance supervision of management or Rail Maintenance Control. Such inspections are temporary in nature and are not considered as part of the approved PM program. Campaign inspections, while independent of the PM program, may be ordered and scheduled in conjunction with routine approved PM inspections as a matter of expediency.

8.0 Scheduled Inspection/Tasks Specifications:

- Specifications for PM performance will be derived from manufacturer's recommendations as modified by experience and engineering analyses of the hardware and its use.
- PM performance specifications will include specific tasks, procedures, methods, tools and test equipment where appropriate, frequency of performance, dimensions/tolerances, rates, distances, clearances, quantities, viscosities, and other such standards as appropriate.

9.0 Deviation from Maintenance Program Specifications:

- No deviations from any approved PM task, procedure, method, frequency or other specification that exists to insure public/employee safety are permitted.
- Deviations from approved PM tasks, procedures, method, frequency or other specifications that exist solely for reliability, maintainability or other economic reasons, may be authorized by written approval of the Assistant Director, Transit Services or higher authority. Such deviations from the approved PM program will be authorized only under extreme circumstances.

10.0 Maintenance Program Records:

- Records required by Federal, State and local agencies and other as necessary to verify scheduling and accomplishment of the approved PM program inspections shall be maintained in good order and accessibility.
- Such records as necessary to support warranty and other claims and analyses for economic reliability, maintainability, performance, quality control and PM program revision purposes shall also be maintained in good order and accessibility.

11.0 Maintenance Program Revisions:

- Program Continuously Examined.

In addition to revisions resulting from hardware systems changes, the maintenance program is continuously examined for potential improvements based on reliability/maintainability historical experience.

- Initiation of Revision.

Program changes can be identified and recommended by numerous sources; for example, the County's Employee Suggestion Program, Supervisory Staff, Rail Maintenance Control and others.

The actual change is initiated by a memo of recommendation with supporting justification from the maintenance engineer in whose area of responsibility the program procedures fall. In general the changes add or delete tasks from a routine inspection bill of work or increase/decrease an inspection frequency. Specification changes and methods changes are also included.

- Approval of Revision.

A copy of the affected procedure is modified by Maintenance Control per the engineer's recommendation and circulated, along with the justification and supporting documentation, for review and approval/disapproval by all affected Division Chiefs, Office of Safety and Security and the Assistant Director.

If the change is approved by consensus, it becomes effective as soon as all appropriate paperwork is revised and issued. If disapproved, the recommended change is returned to the initiating engineer with reasons for disapproval. The engineer

then may take appropriate action to allay objections or drop the case, depending on the situation.

- o Increases to Maintenance.

Additions to the program and changes that increase the intensity of maintenance may not go through the entire approval process; recommended additions to the maintenance program, if approved by the maintenance section that must accomplish the additional maintenance, are then reviewed by Maintenance Control. If there will be no scheduling problems, no further approvals are necessary. Otherwise, the recommended change enters the normal approval process. Changes of this type usually originate with the maintenance department involved who notify the appropriate engineer of their need. The engineer then prepares the recommended change and initiates the process illustrated in the attached flow chart.

- o Additions in the form of newly created preventive maintenance procedures will be treated the same as revisions resulting in a decrease in intensity of maintenance (see Section 11.0, paragraphs 2 and 3).

12.0 Maintenance Program Revisions Justification:

- o Approval Process.

A good preventive maintenance program is constantly under scrutiny for its cost-effectiveness, and as a result, there will be frequent revisions to improve procedures.

Revisions that delete tasks, increase inspection intervals or otherwise reduce the intensity of maintenance are subject to an approval process that requires sign off by Rail Maintenance Control, the division head responsible for accomplishment of the PM, Office of Safety and Security, and any division head whose area of responsibility may be affected, as well as the Assistant Director.

- o Maintenance Engineering Required.

The procedure improvement can be proposed by anyone; however, the written PM procedure revision must be recommended in writing by the appropriate maintenance engineer. The engineer must describe in a memo that will accompany the revised procedure through the approval/sign off process, the reasoning and justification for the proposed revision.

- o Justification.

The Maintenance Engineer's memo must address, as a minimum, the following concerns of those who must provide their approval or disapproval of the revision:

- The purpose of the revision, why it is proposed.
- What are the changes being recommended? Are tasks being added, deleted, modified, simplified, etc., are specs being changed, methods changed, test equipment changed; etc.
- What effect will the change have on the following:
 - * Safety?
 - * Reliability?
 - * Maintainability?
 - * Operations/System Performance?
 - * Costs?
- A description of the analysis that supports the recommendation to revise the procedure. The analysis may be a detailed study of the results of previous accomplishments of the procedure, an analysis of failure data, or it may be an industry survey, or a vendor's recommendation, or even a logical rationale, in the absence of all other hard data.

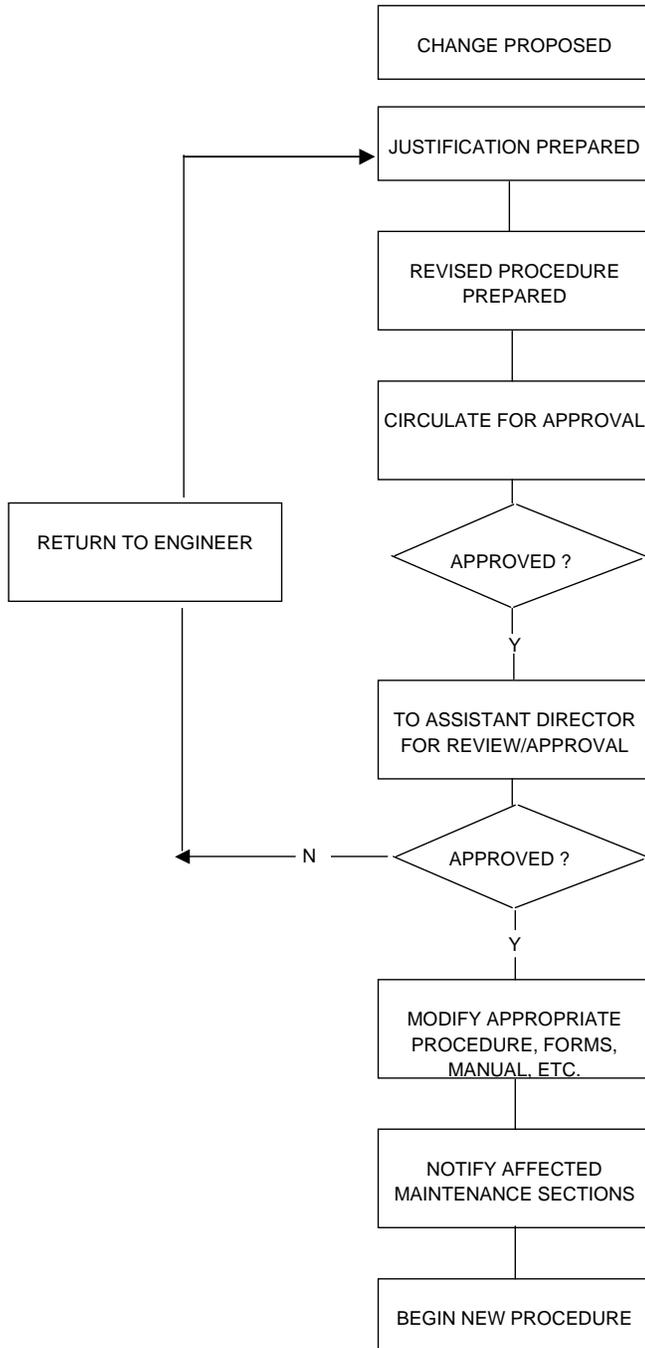
The engineer's memo is to be complete enough that the revision will pass through the approval route without generating questions or objections from those who must sign their approval.

13.0 Conditional Maintenance Program Revisions:

- o The approval process for revisions to the program may impose conditions on the revision.
 - There may be occasions when a test period with appropriate data collection and analysis to establish the efficacy of the change may be required by one or more of those individuals who must approve the change.
- o Maintenance Engineering specifies criteria for a successful test.

- The engineer specifies length of test, data collection and analysis requirements and defines a successful outcome of the test and resubmits the recommendation for approval.
- o Conclusion of test.
 - If successful, a report summarizing the results will be prepared and circulated with the revised PM procedure for final approval.
 - If unsuccessful, the original procedure is restored and the concerned parties are notified of the action.

MAINTENANCE PROGRAM REVISIONS FLOW CHART



MINIMUM: 3 APPROVALS REQUIRED FOR NEW OR REDUCED MAINTENANCE PROCEDURES
2 APPROVALS FOR ADDITIONS TO MAINTENANCE

**Appendix F
Miami-Dade Transit
Property Manager
Facilities Master Preventive Maintenance Listing**

Facilities Master Preventive Maintenance Listing

| <i>PM</i> | <i>Metrobus</i> | <i>PM</i> | <i>Metrorail/Metromover</i> | <i>PM</i> | <i>Metrobus</i> | <i>PM</i> | <i>Metrorail/Metromover</i> |
|-----------|--|-----------|------------------------------------|-----------|--------------------------------|-----------|--------------------------------|
| 101 | AC Air Handler | 101 | AC Air Handler | 189 | Hydraulic Press | 189 | Hydraulic Press |
| 102 | AC Chiller | 102 | AC Chiller | 194 | Steel Shears | 194 | N/A |
| 103 | AC Condenser | 103 | AC Condenser | 197 | Steel Roller | 197 | N/A |
| 104 | AC Wall Unit | 104 | AC Wall Unit | 198 | Above Ground Tanks | 198 | N/A |
| 105 | Fan Exhaust | 105 | Fan Exhaust | 199 | Tire Lift | 199 | N/A |
| 107 | Water Heater | 107 | Water Heater | 200 | Spreader | 200 | N/A |
| 108 | AC Package Unit | 108 | AC Package Unit | 201 | Mounting Machine | 201 | N/A |
| 110 | Water Cooler | 110 | Water Cooler | 202 | Regroover | 202 | N/A |
| 111 | N/A | 111 | AC Damper Motor Louver | 203 | Emergency Shower & Eye Wash | 203 | Emergency Shower & Eye Wash |
| 112 | N/A | 112 | AC Damper Motor | 205 | Bench Grinder | 205 | Bench Grinder |
| 113 | N/A | 113 | Sump Pump | 206 | Hose Cut-off Machine | 206 | N/A |
| 114 | Roll Up Doors | 114 | Roll Up Doors | 209 | Hose Crimper | 209 | N/A |
| 115 | Metal Band Saw | 115 | Metal Band Saw | 212 | Transmission Dyno (Transadyne) | 212 | N/A |
| 116 | Refrigerator | 116 | Refrigerator | 213 | Transmission Dyno (Aidco 400) | 213 | N/A |
| 117 | Fan Supply | 117 | Fan Supply | 214 | Cold Tank | 214 | N/A |
| 118 | Fan Wall Mounted | 118 | Fan Wall Mounted | 215 | Spray Cabinet | 215 | N/A |
| 119 | N/A | 119 | Fire Halon | 216 | Hot Tank | 216 | N/A |
| 120 | AC Refrigerant Recovery Unit | 120 | N/A | 219 | Paint Booth | 219 | N/A |
| 121 | Fan Stand Mounted | 121 | Fan Stand Mounted | 220 | Belt Sander | 220 | N/A |
| 123 | Bailer | 123 | N/A | 221 | Lathe | 221 | Lathe |
| 124 | Cyclone Cleaner | 124 | N/A | 222 | Steel Bender | 222 | N/A |
| 126 | Air Compressor (Piston) | 126 | Air Compressor (Piston) | 224 | Sand Blast Equipment/Collector | 224 | Sand Blast Equipment/Collector |
| 127 | Air Compressor (Rotary) | 127 | N/A | 225 | N/A | 225 | Steel Ladder |
| 128 | N/A | 128 | Air Dryer | 232 | Hose Reel (Air/Water/Oil/Lube) | 232 | Hose Reel (Air/Water) |
| 133 | N/A | 133 | Fire Pump (Electric) | 236 | Table Saw | 236 | N/A |
| 134 | Fire Pump (Diesel) | 134 | Fire Pump (Diesel) | 244 | Safety Stand | 244 | N/A |
| 135 | Portable Electric Bus Lift (Rotary) | 135 | N/A | 245 | Fire Extinguisher | 245 | Fire Extinguisher |
| 136 | Portable Electric Bus Lift (Washtronic) | 136 | N/A | 247 | Chop Saw | 247 | N/A |
| 138 | N/A | 138 | Car Hoist & Body Support | 249 | Paint Shaker | 249 | N/A |
| 140 | Portable Electric Bus Lift (Steril-Koni) | 140 | N/A | 250 | Oil Water Separator | 250 | N/A |
| 141 | Overhead Crane | 141 | Overhead Crane | 254 | Microwave Oven | 254 | Microwave Oven |
| 142 | N/A | 142 | Portable Electric Mover Lift | 257 | Ice Machine | 257 | Ice Machine |
| 143 | Hydraulic Bus Lift | 143 | N/A | 258 | N/A | 258 | Time Clock |
| 148 | Drill Press | 148 | Drill Press | 262 | N/A | 262 | Elevator Pit Door |
| 150 | N/A | 150 | Horizontal Roll Filters | 263 | N/A | 263 | Floor Hatch |
| 151 | Brake Lathe | 151 | Brake Lathe | 264 | N/A | 264 | Roof Hatch |
| 152 | Dust Collector | 152 | N/A | 267 | N/A | 267 | AC VAV Boxes |
| 153 | N/A | 153 | Plumbing Fixtures | 281 | Cement Mixer | 281 | N/A |
| 155 | Lighting - Site (Pkg / Bldg) | 155 | Lighting - Site (Pkg / Bldg) | 284 | Traffic Signal (Pits) | 284 | N/A |
| 156 | Lighting - Station | 156 | Lighting - Station | 285 | Steam Cleaner | 285 | N/A |
| 158 | Lighting - Emergency | 158 | Lighting - Emergency | 286 | Pressure Cleaner | 286 | N/A |
| 160 | Electrical Device Inspection | 160 | N/A | 287 | Parts Cleaner | 287 | Parts Cleaner |
| 165 | Arc Welder | 165 | N/A | 315 | High Mast Lighting | 315 | N/A |
| 166 | Plasma Cutter | 166 | N/A | 316 | Control Relay | 316 | Control Relay |
| 168 | Transit Vehicle Washer | 168 | N/A | 317 | Disconnect Switch | 317 | Disconnect Switch |
| 170 | Electric Hoist (Coffing) | 170 | Electric Hoist (Coffing) | 318 | Enclosed Circuit Breaker | 318 | Enclosed Circuit Breaker |
| 175 | Jib Crane | 175 | N/A | 319 | Panel Board | 319 | Panel Board |
| 176 | N/A | 176 | Fire Protection Sprinkler | 321 | Magnetic Starter | 321 | Magnetic Starter |
| 177 | N/A | 177 | Fire Protection Sprinkler (Deluge) | 322 | Lighting Contactor | 322 | Lighting Contactor |
| 178 | Structural Inspection | 178 | N/A | 323 | Dry Type Transformer | 323 | Dry Type Transformer |
| 180 | Paint Platform | 180 | N/A | 325 | N/A | 325 | Automatic Transfer Switch |
| 181 | Battery Charger | 181 | Battery Charger | 327 | N/A | 327 | Fire Protection-Standpipe&Hose |
| 186 | Fuel Pump | 186 | N/A | 328 | Generator Emergency | 328 | Generator Emergency |
| 187 | Fuel Monitoring System | 187 | N/A | 333 | Drop Light Reel | 333 | N/A |

**Appendix G
Sample PM
PM 103 Bus
AC Condenser**

**MIAMI-DADE TRANSIT
Facilities Maintenance**

Rev. # _____ Revision date _____
 Area _____ Location O & I Stock Room PM # 103
 Equipment Description AC Condenser Page ___ of ___
 Mfg PEAKE Model ECU-0248216 S/N 4699039800 Equip # _____

| Date: | Inspection Codes: | 1. Good 2. Adjusted 3. Replaced | 4. Functions Ok 5. Defective 6. Clean | 7. Lubricate 8. Fill Water/Fluid 9. Deleted | A | B | C | D | E | F | G | CODE | INIT |
|---|---|---------------------------------------|---|---|---|---|---|---|---|---|---|------|------|
| Special Instructions: | Monthly: One Mech. 1.0 hours Annually: One Mech. 2.0 hours | | | | 3 | 9 | 1 | 3 | 7 | | | | |
| Personnel/Man-hours (Estimate): | | | | | 0 | 0 | 8 | 6 | 2 | | | | |
| Materials: fan motor oil, grease gun, leak detector, coil cleaner | | | | | | | 0 | 0 | 0 | | | | |
| Task Description | | | | | | | | | | | | | |
| 1. Check fan motor and compressor rotation. | | | | | * | | | | | | | | |
| 2. Check compressor oil level in oil sight glass. | | | | | * | | | | | | | | |
| 3. Check refrigerant system for leaks and pressures. | | | | | * | | | | | | | | |
| 4. Check safeties: oil, low and high pressure switch for proper function. | | | | | * | | | | | | | | |
| 5. Check solenoid valves for proper function. | | | | | * | | | | | | | | |
| 6. Check insulation on refrigerant pipes and repair if necessary. | | | | | * | | | | | | | | |
| 7. Check dryer condition and replace if necessary. | | | | | * | | | | | | | | |
| 8. Check for excessive noise or vibration. | | | | | * | | | | | | | | |
| 9. Check sight glass for bubbles and moisture in the system. | | | | | * | | | | | | | | |
| 10. Check and clean condenser coil, if needed. (At least once a year). | | | | | | | | * | | | | | |

**Appendix H
Miami-Dade Transit
Property Manager
Metrorail & Metromover Custodial Maintenance Reports**

**MDTA FACILITIES MAINTENANCE
PROPERTY MANAGER'S METROMOVER CUSTODIAL MAINTENANCE REPORT**

STATION:

DATE:

JANITORIAL CONDITIONS:

MAINTENANCE OBSERVATIONS:

| STATION ENTRANCE | LIGHTS | PLATFORM | CONCOURSE | GRADE LEVEL |
|----------------------|--------------------------------------|----------|-----------|-------------|
| LITTER | # OUT | | | |
| TRASH RECEPTACLES | AREA NOT DARK | | | |
| FARE COLLECTION AREA | MODERATELY DARK | | | |
| SIGNS | VERY DARK | | | |
| SKYLIGHTS | | | | |
| STAIRWAYS | | | | |
| ESCALATOR SIDES | TACTILES: | # DOTS | #BARS | |
| LANDSCAPE | INBOUND LOOP | | | |
| PLATFORM TILE | OUTBOUND LOOP | | | |
| YELLOW TACTILES | | | | |
| MAPS | | | | |
| CHICLETS | ENTRANCE GATES | | | |
| BENCHES | | | | |
| CHEWING GUM | DOORS | | | |
| ELEVATOR DOOR | DOOR LOCKS | | | |
| INSIDE ELEVATOR | | | | |
| GRAFFITTI | | | | |
| MIDDLE LEVEL | LEAKS | | | |
| WALKWAYS | SCRACHITTI | | | |
| | HAZARDOUS/ OVERGROWN TREES OR HEDGES | | | |
| | OTHER: | | | |
| | | | | |
| | COMMENTS: | | | |
| | | | | |
| | | | | |
| CONTRACTOR NOTIFIED? | YES NO | | | |

COMMENTS:

PROPERTY MANAGER: _____

**MDTA FACILITIES MAINTENANCE
PROPERTY MANAGER METRORAIL CUSTODIAL / MAINTENANCE REPORT**

STATION:

DATE:

JANITORIAL CONDITIONS:

MAINTENANCE OBSERVATIONS:

| CONCOURSE & ENTRANCE | LIGHTS | PLATFORM | CONCOURSE | GRADE LEVEL |
|----------------------------|-------------------------------------|----------|-----------|-------------|
| ROLL UP GRILLES | # OUT | | | |
| HIGH SIGNS | AREA NOT DARK | | | |
| KIOSK | MODERATELY DARK | | | |
| TRASH RECEPTACLES | VERY DARK | | | |
| ASH RECEPTACLES | TACTILES: | # DOTS | | # BARS |
| METAL PARTITIONS | NORTHBOUND PLATFORM | | | |
| DRINKING WATER FOUNTAIN | SOUTHBOUND PLATFORM | | | |
| RESTROOM | ROLL UP GRILLES | | | |
| CONCOURSE TILES | | | | |
| LOUVERS | DOORS | | | |
| STAIRS | DOOR LOCKS | | | |
| ESCALATORS | | | | |
| ELEVATORS | RESTROOMS: | | | |
| ANCILLARY/TRASH ROOM | SINK | | | |
| JANITORIAL ROOM | URINALS | | | |
| MIDDLE CONCOURSE | TOILETS | | | |
| PLATFORM TILES | FLOORS | | | |
| YELLOW TACTILES | WALLS | | | |
| WINDSCREENS | LIGHTS | | | |
| GLASS BLOCKS | DOOR/DOOR LOCKS | | | |
| HIGH SIGNS | | | | |
| TRACK SIGNS | WATER FOUNTAIN | | | |
| SKYLIGHTS | WATER FEATURES | | | |
| GRAFFITTI | | | | |
| | LEAKS | | | |
| LITTER: | | | | |
| OUTSIDE | SCRACHITTI | | | |
| WATER FEATURES | ANCILLARY ROOF LITTER | | | |
| BIKE LOCKERS | TPSS ROOF LITTER | | | |
| BUS BAY | HAZARDOUS/OVERGROWN TREES OR HEDGES | | | |
| CONCOURSE | OTHER: | | | |
| MIDDLE CONCOURSE | | | | |
| PLATFORM | COMMENTS: | | | |
| LIGHT FIXTURES | | | | |
| HOMELESS | | | | |
| | ELEVATOR CERTIFICATES IN PLACE ? | YES | NO | |
| SIGN IN LOG CHECKED | YES | NO | | |
| CONTRACTOR NOTIFIED | YES | NO | | |
| DATE WORK ORDER REQUESTED: | | | | |

COMMENTS:

PROPERTY MANAGER: _____

Appendix I
Miami-Dade Transit
Property Manager Buildings Report

Property Manager Buildings Report

LOCATION: _____

DATE: _____

| | |
|----------------------------|------------------------|
| MAIN ENTRANCE | LIGHTING |
| FLOORS | |
| CARPETS | DOORS |
| | |
| RESTROOMS: | DOOR LOCKS |
| FLOORS | |
| TOILETS | FLOORS |
| URINALS | |
| PARTITIONS | RESTROOMS |
| WASH BASINS | TOILET |
| SOAP DISPENSERS | URINALS |
| DEODORIZED | LAVATORIES |
| SUPPLIED | FLOORS |
| | WALLS |
| DISPATCH ROOM | SOAP DISPENSERS |
| GLASSES | DOORS/LOCKS |
| FLOORS | |
| TRASH CANS | LANDSCAPE |
| | |
| DRIVERS' ROOM | GUARDHOUSE |
| TABLES | |
| TRASH CANS | OTHER |
| FLOORS | |
| | COMMENTS |
| DUSTING | |
| VENDING EQUIPMENT | |
| STAIRWAYS | |
| ELEVATOR | |
| DOORS | |
| INSIDE | |
| GLASS | |
| TRASH RECEPTACLES | |
| WALLS | |
| LOCKER ROOM | |
| GRAFFITI | |
| | |
| WEEKLY ITEMS: | |
| FLOORS | |
| AIR VENTS | |
| STAIRS | |
| COBWEBS | |
| TIME CARDS CHECKED | |
| CONTRACTOR NOTIFIED | |

COMMENTS: _____

PROPERTY MANAGER: _____

Appendix J
Miami-Dade Transit
Property Manager Shift Log

Property Manager Shift Log

PROPERTY MANAGER: _____ A.M. _____ P.M. _____ DATE: _____

| TIME CALLED | CALLER | LOCATION | PROBLEM | ACTION TAKEN | SITE CHECKED | TIME CLOSED |
|-------------|--------|----------|---------|--------------|--------------|-------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

COMMENTS: _____

**Appendix K
Miami-Dade Transit
Maintenance Request Form (MRR)**

Record no.: 2119

Work Order number: _____

Date of report: 9/11/03

**(MDTA) RAIL OPERATIONS - FACILITIES MAINTENANCE
(MRR) MAINTENANCE REQUEST FORM**

This form is to be used for reporting requests for station equipment maintenance. Any request for repair work should be reported on this form except for the following.

1. DO NOT USE TO report Emergencies. Notify Central control.
2. DO NOT USE FOR Telephone/Communication problems.
3. DO NOT USE FOR Fare collection equipment problems or Elevator/Escalator equipment.

NOTIFY CENTRAL CONTROL

Station: Earlington Heights

General Area: PLATFORM

Submitted: Security

Specific Item Type: LIGHTS

Describe Problem / Identify equip Blue lights burned out.

Response/Follow Up

Corrective Action Taken (Response): _____

Status (Check one): Completed Pending

Action / Completion Date: _____ / _____ / _____

Action Taken by (name): _____ Position _____

MMR-Maintenance Request Form

Received Code 0 9/18/03 Work Order Code: 0

Pending Code 0 Inspection Code 0

**Appendix L
Miami-Dade Transit
Metrorail/Metromover
Public Daily Log Reports**

Metrorail Public Daily Log Report

[Dailylog Entries](#) [Unusual Occurrences](#) [Vehicle Maintenance Reports](#)

Metrorail Station Legend

- PAL - Palmetto Station
- PYD - Palmetto Yard / Lehman Center
- OKE - Okeechobee
- HIA - Hialeah
- TRI - Tri-Rail
- NSD - Northside
- MLK - Dr. Martin Luther King Jr.
- BVL - Brownsville
- EHT - Earlington Heights
- ALP - Allapattah
- SCL - Santa Clara
- CVC - Civic Center
- CUL - Culmer
- OVT - Overtown / Arena
- GVT - Government Center
- BKL - Brickell
- VIZ - Vizcaya
- CGV - Coconut Grove
- DRD - Douglas Road
- UNV - University
- SMI - South Miami
- DLN - Dadeland North
- DLS - Dadeland South
- TT - Tail Track

MDT Metrorail Log Summary for 03/04/2004

| Category | Qty. |
|-----------------------------------|------|
| Total Closed Unusual Occurrences | 8 |
| Total Open Daily Log Incidents | 19 |
| Total Cleared Daily log Incidents | 0 |
| Total VMR's | 20 |
| Total Wayside Restrictions | 5 |
| Total Train Orders | 3 |
| | |

RTC On-Duty Roster Summary for 03/04/2004

| Shift | Name | Regular Work Hrs. | Overtime | OT Start | OT End |
|-------|------|-------------------|----------|----------|----------|
| 1 | | 7:00am to 3:00pm | No | | |
| 2 | | 2:00pm to 10:00pm | Yes | 18:00:00 | 22:00:00 |
| 3 | | 11:00pm to 7:00am | Yes | 23:00:00 | 07:00:00 |
| 3 | | 11:00pm to 7:00am | No | | |

On Time Statistics

| On Time Statistics for 03/04/2004 | |
|--|------|
| Schedule Number: | 4124 |
| # of Trips Scheduled: | 244 |
| # of Trips Annulled: | 0 |
| # of Scheduled Trips Operated: | 244 |
| # of Trips Late: | 1 |
| # of Stations By-passed: | 8 |
| # of Extra Trips Operated: | 2 |
| # of Total Trips Operated: (Scheduled + Extra Trips) | 246 |

Service Level Reports For 03/04/2004

| Time | Schedule # | Total Cars Available | # of Belly Cars | Belly Cars | Reported By |
|------------|------------|----------------------|-----------------|---------------------|-------------|
| 4:00:00 AM | 4124 | 90 | 10 | 105-191-205-217-219 | |
| 1:00:00 PM | 4124 | 96 | 6 | 105-191-219 | x |
| 4:00:00 PM | 4124 | 100 | 6 | 105-191-219 | |
| 9:00:00 PM | 4124 | 68 | 6 | 105-191-219 | |

Service Reduction Information

Date: 3/4/04

Reported By: Total Trips Reduced: 9

Description: Central Control reports (12) six (6) car trains operated during AM peak service. Central Control reports the following deviation to normal weekday operation of six (6) car trains. The following scheduled six (6) car trains departures operated as four (4) car trains.

Trip Information:

| Northbound Service Reductions | | | | | |
|-------------------------------|----------------|---------------|-------------|-------------------|----------------------|
| Trip | Service Period | From Location | To Location | # Car's Scheduled | # Car's Actually Run |
| DLS0500 | Morning | PAL | DLS | 6 | 4 |
| DLS0520 | Morning | PAL | DLS | 6 | 4 |
| DLS0535 | Morning | PAL | DLS | 6 | 4 |
| DLS0700 | AM Peak | PAL | DLS | 6 | 4 |
| DLS0718 | AM Peak | PAL | DLS | 6 | 4 |
| DLS0724 | AM Peak | PAL | DLS | 6 | 4 |
| Southbound Service Reductions | | | | | |
| Trip | Service Period | From Location | To Location | # Car's Scheduled | # Car's Actually Run |
| PAL0604 | Morning | DLS | PAL | 6 | 4 |
| PAL0625 | Morning | DLS | PAL | 6 | 4 |
| PAL0631 | AM Peak | DLS | PAL | 6 | 4 |

Extra Revenue Trip Information

Date: 3/4/04

Time: 00:00

Reported By: Total Extra Trips:2

Description: Central Control reporting the operation of two six (6) car trains for evening service. This is due to the Miami Heat Game at the Miami Arena. Rail Supervisor reported an estimated passenger count of (94). The following additional service was provided at the break of the event:

Trip Information:

| Northbound Extra Trips | | | | | | | |
|------------------------|-----------------|----------------|---------------------|----------------------|--------------------|---------------|--------------------------------|
| RUN # | Arrive Mainline | Store Location | Arr. Store Location | Dept. Store Location | Rev Start Location | Dept Mainline | Remarks |
| EXTRA | ----- | 21:56 | 22:22 | 23:06 | DLS | ----- | T/O #401 Trains 139-171-159 |
| Southbound Extra Trips | | | | | | | |
| RUN # | Arrive Mainline | Store Location | Arr. Store Location | Dept. Store Location | Rev Start Location | Dept Mainline | Remarks |
| EXTRA | ----- | 22:18 | 22:18 | 22:51 | OKE | ----- | T/O 416 Cars 108-106-228 |

**Summary of Closed Unusual Occurrences for
Thursday, March 04, 2004**

Unusual Occurrence Entry Log ID:

1

Reported By: Wackenhut **Division:** Metrorail **Page sent:** No

Incident Date: 3/4/04 **Incident Time:** 21:10 **Category:** Unusual Occurrence

Incident Type: Rail Wackenhut Report

Wackenhut / Fire Rescue / Police information

| | | |
|-----------------------------|-----------------------|--------------------------|
| Time Wackehut Report | Wackenhut Case | Dispatcher: |
| Received: 21:10 | #: 04W481 | |
| Fire Jurisdiction: N/A | | Fire Rescue Alarm #: N/A |
| Police Jurisdiction: N/A | | Police Case #: N/A |

Nature:

A female individual approached Wackenhut complaining that she fell from the top of a flight of stairs at Dadeland North Station on Tuesday, March 2, 2004 at approximately 19:35. She stopped the fall by grabbing the handrail with her left hand sustaining nerve damage to that hand as diagnosed by her personal physician. Wackenhut observed a solid brace on her left arm.

Location: Dadeland North

Comments:

No Comments

Metromover Public Daily Log Report

[Dailylog Entries](#) [Unusual Occurrences](#) [Vehicle Maintenance Reports](#)

Metromover Station Legend

INNER/OUTER LOOP

- SP - Arena/State Plaza
- CN - College North
- CO - College/Bayside
- FT - First Street
- BA - Bayfront Park
- DP - Dupont Plaza
- KC - Knight Center
- TC - Third Street (Fort Dallas)
- MI - Miami Avenue
- GC - Government Center
- MT - Maintenance Building

OMNI EXTENSION

- FR - Freedom Tower
- PW - Park West
- EL - Eleventh Street
- HP - Herald Plaza
- OM - Omni
- SB - School Board
- BP - Bicentennial Park

BRICKELL EXTENSION

- RW - Riverwalk
- FS - Fifth Street
- FD - Financial District
- TN - Tenth Street
- BR - Brickell
- ET - Eighth Street

MDT Metromover Log Summary for 03/04/2004

| Category | Qty. |
|-----------------------------------|------|
| Total Closed Unusual Occurrences | 1 |
| Total Open Daily Log Incidents | 15 |
| Total Cleared Daily log Incidents | 0 |
| Total VMR's | 0 |
| | |

RTC On-Duty Roster Summary for 03/04/2004

| Shift | Name | Regular Work Hrs. | Overtime | OT Start | OT End |
|-------|------|-------------------|----------|----------|--------|
| 1 | | 6:00am to 2:00pm | No | | |
| 1 | | 7:00am to 3:00pm | No | | |
| 1 | | 6:00am to 2:00pm | No | | |
| 2 | | 2:00pm to 10:00pm | No | | |
| 3 | | 10:00pm to 6:00am | No | | |

Service Level Reports For 03/04/2004

| Time | Total Omni Trains in Service | Omni Deuces in Service | Total Brickell Trains in Service | Brickell Deuces in Service | Total Inner Loop Trains in Service | Inner Deuces in Service | Total Cars Reported Avail. | Reported By |
|---|------------------------------|------------------------|----------------------------------|----------------------------|------------------------------------|-------------------------|----------------------------|---------------|
| 15:00 | 5 | 0 | 5 | 0 | 5 | 1 | 17 | 609/Vietmeier |
| Comments: No compatible cars for Omni or 2nd Inner Loop Deuce. | | | | | | | | |
| 07:00 | 5 | 0 | 5 | 0 | 5 | 1 | 17 | 606/Day |
| Comments: No compatible cars for Omni or 2nd Inner Loop Deuce. | | | | | | | | |
| 11:30 | 5 | 0 | 5 | 0 | 5 | 1 | 17 | 606/Day |
| Comments: No compatible cars for Omni or 2nd Inner Loop Deuce. | | | | | | | | |

Summary of Closed Unusual Occurrences for Thursday, March 04, 2004
Metromover Service Delay

Unusual Occurrence Entry # 1 **Log ID: 196**

Reported By: Train Control computer **Division:** Metromover **Page sent:** No

Incident Date: 3/4/04 **Incident Time:** 14:37 **Category:** Unusual Occurrence

Incident Type: Mover Service Disruption Due to Mover Vehicle

Passengers De-boarded: No

Lost Revenue Time: 7 Minutes

Vehicle: 19

Nature:

>Central Control received a Door Lock alarm from Brickell Loop Vehicle #19 stopped at Third Street Station. All attempts to reset vehicle from Central Control were made to no avail.

>14:37: Recovery Tech (#657/Bradey) dispatched, arriving at 14:44.

>14:44: Vehicle was reset and service restored to the Brickell Loop.

>All appropriate Passenger Announcements were made.

Location: Third Street station

Action Taken:

Cause:

Comments:

Cleared Mover Daily Log Entries for Thursday, March 04, 2004
There Were No Daily log Entries Cleared on 03/04/2004

Current Open Daily Log Entries as Of Thursday, March 04, 2004

Daily log Entry # 1

Reported By: **Division:** Metromover

Incident Date: 2/4/04 **Incident Time:** 17:00:00

Incident Type: Mover RTC Information

Vehicle:

Nature:

- Vehicle #26 is out of service due to overspeeding. Injuries reported.

Location:

Action Taken:

_____ notified. System Safety _____ requested inspection and brake chart

reports sent to him for review. Vehicle #26 is to remain out of service until

released by Sys. Safety _____.

Cause:

Comments:

References:

Current Vehicle Maintenance Reports for Thursday, March 04, 2004

There are currently no VMR's To Report for Today.

Appendix M
Miami-Dade Transit
Transit Operating System (TOS) Report

Transit Operating System (TOS) Report

A65 - Action Taken on Community Services Reports

AJONES

CENTRAL

MDTA TOS

Report Number :0403

Forwarded From TCR:

Route To:

Date Forwarded:

Operator:

Bus Stop:

Remarks:

Back:

Send Back to TCR?:

Action Taken:

Description :

By:

Received By:

Situation:

Incident Date: Time:

Zone: Location:

Route: Dir: Run:

Vehicle Number: Plate:

Oper Desc:

Caller Statement:

TCR Remarks:

Appendix N
Miami-Dade Transit
Traction Power Report

Appendix O
Miami-Dade Transit
Train Control Wayside Equipment Malfunction Report

Appendix P
Miami-Dade Transit
Facilities Work Order

FACILITY EQUIPMENT AND GENERAL REPAIR WORK ORDER

MIAMI-DADE TRANSIT AGENCY

| | | | |
|--|-----------------|---------------|---|
| TIME CALLED IN: | NAME OF CALLER: | PHONE NUMBER: | WORK ORDER NO.: _____ DATE CALLED IN: _____ CALL RECEIVED BY: _____ |
| EQUIPMENT/MAINTENANCE REPAIR LOCATION: | | | |
| FACILITY/GARAGE: | AREA: | | |
| ASSIGNED TO: | DATE ASSIGNED: | | |

JOB DESCRIPTION:

SPECIAL INSTRUCTIONS AND/OR EQUIPMENT:

| DATE | CREW SIZE | JOB TYPE | LABOR DESCRIPTION | EST. MAN HOURS | ACTUAL MAN HOURS | LABOR UNIT COST | EXT'D LABOR COST |
|--------|-----------|----------|-------------------|----------------|------------------|-----------------|------------------|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| TOTALS | | | | | | | |

COMMENTS:

| PART NUMBER AND DESCRIPTION | DATE: | | TFM STOCK | | BUDGET CODES: | | | | |
|-----------------------------|---|--|-----------|-----------|---------------|------------------|------------|------------------|------------------|
| | GIVEN TO: | | QTY. USED | UNIT COST | QTY. ORDERED | UNIT COST QUOTED | QTY. REC'D | UNIT COST ACTUAL | TOTAL PARTS COST |
| | PICKUP SLIP: <input type="checkbox"/> YES <input type="checkbox"/> NO | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |
| | | | | | | | | | |
| TOTALS | | | | | | | | | |

| | | | | |
|--------------------|-------|--|--------------------------------|--|
| WORK COMPLETED BY: | DATE: | | EST. | |
| SUPERVISOR | DATE: | | TOTAL LABOR & PARTS | |

Appendix Q
Miami-Dade Transit
Weekly Report

SAMPLE WEEKLY REPORT

This represents Workorder Activity for the week of:
(02/19/01 – 02/25/01)

(RAIL) ACTIVITY:

| | (Weekly) | (YTD) |
|-------------------------|----------|--------------------|
| Workorders (Generated): | 43 | 1505 |
| Workorders (Closed): | 2 | 1076 |
| | | % Complete: [71] |
| | | YTD |

(BUS) ACTIVITY:

| | (Weekly) | (YTD) |
|-------------------------|----------|--------------------|
| Workorders (Generated): | 60 | 1588 |
| Workorders (Closed): | 16 | 1354 |
| | | % Complete: [85] |
| | | YTD |

| | (Weekly) | (YTD) |
|-------------------------------------|----------|---------|
| Bus Stop Requisitions (Completed) : | 50 | 977 |