

***Florida Department of Transportation  
Statewide Stormwater Management Plan***

***September 2012***

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- Appendix C – Statutes, Rules, Guidelines, and Policies Regulating Stormwater Management in Florida

## 1.0 INTRODUCTION

The purpose of this Statewide Stormwater Management Plan (SSWMP) is to describe the activities, methods, and procedures that will be implemented to reduce the discharge of pollutants to and from the Phase 1 Florida Department of Transportation (FDOT) municipal separate storm sewer systems (MS4s) throughout the State of Florida.

The SSWMP supports FDOT's documentation and procedures for annual reporting as a co-permittee under the MS4 Phase 1 permits. As stated in Section II of the Phase 1 permit, the FDOT SSWMP is incorporated into the permit by reference once approved by the Florida Department of Environmental Protection (FDEP) and shall serve as the guiding document for compliance by FDOT as a co-permittee under Florida's Phase 1 MS4 program.

The SSWMP has been prepared in accordance with Section 62-624.440(2), Florida Administrative Code (F.A.C.), Title 40 Code of Federal Register (CFR) 122.26(d)(2)(iv), and the U.S. Environmental Protection Agency (EPA) publication 833-B-92-002 (November 1992) *Guidance Manual For The Preparation Of Part 2 Of The NPDES-MS4 Permit Applications For Discharges From Municipal Separate Storm Sewer Systems*.

Section 62-624.440(2), F.A.C., provides that the SSWMP is a fundamental element of the MS4 program, and the required components of the SSWMP are listed in Title 40 CFR 122.26(d)(2)(iv). Regulations in Title 40 CFR, Part 122.26(d)(2)(iv) *Stormwater Discharges Proposed Management Plan* state that the pollutants are to be reduced *to the maximum extent practicable (MEP) using management practices, control techniques and system, design, and engineering methods, and such other provisions that are appropriate*.

The regulations also require that the management program describe priorities for implementing controls. This SSWMP describes how FDOT intends to demonstrate compliance with Chapters 62-624, 62-621, 62-620 and 62-4, F.A.C., and Title 40 CFR 122.26(d)(2)(iv), in close association with its co-permittees. Sections 3 and 4 of the SSWMP list the required elements, practices and structural controls required to reduce pollutants, as listed in Title 40 CFR 122.26(d)(2)(iv).

The SSWMP is a Statewide document and serves as guidance to the seven FDOT Districts and the Florida Turnpike Enterprise (FTE). The SSWMP outlines the minimum requirements that all Districts must maintain under their individual Stormwater Management Programs. Under those individual Stormwater Management Programs, implemented either by District or by individual Phase I MS4 permit, District or MS4 permit specific elements will exist which will at a minimum meet all components outlined in the SSWMP. This will include Standard Operating Procedures (SOP) to be developed by each District to meet MS4 permit requirements.

### 1.1 FDOT Structure

FDOT is divided into seven regional, semi-autonomous Districts under the direction of a District Secretary and the FTE (Table 1-1). Figure 1-1 provides a map of the seven FDOT Districts in Florida by counties along with the roadways currently operated by the FTE. The FTE facilities covered under the Phase 1 permits are located within Palm Beach County, Broward County, Polk County, and Miami-Dade County. The roadways included are:

- Portions of the Florida Turnpike
- Sawgrass Expressway
- Homestead Extension
- Polk Parkway

Table 1-1. Districts of the Florida Department of Transportation

District	Headquarters Location	Counties Covered
1	Bartow	Charlotte, Collier, DeSoto, Glades, Hardee, Hendry, Highlands, Lee, Manatee, Okeechobee, Polk and Sarasota
2	Lake City	Alachua, Baker, Bradford, Clay, Columbia, Dixie, Duval, Gilchrist, Hamilton, Lafayette, Levy, Madison, Nassau, Putnam, St. Johns, Suwannee, Taylor and Union
3	Chipley	Bay, Calhoun, Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton and Washington
4	Fort Lauderdale	Broward, Indian River, Martin, Palm Beach and St. Lucie
5	DeLand	Brevard, Flagler, Lake, Marion, Orange, Osceola, Seminole, Sumter and Volusia
6	Miami	Miami-Dade and Monroe
7	Tampa	Citrus, Hernando, Hillsborough, Pasco and Pinellas
FTE	Turkey Lake Rest Area in Orlando	Hernando, Pasco, Hillsborough, Sumter, Lake, Orange, Seminole, Polk, Osceola, Indian River, Okeechobee, St. Lucie, Martin, Palm Beach, Broward and Miami-Dade

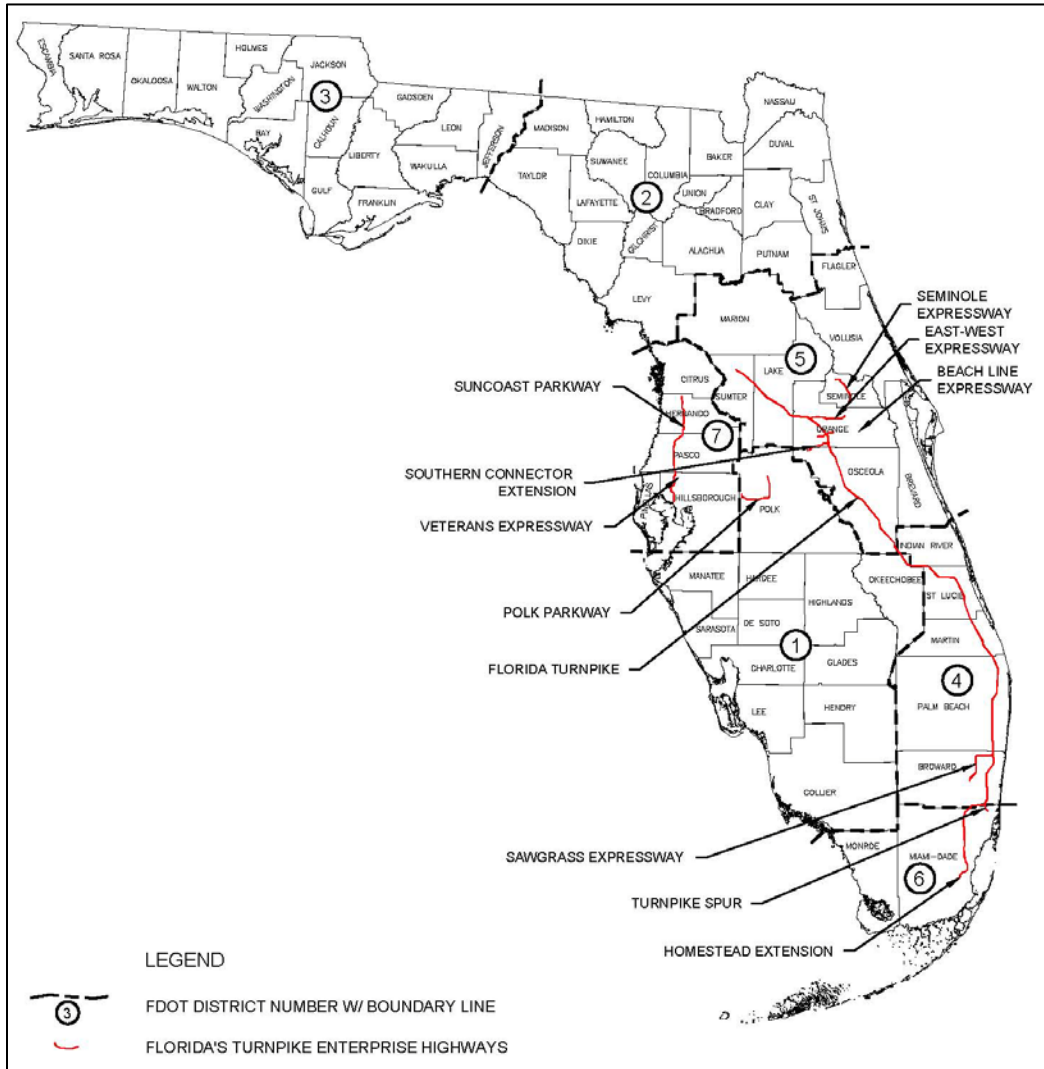


Figure 1-1 FDOT District Boundaries and Turnpike Authority Roads

The Central FDOT office, located in Tallahassee, provides overall program guidance, training, and statewide functions and also serves as a general clearinghouse for the Districts. Each District Secretary reports to the Secretary of FDOT.

## 1.2 FDOT Authority and Limitations

FDOT's authority is defined in Chapter 334, Florida Statutes (F.S.), Transportation Administration. FDOT's control is limited to its rights-of-way and does not extend off FDOT owned or controlled land. FDOT does not have taxing and policing power. FDOT does not have the right to control activities on private properties and does not exercise jurisdiction by

passing laws and approving developments. FDOT is limited in funding by the Florida Legislature. For these reasons, FDOT's jurisdiction is much different than that of traditional municipalities, despite being classified as such by the State and Federal governments.

FDOT facilities have been included in the definition of MS4s in Section 62-624.200(8) and (11), F.A.C., and Title 40 CFR Part 122.26(b)(8). However, FDOT is neither a traditional nor "legal" municipality in that it does not possess statutory taxing or enforcement powers. FDOT does not regulate land use or zoning, issue building permits or development permits, or exercise any sort of similar controlling authority over lands beyond the linear right-of-way associated with FDOT facilities.

FDOT's regulatory powers, in terms of stormwater, are defined in F.A.C. Rule Chapter 14-86, *Drainage Connections*. This rule is derived from riparian law foundations and essentially establishes FDOT as a lower order property owner seeking capacity protection (drainage) from higher order owners (i.e., those who own property that abuts FDOT facilities). In other words, those who own property adjacent to FDOT facilities can be granted access as long as they do not create a situation that exceeds the roadway capacity and they do not increase the runoff quantity to FDOT. The FDOT drainage connection permit (DCP) has the ability to require applicants to certify that they have met all other State water quality treatment requirements and also meet State water quality standards for stormwater discharge for the duration of the permit.

FDOT budgets are legislatively approved on an annual basis. FDOT relies heavily on Federal funds in budgeting monies for proposed projects, although these funds cannot be used for maintenance. Therefore, full implementation of the SSWMP within projected time frames is highly dependent on budget approval and funding appropriations by both the Florida Legislature and the United States Congress.

### **1.3 SSWMP Jurisdictional Area**

This SSWMP outlines the methods and procedures to be implemented by FDOT within the roadway rights-of-way and other FDOT owned and operated facilities within the jurisdictional areas covered under the Phase 1 permits. Figure 1-2 provides a map showing the limits of the Phase 1 jurisdictional areas throughout Florida. For this SSWMP, Table 1-2 lists the various Phase 1 permits with descriptions of the extent of permit coverage.

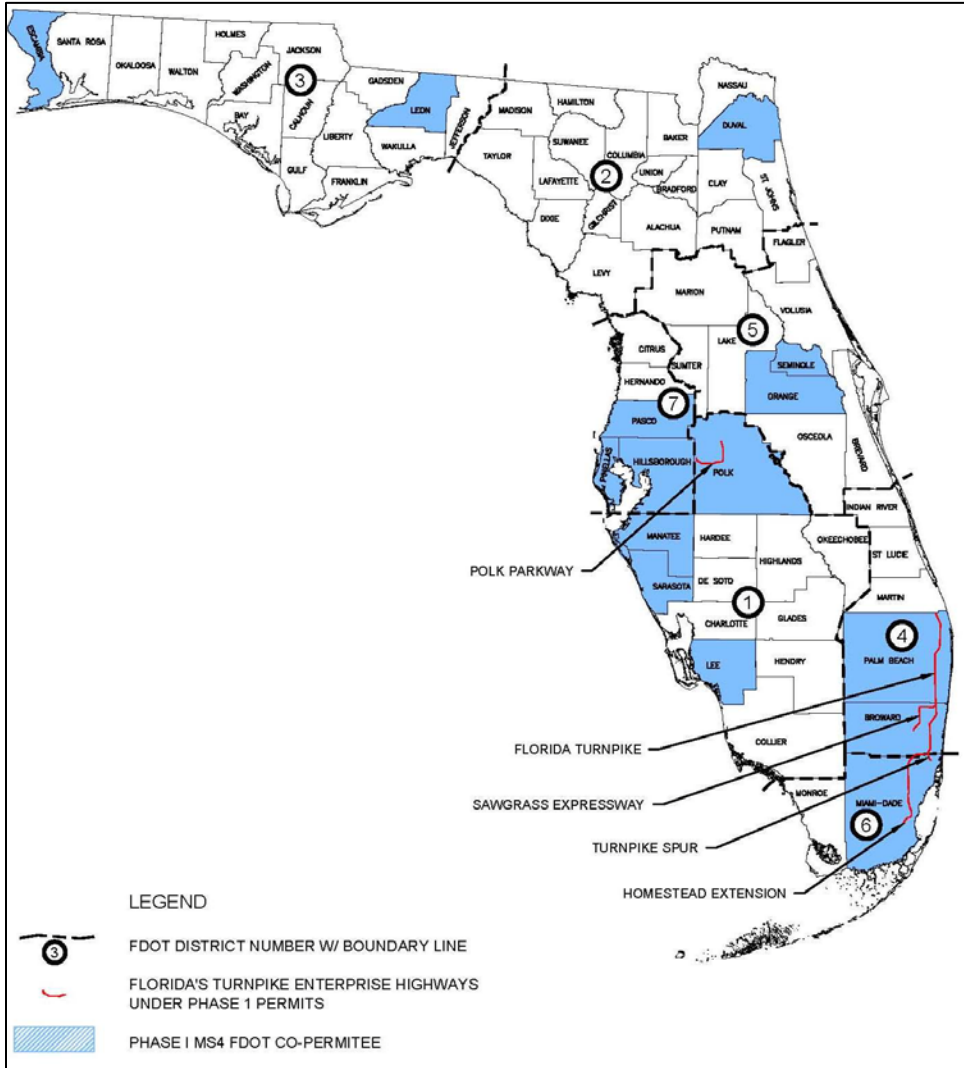


Figure 1-2 Phase 1 Permit and FDOT District Coverage

Table 1-2. Florida Phase 1 MS4 Permits with FDOT Districts and Jurisdictional Boundaries

Permit ID Number	County	FDOT District(s)	Jurisdictional Boundaries
FLS000016	Broward	4, FTE	Broward County Boundary
FLS000012	Duval	2	Duval County Boundary
FLS000019	Escambia	3	Escambia County Boundary
FLS000006	Hillsborough	7	Hillsborough County Boundary
FLS000035	Lee	1	Lee County Boundary
FLS000033	Leon	3	Leon County Boundary
FLS000036	Manatee	1	Manatee County Boundary
FLS000003	Miami-Dade	6, FTE	Miami-Dade County Boundary
FLS000011	Orange	5	Orange County Boundary



Table 1-2. Florida Phase 1 MS4 Permits with FDOT Districts and Jurisdictional Boundaries

Permit ID Number	County	FDOT District(s)	Jurisdictional Boundaries
FLS000018	Palm Beach	4, FTE	Palm Beach County Boundary
FLS000032	Pasco	7	Pasco County Boundary
FLS000005	Pinellas	7	Pinellas County Boundary
FLS000015	Polk	1, FTE	Polk County Boundary
FLS000004	Sarasota	1	Sarasota County Boundary
FLS000038	Seminole	5	Seminole County Boundary

### 1.4 SSWMP Updates and Modification Procedures

FDEP’s National Pollutant Discharge Elimination System (NPDES) and MS4 permitting requirements affect all FDOT Districts since there is at least one qualifying Phase 1 county within each District’s boundary. Each District has its own organizational structure and budget and, therefore, varying degrees of participation in the Memorandum of Agreement (MOA) and Joint Participation Agreement (JPA) process, participation level depending on agreements reached with the coordinating local counties and municipalities.

Implementation of District stormwater management programs has a significant impact on budgeting and consistency of management practices within the FDOT. Therefore, FDOT has prepared this SSWMP and associated maintenance and inspection schedules for use by all Districts within Phase 1 jurisdiction and it is intended to establish consistent minimum requirements and compliment District stormwater management programs. In accordance with MS4 permit requirements, future changes to current District stormwater management programs may be approved by one of the following two methods.

1. If the District stormwater management program is changed by adding elements, but not subtracting any elements, this request to FDEP can be made at any time. A description of the modification must be provided in the annual report.
2. If the District stormwater management program is being changed by modifying or subtracting any existing approved items, the request must be made at the time of the annual report, or during the Year 4 permit reauthorization request. Any modification requests should include an analysis of why an activity or schedule was ineffective or infeasible (including cost prohibitive). The request should provide expectations and

effectiveness of the replacement activity, if applicable, and an analysis of why the replacement activity or schedule will achieve the goals of the activity that is being replaced.

Documentation shall be maintained at each District office in accordance with the permit requirements, including the following:

- Copies of all reports required by the permit;
- All Stormwater Management Program operation and maintenance records;
- All sampling and analytical records (where appropriate);
- Records of all data, including reports and documents used to complete the application for the permit; and
- All original recordings for any continuous monitoring instrumentation.

## **2.0 INTER-GOVERNMENT COORDINATION**

Through the State NPDES program, EPA has emphasized that the cumulative discharges of stormwater from industries and municipalities must all be considered. The permitting of these dischargers will affect a complimentary relationship. This situation exists for the municipalities, drainage control districts, water management districts (WMDs), FDEP, EPA, and FDOT, where a cooperative effort can aid in the attempt to control impacts of stormwater discharges to United States waters.

### **2.1 Coordinated Stormwater Management between Districts**

The FDEP's Phase 1 NPDES-MS4 permitting requirements affect all Districts since there is at least one permit within each of the District's boundaries. Each FDOT District has its own organizational structure and budget and, therefore, varying degrees of participation in the permit implementation process, depending upon agreements reached with the local municipalities and local conditions. FDOT has prepared the SSWMP to be used by each of the Districts to define their minimum levels of stormwater management within the Phase 1 boundaries. It is anticipated that certain management practices unique to individual Districts may be developed and incorporated into their Stormwater Management Programs beyond those outlined within the SSWMP. Each District is responsible for implementing its own stormwater management program, which will include the minimum requirements outlined in the SSWMP, for each Phase I MS4 Permit for which they are co-permittees.

### **2.2 Other State Agency Considerations**

Chapters 373 and 403, F.S. designate FDEP as the lead State agency having regulatory authority over water quality. The WMDs have similar authority and operate under the general supervision and partial funding from FDEP. Consistent with this authority, FDEP and WMDs have developed policies, rules, standards, and criteria to regulate actions that could impact water quality. FDOT will rely on those agencies to provide enforcement actions and require water quality treatment systems to be built for new and redevelopment projects for DCP-permitted areas that discharge into the FDOT MS4 system. FDOT requires proof of compliance with State permits and associated water quality treatment elements under the FDOT DCP (Chapter 14-86, F.A.C.)

### **2.3 Lead Permittee/Co-Permittee Considerations**

FDOT relies upon co-permittees to handle various actions or activities outlined in the MS4 permit, including enforcement of local ordinances. These activities are handled through various forms of interlocal agreement including Joint Participation Agreements (JPA), Memorandum of Agreement (MOA), and Memorandum of Understanding (MOU). This co-permittee arrangement has created a situation in which the responsibility of completing some of the SSWMP components may not be the same for all co-permittees. The SSWMP specifies a number of components that each District is to accomplish. The District may initiate and complete these procedures, or it may contract this work to co-permittees, depending on individual Interlocal Agreements.

### **2.4 Interlocal Agreements**

In many instances, local municipalities (co-permittees) within a Phase 1 MS4 area are in a better position to perform some of the required tasks under the permit, especially if the task would require FDOT personnel to leave the FDOT-owned right-of-way. In these instances, FDOT typically enters into MOA or JPA with the municipality and pays the municipality for performing the required services. The interlocal agreements are retained pursuant to the record keeping requirements by each individual District. FDOT then typically reports the activities completed through the JPA or MOA in its annual report. Additionally, the County and City codes and ordinances provide a means for correcting pollutant source problems located within their jurisdiction, but that may ultimately discharge to or through the FDOT systems. Specific activities typically accomplished through JPA or MOA agreements may include the following:

- Water quality monitoring
- Spill response
- Illicit discharge control
- Inspection/monitoring of offsite targeted High Risk Facilities industries
- Street sweeping
- Litter control
- Public education
- Enhanced mapping

Cost savings and efficiency of effort for these services by co-permittees and municipalities should be achieved wherever possible.

## **3.0 STATEWIDE STORMWATER MANAGEMENT PLAN COMPONENTS**

### **3.1 Structural Controls and Stormwater Collection Systems Operation**

#### **3.1.1 Inventory Development**

In accordance with Chapter 62-624, F.A.C., an inventory describing all existing controls and major outfalls that discharge from FDOT MS4s will be maintained and updated. Currently, FDOT is keeping and updating the roadways characteristics inventory (RCI) database on 5-year cycles. FDOT Districts provide input to the RCI database for new roads and substantial improvements. FDOT will, for the life of the permit, locate and identify all outfalls and structural controls owned or controlled by FDOT in the permit area. The methodology for the inventory effort will include:

1. Review of existing inventories and maps,
2. Review of existing State Highway Plans,
3. Review of proposed State Highway Plans, and
4. Field reviews.

#### **3.1.2 Inspection/Maintenance Schedules and Activities**

Inspection/maintenance of FDOT roadways, stormwater treatment facilities, and conveyance structures will be performed as described in the Minimum Inspection and Maintenance Frequencies (Table 3-1). Inspection and maintenance frequency and activities are to occur on all stormwater/drainage-related structures located in the MS4 coverage areas and identified within Table 3-1. The table presents minimum frequencies for all stormwater/drainage-related maintenance and inspection activities that FDOT will execute.

Items 1 through 9 in Table 3-1 include structural elements that provide direct water quality treatment or are key structural elements within the MS4 system. For these items, specific inspection frequency requirements are provided along with recommended inspection and maintenance activities. Items 10 through 12 include traditional conveyance structures not directly associated with water quality treatment. The inspection and maintenance of these structural elements are addressed through FDOT's present Maintenance Rating Program (MRP) and Maintenance Management System (MMS).

Table 3-1. FDOT Stormwater Inspection and Maintenance Frequency and Activities

Item	Structural Control <sup>1</sup>	Inspection Frequency	Maintenance Frequency	Recommended Inspection Activities <sup>2</sup>	Recommended Maintenance Activities <sup>2</sup>
1	Wet Detention	<p><u>New Projects:</u> Once per year for first two years.</p> <p><u>Existing System w/o Chronic Problems:</u> Once per three years.</p> <p><u>Existing System w/ Chronic Problems:</u> Once per year until fixed<sup>7</sup></p>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect pond/control structure for proper treatment volume drawdown.</li> <li>2. Inspect pond for silt accumulation in design pond volume.</li> <li>3. Inspect inflow and outflow structures for cracks, blockages or signs of erosion.</li> <li>4. Inspect vegetation on side slopes for cover and signs of erosion.</li> <li>5. Inspect the pond for signs of exotic overgrowth and nuisance species.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove blockages, restore drawdown capability as necessary.</li> <li>2. Remove accumulated silt.</li> <li>3. Repair erosion and cracks if necessary and remove blockages.</li> <li>4. Restore healthy grass cover as needed on all slopes and around structures.<sup>4</sup></li> <li>5. Remove excess growth of exotics/nuisance species if they are significantly impacting the hydraulic capacity or otherwise impeding the proper functioning of the pond, when allowed or authorized by WMD or other permits.</li> <li>6. Dispose of accumulated sediments properly.<sup>3,5</sup></li> </ol>
2	Dry Retention	<p><u>New Projects:</u> Once per year for first two years.</p> <p><u>Existing System w/o Chronic Problems:</u> Once per three years.</p> <p><u>Existing System w/ Chronic Problems:</u> Once per year until fixed<sup>7</sup></p>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect pond for proper drawdown, signs of standing water (dead grass) longer than designed, mosquito larvae and/or reduced percolation.</li> <li>2. Inspect basin bottom for accumulation of silt, lost volume.</li> <li>3. Inspect for clogging of inflow pipes.</li> <li>4. Inspect vegetation on side and bottom slopes for proper coverage/no erosion.</li> </ol>	<ol style="list-style-type: none"> <li>1. If needed restore the infiltration capacity of the retention basin by scraping, discing, or otherwise aerating the basin bottom so that it meets the permitted recovery time for the required treatment volume.</li> <li>2. Remove accumulated sediment from retention basin bottom and inflow pipes and dispose of properly. If possible, sediment removal should be done when the system is dry and when the sediments are cracking.</li> <li>3. Maintain healthy vegetative cover to prevent erosion in the basin bottom, side slopes or around inflow and outflow structures. Mow as needed.<sup>4</sup></li> <li>4. Conduct repairs to prevent undercutting or piping. Remove trash and debris from inflow structures, trash racks and other system components to prevent clogging or impeding flow.</li> <li>5. Note any signs of excessive petroleum hydrocarbon contamination and handle appropriately.<sup>3</sup></li> </ol>
3	Dry Detention	<p><u>New Projects:</u> Once per year for first two years.</p> <p><u>Existing System w/o Chronic Problems:</u> Once per three years.</p> <p><u>Existing System w/ Chronic Problems:</u> Once per year until fixed<sup>7</sup></p>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect pond for proper drawdown, signs of standing water (dead grass) longer than designed, mosquito larvae and/or reduced percolation.</li> <li>2. Inspect basin bottom for accumulation of silt, lost volume.</li> <li>3. Inspect for clogging of inflow and outflow pipes.</li> <li>4. Inspect vegetation on side and bottom slopes for proper coverage/no erosion.</li> </ol>	<ol style="list-style-type: none"> <li>1. If needed restore the infiltration capacity of the detention basin by scraping, discing, or otherwise aerating the basin bottom so that it meets the permitted recovery time for the required treatment volume.</li> <li>2. Remove accumulated sediment from detention basin bottom and inflow pipes and dispose of properly.<sup>3,5</sup> If possible, sediment removal should be done when the system is dry and when the sediments are cracking.</li> <li>3. Maintain healthy vegetative cover to prevent erosion in the basin bottom, side slopes or around inflow and outflow structures<sup>4</sup>. Mow as needed. Monitor seepage and repair if needed.</li> <li>4. Conduct repairs to prevent undercutting or piping. Remove trash and debris from inflow structures, trash racks and other system components to prevent clogging or impeding flow.</li> <li>5. Note any signs of excessive petroleum hydrocarbon contamination and handle appropriately.<sup>3</sup></li> </ol>

Table 3-1. FDOT Stormwater Inspection and Maintenance Frequency and Activities

Item	Structural Control <sup>1</sup>	Inspection Frequency	Maintenance Frequency	Recommended Inspection Activities <sup>2</sup>	Recommended Maintenance Activities <sup>2</sup>
4	Dry Detention with Filtration	<p><u>New Projects</u>: Once per year for first two years.</p> <p><u>Existing System w/o Chronic Problems</u>: Once per 18 months</p> <p><u>Existing System w/ Chronic Problems</u>: Once per year until fixed<sup>7</sup></p>	As needed per inspection	<ol style="list-style-type: none"> <li>Inspect pond for proper drawdown, signs of standing water (dead grass) longer than designed, mosquito larvae and/or reduced percolation.</li> <li>Inspect basin bottom for accumulation of silt, lost volume.</li> <li>Inspect for clogging of inflow and outflow pipes.</li> <li>Inspect vegetation on side and bottom slopes for proper coverage/no erosion.</li> </ol>	<ol style="list-style-type: none"> <li>If needed, restore the infiltration capacity of the detention basin by scraping, discing, or otherwise aerating the basin bottom so that it meets the permitted recovery time for the required treatment volume.</li> <li>Remove accumulated sediment from detention basin bottom and inflow pipes and dispose of properly.<sup>3,5</sup> If possible, sediment removal should be done when the system is dry and when the sediments are cracking.</li> <li>Maintain healthy vegetative cover to prevent erosion in the basin bottom, side slopes or around inflow and outflow structures.<sup>4</sup> Mow as needed. Monitor seepage and repair if needed.</li> <li>Conduct repairs to prevent undercutting or piping. Remove trash and debris from inflow structures, trash racks and other system components to prevent clogging or impeding flow.</li> <li>Note any signs of excessive petroleum hydrocarbon contamination and handle appropriately.<sup>3</sup></li> </ol>
5	Exfiltration Trench/French Drain Systems	<p><u>New Projects</u>: Once per year for first two years.</p> <p><u>Existing System w/o Chronic Problems</u>: Once per three years.</p> <p><u>Existing System w/ Chronic Problems</u>: Once per year until fixed<sup>6,7</sup></p>	As needed per inspection	<ol style="list-style-type: none"> <li>If present, inspection ports and observation wells should be checked following three days minimum dry weather for drawdown and sediment accumulation.</li> <li>Inspect upstream appurtenances such as sediment and oil and grit separation traps or catch basins as well as diversion weirs or boxes. Diversion facilities and overflow weirs should be clear of debris. Sedimentation and oil/grit chambers should be scheduled for cleaning when sediment approaches the cleanout level. Cleanout levels should be established at least one foot below the invert of the chamber.</li> </ol>	<ol style="list-style-type: none"> <li>Conduct minor maintenance measures to restore infiltration rates to acceptable levels. This may include removal of accumulated sediments or high-pressure jetting of the pipe.</li> <li>Major maintenance (total rehabilitation) is required to remove accumulated sediment in most cases or to restore recovery rate when minor measures are no longer effective or cannot be performed due to design configuration. Replace rock and filter fabric if applicable.</li> <li>Remove trash and debris from diversion facilities and overflow weirs. Clean out sedimentation and oil/grit separators when sediment depth approaches cleanout level and dispose of properly.<sup>3,5</sup></li> <li>Remove debris from the outfall or "smart box" (diversion device in the case of off-line facilities).</li> </ol>
6	Dry Treatment Grass Swales	<p><u>New Projects</u>: Once per year for first two years.</p> <p><u>Existing System w/o Chronic Problems</u>: Once per three years.</p> <p><u>Existing System w/ Chronic Problems</u><sup>7</sup>: Once per year until fixed<sup>6</sup></p>	As needed per inspection	<ol style="list-style-type: none"> <li>Inspect swale for storage volume recovery within 72 hours. Dead or dying grass, cattails/aquatic vegetation in the swale and/or standing water following three days of dry weather is an indicator of potential clogging and reduced infiltration capacity.</li> <li>Inspect swales for debris or litter accumulation or damage to structures including diversion devices, inflow pipes, driveway culverts and swale blocks.</li> <li>Inspect and monitor sediment accumulation in the swale or at inflows to prevent clogging of the swale or inflow pipe.</li> <li>Inspect vegetation of bottom and side slopes to assure it is healthy, maintaining coverage, and that no erosion is occurring within the swale.</li> <li>Inspect the swale for potential mosquito breeding areas such as where standing water occurs after 72 hours or where cattails or other invasive vegetation becomes established.</li> <li>Inspect swale to determine if parking, filling, excavation, construction of fences, or other objects are damaging or obstructing stormwater flows in the swale.</li> </ol>	<ol style="list-style-type: none"> <li>If needed, restore the infiltration capacity of the swale system by scraping, discing, or otherwise aerating the swale so that it meets the permitted recovery time for the required treatment volume.</li> <li>Remove trash and debris, especially from inflow or outflow structures to prevent clogging or impeding flow. Repair any damages to structures within the swale system as needed to maintain proper operation.</li> <li>Remove accumulated sediment from swale and inflow and outflow pipes and dispose of properly. If possible, sediment removal should be done when the system is dry and when the sediments are cracking.<sup>3,5</sup></li> <li>Maintain healthy vegetative cover to prevent erosion of the swale bottom side slopes.<sup>4</sup> Mow grass as needed.</li> <li>Repair any damage to the swale system and remove any obstructions to flow.</li> </ol>



Table 3-1. FDOT Stormwater Inspection and Maintenance Frequency and Activities

Item	Structural Control <sup>1</sup>	Inspection Frequency	Maintenance Frequency	Recommended Inspection Activities <sup>2</sup>	Recommended Maintenance Activities <sup>2</sup>
7	Pollution Control Boxes	Once per three months unless clean out records indicate a more or less frequent schedule is needed	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect inlets, outlets, and other system components for damage that would prevent proper flow conditions and operation.</li> <li>2. Inspect and monitor sediment accumulation in the pollution control box and at the inflow/outflow to prevent loss of storage volume or clogging of the inflow/outflow pipes.</li> <li>3. If applicable, inspect and monitor vegetation and debris accumulation in the pollution control box screens to prevent loss of storage volume or clogging of the system.</li> <li>4. If applicable, inspect absorbent materials used to trap hydrocarbons or bacteria to determine if they need replacement.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair any damage needed to assure proper flow conditions and operation</li> <li>2. Remove accumulated sediment (including floatables) and dispose of properly</li> <li>3. Remove accumulated vegetation and debris and dispose of properly.<sup>3,5</sup></li> <li>4. Replace absorbent materials as required for proper operation</li> <li>5. Follow all manufacturers' recommended maintenance schedules and activities</li> </ol>
8	Stormwater Pump Stations	Once per six months <sup>8</sup>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect pump for proper operation.</li> <li>2. Inspect inlets, bar screens (if used) and other associated components for debris or litter to assure that the pump operates properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Maintain or repair pump as needed to assure proper operations.</li> <li>2. Remove debris, litter, and sediments as needed to ensure proper operations. Properly dispose of the litter, sediments and debris collected.<sup>3,5</sup></li> </ol>
9	Major Stormwater Outfalls/Canals <sup>9</sup>	Once per year, unless historical operation records demonstrate that a more or less frequent schedule is appropriate.	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect outfalls to assure they are not clogged with litter, debris or sediment and they are flowing properly.</li> <li>2. Inspect for damaged headwalls, seepage, around pipe, erosion of bank around outfall, erosion or sedimentation at outfall discharge point, and damaged or clogged riprap.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove debris, litter, and sediments as needed to ensure proper operations. Properly dispose of the litter, sediments and debris collected.</li> <li>2. Repair any structural damage to assure proper operation.</li> <li>3. Maintain healthy vegetative cover to prevent erosion of banks near outfall.<sup>4</sup></li> <li>4. Ensure that discharges from outfalls are not causing erosion and sedimentation.</li> </ol>
10	Weirs and Control Structures	MRP <sup>10</sup>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect weirs/control structures for damage that would prevent proper flow conditions and operation.</li> <li>2. Inspect and monitor sediment accumulation behind weirs/control structures to prevent loss of storage volume and adverse impacts on flow and operation.</li> <li>3. Inspect and monitor litter/debris accumulation behind weirs/control structures to prevent loss of storage volume and adverse impacts on flow and operation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair any damages to weirs/control structures as needed to ensure proper flow conditions and operation.</li> <li>2. Remove accumulated sediments to restore permitted storage volume and dispose of properly.<sup>3,5</sup></li> </ol>
11	Pipes and Culverts	MRP <sup>10</sup>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect pipes and culverts for structural deficiencies or damage that would prevent proper flow conditions and operation.</li> <li>2. Inspect pipes and culverts to monitor sediment accumulation to prevent loss of storage volume and adverse impacts on flow and operation.</li> <li>3. Inspect pipes and culverts to monitor vegetation and litter/debris accumulation to prevent loss of hydraulic capacity.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair any damages to pipes or culverts as needed to ensure proper flow conditions and operation.</li> <li>2. Remove accumulated sediments as needed to ensure proper flow conditions and operation.</li> <li>3. Remove vegetation and litter/debris as needed to ensure proper flow conditions and operation and dispose of properly.<sup>3,5</sup></li> </ol>
12	Inlets, Catch Basins Grates, Ditches and Other Stormwater Conveyances	MRP <sup>10</sup>	As needed per inspection	<ol style="list-style-type: none"> <li>1. Inspect for damage that would prevent proper flow conditions and operation.</li> <li>2. Inspect and monitor sediment accumulation to prevent loss of storage volume and adverse impacts on flow and operation.</li> <li>3. Inspect and monitor litter/debris accumulation to prevent loss of storage volume and adverse impacts on flow and operation.</li> <li>4. Inspect vegetation on bottom and side slopes of conveyances to assure it is healthy, maintaining coverage and that no erosion is occurring within the conveyance system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Repair any damages to weirs/control structures/inlets/grate structures as needed to ensure proper flow conditions and operation.</li> <li>2. Remove accumulated sediments to restore permitted storage volume and dispose of properly.</li> <li>3. Remove litter/debris as needed to ensure proper flow conditions and operation and dispose of properly.<sup>3,5</sup></li> <li>4. Maintain healthy vegetative cover to prevent erosion of the conveyance bottom or side slopes.<sup>4</sup></li> </ol>

Table 3-1. FDOT Stormwater Inspection and Maintenance Frequency and Activities

Item	Structural Control <sup>1</sup>	Inspection Frequency	Maintenance Frequency	Recommended Inspection Activities <sup>2</sup>	Recommended Maintenance Activities <sup>2</sup>
Notes:	<ol style="list-style-type: none"> <li>1. The structural controls listed herein are not intended to be a complete listing of all possible stormwater structures owned and operated by FDOT. Additionally, all stormwater structures listed may not be present in every District. FDOT has the responsibility to perform and record inspections and maintenance of all structures that comprise the municipal separate storm sewer system (MS4).</li> <li>2. The inspection and maintenance activities listed above are not intended to be applicable to every inspection need or maintenance activity that may be required to assure that all components installed in the MS4 continue to function properly or as permitted.</li> <li>3. Excessive petroleum hydrocarbons can present severe sediment disposal / cleanup problems. Evidence of such pollution includes very dark oily stains, particularly at inlet and outlet locations, and strong odors of gasoline. The source of such pollutant discharges to the MS4 should be determined and removed if possible. Test should be performed to determine if directly contaminated soils should be handled as a hazardous waste.</li> <li>4. Use only pesticides approved by the USEPA and FDACS for aquatic sites to control weed pests in and around treatment facilities. Use of pesticides and chemicals for the control of invasive species such as cattails should be minimized in lieu of mechanical removal for larger areas. Careful herbicide selection and application is essential to minimize harm to desirable plants and animals. If done on a routine basis, mechanical control removal can help control unwanted aquatics and minimize the use of chemicals. However, experienced, licensed and trained applicators can selectively control many undesirable plants with minimal harm to the desirable vegetation and possible downstream contamination. Supplemental nutrients (fertilizer) should be used as needed to establish and maintain a healthy and vigorous cover on the banks of treatment facilities. However, normal rates of fertilizer should be lowered or eliminated entirely in the immediate vicinity of treatment facilities to avoid over-enrichment in soils and in the waters of the treatment pond. Only apply supplemental nutrients when grass shows signs of distress once the ground cover is well established. Undesirable vegetation should not put into the water, but hauled offsite.</li> <li>5. Solids disposal. Stormwater system sediments including street sweepings, catch basin sediments, and other solids shall be handled and disposed of pursuant to FDEP rules and guidance, which are available at <a href="http://www.dep.state.fl.us/water/nonpoint/May04StSweepGuidance.pdf">http://www.dep.state.fl.us/water/nonpoint/May04StSweepGuidance.pdf</a>. FDOT will continue to reuse recovered materials as allowed per 62-701.220(2)(g).</li> <li>6. Unless physically impractical to inspect due to lack of access or perennial submerged conditions. In this case, it should be determined whether retrofit and maintenance is possible without flooding property or other health and safety issues.</li> <li>7. Chronic problems are defined as those problems that cause flood control problems, results in a decrease of water quality treatment volumes or cause a decrease in the treatment capability of the system.</li> <li>8. Unless a different schedule is warranted due to site conditions or manufacturers' specifications.</li> <li>9. Major outfall means a major municipal separate storm sewer outfall, which is defined as a municipal separate storm sewer outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (discharge from a single conveyance other than a circular pipe that is associated with a drainage area of more than 50 acres), or for municipal separate storm sewers that receive stormwater from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more or its equivalent (discharge from other than a circular pipe associated with a drainage area of 2 acres or more).</li> <li>10. MRP refers to the Statewide Maintenance Rating Program. MRP is the program under which FDOT conducts visual and mechanical evaluations of routine highway maintenance conditions.</li> </ol>				

The MRP is the method that FDOT uses to conduct visual and mechanical evaluations of routine highway maintenance conditions. The purpose of the evaluation is to provide information that is used to schedule and prioritize routine maintenance activities and provide uniform maintenance conditions that meet established Departmental objectives. It is divided into five different elements, which include roadway, roadside, traffic services, drainage, and vegetation/aesthetics. Under the program, random areas of roadway are designated for inspection by trained District MRP personnel. Some of these inspections identify areas where the stormwater structural controls and water quality elements are not performing adequately. MRP personnel responsible for water quality aspects of stormwater will be trained in:

- Illicit discharge detection and reporting;
- Proper erosion and sediment control, as appropriate

These are then entered into and scheduled for maintenance through the FDOT MMS. Appendix A presents MMS Activity Sheets that outline the present work program activities to take place for various stormwater and drainage components.

The MRP is just one tool that FDOT uses to ensure the roadways are maintained consistently and systematically. Other tools include Quality Assurance reviews performed on each District by the Central Office, where FDOT compares the District's planned work activities to what has actually been accomplished. This is done using the Department's MMS and work needs supervisors who regularly inspect the highways for characteristics that require maintenance.

### **3.2 Areas of New Development or Redevelopment**

Areas of new development or redevelopment that discharge to FDOT's MS4 system are required through Chapter 14-86, F.A.C., to obtain a DCP. The DCP requires review of surface water management connections to FDOT drainage facilities. The purpose of the rule is to ensure safe conditions and the integrity of FDOT transportation facilities, to prevent an unreasonable burden on downstream properties, and to ensure that waters discharging from the site to the FDOT right-of-way meet acceptable water quality.

In addition to the traditional flood concern issues, the DCP must also ensure through the permit review process that appropriate stormwater treatment occurs prior to discharge into the FDOT system. The mechanism for this assurance is twofold:

1. Require proper water quality treatment design pursuant to WMD and FDEP permitting requirements, and
2. Ensure through construction inspections that proper stormwater, erosion, and sediment control BMPs of the permitted treatment facility are adequate for water quality treatment.

Acceptable structural controls that FDOT or entities requesting FDOT DCPs may utilize include but are not limited to the following: infiltration devices/filtration systems, detention, retention, porous pavement, vegetated swales and pollution control boxes. Connecting entities that are known to violate water quality standards will be reported to FDEP or the appropriate WMD and, where applicable, the MS4 co-permittee having jurisdiction for enforcement action. FDOT may revoke a DCP if the facilities are not constructed, operated, or maintained in accordance with the permit, including meeting water quality standards. Connecting entities that are believed to be violating water quality standards will be reported to FDEP or the appropriate WMD and, where applicable, the MS4 co-permittee having jurisdiction for enforcement action. Records will be kept of all permit violations and subsequent referrals by FDOT under the DCP program.

### **3.3 Roadways**

In addition to F.A.C., statutes, guidelines, and numerous municipal and county codes regulating stormwater, FDOT has specific policies, procedures, and guidelines for protecting surface water. All policies and procedures must be followed to ensure proper stormwater management.

#### **3.3.1 Formal Procedures for Scheduling Road Maintenance**

Currently, the *Roadway and Roadside Maintenance Procedures* provides guidance for maintaining the roads and highways in a safe and comfortable condition and to protect the public's investment in those facilities. In addition to *Roadway and Roadside Maintenance Procedure*, the MRP rates roadside features continuously, on a random basis, to determine if additional maintenance work is needed.

### **3.3.2 Practices for Controlling Erosion for Road Maintenance Activities**

Erosion, sediment and stormwater control methods shall be used as needed to ensure that State water quality requirements are met. FDOT roadside maintenance activities utilize the *State of Florida Erosion and Sediment Control Designer and Review Manual* (FDOT, 2007) and, where appropriate, sedimentation control BMPs from the *Florida Stormwater, Erosion, and Sedimentation Control Inspector's Manual* (FDEP, 2008) to minimize the potential for erosion, sedimentation, and stormwater pollution from roadside maintenance activities. Personnel responsible for the inspection of stormwater-related aspects of construction activities within rights-of-way are required to have appropriate training in stormwater erosion and sediment control.

### **3.3.3 Street Sweeping**

Currently, the specific standards for roadway sweeping are dictated by the FDOT *Maintenance Rating Plan Manual* and scheduled through the MMS. Each District is responsible for complying with these standards and has schedules for road sweeping mainly through private contractors either under direct contract or through JPAs or MOAs.

Under the MS4 reporting requirements, Districts will provide annual reports outlining the frequency of street sweeping, miles swept, and quantity (or estimate of quantity) of material removed under their street sweeping program. Additionally, estimates of the quantities of total nitrogen (TN) and total phosphorus (TP) will be reported, utilizing relationships developed by FDEP that equate the quantity (volume or weight) of material with the weight of TN and TP removed. Appendix B provides an overview of the methodology to be utilized to calculate the TN and TP from either the gross weight of material removed, the quantity of material removed, or lane miles swept. Appendix B also provides an overview of the present FDOT contracts for street sweeping and why lane mile calculations are needed on an interim basis. Specific FDEP links relative to TN and TP street-sweeping calculations and tools are provided in Appendix B.

### **3.3.4 Litter Control**

Currently, the specific standards for roadway litter control are rated by the FDOT *Maintenance Rating Plan Manual* and scheduled through the MMS. Each District is responsible for complying with these standards and has schedules for litter control mainly through private contractors either under direct contract or through JPAs or MOAs. The work is performed by a combination of FDOT maintenance crews and contractors and through contracts with the municipality or

county within the District, Adopt-A-Highway (Chapter 403.4131, F.S.), and Florida Department of Corrections work crews. The quantities of litter are reported in terms of area as per current FDOT contracts, with a few exceptions. Districts will provide annual reports outlining the frequency and an estimate of the quantity of litter removal.

### **3.3.5 Maintenance Yards**

Each District (except the FTE) has maintenance facilities for storing equipment and materials used in highway and road maintenance. These facilities may be small-quantity generators of hazardous waste that have contingency plans for handling and disposal. All hazardous materials are managed according to applicable regulations. Procedures for handling and disposal of excess asphalt material and cleaning materials such as solvents are outlined in the *Guide to Asphalt Repair*. Hazardous materials are stored according to Material Safety Data Sheet (MSDS) recommendations. Inventories are kept of all materials at each facility.

Used oil at all facilities is properly stored in approved containment vessels until it can be recycled. All underground tanks at the facilities are monitored in accordance with FDEP regulations for underground tanks as stated in Chapter 62-761, F.A.C. *Underground Tank Systems*. Above-ground tanks are inspected and maintained in compliance with 62-762, F.A.C., *Above Ground Tank Systems*.

Through annual inspections by each District, FDOT will identify the equipment yards and maintenance shops that support road maintenance activities and determine the necessary control measures and procedures to be employed at each facility. Districts will maintain documentation of the inspections and procedures that demonstrate that potential stormwater co-mingling or pollutant concerns have been reviewed, and the appropriate control measures and procedures have been implemented for the annual reporting requirements. Standard operating procedures (SOPs) reducing the potential for introduction of pollutants from maintenance yards will be developed by the individual Districts as part of their Stormwater Management Programs.

## **3.4 Flood Control**

FDOT's permitted storm sewer systems are designed to comply with Chapters 373 and 403 F.S., and rules promulgated thereunder including Chapter 62-40, F.A.C., and, therefore, are required to maintain, during and after construction and development, the pre-development storm characteristics, hydrology and flood levels. FDOT projects typically require permitting by other

regulatory agencies including FDEP, WMDs, and the U.S. Army Corps of Engineers (USACE). In addition to these permits and associated water quantity and quality requirements, FDOT is committed to incorporating structural and non-structural water quality controls into its new facilities to reduce the discharge of pollutants.

Occasionally, FDOT may develop projects that reduce or lessen flooding conditions in an area for the purpose of ensuring flood-free roadways. These projects would be required to comply with Chapters 373 and 403, and rules promulgated there under including Chapter 62-40, F.A.C., and, therefore, will assess and reduce the impacts of stream channel erosion, siltation, sedimentation, and stormwater pollutant loading to waters of the State. Toward this end, the WMD (or FDEP) requires stormwater treatment for most flood control projects depending on permitting thresholds.

The WMDs have the authority and responsibility for developing long-range comprehensive water management plans that will assess the flood protection and water quality management problems within each WMD. These plans include the WMDs' strategies, priorities, and schedules to develop pollutant load reductions as necessary to maintain water quality consistent with Chapter 62-40, F.A.C. There may be occasions when FDOT will participate with local agencies and WMDs to provide specific water quality improvements. FDOT participation may range from providing data, research, joint funding, or other functions.

### **3.5 Municipal Waste Treatment, Storage, and Disposal Facilities Not Covered by an NPDES Stormwater Permit**

Currently, FDOT does not maintain any waste treatment, storage or disposal facilities. Therefore, at this time, no operating procedures or methodologies are presented in the SSWMP.

### **3.6 Application of Pesticides, Herbicides and Fertilizers**

FDOT is committed to reducing pollutants in discharges from MS4s resulting from application of pesticides, herbicides and fertilizers. This is currently accomplished through personnel training and certification regarding the proper use of equipment and chemicals. At present, FDOT has limited use of fertilizers statewide and, generally, this use is limited to initial periods of seeding and/or turf establishment to initiate growth and reduce potential erosion. Where feasible, FDOT

reduces the use of pesticides, herbicides, and fertilizer. The following sections provide an overview of additional components of the program to be implemented by the Districts.

### **3.6.1 Training and Certification**

FDOT currently requires all personnel involved in the chemical weed and grass control program to be competent, able, and knowledgeable to implement a safe and effective program. In addition, employees must complete training and certification regarding the proper use of equipment and disposal of chemicals.

FDOT requires proper certification and licensing from the Florida Department of Agriculture and Consumer Services (FDACS) for all FDOT personnel applying pesticides or herbicides on FDOT property or rights-of-way. FDOT District offices will be responsible for maintaining a list of all personnel, along with documentation of the proper FDACS certification and licensing. The list of personnel and any new training will be reported annually.

FDOT requires proper certification and licensing from FDACS for all contractors applying pesticides or herbicides on FDOT property or rights-of-way. FDOT District offices will be responsible for maintaining a list of all certified contractors. The list of certified contractors used by the District will be reported annually.

By January 2014, all personnel applying fertilizer will be trained and certified through the Green Industry (GI) BMP Program and FDACS, respectively. The list of trainees and number of trained personnel will be reported annually. By that same date, FDOT will require that any contracts for fertilizer application use only commercial applicators of fertilizer who have been trained through the GI-BMP Program and have obtained a limited certification for urban landscape commercial fertilizer application under Section 482.1562, F.S.

### **3.6.2 Chemical Control Plan**

In establishing a complete and effective chemical control plan, FDOT follows three principles of good management:

- Planning
- Organization
- Control



The planning process involves making decisions regarding timing, species identification, coordination with work crews, determination of required application rates and distribution, equipment requirements and others. Factors that must be considered include weed types, soil conditions, application location and weather conditions.

The organization process involves gathering of materials and tools and the scheduling and calibration of application equipment. FDOT recommends that an application area be identified in advance using the *MMS Work Determination and Scheduling System*.

The final management process involves control. This is the process of checking the progress, effectiveness, efficiency and quality of a particular job. Control requires that adjustments be made as field conditions change to ensure that proper chemical dosages are applied.

FDOT and State regulators require that all herbicide applications be reported and that these reports be filed and maintained. Daily logs include the following information:

- Name of applicator
- Date and time of application
- Application equipment used
- Type of chemical used, trade name, formulation, and manufacturer
- Amount of active ingredient and product used per acre
- Type of treatment
- Location and specific facilities treated
- Total area treated
- Weather, wind speed, and direction
- Remarks
- Nozzle type, operating pressure, gallon per minute rating and application angle

FDOT keeps and maintains a complete listing of approved chemicals, as well as an inventory of chemicals kept at the maintenance facilities. The inventory includes the shelf life of chemicals used, MSDSs for approved chemicals, and disposal schedules.

### **3.6.3 Application Guidelines**

The following is a description of the procedures and guidelines FDOT uses and requires to reduce to the contamination of stormwater as a result of chemical usage.

- Fertilizer application, if any, shall be conducted in accordance with all department procedures and guidance in order to minimize the use of fertilizer within FDOT rights of way. By 2014, the GI-BMP Program requirements will be applicable, and contracted fertilizer applicators will be limited to commercial applicators who have been trained in the GI-BMP Program and have obtained a limited certification for urban landscape commercial fertilizer application.
- Fertilizers should be used only where needed to maintain a strong stand of vegetation in poor soils. Lower fertilizer rates, if fertilizer is used at all, should be used in the immediate vicinity of treatment pond bank slopes and other water bodies, and within swales.
- FDOT encourages the use of manual vegetation removal and the use of track-driven roller wiper application methods instead of spray application to minimize the potential for environmental degradation.
- Only pesticides approved by EPA and FDACS should be used for aquatic sites to control weed pests in and around treatment ponds.
- Storage and handling methods
  - Pesticides, herbicides, and fertilizers shall be stored in a clean and dry location. The storage facility should be protected from the weather, have a concrete floor, and be locked when not in use. Pesticides, herbicides, and fertilizers should be handled in a manner to reduce uncontrolled spreading, drift and spillage, especially to adjacent water bodies.
  - All pesticide, herbicide and fertilizer containers must be correctly labeled. FDOT and State law requires that labels are cleared and registered through the EPA.
- Cleaning of equipment and container disposal:
  - Containers will be discarded in authorized disposal areas or as recommended by the manufacturer. FDOT requires the rinsing of containers a minimum of three times with proper solvent prior to disposal. The solvent rinse is recovered and saved as the diluent for the next application. Under no circumstances will an FDOT employee

- drain or wash equipment where wash water can discharge directly to a lake, stream, or other water body, or into a storm sewer or stormwater management system.
- When spraying near water bodies or other water sources, extra care must be taken to ensure precise application to prevent harm to the environment.

#### **3.6.4 Standard Operating Procedures for Use and Handling of Herbicides on FDOT Rights-of-Way**

FDOT Central Office approves all non-restricted herbicides purchased on a statewide contract basis. The Districts have the option to purchase and use any non-restricted herbicide. FDOT policy encourages the use of non-chemical control methods to reduce cost and environmental impact from chemical applications. This policy has resulted in gradual reduction of chemical herbicide application to control nuisance vegetation.

The application frequency of herbicides is determined by the Engineered Work Needs or Routine Work Performance Standards. All herbicide application is in compliance with label and MSDS recommendations, and FDOT *Roadway and Roadside Maintenance Procedure and Guide to Chemical Weed and Grass Control Handbook*. These documents are maintained by the FDOT State Maintenance Office, and copies are made available to District maintenance facilities.

Copies of MSDSs for herbicide are available at each FDOT maintenance facility. All herbicides are used according to label and MSDS specifications. An inventory is kept for all herbicides at each maintenance facility. A daily log is kept for all herbicide applications. Empty containers are triple rinsed and punctured prior to disposal or returned to the manufacturer for recycling. Rinse water is reused as a diluent and added to the chemical feed tank.

#### **3.6.5 Fertilizer Application Control**

Fertilizer application, if any, shall be conducted in accordance with all department procedures and guidance in order to minimize the use of fertilizer within FDOT rights of way. As part of routine maintenance, nurse crops such as clover may be used. Nurse crops enrich the soil by accumulating and restoring nitrogen, a nutrient essential for turf grass growth. This reduces the amount of fertilizer needed. In addition, soil aeration may be used along roadsides in some Districts. This also reduces the amount of fertilizer used without causing additional runoff.

Fertilizer should only be applied where it is absolutely needed and for initial establishment of ground cover at new construction sites.

### **3.7 Illicit Discharges and Improper Disposal**

Under the SSWMP, FDOT Districts will implement the following plan for the detection and elimination of illicit discharges to its MS4. The following outlines FDOT's Proactive Illicit Discharge Program, Reactive Illicit Discharge Program, High Risk Facilities, Spill Response, and Public Education.

#### **3.7.1 Proactive Program**

At present, FDOT implements its MRP/MMS program throughout the State of Florida and, as described in Section 3.1, this program provides significant coverage of the FDOT MS4 under the inspection and maintenance requirements. As such, the fundamental component of a proactive illicit discharge program, that is, inspectors visiting all areas of the MS4, is achieved through the MRP/MMS program.

FDOT's Proactive Illicit Discharge Program will utilize this existing infrastructure within the District through the implementation of a two-tier training program. The first tier (Tier 1) will be provided to all appropriate MRP/MMS personnel and will include basic training in the identification and reporting of potential illicit discharges. Additionally, FDOT contractors will be required to obtain Illicit Discharge and Spill Response training. These personnel will be instructed to report potential discharges to District NPDES staff.

The District NPDES staff will be fully trained in illicit discharge identification and reporting procedures (Tier 2). When an illicit discharge to the FDOT MS4 is reported, the District NPDES staff will conduct a complete inspection of the discharge, including documentation and appropriate reporting to FDEP or appropriate co-permittee. If it is determined that constituents common to wastewater are found within the discharge, District staff will report the discharge to the appropriate local utility responsible for wastewater treatment in the area and the co-permittee pursuant to any interlocal agreements for this activity. FDOT Districts will report the number of inspections and actions resulting through the inspection program described above as part of their annual report. If an illicit discharge is found outside of the FDOT right-of-way, FDOT will report it to the applicable MS4 operator, FDEP or WMD for further investigation and enforcement action.

### **3.7.2 Reactive Response Program**

FDOT maintains telephone lines at the District offices so the public can report illicit discharges and accidental spills. FDOT will investigate and report on the information received from the public and other agencies about incidents of spills or illicit discharges on the FDOT right-of-way. Reports of spills and illegal dumping outside the FDOT right-of-way will be reported to the appropriate local municipality or FDEP.

A report on the number of suspected illicit discharges and illegal dumping incidents called in along with follow-up documentation and referral information will be required to be included in the annual report for each District.

### **3.7.3 High Risk Program**

Due to the nature of the FDOT MS4 and the limited access by personnel outside of the right-of-way, FDOT Districts typically enter into JPAs or MOAs with municipal co-permittees to satisfy components of the High Risk Program. FDOT inspection is limited to outfalls from facilities that are immediately adjacent to the FDOT right-of-way and discharge stormwater directly into the FDOT system.

Under the MS4 program, FDEP and EPA have identified the following specific facilities as having the potential to be high priority stormwater pollution sources:

- Operating and closed municipal landfills
- Hazardous waste treatment, disposal or recovery facilities
- Superfund Amendments and Reauthorization Act (SARA) Title III Facilities identified from the Toxic Release Inventory (list obtained from Local Emergency Planning Council)
- Industrial facilities listed by Standard Industrial Classification (SIC) Code in Title 40 CFR, Part 122.26(b)(14)(i)-xi

For all JPA/MOA programs, the selection process begins as a system-wide identification and prioritization of potential problem areas focused in a systematic manner to a particular outfall or pollutant contributor. In entering JPA/MOA agreements, the Districts should assure that the co-permittee program meets the requirements of FDEP.

FDOT Districts will report the number of inspections and actions resulting through JPA/MOA agreement. FDOT Districts shall keep track of the reactive and proactive inspections performed by its co-permittees through the JPA/MOA agreement for facilities discharging to the FDOT MS4.

While each District will develop its own approach to handling High Risk facilities within its individual Phase 1 MS4 permits, including the development of appropriate SOPs where applicable, each District will maintain, at a minimum, a list of the High Risk facilities with the potential to discharge to the FDOT MS4 system within the Phase 1 jurisdictional areas.

#### **3.7.4 Spill Response**

FDOT Districts employ the emergency response spill procedures and associated contracts with local governments, police, fire and rescue, and environmental response teams. FDOT personnel and its associated spill response team respond, test, collect, dispose and report all spills larger than 25 gallons to FDEP. FDOT has established procedures for reporting spills and repairing damage to the roadway or right-of-way resulting from spills. These procedures are outlined in *Reporting Incidents and Management of Damage Repair* (FDOT Form 850-005-001-j). These existing plans and procedures are employed in each District to respond to accidental spills. A report on the spill prevention and response activities, including the number of spills, will be included in the annual report for each District. Each District will maintain documentation of reported spills as well as any spill prevention, response activities, and procedures.

#### **3.7.5 Public Education**

As part of the DCP Program, FDOT provides handouts with all approved DCP permits outlining information on used oil recycling, proper hazardous waste disposal, stormwater regulations, and spill reporting.

### **3.8 Construction Site Runoff**

All construction projects that disturb land adjacent to and within FDOT rights-of-way are controlled and regulated through jurisdiction by one of the State's five WMDs through Chapters 40 (A through E) -4 and Chapter 40 (A through E) – 40, F.A.C., and FDEP through Chapter 62-621 and other appropriate chapters of the F.A.C. Permitting through these agencies requires the developer, property owner, or authorized agent to submit construction plans and supporting

documentation for review and approval and/or develop and implement a Stormwater Pollution Prevention Plan (SWPPP). Construction and stormwater pollution control plans must clearly identify erosion and sediment controls and stormwater management practices and provide details for all stormwater facilities.

Current FDOT requirements consist of reducing pollution at the source and preventing offsite discharge from causing adverse impacts to receiving waters. The following sections describes FDOT's role in controlling runoff from construction activities both onsite and offsite. Erosion, sediment, and stormwater management controls shall always be used as needed to ensure that State water quality requirements are met. FDOT requires that all stormwater erosion and sediment control inspectors working on FDOT construction projects be qualified either by attending FDEP's stormwater erosion and sediment control inspector training program, through another recognized equivalent training program, or through other training or practical experience in the field of stormwater pollution prevention and erosion and sedimentation control.

### **3.8.1 Onsite Construction Within the FDOT Right-of-Way**

Construction sites that disturb 1 acre of land or more and that discharge to waters of the State or an MS4 must obtain NPDES Construction Generic Permit (CGP) coverage from FDEP and implement a SWPPP to address erosion and sediment control and minimize stormwater pollutants discharged offsite. Inspections of construction activities shall be conducted in accordance with permit requirements to ensure proper installation, maintenance, and operation of erosion, sediment and stormwater controls and prevent adverse water quality impacts.

For all FDOT construction projects that meet NPDES construction generic permit criteria (construction projects that disturb 1 acre or more of land), FDOT has a procedure to prepare SWPPPs in the *Plans Preparation Manual* (Volume 1, Chapter 11). In addition, to control erosion and sedimentation on construction projects, FDOT's *Standard Specifications for Road and Bridge Construction*, Section 104, and FDOT's *Design Standards* (100 to 106) provide specific measures and design specifications. The purpose of these measures is to prevent pollution of water, detrimental effects to public or private property adjacent to the project right-of-way, and damage to work on the project. The measures consist of construction and maintenance of temporary erosion and sediment controls or, where practical, the construction and maintenance of permanent erosion and sediment controls as shown in the construction plans.

As an attachment to the Year 1 Annual Report, each FDOT District will submit a written plan that details the standard operating procedures for implementation of the stormwater, erosion and sedimentation inspection program, including training, for construction sites discharging into the MS4. This requirement applies to FDOT-operated projects and privately owned projects that require a DCP and are located within the FDOT right-of-way. All inspectors of construction sites shall be certified through the Florida Stormwater Erosion and Sedimentation Control Inspector Training Program or an equivalent training program approved by FDEP.

### **3.8.2 FDOT Drainage Connection Permit Program**

Through the permitting requirements of Chapter 14-86, F.A.C., FDOT DCP requires review of surface water management connections to FDOT drainage facilities. FDOT can provide or allow drainage connections from properties that adjoin the FDOT rights-of-way so that the historical drainage rate and volume is not increased. The purpose of the rule is to ensure safe conditions and the integrity of FDOT transportation facilities, to prevent an unreasonable burden on downstream properties, and to ensure that waters discharging from the site to the FDOT right-of-way meet acceptable water quality.

In addition to the traditional flood concern issues, the DCP must also ensure through the permit review process that appropriate stormwater treatment occurs prior to discharge into the FDOT system. The DCP requires that all construction projects draining to the MS4 meet water quality standards and specifies the use of stormwater, erosion, and sediment control BMPs during construction.

Under the DCP Program, the applicant for a permit must provide reasonable assurance that the quality of water conveyed by the connection meets all applicable water quality standards, and such assurance shall be certified in writing. In the event the discharge is identified causing or contributing to a violation of applicable water quality standards, the permittee will be required to incorporate such abatement as necessary to bring the permittee's discharge into compliance with applicable standards. FDOT provides inspection of the proposed outfall conditions during construction and, if it is determined that the discharge is not meeting the requirements listed above, or that the facility is not being constructed as designed, FDOT personnel will report the discharge to the appropriate agency or local municipality. Additionally, following construction of



the project, if it is determined that a permitted discharger is violating the conditions listed above, FDOT will report the discharge to the appropriate agency or local municipality.

## **4.0 PUBLIC EDUCATION**

Generation of public awareness and encouraging reporting of possible water quality impacts from FDOT stormwater discharges requires an effective public education program. The following are examples of public education:

- Explanations of what stormwater is, how it is managed, and why
- Effects of improper waste disposal on stormwater
- Definition of an illicit discharge
- The need to report illicit discharges and to whom

When feasible and appropriate, FDOT will participate in public awareness programs developed by municipalities and environmental regulatory agencies within each District through JPAs or MOAs. As stated earlier under the DCP program, FDOT will include a notice with each approved FDOT DCP with information on used oil recycling, proper hazardous waste disposal, stormwater regulations, and spill reporting. The number of notices distributed through the DCP will be provided on the annual report. Additionally, FDOT will provide in its annual reports an overview of public education programs directly initiated and those done through JPA/MOA agreements.

## **5.0 MONITORING PLAN PROGRAM**

A monitoring plan program for the duration of the permit is required by Chapter 62-624, F.A.C.

The goals of the monitoring program are as follows:

- Characterize and quantify stormwater loads
- Determine sources of specified pollutants
- Evaluate the performance of the specific source controls and BMPs
- Identify chemical, physical, and biological impacts
- Evaluate compliance with water quality standards
- Evaluate the effectiveness of permittees' stormwater management programs

The monitoring program objective is to assist MS4 permittees in determining the overall effectiveness of their stormwater program implementation, to assist in prioritizing portions of the MS4 requiring additional controls, and to identify where stormwater discharges are adversely affecting surface water bodies. FDOT's outfalls and delineated drainage watersheds are interspersed and shared with the outfalls of its co-permittees. FDOT and co-permittees share information about discharge characterization (with most of FDOT's monitoring conducted as part of JPAs or MOAs with co-permittees), sources of specified pollutants, and the performance of the specific source controls in reducing annual pollutant loads. Districts participate in local monitoring efforts by municipal co-permittees through JPA or MOA where appropriate and feasible. Monitoring program data will be reported by the appropriate municipal co-permittee and referenced in the District's annual report.

Permittees are required to provide estimates of the annual pollutant load and event mean concentration (EMC) for biochemical oxygen demand (BOD), total copper, total nitrogen, total phosphorus, total suspended solids, and total zinc for each major outfall or major watershed within their MS4. A major watershed must contain at least one major outfall. A major outfall is defined by Rule 62-624.200(5), F.A.C. Permittees are required to include a table in Year 3 of the annual report comparing the current calculated annual pollutant loadings with those from the previous two annual reports, and specify the source of EMCs and data used for each of the three calculations. Based on this comparison, the permittees shall indicate whether the pollutant loadings are increasing or decreasing for each major watershed or major outfall for

overall pollutant removal effectiveness. If the total pollutant loadings have not decreased over the past two permit cycles, the permittees shall re-evaluate their stormwater management program and identify and submit revisions to the plan, as appropriate, in the Year 4 annual report to reduce pollutant loadings, especially to impaired waters. Where feasible, it is recommended to complete these requirements through JPA/MOA or cooperative efforts with co-permittees.

## **6.0 YEARLY REVIEW ON EFFECTIVENESS OF IMPLEMENTATION OF STORMWATER MANAGEMENT PROGRAM**

In addition to the requirements outlined in Section 5.0, the Districts are required to determine the effectiveness of their stormwater management program in reducing pollutant loads discharged from the MS4. At a minimum, each annual report shall include, as an attachment, an explanation of how the stormwater program addressed each of the following:

1. Have stormwater pollutant loadings discharged from the MS4 decreased? Why or why not?
2. Which components of the stormwater management program are working well and are effective in reducing stormwater pollutant loadings? Why are they effective?
3. Which components of the stormwater management program are not working well and need to be revised to make them more effective in reducing stormwater pollutant loadings?
4. Which components of the stormwater management program do not contribute to reducing stormwater pollutant loads and could be revised or eliminated, and why?
5. Is the monitoring program providing data that can be used to assess the effectiveness of the stormwater management program in reducing stormwater pollutant loadings, assess the effectiveness of specific BMPs, and determine where stormwater retrofitting projects should be prioritized for implementation?

Additionally, the Districts shall annually undertake an analysis of the financial and staffing resources needed to successfully implement its activities under their stormwater management program.

It is important to note, as stated in Section 1.2, that FDOT budgets are legislatively approved on an annual basis. FDOT relies heavily on Federal funds in budgeting monies for proposed projects, although these funds cannot be used for maintenance. Therefore, full implementation of the stormwater management program within projected time frames is highly dependent on budget approval and funding appropriations by both the Florida Legislature and the United States Congress.

Appendix A

MMS Activity Sheets

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**FLORIDA DEPARTMENT OF TRANSPORTATION  
 MAINTENANCE MANAGEMENT SYSTEM  
 ROUTINE MAINTENANCE ACTIVITY**

<b>CLEAN DRAINAGE STRUCTURES</b>	<b>MMS ACTIVITY : 451</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b>  Manual or Mechanical: Cleaning storm drains, french drains, manholes, side drains, cross drains, inlets, piped outfalls, box culverts, and other miscellaneous drain structures. Not to include bridge drains.	
<b>PURPOSE</b>  To maintain proper drainage system for protection of the roadway.	
<b>SCHEDULING FREQUENCY</b>  As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b>  <ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Remove debris such as lumber, tree branches or material that might create an obstruction to proper drainage. Load into truck and haul away to appropriate disposal site.</li> <li>3. Check the outfall end of the drainage system to be sure it is not plugged by sediment and vegetation and that there is no serious scour damage (See Activity No. 464 for cleaning outfall ditches).</li> <li>4. Control soil run-off and other soil erosion in accordance with publications listed below.</li> <li>5. Clean up work site.</li> <li>6. Complete crew report before moving to new site.</li> <li>7. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>  *** All referenced publications shall be current edition with supplements ***  <ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 &amp; 200 series.</li> <li>3. M110-31, M110-32 and M425 Standard Maintenance Special Provisions.</li> <li>4. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>5. Operator's Manual (Sewer Cleaner)</li> <li>6. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 451

**MRP CRITERIA**

Refer to Drainage element under the following:

- ◆ Side / Cross Drain: 60% of the cross-sectional area is not obstructed
- ◆ Inlets: 85% of the opening is not obstructed
- ◆ Misc. Drainage Structures: 90% of each structure functions as intended

**METHOD OF REPORTING**

1. Use a tape or measuring wheel and report the length cleaned to the nearest hundredth.
2. Each inlet cleaned equals 2 meters (6 linear feet)  
If only inlet top cleaned, report one (1) meter (3 feet)

REPORTING UNITS = meters (lineal feet)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	<i>Mechanical:</i> OMST - III	1421	1	<i>Mechanical:</i> Truck Mounted Sewer Cleaner
9740	2	OMST - I	0520	1	3/4 Ton Pickup Truck
			9270	1	Trailer Mounted Flashing Arrow
9750	1	<i>Manual:</i> OMST - II	1100	1	<i>Manual:</i> 2 Ton Crew Cab
9740	3	OMST - I	9270	1	Trailer Mounted Flashing Arrow
		<i>Safety and traffic control assistance as required</i>			

**SMALL TOOLS**

**MATERIAL**

Hoe  
 Various Hand Tools  
 Shovels  
 Swing Blades  
 Hand Pipe Shovels  
 Pry Bar  
 Hydraulic Jack  
 Measuring Devices  
 Work signs and safety equipment  
 Personal Safety Equipment

Litter bags  
 Sod

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*W. J. Albright*  
 State Maintenance Engineer



**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>REPAIR or REPLACE STORM DRAINS, SIDE DRAINS, CROSS DRAINS</b>	<b>MMS ACTIVITY : 456</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b>  Repair or replacement of storm drains, side drains, cross drains, french drains and mitered ends. Not to include repair of items listed for Activity 457.	
<b>PURPOSE</b>  To maintain drainage structures in good operating condition	
<b>SCHEDULING FREQUENCY</b>  As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b>  <ol style="list-style-type: none"><li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li><li>2. Repair or replace sections of damaged pipe. Be sure grates and manhole covers are not damaged and are secured in place by tack welding or chaining. Be sure all joints are sealed.</li><li>3. Control soil run-off and other soil erosion in accordance with publications listed below.</li><li>4. Clean up work site.</li><li>5. Complete crew report before moving to new site.</li><li>6. Pick up work signs and other safety equipment.</li></ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>  *** All referenced publications shall be current edition with supplements ***  <ol style="list-style-type: none"><li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li><li>2. FDOT Roadway and Traffic Design Standard Index No. 600 &amp; 200 series.</li><li>3. FDOT Standard Specifications for Roadway and Bridge Construction</li><li>4. M425 Standard Maintenance Special Provisions.</li><li>5. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li><li>6. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li></ol>	

ACTIVITY NO. 456

**MRP CRITERIA**

Refer to Drainage element under the following characteristics:

- ◆ Side / Cross Drain: 60% of the cross-sectional area is not obstructed
- ◆ Inlets: 85% of the opening is not obstructed
- ◆ Misc. Drainage Structures: 90% of each structure functions as intended

**METHOD OF REPORTING**

Report the total length of pipe repaired or replaced as units of work completed to the nearest hundredth.

REPORTING UNITS = meters (linear feet)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1100	1	2 Ton Crew Cab
9740	2	OMST - I	2012	1	Backhoe
			2010		or Excavator
		<i>Safety and traffic control assistance as required.</i>	3530	1	Portable Concrete Mixer

**SMALL TOOLS**

Shovels  
Concrete Finishing Tools  
Hand Pipe Shovel  
Diaphragm Pump  
Miscellaneous Wrenches  
Measuring Devices  
Work Signs and Safety Equipment  
Personal Safety Equipment

**MATERIAL**

Pipe  
Cement and Aggregate  
Sand Bags  
Brick  
Forming Material  
Litter Bags

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*W. J. Allbaugh*  
State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>CONCRETE REPAIR</b>	<b>MMS ACTIVITY : 457</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b>	
Concrete repair on items such as catch basins, barrier wall, median inlets, head walls, curb inlets, pedestrian underpasses, seawalls, retention walls, and box culverts [under 6 m (20') span], curb and gutters, paved ditches, paved slopes, flumes or spillways, and rip rap. Not to include bridge or sidewalk repair.	
<b>PURPOSE</b>	
To maintain drainage structures and concrete items in good operating condition	
<b>SCHEDULING FREQUENCY</b>	
As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Determine required forming procedures and necessary materials.</li> <li>3. Form item as needed.</li> <li>4. Replace or repair reinforcing steel as needed.</li> <li>5. Place concrete, cement or epoxy as required, and finish.</li> <li>6. Apply curing compound.</li> <li>7. Place appropriate barricades if overnight material set is expected.</li> <li>8. Remove forms after material has set. Control run-off and other soil erosion in accordance with publications listed below.</li> <li>9. Clean up work site.</li> <li>10. Complete crew report before moving to new site.</li> <li>11. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
*** All referenced publications shall be current edition with supplements ***	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index.</li> <li>3. FDOT Standard Specifications for Roadway and Bridge Construction.</li> <li>4. M425 Standard Maintenance Special Provisions.</li> <li>5. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 457

**MRP CRITERIA**

Refer to Drainage under the following characteristics:

- ◆ Side / Cross Drain: 60% of the cross-sectional area is not obstructed and functions as intended
- ◆ Inlets: Broken or damaged curb inlets with exposed reinforcing steel does not meet conditions. Concrete cradle must support grates.
- ◆ Miscellaneous Drainage Structures: Concrete cradle must support grates

**METHOD OF REPORTING**

Report the volume of concrete placed to the nearest hundredth using one of the following methods:

1. Calculate Length (m) x Width (m) x Depth (m) = m<sup>3</sup>,  
Length (ft.) x Width (ft.) x Average Depth (ft.) = cubic yards (cu. yds.).  
 27 cu. ft.
2. Refer to conversion chart no. 7 - m (7).

**REPORTING UNITS = meters cubed (cubic yards)**

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1100	1	2-Ton Crew Cab
9740	3	OMST - I	9112	1	Air Compressor
		<i>Safety and traffic control assistance as required</i>	3531	1	Portable Concrete Mixer
			9200	1	Portable Generator(Under 25KW)
			0520	1	3/4 Ton Pickup Truck

**SMALL TOOLS**

Shovels  
 Concrete Finishing Tools  
 Wheelbarrow or Mortar Box  
 Work Signs and Safety Equipment  
 Concrete Curing Compound Sprayer  
 Air Operated Jack Hammer  
 Circular Saw  
 Power Drill  
 Concrete Saw  
 Measuring Devices  
 Various Hand Tools as Necessary  
 Personal Safety Equipment

**MATERIAL**

Cement, Aggregate and Sand or Batch Mix Concrete  
 Pre-Mixed Bagged Concrete  
 Reinforcing Steel  
 Forming Material and Necessary Hardware  
 Curing Compound  
 Water  
 Litter Bags

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
 MAINTENANCE MANAGEMENT SYSTEM  
 ROUTINE MAINTENANCE ACTIVITY**

<b>ROADSIDE DITCHES - CLEAN &amp; RESHAPE</b>	<b>MMS ACTIVITY : 461</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b> Cleaning and reshaping of ditches other than outfalls.	
<b>PURPOSE</b> To maintain proper roadway drainage by restoring ditches to line, grade and slope	
<b>SCHEDULING FREQUENCY</b> As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b> <ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Grade ditch to proper line and grade, loading excess material into truck.</li> <li>3. Haul excess material to designated area.</li> <li>4. Control run-off and other soil erosion in accordance with publications listed below.</li> <li>5. Clean up work site.</li> <li>6. Complete crew report before moving to new site.</li> <li>7. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b> <p>*** All referenced publications shall be current edition with supplements ***</p> <ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 .</li> <li>3. FDOT Standard Specifications for Roadway and Bridge Construction.</li> <li>4. M120-10, M577-70 &amp; M575 Standard Maintenance Special Provisions.</li> <li>5. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 461

**MRP CRITERIA**

Refer to Drainage element under "Roadside/Median Ditch"

◆ The ditch bottom is \* \_\_\_\_ \* meters (feet) or more below the outside edge of pavement and functions as intended.

- \* Rural Limited Access - 0.9 m (3')
- Rural Arterial - 0.9 m (3')
- Urban Limited Access - 0.7 m (2 1/2')
- Urban Arterial - 0.7 m (2 1/2')
- Median (all facilities) - 0.6 m (2')

**METHOD OF REPORTING**

1. Use a tape or measuring wheel to measure and report length of ditch cleaned or repaired to the nearest hundredth.
2. Report the length in meters (linear feet).

REPORTING UNITS = meters (linear feet)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1510	3	Dump Trucks
9740	4	OMST - I	2010	1	Hydraulic Excavator w/bucket
		<i>Safety and traffic control assistance as required</i>	0520	1	3/4 Ton Pickup Truck
			3600	1	Wood Chipper

**SMALL TOOLS**

Various Hand Tools  
Measuring Devices  
Work signs and safety equipment  
Personal Safety Equipment

**MATERIAL**

Litter bags  
Sod

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

W. H. Albright  
State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>OUTFALL DITCHES - CLEAN &amp; REPAIR</b>	<b>MMS ACTIVITY: 464</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b>	
<p>Cleaning of outfall ditches and restoration of slopes and bottom areas. Report to activity 487 when efforts are limited to brush and weed cutting only. Piped outfalls will be reported to Activity 451. Repair of paved outfall ditch will be reported to Activity 457.</p>	
<b>PURPOSE</b>	
<p>To provide adequate drainage and remove unsightly vegetation that cannot be controlled by more cost effective means.</p>	
<b>SCHEDULING FREQUENCY</b>	
<p>As determined by the Work Needs Survey.</p>	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Clean and level access area for excavating equipment as required.</li> <li>3. Proceed with cleaning operations by removing vegetation, debris and silted material to desired grade. Restore slopes and bottoms to proper shape.</li> <li>4. Control run-off and other soil erosion in accordance with publications listed below.</li> <li>5. Dispose of excess as appropriate.</li> <li>6. Clean up work site.</li> <li>7. Complete crew report before moving to new site.</li> <li>8. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
*** All referenced publications shall be current edition with supplements ***	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 &amp; 200 series</li> <li>3. FDOT Standard Specifications for Roadway and Bridge Construction</li> <li>4. M577-70 Standard Maintenance Special Provisions</li> <li>5. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3)</li> <li>6. Maintenance Rating Program Manual (Procedure No. 850-065-002)</li> </ol>	

ACTIVITY NO. 464

**MRP CRITERIA**

Refer to Drainage element under "outfall ditch"

Outfall Ditch - the ditch bottom is at or within the lower 1/3 of the distance between natural ground and the design flowline.

**METHOD OF REPORTING**

1. Use a tape or measuring wheel to measure length of ditch cleaned or repaired.
2. Report to the nearest hundredth.

REPORTING UNITS = meters (linear feet)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1510	3	Dump Truck
9740	3	OMST - I	2010	1	Hydraulic Excavator w/bucket
			0520	1	Pickup Truck
			3600	1	Wood Chipper
		<i>Safety and traffic control assistance as required</i>	2004	1	Dragline
			2401	1	Bulldozer

**SMALL TOOLS**

**MATERIAL**

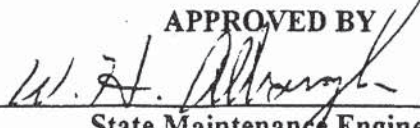
Various Hand Tools as Necessary  
Measuring Devices  
Work Signs and Safety Equipment  
Personal Safety Equipment

Litter bags

EFFECTIVE DATE:

July 1, 1996

APPROVED BY

  
State Maintenance Engineer



**FLORIDA DEPARTMENT OF TRANSPORTATION  
 MAINTENANCE MANAGEMENT SYSTEM  
 ROUTINE MAINTENANCE ACTIVITY**

<b>MITIGATION AREA MAINTENANCE</b>	<b>MMS ACTIVITY : 465</b> <b>MRP: NONE</b>
<b>DESCRIPTION</b>	
All efforts required for proper maintenance of Mitigation Areas. Includes control of nuisance vegetation by herbicide and/or manual removal.	
<b>PURPOSE</b>	
To re-establish wetland areas to comply with current environmental regulations.	
<b>SCHEDULING FREQUENCY</b>	
As determined by the Work Needs Survey	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Specific requirements for each site as shown in each individual permit.</li> <li>3. Clean up work site.</li> <li>4. Complete crew report before moving to new site.</li> <li>5. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
*** All referenced publications shall be current edition with supplements ***	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index</li> <li>3. FDOT Standard Specifications for Roadway and Bridge Construction</li> </ol>	

ACTIVITY NO. 465

**MRP CRITERIA**

NONE

**METHOD OF REPORTING**

- 1. Report hectares (acres) completed.
- 2. Report to the nearest hundredth.
- 3. Use Conversion Chart No. 8 - m ,( 8 ), 9 - m.

REPORTING UNITS = hectares (acres)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1100	1	2-Ton Crew Cab
9740	3	OMST - I			
<i>Safety and traffic control assistance as required</i>					

**SMALL TOOLS**

Various Hand Tools as Necessary  
 Measuring Devices  
 Work Signs and Safety Equipment  
 Personal Safety Equipment  
 Backpack Sprayer

**MATERIAL**

Litter bags  
 Plants as required by permit  
 Herbicide and Additives

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*[Signature]*  
 State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>LARGE MACHINE MOWING</b>	<b>MMS ACTIVITY : 471</b> <b>MRP: VEGETATION and AESTHETICS</b>
<b>DESCRIPTION</b>	
Mowing of roadside areas with large mowers where conditions accommodate the efficient use of 2 m (7') or larger mowers, alone or in combination.	
<b>PURPOSE</b>	
To maintain the safety, appearance and drainage of the highway facility.	
<b>SCHEDULING FREQUENCY</b>	
As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Service equipment for mowing operation.</li> <li>3. Pick up litter prior to mowing.</li> <li>4. Perform mowing operations in accordance with established procedures and appropriate publications listed below.</li> <li>5. Complete crew report before moving to new site.</li> <li>6. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
*** All referenced publications shall be current edition with supplements ***	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 Series.</li> <li>3. FDOT "Guide to Roadside Mowing" Handbook.</li> <li>4. M 104-4 Standard Maintenance Special Provisions.</li> <li>5. BT 07-0022 Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. Roadside Mowing Guide Self-Study BT 07-0010.</li> <li>7. Turf Management, Self-Study, No. BT 07-0013.</li> <li>8. Guide to Turf Management (Procedure No. 850-060-004).</li> <li>9. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 471

**MRP CRITERIA**

Refer to Vegetation and Aesthetics element under "Roadside Mowing".

No more than 2% of vegetation exceeds 610 mm (24") rural interstate, 457 mm (18") on urban interstate, and rural primary or 305 mm (12") on urban primary roadways. Bahia seed stalks and decorative wild flowers excepted.

**METHOD OF REPORTING**

1. Report the hectares (acres) mowed to the nearest hundredth.
2. Do not report overlapping or dead heading.
3. Use  $\frac{\text{Length (m)} \times \text{Width (m)}}{10,000 \text{ m}^2} = \text{hectares}$  or  $\frac{\text{Length (ft.)} \times \text{Width (ft.)}}{43,560 \text{ sq. ft.}} = \text{acres}$
4. Refer to conversion chart no. 8 - m, ( 8 ), 9 - m.
5. If litter removal operations exceed .5 crew hours, report time to Activity 541.

REPORTING UNITS = hectares (Acres)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9740	3	OMST - I	3120	1	Diesel Tractor 55 H.P.
			3006	1	7ft. Rotary Mower Tractor pulled
			3010	1	10ft. Rotary Mower
			3121	1	Diesel Tractor 68 H.P.
			3020	1	15ft. Rotary Mower
			3121	1	Diesel Tractor 68 H.P.
			0520	1	3/4 Ton Pickup Truck
		<i>Safety and traffic control assistance as required</i>			

**SMALL TOOLS**

Miscellaneous mechanical hand tools for on-job repairs  
 Measuring Devices  
 Work signs and safety equipment  
 Personal safety equipment

**MATERIAL**

Materials as required  
 Litter bags

EFFECTIVE DATE:

July 1, 1996

APPROVED BY

State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>SLOPE MOWING</b>	<b>MMS ACTIVITY : 482</b> <b>MRP: VEGETATION and AESTHETICS</b>
<b>DESCRIPTION</b>	
<p>Grass, brush and weed cutting along slopes too steep to safely mow or are inaccessible for conventional mowing tractors. All mowing and brush cutting with mechanical slope mowers are to be reported to this activity. Boom Mower cutting heads shall not be operated higher than 0.3 m (1') above ground level.</p>	
<b>PURPOSE</b>	
<p>To maintain the appearance, safety and drainage of the highway facilities in areas that cannot be controlled by more economical means.</p>	
<b>SCHEDULING FREQUENCY</b>	
<p>As determined by the Work Needs Survey.</p>	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Service equipment for slope mowing operations and brush cutting.</li> <li>3. Pick up litter prior to mowing.</li> <li>4. Proceed with cutting operations in accordance with established procedures and appropriate publications listed below.</li> <li>5. Load and haul cut vegetation to an approved disposal site.</li> <li>6. Complete crew report before moving to new site.</li> <li>7. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
<p>*** All referenced publications shall be current edition with supplements ***</p>	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 Series</li> <li>3. FDOT "Guide to Roadside Mowing" handbook.</li> <li>4. M 104-4 Standard Maintenance Special Provisions.</li> <li>5. BT 07-0022 Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. Roadside Mowing Guide, Self-Study BT 07-0010.</li> <li>7. Turf Management, Self-Study, BT 07-0013.</li> <li>8. Guide to Turf Management (Procedure No. 850-060-004).</li> <li>9. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 482

**MRP CRITERIA**

Refer to Vegetation and Aesthetics element under "Slope Mowing".

No more than 2% of vegetation exceeds 610 mm (24") in height for slope mowing areas defined in the FDOT mowing guide. Bahia seed stalks and decorative wild flowers excepted.

**METHOD OF REPORTING**

1. Report the areas cut to the nearest hundredth.
2.  $\frac{\text{Length (m)} \times \text{Height (m)} \text{ or } \text{Width (m)}}{10,000 \text{ m}^2} = \text{hectares}$  or  $\frac{\text{Length (ft)} \times \text{Height (ft.)} \text{ Or } \text{width (ft.)}}{43,560 \text{ sq. ft.}} = \text{acres}$
3. Refer to conversion chart no. 8 - m, ( 8 ), 9 - m.

REPORTING UNITS = hectares (acres)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9740	2	OMST - I  <i>Safety and Traffic Control Assistance as required.</i>	1002	1	2 Ton Flatbed (LWB)
			3121	1	Diesel Tractor 68 H.P.
			3132	1	Extension Boom Mower
			4020	1	Trailer (18,000 lb. Min.)
			3125	1	LCG Tractor - Wheel Diesel
			3031	1	Mower 6' offset flail

**SMALL TOOLS**

Brush hooks  
Pitchforks  
Measuring Devices  
Work signs and safety equipment  
Chain saw  
Mechanical weed cutter  
Miscellaneous mechanics hand tools for on-the-job repair  
Personal safety equipment

**MATERIAL**

Litter bags

EFFECTIVE DATE:

July 1, 1996

APPROVED BY



State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>INTERMEDIATE MACHINE MOWING</b>	<b>MMS ACTIVITY : 484</b> <b>MRP: <i>VEGETATION and AESTHETICS</i></b>
<b>DESCRIPTION</b>	
<p>The intermediate machine mowing of areas (using mowers greater than 1 m (40") and less than 2 m (7') too difficult to mow with larger mowers and not practical for small mowers.</p>	
<b>PURPOSE</b>	
<p>To improve the safety, appearance and drainage of the highway facility.</p>	
<b>SCHEDULING FREQUENCY</b>	
<p>As determined by the Work Needs Survey.</p>	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Service equipment for intermediate mowing operations.</li> <li>3. Pick up litter prior to mowing.</li> <li>4. Proceed with cutting operations in accordance with established procedures and appropriate publication listed below.</li> <li>5. Complete crew report before moving to new site.</li> <li>6. Move work signs and safety equipment to new site.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
<p>*** All referenced publications shall be current edition with supplements ***</p>	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 Series</li> <li>3. FDOT "Guide to Roadside Mowing" handbook.</li> <li>4. M 104-4 Standard Maintenance Special Provisions.</li> <li>5. BT 07-0022 Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. Roadside Mowing Guide, Self-Study BT 07-0010.</li> <li>7. Turf Management, Self-Study BT 07-0013.</li> <li>8. Guide to Turf Management (Procedure No. 850-060-004).</li> <li>9. Training for Small/Intermediate Mowing Equipment (BT 07-0026).</li> <li>10. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 484

**MRP CRITERIA**

Refer to vegetation and aesthetics element under "Roadside Mowing".

No more than 2% of vegetation exceeds 610 mm (24") on rural interstate, 457 mm (18") on urban interstate, and rural primary or 305 mm (12") on urban primary roadways. Bahia seed stalks and decorative wild flowers excepted.

**METHOD OF REPORTING**

1. Report the area mowed to the nearest hundredth.
2. Do not report overlapping or deadheading.
3.  $\frac{\text{Length (m)} \times \text{Width (m)}}{10,000 \text{ m}^2} = \text{hectares}$  or  $\frac{\text{Length (ft)} \times \text{Width (ft.)}}{43,560 \text{ sq. Ft.}} = \text{acres}$
4. Refer to conversion chart no. 8 - m, ( 8 ), 9 - m.
5. If litter removal operations exceed 0.5 crew hours, report to Activity 541.

REPORTING UNITS = hectares (acres)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9740	2	OMST - I	3100	1	Diesel Tractor
			3030	1	Mower 6' Flail Lift type
			4080	1	Utility Trailer - 5,000 lb. Min.
			0520	1	3/4 Ton Pickup Truck
		<i>Safety and Traffic control assistance as required.</i>			

**SMALL TOOLS**

Miscellaneous mechanic hand tools for on-job repairs  
Work signs and safety equipment  
Push mower  
Mechanical weed cutter (small)  
Measuring Devices  
Personal safety equipment

**MATERIAL**

Litter bags

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*W. Z. Allwright*  
State Maintenance Engineer



**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

**SMALL MACHINE MOWING**

**MMS ACTIVITY : 485**

**MRP: *VEGETATION and AESTHETICS***

**DESCRIPTION**

Mowing the roadside with small hand or riding mowers having a cutting width of 1 m (40") or less.

**PURPOSE**

To improve the safety, appearance and drainage of the highway facility.

**SCHEDULING FREQUENCY**

As determined by the Work Needs Survey.

**RECOMMENDED WORK SEQUENCE**

1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Standards.
2. Service equipment for small machine mowing.
3. Pick up litter prior to mowing.
4. Proceed with cutting operations in accordance with established procedures and appropriate publications listed below.
5. Complete crew report before moving to new site.
6. Pick up work signs and other safety equipment.

**SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES  
and TRAINING RESOURCES**

\*\*\* All referenced publications shall be current edition with supplements \*\*\*

1. Manual on Uniform Traffic Control Devices (MUTCD).
2. FDOT Roadway and Traffic Design Standard Index No. 600 Series
3. FDOT "Guide to Roadside Mowing" handbook.
4. M 104-4 Standard Maintenance Special Provisions.
5. BT 07-0022 Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).
6. Roadside Mowing Guide Self-Study, BT 07-0010.
7. Turf Management, Self-Study, BT 07-0013.
8. Guide to Turf Management (Procedure No. 850-065-002).
9. BT 07-0026 Training for Small/Intermediate Mowing Equipment.
10. Maintenance Rating Program Manual (Procedure No. 850-065-002).

ACTIVITY NO. 485

**MRP CRITERIA**

Refer to vegetation and aesthetics element under "Roadside Mowing".

No more than 2% of vegetation exceeds 610 mm (24") on rural interstate, 457 mm (18") on urban interstate, and rural primary or 305 mm (12") on urban primary roadways. Bahia seed stalks and decorative wild flowers excepted.

**METHOD OF REPORTING**

1. Report the area mowed to the nearest hundredth.
2. Do not report overlapping or deadheading.
3.  $\frac{\text{Length (m)} \times \text{Width (m)}}{10,000 \text{ m}^2} = \text{hectares}$  or  $\frac{\text{Length (ft.)} \times \text{Width (ft.)}}{43,560 \text{ sq. ft.}} = \text{acres}$
4. Refer to conversion chart no. 8 - m, ( 8 ), 9 - m.
5. If litter removal operations exceed 0.5 crew hours, report to Activity 541..

REPORTING UNITS = hectares (acres)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9740	2	OMST - I	3040	1	Self-Propelled Mower
			0520	1	3/4 Ton Pickup Truck
			4080	1	Utility Trailer, Small
		<i>Safety and Traffic Control assistance as required.</i>			

**SMALL TOOLS**

**MATERIAL**

Miscellaneous mechanical hand tools for on-job repairs  
 Work signs and safety equipment  
 Push mower  
 Mechanical weed cutter (small)  
 Measuring Devices  
 Personal Safety Equipment

Litter bags

EFFECTIVE DATE:

July 1, 1996

APPROVED BY

State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>CHEMICAL WEED AND GRASS CONTROL</b>	<b>MMS ACTIVITY : 494</b> <b>MRP: <i>VEGETATION and AESTHETICS</i></b>
<b>DESCRIPTION</b>	
<p>The application (handgun, basal or cut stump) of herbicides to slopes, ditches, fence, guardrail, barrier wall, reinforced earthen walls, sidewalks, bridges, curb and gutter, obstructions, shoulders, and other areas not accessible to mowers. Not to include chemical applications within landscape or mitigation areas.</p>	
<b>PURPOSE</b>	
<p>To control undesirable vegetation when mechanical or manual methods are not practical.</p>	
<b>SCHEDULING FREQUENCY</b>	
<p>As determined by the Work Needs Survey.</p>	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Spray prepared mix according to Publications listed below.</li> <li>3. Complete crew report before moving to the next site.</li> <li>4. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
<b>*** All referenced publications shall be current edition with supplements ***</b>	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Indexes 600 Series.</li> <li>3. Florida Statutes; Chapter 5E-2, 5E-9 FAC; Florida Statutes 16C-20 Rules of F.D.E.P.; Florida Pesticide Law &amp; Rules, Chapter 487; Aquatic Plant Control Permits, Chapter 369.2.</li> <li>4. M 580 - 3, Standard Maintenance Special Provisions (Chemical Weeds &amp; Grass).</li> <li>5. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. BT-07-0004, Herbicide Program Update Workshop</li> <li>7. "A Guide to Chemical Weed and Grass Control".</li> <li>8. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 494

**MRP CRITERIA**

Refer to Vegetation and Aesthetics element under "Curb/Sidewalk Edge" and "Turf Conditions":

- ◆ Chemically control the encroachment of grass and/or weeds more than 152 mm (6") onto the sidewalk or curb for more than 3.0 m (10').
- ◆ Turf in the mowing area is 75 % free of the following undesired vegetation alone or in combination: 1. Cogon Grass, 2. Vasey Grass, 3. Johnson Grass, 4. Brooms edge, 5. Dog Fennel, 6. Ragweed, 7. Castor Bean, 8. Maidencane, 9. Rhodes Grass, 10. Goose Grass, 11. Unstabilized bare ground, 12. Spanish Needle.

No more than a cumulative 4.6 m<sup>2</sup> ( 50 Sq. Ft.) of bare ground should be present in the turf evaluation area or this characteristic does not meet desired maintenance conditions. Bare ground is defined as any single area 0.5 m<sup>2</sup> (5 Sq. Ft.) or more with no evidence of vegetation. Purposely stabilized areas (limerock, shell, etc.) shall not be considered as bare ground and not included in the turf evaluation.

**METHOD OF REPORTING**

Report liters (gallons) of mix applied.

REPORTING UNITS = liters (gallons)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1010	1	2 - Ton Herbicide Carrier
9740	1	OMST - I	3205	1	Pressure Sprayer (Chemical)
			3120	1	Diesel Tractor Sprayer 3 Point Hook Up
		<i>Safety and traffic control assistance as required</i>	1000	1	2 Ton Truck with Attenuator & Arrow Board

**SMALL TOOLS**

Spray Accessories  
 Various Hand Tools  
 Back Pack/Pump-up Garden Sprayer  
 Squeeze Type Spot Gun  
 Basal Injector  
 Portable Eye Wash Station  
 Personal Safety Equipment  
 Safety Work Signs

**MATERIAL**

Litter Bags  
 Herbicides  
 Additives

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*W. F. Albright*  
 State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>STORM WATER MANAGEMENT</b>	<b>MMS ACTIVITY : 498</b> <b>MRP: NONE</b>
<b>DESCRIPTION</b>	
All efforts required to maintain Surface/Storm Water Management Systems functioning as designed and permitted. Efforts include but are not limited to mowing, litter removal, chemical or manual weed control, fence repair, cleaning and repair of drainage structures ... etc. Generally work will be confined to the permitted retention/detention areas however, other systems may be included which routinely require significant workloads greater than the statewide planning values.	
<b>PURPOSE</b>	
To maintain, to the maximum extent practicable, all surface/storm water management systems to a functioning state as designed and in compliance with the permit conditions and/or applicable rules and regulations.	
<b>SCHEDULING FREQUENCY</b>	
As determined by the Work Needs Survey and permit requirements..	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Clean and level access area for heavy equipment as required.</li> <li>3. Proceed with cleaning operations which include removing nuisance vegetation, debris, and silted material. Back flush filtration systems or replace clogged sand/fabric filter if required. Restore slopes and bottom areas to original design elevation .</li> <li>4. Control run-off and other soil erosion in accordance with publications listed below.</li> <li>5. Check and clean out control structures, discharge orifices, inlet/outlet pipes, and associated spillways and conveyance systems.</li> <li>6. Clean up worksite and perform disposal of excess materials as appropriate.</li> <li>7. Complete crew report before moving to new site.</li> <li>8. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
*** All referenced publications shall be current edition with supplements ***	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600 and 200 series.</li> <li>3. FDOT Standard Specifications for Roadway and Bridge Construction.</li> <li>4. M 577-70 and M 104 Standard Maintenance Special Provisions.</li> <li>5. BT 07-0022 Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>6. Applicable permit conditions/requirements.</li> <li>7. FDOT "Guide to Roadside Mowing" Handbook.</li> <li>8. Roadside Mowing Guide, Self-Study, BT 07-0010.</li> <li>9. Guide to Turf Management (Procedure 850-060-004)</li> <li>10. Turf Management, Self-Study, BT 07-0013.</li> <li>11. FDOT Sign Installation Manual.</li> <li>12. Single and Multi-post Sign Inspection. Procedure 850-055-025.</li> </ol>	

ACTIVITY NO. 498

MRP CRITERIA

NONE

METHOD OF REPORTING

1. Report hectares (acres) completed to the nearest hundredth..
2. Use Conversion Chart No. 8 - m, (8), 9 - m

REPORTING UNITS = hectares (acres)

PERSONNEL

EQUIPMENT

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9740	3	OMST - I	3040	1	Self-propelled Rotary Mower
9760	2	OMST - III	2010	1	Hydraulic Excavator with bucket
		<i>Safety and traffic control assistance as required</i>	3006	1	7' Rotary Mower, Tractor pull
			1510	1	Dump Truck, 8 Yd.
			1421	1	Truck Mounted Sewer Cleaner, 16 Yd.
			0520	1	3/4 Ton Crew Cab Pickup
			1201	1	Sign Truck, Platform
			2310	1	Front-end Loader, Rubber Tired, 2 CY, with back blade
			3121	1	Diesel Tractor 68 H.P.

SMALL TOOLS

Various hand tools as necessary.  
Miscellaneous mechanical hand tools for on - job repairs.  
Shovels including hand - pipe type.  
Push mower.  
Mechanical weed cutter small.  
Chainsaw.  
Work signs and safety equipment.  
Personal safety equipment.

MATERIAL

Litter bags.  
Sod.  
Other materials as needed.

EFFECTIVE DATE:

July 1, 1996

APPROVED BY:

*W. H. Albright*  
STATE MAINTENANCE ENGINEER

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>LITTER REMOVAL</b>	<b>MMS ACTIVITY : 541</b> <b>MRP: VEGETATION and AESTHETICS</b>
<b>DESCRIPTION</b>	
<p>Clearing roadways and roadsides of debris, tires, appliances, furnitures, trash, Adopt-A-Highway litter bags, etc. Does not include wayside parks, rest areas and service plaza barrels.</p>	
<b>PURPOSE</b>	
<p>To maintain the roadways and roadsides in a clean and safe condition by removing unsightly and hazardous objects.</p>	
<b>SCHEDULING FREQUENCY</b>	
<p>As determined by the Work Needs Survey.</p>	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Pick up litter and place into litter bags.</li> <li>3. Place litter into truck.</li> <li>4. Dispose of collected litter at authorized locations.</li> <li>5. Complete crew report before moving to the next site.</li> <li>6. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
<p>*** All referenced publications shall be current edition with supplements ***</p>	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index 600 Series.</li> <li>3. M110-300 - Standard Maintenance Special Provisions (Roadside Litter Removal).</li> <li>4. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>5. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 541

**MRP CRITERIA**

Refer to Vegetation and Aesthetics element under "Litter Removal":

Area will be free of litter that creates a hazard to motorist or pedestrian traffic and does not exceed 0.17 m<sup>3</sup> (6 cu. ft.) per 0.4 hectares (1 acre) within the roadway and roadside area.

**METHOD OF REPORTING**

1. Measure the area that litter was removed and report length (to the nearest hundredth)
2. Use the following formula;  $\frac{\text{length (m)} \times \text{width (m)}}{10,000 \text{ m}^2} = \text{hectares}$ , or  $\frac{\text{length (Ft.)} \times \text{width (Ft.)}}{43,560 \text{ Sq. Ft.}} = \text{acres}$
3. Refer to conversion chart no. 8 - m, ( 8 ), 9 - m.

REPORTING UNITS = hectares (acres)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9750	1	OMST II	1100	1	2 Ton Crew Cab
9740	3	OMST I			
		<i>Safety and traffic control assistance as required</i>			

**SMALL TOOLS**

Various Hand Tools  
Litter Sack  
Personal Safety Equipment  
Measuring Devices  
Work Signs and Safety Equipment

**MATERIAL**

Litter Bags

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*W. F. Albright*  
State Maintenance Engineer



**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>ROAD SWEEPING (MANUAL)</b>	<b>MMS ACTIVITY : 542</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b> Hand sweeping of roadway to protect the facility from excessive accumulation of debris.	
<b>PURPOSE</b> To remove debris from the roadway where mechanical means are not feasible before a drainage or safety problem is created or before it becomes unsightly.	
<b>SCHEDULING FREQUENCY</b> As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b> <ol style="list-style-type: none"><li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li><li>2. Sweep area with road brooms to convenient pick-up points.</li><li>3. Load and haul accumulated material to nearest approved disposal area.</li><li>4. Complete crew report before moving to new site.</li><li>5. Pick up work signs and other safety equipment.</li></ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b> *** All referenced publications shall be current edition with supplements *** <ol style="list-style-type: none"><li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li><li>2. FDOT Roadway and Traffic Design Standard Index No. 600</li><li>3. M110-32, M110-31 Standard Maintenance Special Provisions.</li><li>4. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li><li>5. Maintenance Rating Program Manual (Procedure No. 850-065-002)</li></ol>	

ACTIVITY NO. 542

**MRP CRITERIA**

Refer to Drainage Element under:

Roadway Sweeping - Material accumulation is not greater than 19 mm (3/4") deep for more than a continuous 0.3 m (1') in the traveled way or shall not exceed 57 mm (2 1/4") in depth for more than a continuous 0.3 m (1') in any gutter.

**METHOD OF REPORTING**

1. Report the total length of curb or edges cleaned.
2. Report to the nearest hundredth.
3. Refer to conversion chart no. 5 - m (4).

REPORTING UNITS = kilometers (mile)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9750	1	OMST - II	1100	1	2-Ton Crew Cab
9740	4	OMST - I			
<i>Safety and traffic control assistance as required</i>					

**SMALL TOOLS**

**MATERIAL**

Wheel Barrow  
Hand Brooms  
Shovels  
Measuring Devices  
Work Signs and Safety Equipment  
Personal Safety Equipment  
Various Hand Tools

None  
Litter Bags

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

W. H. Allbright  
State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>ROAD SWEEPING (MECHANICAL)</b>	<b>MMS ACTIVITY : 543</b> <b>MRP: DRAINAGE</b>
<b>DESCRIPTION</b>  Machine sweeping of roadway to protect the facility from excessive accumulation of debris.	
<b>PURPOSE</b>  To remove debris from the roadway before it creates a safety or drainage problem or it becomes unsightly.	
<b>SCHEDULING FREQUENCY</b>  As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b>  <ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Operate machine so as to pick up debris from roadway.</li> <li>3. Haul accumulated material to nearest approved disposal area.</li> <li>4. Complete crew report before moving to new site.</li> <li>5. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>  <p style="text-align: center;">*** All referenced publications shall be current edition with supplements ***</p> <ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index No. 600</li> <li>3. M110-32, M110-31 Standard Maintenance Special Provisions.</li> <li>4. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>5. Operator's Manual (Street Sweeper)</li> <li>6. Maintenance Rating Program Manual (Procedure No. 850-065-002)</li> </ol>	

ACTIVITY NO. 543

**MRP CRITERIA**

Refer to Drainage Element under:

Roadway Sweeping - Material accumulation is not greater than 19 mm (3/4") deep for more than a continuous 0.3 m (1') in the traveled way or shall not exceed 57 mm (2 1/4") in depth for more than a continuous 0.3 m (1') in any gutter.

**METHOD OF REPORTING**

1. Report the total length of curb or edge miles cleaned.
2. Report to the nearest hundredth.
3. Refer to conversion chart nos. 5 - m (4).

REPORTING UNITS = kilometers (mile)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9750	1	OMST - II	1500	1	Dump Truck
9740	1	OMST - I	1401	1	Street Sweeper
			4410	1	Follow Truck w/attenuator Pickup Truck as needed
			9270	1	Arrow Board
		<i>Safety and traffic control assistance as required</i>			

**SMALL TOOLS**

Various Hand Tools  
Measuring Devices  
Work Signs and Safety Equipment  
Personal Safety Equipment

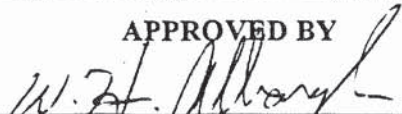
**MATERIAL**

Litter Bags

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

  
State Maintenance Engineer

**FLORIDA DEPARTMENT OF TRANSPORTATION  
MAINTENANCE MANAGEMENT SYSTEM  
ROUTINE MAINTENANCE ACTIVITY**

<b>EDGING AND SWEEPING</b>	<b>MMS ACTIVITY : 545</b> <b>MRP: <i>VEGETATION and AESTHETICS</i></b>
<b>DESCRIPTION</b>	
Removal of vegetation and debris from the curb, gutter, sidewalk, and pavement edges.	
<b>PURPOSE</b>	
Provide a pleasing appearance to roadway and to remove vegetation and debris before it becomes unsightly or creates a safety or drainage problem.	
<b>SCHEDULING FREQUENCY</b>	
As determined by the Work Needs Survey.	
<b>RECOMMENDED WORK SEQUENCE</b>	
<ol style="list-style-type: none"> <li>1. Place work zone traffic control devices in accordance with the MUTCD and Series 600 of the FDOT Roadway and Traffic Design Standards.</li> <li>2. Edge roadways, paved shoulders, curb, gutter, and sidewalk using a tractor mounted or power edger.</li> <li>3. Remove material by manual or mechanical and/or shoveling.</li> <li>4. Load material and haul to an approved site.</li> <li>5. Pick up litter and place into litter bags and clean up work site.</li> <li>6. Complete crew report before moving to the next site.</li> <li>7. Pick up work signs and other safety equipment.</li> </ol>	
<b>SPECIFICATIONS, STANDARDS, SPECIAL PROVISIONS, PROCEDURES and TRAINING RESOURCES</b>	
<b>*** All referenced publications shall be current edition with supplements ***</b>	
<ol style="list-style-type: none"> <li>1. Manual on Uniform Traffic Control Devices (MUTCD).</li> <li>2. FDOT Roadway and Traffic Design Standard Index 600 Series.</li> <li>3. M110-32- Standard Maintenance Special Provisions (Roadside Litter Removal).</li> <li>4. BT 07-0022 - Work Zone Traffic Control for Maintenance and Utility Operations (Level 3).</li> <li>5. Maintenance Rating Program Manual (Procedure No. 850-065-002).</li> </ol>	

ACTIVITY NO. 545

**MRP CRITERIA**

Refer to Vegetation and Aesthetics elements under:

- ◆ Curb/Sidewalk Edging - There is no encroachment of grass and debris for more than 152 mm (6") onto the curb or sidewalk for more than a continuous 3.0 m (10') or no deviation of soil or more than 102 mm (4") above or 51 mm (2") below the top of curb and sidewalk for more than 3.0 m (10').
- ◆ Traffic Services Standard for: Edge Striping - 70% of each line must function as intended. Grass growing over edge of lines will cause striping to fail MRP Standards.

**METHOD OF REPORTING**

1. Report the total length of edging for roadway, paved shoulders, curb, gutter and/or sidewalk actually completed.
2. Report to the nearest hundredth.
3. Refer to conversion chart no. 5 -m, ( 4 )

REPORTING UNITS = kilometers (miles)

**PERSONNEL**

**EQUIPMENT**

CLASS CODE	NO.	SKILL CLASS	FLEET CODE	NO.	EQUIPMENT DESCRIPTION
9760	1	OMST - III	1100	1	2-Ton Crew Cab
9740	3	OMST - I	3120	1	55 H.P. Tractor w/ curb edger
			2315	1	Skid Loader
			4080	1	Trailer
		<i>Safety and traffic control assistance as required</i>			

**SMALL TOOLS**

Various Hand Tools  
 Hand Brooms (Road)  
 Edger (Gasoline Powered)  
 Power Weed-whacker  
 Gas powered Blower  
 Wheel Barrow  
 Shovels  
 Personal Safety Equipment  
 Work Signs and Safety Equipment

**MATERIAL**

Litter Bags  
 Gas/oil mix

**EFFECTIVE DATE:**

July 1, 1996

**APPROVED BY**

*W. H. Albright*  
 State Maintenance Engineer

## Appendix B

### Methodology for Calculation of Total Nitrogen and Total Phosphorus in Street Sweeping

APPENDIX B

**CALCULATION OF TOTAL NITROGEN AND TOTAL PHOSPHORUS MASS FROM STREET SWEEPING FOR MS4 ANNUAL REPORTING**

The following presents the methodology to be utilized to calculate the mass of Total Nitrogen (TN) and Total Phosphorus (TP) based upon street sweeping data. FDEP provides guidance documents and a spreadsheet for use in the calculations. The FDEP site can be accessed through the following link ([http://www.dep.state.fl.us/water/stormwater/npdes/MS4\\_1.htm](http://www.dep.state.fl.us/water/stormwater/npdes/MS4_1.htm)).

The methodology presented herein outlines three different calculations:

1. Calculation of the TN and TP mass in pounds based upon the field measured volume of material collected during street sweeping in cubic yards.
2. Calculation of the TN and TP mass in pounds based upon the field measured weight of material collected during street sweeping in pounds.
3. Calculation of the TN and TP mass in pounds based upon the road miles swept.

The three methods utilize data provided within a study conducted by the University of Florida under the guidance of the Florida Stormwater Association (FSA) (Sansalone et al., 2011). This study provides data on the mass of TN and TP based upon the dry weight of particulate matter gathered through sampling collected from multiple municipal separate storm sewer systems (MS4s) throughout Florida. The results for the street sweeping for particular land uses sampled are summarized in the following table. The three land uses are C-Commercial, R-Residential, H-Highway. For these three methodologies, the median values for Highway Land Use are utilized in all calculations.

TP [mg/kg]	Street Sweeping (SS)		
	Mean	Median	St. Dev.
C	482.6	381.2	476.9
R	425.8	374.9	284.7
H	622.0	349.7	778.5
TN [mg/kg]	Street Sweeping (SS)		
	Mean	Median	St. Dev.
C	789.1	429.6	944.2
R	1439.0	832.4	2169.9
H	826.6	546.4	654.8

At present, most Florida Department of Transportation (FDOT) District contracts do not provide for reporting of weight or volume of material. Instead, most contracts provide for lane miles swept to be reported. As contracts come up for renewal, FDOT will modify contract language to provide for either volume of material or weight to be reported. In the interim, a methodology is needed to allow for conversion of lane miles swept to mass of TN and TP. Method 3 provides a conversion of lane miles swept to mass of TN and TP. It is recognized that the degree of variability in the weight of particulate matter per lane mile swept is large. This methodology



provides an interim approach to calculating the mass of TN and TP using data from existing FDOT contracts.

While the values presented in the table are related to milligrams of TN or TP and kilograms of dry material, for the following calculations, all results are converted to calculations of pounds TN or TP based upon pounds of dry material.

The methodology presented for calculation of TP and TN mass based upon road miles swept utilizes a Statewide median number from the FSA study to develop the dry weight of material. It is recognized that significant variability exists in the data of dry weight of material per lane mile swept. As such, FDOT Districts may opt to utilize available and appropriate local data in the determination of the dry weight of material. If local data are utilized, the District will be responsible for presentation and ultimate acceptance of that data by Florida Department of Environmental Protection (FDEP).

#### Method 1: Calculation of TN and TP Mass from Field Measured Volume

For the calculation of the mass of TN and TP from the measured field volume, the calculation first assumes a dry bulk density of 1.5 (specific gravity), which equates to 94 pounds of dry material per cubic foot of gross solids (Bateman, 2011) to develop the dry weight of material. The material volumes should be converted to cubic feet. The equation is as follows:

$$\text{Dry Weight (lb)} = \text{Volume of Bulk Material (cubic feet)} \times 94.0 \text{ (lb/cubic foot)}$$

Once the dry weight of material has been calculated, the TP and TN mass in pounds is calculated by the following formulas:

$$\text{Mass of TP (lb)} = \text{Dry Weight of Material (lb)} \times 0.00034964016$$

$$\text{Mass of TN (lb)} = \text{Dry Weight of Material (lb)} \times 0.00054630650$$

#### Method 2: Calculation of TN and TP Mass from Field Measured Weight

For the calculation of the mass of TN and TP from the measured field weight of material, a moisture content assumption is required. Initially, each District will need to assume a moisture content of the material swept to calculate based on total weight. Field tests will ultimately need to be conducted to back up or refine the moisture content assumption.

$$\text{Dry Weight} = \text{Total Material Weight} / (1 + \text{Moisture Content})$$

Once the dry weight of material has been calculated, the TP and TN mass in pounds is calculated by the following formulas:

$$\text{Mass of TP (lb)} = \text{Dry Weight of Material (lb)} \times 0.00034964016$$

$$\text{Mass of TN (lb)} = \text{Dry Weight of Material (lb)} \times 0.00054630650$$

#### Method 3: Calculation of TN and TP Mass from Lane Miles Swept

Based upon the FSA study, the median value of the weight of particulate matter by lane mile swept is 324 lb/mile. Therefore, the calculation of dry weight of material is:

$$\text{Dry Weight of Material (lb)} = \text{Lane Miles Swept} \times 324 \text{ lb/mile}$$

Once the dry weight of material has been calculated, the TP and TN mass in pounds is calculated by the following formulas:

$$\text{Mass of TP (lb)} = \text{Dry Weight of Material (lb)} \times 0.00034964016$$

$$\text{Mass of TN (lb)} = \text{Dry Weight of Material (lb)} \times 0.00054630650$$

## Appendix C

### Statutes, Rules, Guidelines, and Policies Regulating Stormwater Management in Florida

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**STATUTES, RULES, GUIDELINES, AND POLICIES  
REGULATING STORMWATER MANAGEMENT IN FLORIDA**

**Florida Administrative Code**

<b>Chapter 14-86</b>	<u>Drainage Connections</u>
<b>Chapter 62-4</b>	<u>Permits</u>
<b>Chapter 62-40</b>	<u>Water Resource Implementation Rule</u>
<b>Chapter 62-43</b>	<u>Surface Water Improvement and Management</u>
<b>Chapter 62-302</b>	<u>Surface Water Quality Standards</u>
<b>Chapter 62-312</b>	<u>Dredge and Fill</u>
<b>Chapter 62-620</b>	<u>Wastewater Facility and Activities Permitting</u>
<b>Chapter 62-621</b>	<u>Generic Permits</u>
<b>Chapter 62-624</b>	<u>Municipal Separate Storm Sewer Systems</u>
<b>Chapter 62-761</b>	<u>Underground Storage Tank Systems</u>
<b>Chapter 40*-4</b>	<u>Environmental Resource Permits: Surface Water Management Systems (WMD)</u>
<b>Chapter 40*-4</b>	<u>Standard General Environmental Resource Permits (WMD)</u>

**Florida Statutes**

<b>Chapter 89-279</b>	<u>Laws of Florida</u>
<b>Chapter 163</b>	<u>County and Municipal Planning and Land Development Regulations</u>
<b>Chapter 334</b>	<u>Transportation Administration</u>
<b>Chapter 335</b>	<u>State Highway System</u>
<b>Chapter 373</b>	<u>Water Resources</u>
<b>Chapter 387</b>	<u>Pollution of Waters</u>
<b>Chapter 403</b>	<u>Environmental Control</u>

**FDOT Guidelines, Handbooks, Procedures and Policies referenced in the SSWMP**

Roadway and Roadside Maintenance Procedures <a href="http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/850000015.pdf">http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/850000015.pdf</a>
Standard Specifications for Road and Bridge Construction <a href="http://www.dot.state.fl.us/specificationoffice/Implemented/SpecBooks/2010BK.shtm">http://www.dot.state.fl.us/specificationoffice/Implemented/SpecBooks/2010BK.shtm</a>
Erosion and Sediment Control Designer and Reviewer Manual <a href="http://www.dot.state.fl.us/rddesign/dr/files/Erosion-and-Sediment-Control-Manual-June-2007.pdf">http://www.dot.state.fl.us/rddesign/dr/files/Erosion-and-Sediment-Control-Manual-June-2007.pdf</a>
Design Standards <a href="http://www.dot.state.fl.us/rddesign/DS/13/STDs.shtm">http://www.dot.state.fl.us/rddesign/DS/13/STDs.shtm</a>
Plans Preparation Manual (Volumes I and II)

<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/625000007.asp>  
<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/625000008.asp>

Reporting Incidents and Management of Damage Repair

<http://www2.dot.state.fl.us/proceduraldocuments/procedures/bin/850005001.pdf>

Maintenance Rating Plan Manual

<http://www.dot.state.fl.us/statemaintenanceoffice/MaintRatingProgram.shtm>

A Guide to Asphalt Repair

No link found

Stormwater, Erosion and Sediment Control Inspector Manual

No link found

FDOT Drainage Manual

<http://www.dot.state.fl.us/rddesign/dr/files/DrainageManual.pdf>

Drainage Handbook Stormwater Management Facility

<http://www.dot.state.fl.us/rddesign/dr/files/StrmWtrMgmtFacHB.pdf>