


Approved:

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Department of Transportation

ROADWAY AND ROADSIDE MAINTENANCE

PURPOSE:

Establish procedures for cost effectively maintaining the right of way (ROW) of the State Highway System (SHS) for safety, preservation, and aesthetics.

Assist in establishing uniform maintenance operations throughout the State of Florida.

Provide for safe, effective, and efficient use of resources to maintain the SHS ROW.

AUTHORITY:

Sections 20.23(3)(a) and 334.048(3), Florida Statutes (F.S.)

SCOPE:

The principal users of this procedure will be Maintenance Engineers, Operations Engineers, Maintenance Administrators, Contract Managers, Contractors, and Maintenance Personnel who plan, organize, direct, and manage maintenance work.

REFERENCES:

Sections 334.035, 334.044 (24), 334.046, 335.091, 335.167, 339.24, 376.30, and 482.1562 (F.S.)

Chapter 5E-9 and 62C-20, Florida Administrative Code (F.A.C.)

The following user handbooks may be used as reference:

- A Guide for Roadside Vegetation Management
- Guide to Asphalt-Pavement Repair
- A Guide to Non-Paved Shoulder Repair
- Maintenance Rating Program Handbook
- Guide Maintenance Plan for Lowering Devices of High Mast Light Poles
- FDOT Statewide Stormwater Management Plan (SWMP)

- Guide for Tree, Palm Maintenance for Urban Roadside and Landscape Areas.

The Office of Maintenance is responsible for the review and revision of these user handbooks. Copies may be obtained from the Maps and Publications Sales Office, 605 Suwannee Street, Mail Station 12, Tallahassee, Florida 32399-0450, telephone (850) 414-4050. Or by going to:

<http://www.fdot.gov/publications/publications.shtm>

The user handbooks are intended to be used when more details about a particular maintenance operation are needed.

GENERAL:

All maintenance work shall be done in accordance with the maintenance activity standards, ***Standard Specifications for Road and Bridge Construction, Design Plans, Topic No. 625-010-003***, the ***FHWA Manual of Uniform Traffic Control Devices (MUTCD)***, and ***FDOT Loss Prevention Manual, Topic No. 500-000-015***. Any deviation from these standards must be approved by the local maintenance engineer.

PROCEDURE

The District Maintenance Engineer / Administrator, or their designee, is responsible for coordination and compliance with the following requirements:

1. Maintenance Rating Program (MRP)

- 1.1 The Maintenance Rating Program (MRP) is used to evaluate the quality and effectiveness of routine maintenance activities. It is a systematic and formal method of collecting data and can be used to make policy decisions for desired levels of operation.
- 1.2 Data provided by the MRP shall be used by the Districts to prioritize and schedule routine maintenance work. Short and long-range work plans shall be consistent with the following objectives:
 - a. Each District is to maintain a minimum annual maintenance rating of 80;
 - b. all elements (roadway, roadside, traffic services, drainage and vegetation/aesthetics) shall have a rating of 75 or above;
 - c. and the characteristics of each element shall meet the desired conditions of the MRP Handbook at least 70 percent of the time.

2. Turf Management

- 2.1 Turf management consists of the range of integrated management activities used to establish and sustain a turf stand at a desired level of quality. Proper management is critical to the development of successful turf. High quality turf is usually the result of correct grass selection for the site conditions, proper establishment procedures, and effective cultural practices. General guidelines are listed in the ***A Guide for Roadside Vegetation Management***.
- 2.2 A well-maintained turf stand and ROW can and will reduce the amount and extent of other maintenance activities, such as shoulder work, ditch cleaning, mowing, pipe cleaning, and herbicide application.
- 2.3 Each District shall develop and implement a comprehensive and balanced Vegetation Management Plan. This plan should address soil testing, seeding, soil amendments, aeration, herbicides, tree trimming, control of invasive species, and proper mowing techniques.
- 2.4 Each maintenance unit shall document, and maintain the location of Cogongrass and Tropical Soda Apple sites, to include Global Positioning System (GPS) location data, the total amount of area infested at each site, date, and type of treatment, and products used (to include percent of active ingredient).
- 2.5 Roadside mowing is the Department's primary method of controlling roadside vegetation within clear zone areas as defined in the ***FDOT Design Manual (FDM), Topic No. 625-000-002***. General guidelines for mowing requirements on each type of roadway (e.g. rural, or urban) are listed in the ***A Guide for Roadside Vegetation Management***.
- 2.6 The minimum mowing height is five inches for all rural areas. A lower mowing height may be required for office complexes, sites within urban limits, and when necessary to control invasive species.
- 2.7 Slopes with a grade steeper than 3:1 shall be mowed with hand-held or boom/slope equipment specifically designed for the task. Equipment used for slope maintenance that damages turf by sliding, scalping, rutting or is susceptible to overturning shall not be permitted. Trees, shrubs or ground covers, whether planted or regenerated naturally that can prevent erosion, decrease slope maintenance costs and enhance aesthetics should be considered as part of a slope management program.

- 2.8** Trimming of trees and large brush shall be accomplished with suitable equipment to provide an aesthetically pleasing cut. Boom mowers with rotary or flail cutting heads shall not be used for tree trimming or brush control. At no time shall boom mower cutting heads be operated higher than twelve inches above ground level.
- 2.9** Fertilizers may be used on new sod or seed for the establishment of turf areas only after soil testing to determine the type of fertilizer required.
- 2.10** Each District must document the application of all fertilizers on the state right of way (ROW) using form number 850-000-26 located in the forms library.
- 2.11** All Department personnel applying fertilizers shall be trained through the Green Industry Best Management Practices (BMP) Program, document the training in Learning Curve, and retain a copy of the completion certificate on file. Department personnel, completing the training, are not required to be licensed commercial applicators.

All contractors and/or permittees who contract the application of fertilizer shall ensure they are licensed commercial applicators who have been trained through the Green Industry BMP Program, and have obtained a limited certification for urban landscape commercial fertilizer application under section 482.1562, F.S. with a current copy of the license on file.

- 2.12** Fertilizer should not be stored near petroleum products or chemicals, or in areas subject to open flames or temperatures exceeding those normally experienced from sunlight.

3. Herbicides, Pesticides, and Fertilizers

- 3.1** Herbicides should only be considered for use on vegetation which cannot be controlled by mechanical methods. The use of herbicides is allowed around obstructions when the cost of controlling by other means is prohibitive. General guidelines for herbicide use and handling are included in ***A Guide for Roadside Vegetation Management***.
- 3.2** High volume broadcast application of herbicide **is prohibited** without prior approval from the Director of the Office of Maintenance. High volume broadcast application is defined as spraying large areas along the roadside or median with large quantities of herbicides to control invasive or undesirable weed species. Approval is not required when spraying or treating large areas for the control of exotic invasive species (like cogongrass, tropical soda apple, kudzu...etc.).

- 3.3** Restricted use herbicides shall not be used in the Department's roadside vegetation management program.
- 3.4** Herbicides shall not be used as a seed head suppressant or plant growth regulant without obtaining approval from the Director of the Office of Maintenance.
- 3.5** All herbicide applicators shall hold a current license or work directly under a current licensed applicator, in the following three categories: core curriculum, right of way, and aquatics; and comply with all rules and regulations of the Department of Agriculture and Consumer Services.
- 3.6** A daily ***Herbicide Application Log (Form No. 850-000-15)*** is required for any herbicide application. This form is available from the Department's Forms Library.
- 3.7** The Department or its designee shall file a ***Pesticide-Use Proposal (PUP)*** Form FS-2100-2 to perform any pesticide work done on the rights of way within the jurisdiction of the National Forest in Florida. This permit shall be filed with the United States Department of Agriculture. Attachment 1
- 3.8** All aquatic plant control efforts or attempts to control aquatic plants through mechanical, manual, or chemical means shall be governed by the most current rules and regulations of the Department of Environmental Protection (DEP).
- 3.9** In case of accidental spill or an error in application of a herbicide, prompt action shall be taken to minimize damage. The District Maintenance Engineer / Administrator and local DEP office shall be notified of any leak or spill greater than 0.2642 gallon or 1 liter of concentrated chemical (unmixed herbicides), or 499.3 gallons or 1,890 liters mixed chemical (mixed herbicides) by the applicator and the Department and the notification documented. The local DEP office should advise the Department how to clean up the leak or spill.
- 3.10** Storage and handling methods: Chemicals are to be stored in a clean and dry secured storage facility protected from the weather. The storage facility should have a concrete floor, or be an approved metal type storage building with a built-in containment floor system.
- 3.10.1 All herbicide and fertilizer containers are to be correctly labeled, as required by State law, with labels that are authorized and registered through the Environmental Protection Agency (EPA).
- 3.10.2 Containers will be discarded in authorized disposal areas or as recommended by the manufacturer. The Department requires the rinsing

of containers a minimum of three times with proper solvent prior to disposal. The solvent rinse is to be recovered and saved as the diluent for the next application. Under no circumstances shall a Department employee drain or wash equipment where the wash water can discharge directly into a lake, stream, or storm sewer.

- 3.11** In cases of alleged damage to non-target species, the damage claim shall be documented by using daily log reports, daily crew reports, written statements, and other documentation, as necessary, as soon as possible. Any written or verbal statement indicating an intention to file a claim shall be reported immediately to the Office of the General Counsel.
- 3.12** When spot spraying around obstructions, a selective, non-residual broadleaf herbicide is recommended. Non-selective herbicide applications to roadway components, such as paved shoulders or slopes, ditch pavement, curb and gutter, etc., may be made where elimination of all vegetation is necessary.

4. Landscape and Wildflower Areas

- 4.1** Areas identified as wildflower sites shall not be mowed, treated with non-compatible herbicides, or otherwise disturbed during their growing, blooming, and seed-ripening seasons. Areas identified as wildflower sites shall not be treated before, during or after blooming season with herbicides.
- 4.2** Areas designated as wildflower sites shall not be allowed to develop to the extent that they pose a safety hazard.
- 4.3** For Landscape Areas (defined as an area dedicated to the use of landscape plants, trees and related materials), owned by the Department and not under a memorandum of agreement (MOA), the District, shall develop a maintenance plan. The plan should specify the different varieties of landscape materials used in each landscape area. Also document in writing a schedule of all maintenance activities to be performed including, but not limited to, the type of mulch, soil amendments, fertilizers, irrigation, pruning, weed control (by hand, or herbicide), and mowing to be used. In addition, name all products, and their percent of active ingredients or analysis to be used to maintain these landscape areas, in as an attractive and vigorous manner possible.

5. Roadway Shoulders

- 5.1** For Maintenance activities which disturb roadway shoulders, slopes, or ditches, crews must provide and maintain all adequate measures necessary for the

prevention, control, and abatement of dust, erosion, and water pollution to ensure compliance with applicable local, state and federal regulations.

- 5.2 When using blowers for removal of grass clippings, soils, sand and debris, provide adequate measures to contain all dust and solids within the right of way. Operate equipment so grass clippings, soils, sand, and debris are directed away from traffic, and all drainage structures.
- 5.3 All Department employee's working within the right of way shall complete and document in the department's training database Tier 1 Illicit Discharge Detection & Elimination (IDDE) training.

6. Pavements

- 6.1 When pavement deficiencies are identified they shall be scheduled for repairs in a timely manner (depending on the level of safety concern). Repair techniques should generally follow those detailed in the ***Guide to Asphalt Pavement Repair***. All repairs to pavement surfaces shall reflect sound engineering judgment, and be performed in the most effective and efficient manner.
- 6.2 All excess asphalt plant mix and petroleum products must be picked up and disposed of in properly designated areas immediately after completion of work,
- 6.3 When cleaning tools and equipment, employees shall not allow solvents to come into contact with plants, grass, shrubs, or bodies of water. Solvent solutions must be directed into containers when equipment is cleaned.

7. Interstate Access Control

- 7.1 Approval from the Federal Highway Administration (FHWA) shall be obtained by the District prior to any interstate access control modifications. The District Maintenance Office is responsible for maintaining a current file with written FHWA approval for all interstate access control modifications within that district. This does not include temporary control modifications within construction projects.

8.0 Highway Lighting

- 8.1 All highway lighting located within the Department's right of way shall be inspected for lighting luminaire outages at a minimum quarterly. Lighting luminaire outages shall be reported for each lighting type (high mast, standard, under deck, sign) for each contract/local agreement and cost center. All deficiencies found under a local agreement area shall be reported to the maintaining agency for corrective action. Lighting luminaire outages shall not

exceed 10% for any lighting type in each cost center or maintained contract/local agreement. Validate the pole numbers of each luminaire on the outage report.

- 8.2** Lighting luminaire outages identified during the Department's monitoring cycle or by any other means as stated above shall be repaired within 30 calendar days after discovery.
- 8.3** Lighting luminaire outages illuminating pedestrian crosswalks shall be repaired within 10 calendar days after discovery.
- 8.4** Lowering of High Mast Lighting shall be inspected annually. Each District shall develop a management plan and checklist for the lowering and inspection of all high mast lighting. The inspection results shall be documented in writing using the checklist. An example of minimum checklist requirements is located on the Office of Maintenance internet site .
- 8.5** Vegetation shall be maintained to prevent blocking, obstructing or interfering with standard lighting from illuminating the roadway as originally intended.

9. Permits

- 9.1** Permits shall be issued and administered in compliance with the current applicable ***F.A.C. Rule Chapter***. The forms used for permitting shall be the most current version as detailed in the appropriate ***F.A.C. Rule Chapter***.
- 9.2** The following permits shall be entered, administered, and tracked in the Department's Permit System as applicable:

Rule Number	Rule Title
14-10	Vegetation Management at Outdoor Advertising
14-20	General Use
14-20	Construction Agreements
14-28	Rest Area Solicitation
14-40	Landscaping
14-43	Banners
14-46	Utilities
14-63	Building Moving
14-65	Temporary Road Closure and Filming
14-86	Drainage Connections
14-96	Access/Driveway Connections

- 9.3** District and area permit personnel shall be responsible for inputting the required permit data into the Department's Permits System. The permit information shall be input into the system as the actual permit process takes place in order to provide a current record of the permit status.

10. Blue Star Memorial Highways

- 10.1** Pursuant to **section 335.091, F.S.**, certain roads may be designated as a Blue Star Memorial Highway upon written request of the Executive Board of the Florida Federation of Garden Clubs, Inc. to the Department Secretary. The Department Secretary may also designate certain roads as a Blue Star Memorial Highway.

A designation letter signed by the Department Secretary with copies to the Public Information Office, District Secretary, local governing authority, and Department of State, shall be mailed to the Executive Board of the Florida Federation of Garden Clubs, Inc.

- 10.2** Upon official designation by the Department Secretary, the local garden club may purchase at its own expense, and placement of the Blue Star Memorial Marker as depicted in Figure 1. The installation of a Blue Star Memorial Marker will be by General Use permit for a 5 year term, with additional time extensions if needed to be made in the Department's Permit System. The local Department Operations Center will process permit applications submitted by the Garden Club or the local municipality acting on behalf of the Garden Club. Department Operations Centers will assist with selection of appropriate locations for Marker placement.



Figure 1

Criteria for placement and installation of Blue Star Memorial Markers are as follows:

- a. Markers should be placed in a rest area, scenic overlook, recreational area, or other appropriate location where parking is provided. If the installation of a Marker off the main roadway is not practical, a Marker may be installed on the main line.
- b. Markers and posts are not crash tested, and must be placed outside the clear zone or horizontal clearance.
- c. Marker placement must preserve visibility of highway signing, and the safety and efficiency of traffic flow.

- d. Markers may be placed at an appropriate location in each route direction.
- e. Markers may be removed or relocated by the Department at any time without notice.

10.3. Memorial Marker maintenance is the sole responsibility of the local garden club affiliated with the Florida Federation of Garden Clubs, Inc. Marker maintenance, removal or replacement by the Florida Federation of Garden Clubs, Inc. shall be permitted by the nearest Department Maintenance Office or Operations Center.

10.4. Districts will maintain a record of the Blue Star Memorial Markers and shall provide the information to the Office of Maintenance to file with the Department of State. The inventory will be updated as Blue Star Memorial Highways are designated, and markers are installed or removed. The District Maintenance Engineer / Administrator or designee will provide to the Office of Maintenance the following information:

- a. Start and end point of designated Memorial Highway.
- b. Location of Markers, nearby landmarks, coordinates, city, county, state road mile post, and Global Positioning System (GPS).
- c. Photographs of Markers, close up and showing the sign in its context
- d. Marker and Post materials and mounting type. Close up photos may be used.
- e. Copies of agreements, resolutions, or letters documenting process or commitments.
- f. Local contact persons from local garden club.
- g. Posted speed of Memorial Highway.


11. FORMS

Form 850-000-15, Herbicide Application Log, may be obtained from the Department's Forms Library.

Form 850-000-26, Fertilizer Application Log, may be obtained from the Department's Forms Library.

Form FS-2100-2, Pesticide-Use Proposal, and Form FS-2100-1, Pesticide-Use Report for National Forest System Lands, may be obtained from the U.S. Forest Service.

ATTACHMENT 1

		FS-2100-2 (8/79)	
PESTICIDE - USE PROPOSAL (Reference FSM 2150)	DEPARTMENT/AGENCY		CONTACT/PHONE NO.
	[REDACTED]		[REDACTED]
	REGION	FOREST	DATE SUBMITTED
[REDACTED]			
1) OBJECTIVE			
a) Project No. [REDACTED]			
b) Specific Target Pest [REDACTED]			
c) Purpose [REDACTED]			
2) PESTICIDE			
a) Common Name [REDACTED]			
b) Formulation [REDACTED]			
c) % AI, AE, or lb / Gal. [REDACTED]			
d) Registration No. [REDACTED]			
3) a) Form Applied [REDACTED]			
b) Use Strength (%) or Dilution Rate [REDACTED]			
c) Diluent [REDACTED]			
4) Lbs. AI per Acre or Other Rate [REDACTED]			
5) APPLICATION			
a) Method [REDACTED]			
b) Equipment [REDACTED]			
6) a) Acres or Other Unit to be treated [REDACTED]			
b) Number of Applications [REDACTED]			
c) Number of Sites [REDACTED]			
d) Specific Description of Sites [REDACTED]			
7) a) Month(s) of Year [REDACTED]			
b) States [REDACTED]			
8) SENSITIVE AREAS			
a) Areas to be avoided [REDACTED]			
b) Areas to be Treated with caution [REDACTED]			
9) REMARKS			
a) Precautions to be taken [REDACTED]			
b) Use of Trained/ Certified Personnel [REDACTED]			
c) State and Local Coordination [REDACTED]			
d) Other Pesticides being applied to Same Site [REDACTED]			
e) Monitoring [REDACTED]			
d) Other [REDACTED]			
Approval (Signatures of Approving Official)			Date (mm/dd/yy): [REDACTED]

Heading - Provide requested information.

OBJECTIVE (Block 1)

- a) Project Number - Assign in accordance with field IPMWG procedures.
- b) Specific Target Pest - Identify the target pest by common and scientific name. Identify life cycle stage for animals or stage of growth for plants (e.g. emergent or pre-emergent, seedling, sapling, etc.)
- c. Purpose - State exact purpose of pesticide use.

PESTICIDE (Block 2)

- a) Common name of active ingredient(s) as indicated on the pesticide label. When a combination of pesticides are to be used on a single pest, use the word "AND" in listing the pesticide names. When alternate materials are proposed, use the word "OR" in listing the names.
- b) Indicate product formulation (i.e., amine, ester, emulsifiable concentrate, granules, solution, etc.).
- c) Percentage active ingredient, acid equivalent, or pounds per gallon (as indicated on the pesticide label).
- d) List the EPA registration number from the pesticide label.

PESTICIDE - continued (Block 3)

- a) Form Applied - e.g., dust, granule, emulsion, bait, solution, gas, etc.
- b) Use strength or Dilution Rate - List the quantity of concentrate mixed with the quantity of diluent or indicate the percentage strength of the formulation.
- c) Diluent - Identify the pesticide carrier, i.e., water, oil, talc, kerosene, etc.

PESTICIDE - continued - (Block 4)

Pounds of Active Ingredient Per Acre or Other Rate - State pounds of active ingredient per acre to be applied, unless some other unit is indicated. If reporting in acreage is not appropriate, indicate units used. Indoor applications of residual sprays may be expressed as percent of actual ingredient in the prepared spray in gallons per M (1,000) square feet. Point of runoff, which may appear on a label is generally considered to be 1 gallon per 1,000 square feet on most indoor surfaces. If dusts are used instead of sprays, express as ounces or pounds of prepared dust per M (1,000) square feet. Treatment of trees is listed by number of trees or is application is by hydraulic sprayer, is expressed as pounds or quarts of concentrate per 100 gallons of diluent - oil or water, whichever is used. If the pesticide for trees or brush is applied by air or mist blower, express as pounds of active ingredient per acre. Fumigants or inside aerosols are expressed as pounds of the fumigant or aerosol per M (1,000) cubic feet. Rodent baits should be listed as ounces or pounds of the prepared bait per bait station. Treatments in water may be expressed in parts per million (ppm) by weight or volume - specify. In spot applications, the rate of application is expressed in pounds or gallons per 1,000 square feet indoors or pounds per acre of active ingredient outdoors applied to the spot area treated.

APPLICATION - (Block 5)

Indicate as specifically as possible the method (i.e., aerial, ground, etc.) of application and the type of equipment such as helicopter, hand compression sprayer, mist-dust blower, hydraulic sprayer, injector, etc.

APPLICATION - (Block 6)

- a) Acres or Other Unit to be Treated. State in terms of acres, unless otherwise indicated. Some projects may require repeat applications. Report only the units to be treated for the first application.
- b) Number of Applications - For projects that require repeat applications to the same area, indicate their estimated number and their timing.
- c) Number of Sites - If the reported figures are a consolidation from several locations, indicate the number of locations.
- d) Specific Descriptions of Sites - Indicate the type of area and pertinent portion of the area to be treated; such as ditchbank, rangeland, powerline right-of-way, tree nursery, etc. Specify if pesticide is to be applied in or around

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FS-2100-2 (8/79)

water and whether it will be applied directly to water or to the shore. Where applicable, indicate the slope of the treated area. For aquatic use, indicate water quality (hardness and pH) if available or applicable.

APPLICATION (Block 7)

- a) Month(s) of Year - State month(s) of year.
- b) State(s) - Indicate State and other designation that identifies the area geographically.

SENSITIVE AREAS (Block 8)

- a) Areas to be Avoided - Identify sensitive areas to be avoided. Indicate if the area is subject to inadvertent treatment as a result of drift. Describe fully in "remarks" (Block 9) what protective measures are to be taken.
- b) Areas to be Treated with Caution - Identify sensitive areas to be treated with special precautions to avoid contamination.

REMARKS (Block 9)

Use this line for information which will be helpful to the field IPMWG in evaluating the project.

- a) Precautions to be Taken - Describe specific precautions be taken to protect sensitive areas; for example, no application within 100 feet of streams.
- b) Use of Trained / Certified Personnel - Provide information on the status of training and/or certification of personnel doing the actual work and of those supervising. Has project been reviewed by a field biologist, agronomist, entomologist, or other appropriate subject matter specialist?
- c) State and Local Coordination - Indicate coordination on the project at a State or local level.
- d) Other Pesticides Being Applied to Same Site - Indicate what other pesticides are being or will be applied on the same site within the year.
- e) Monitoring - Describe any monitoring of the operation to be conducted. Indicate effectiveness of prior projects and mention undesirable side effects observed.
- f) Other - Indicate if the project is to be accomplished by contract.

Environmental analyses (EA's and/or EIS's) may be referred for additional information.

APPROVAL (Block 10)

- a) Signature of Approving Official
- b) Date of Signature