

RESOLUTION No. 20-181

A RESOLUTION OF THE MAYOR AND THE CITY COUNCIL OF THE CITY OF DORAL, FLORIDA, AUTHORIZING THE CITY MANAGER TO ENTER INTO AN INTERLOCAL AGREEMENT WITH MIAMI-DADE COUNTY TO OBTAIN THE COUNTY'S APPROVAL AUTHORIZING THE CITY TO INSTALL AND MAINTAIN ELECTRONIC SPEED FEEDBACK SIGNS AS OUTLINED IN THE AGREEMENT; AUTHORIZING THE CITY MANAGER TO EXECUTE THE AGREEMENT; AND PROVIDING FOR AN EFFECTIVE DATE

WHEREAS, the City of Doral desires to improve the quality of life and public health through traffic safety improvements on City and Local streets; and

WHEREAS, per Miami-Dade County (MDC) Code Sections 2-95 and 2-96.1 all traffic control and traffic engineering services within the County are under the exclusive jurisdiction of MDC; and

WHEREAS, the City of Doral Public Works Department (PWD) has requested to assume the installation and maintenance responsibilities of Electronic Speed Feedback Signs on local municipal streets; and

WHEREAS, the City of Doral currently has approval from MDC to install the speed feedback signs within Section 7 of the City; and

WHEREAS, the City will provide design plans for any additional locations outside of Section 7 but within the City's limits and submit said plans to the County for review and approval prior to design and installation of additional speed feedback signs; and

WHEREAS, the proposed speed feedback signs provide a greater ability to focus on pedestrian safety and greater emphasis on motorists' speeds; and

WHEREAS, upon full execution of this agreement, or as in the attached substantial form, the PWD will move forward with the implementation of the speed feedback signs within City limits; and

WHEREAS, if the County makes any substantial changes to the agreement prior to execution the PWD will present the revised agreement to Council for approval.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF DORAL AS FOLLOWS:

Section 1. Recitals. The above recitals are confirmed, adopted, and incorporated herein and made part hereof by this reference.

Section 2. Approval. The Interlocal Agreement for Electronic Speed Feedback Signs, attached hereto as Exhibit "A", is hereby approved.

Section 3. Authorization. The City Manager is authorized to execute the Interlocal Agreement.

Section 4. Implementation. The City Manager and the City Attorney are hereby authorized to take such further action as may be necessary to implement the purpose and the provisions of this Resolution.

Section 5. Effective Date. This Resolution shall take effect immediately upon adoption.

The foregoing Resolution was offered by Councilmember Cabrera who moved its adoption. The motion was seconded by Councilmember Cabral and upon being put to a vote, the vote was as follows:

Mayor Juan Carlos Bermudez	Yes
Vice Mayor Christi Fraga	Yes
Councilwoman Digna Cabral	Yes
Councilman Pete Cabrera	Yes
Councilwoman Claudia Mariaca	Yes

PASSED AND ADOPTED this 9 day of September, 2020.



JUAN CARLOS BERMUDEZ, MAYOR

ATTEST:



CONNIE DIAZ, MMC
CITY CLERK

APPROVED AS TO FORM AND LEGAL SUFFICIENCY
FOR THE USE AND RELIANCE OF THE CITY OF DORAL ONLY:



LUIS FIGUEREDO, ESQ.
CITY ATTORNEY

EXHIBIT “A”

**INTERGOVERNMENTAL AGENCY AGREEMENT TO ALLOW
THE CITY TO PERFORM THE INSTALLATION AND
MAINTENANCE OF ELECTRONIC SPEED FEEDBACK SIGNS
(Speed Feedback Signs)**

THIS INTERGOVERNMENTAL AGENCY AGREEMENT TO PERFORM TRAFFIC ENGINEERING FUNCTIONS (“Agreement”) is made and entered into this _____ day of _____, 2020, by and between the CITY OF DORAL (the “City”), a municipal corporation of the State of Florida, and MIAMI-DADE COUNTY (the “County”), a political subdivision of the State of Florida.

WITNESSETH

WHEREAS, pursuant to Sections 2-95 and 2-96.1 of the Miami-Dade County Code, all traffic control and traffic engineering services in Miami-Dade County are under the exclusive jurisdiction of the County; and

WHEREAS, the City of Doral desires to assume the installation and maintenance responsibilities of Speed Feedback Signs pertaining to its local municipal streets only and only in approved locations by the County; and

WHEREAS, the City of Doral has Transportation Engineers available to plan, design, and perform construction inspection of Transportation Projects within its Public Works Department, and has represented to the County that it is capable, equipped, and qualified to perform the duties and functions requested herein; and

WHEREAS, the City currently has approval from Miami-Dade County for the installation of electronic speed feedback signs in the Section 7 area of the City; and

WHEREAS, the City will design, and submit for review and approval to the County any future locations where the electronic speed feedback signs may be deemed necessary; and

WHEREAS, the City shall adhere to Section 700 – Electronic Display Signs of the Miami Dade County Public Works Department Traffic Signals and Signs Division Manual, attached hereto as Exhibit A; and

WHEREAS, the City of Doral has, by proper resolution attached hereto as Exhibit B and by reference made a part hereof, authorized its officer(s) to enter into this **AGREEMENT**.

NOW THEREFORE, the City of Doral and the County agree as follows:

Section 1. Recitals Adopted. The recitals set forth above are incorporated herein by reference.

Section 2. Speed Feedback Signs. The City of Doral may install and maintain electronic speed feedback signs on only those local municipal streets operated and maintained by the City within its boundaries, and not on County or State roadways; or within school zones.

Section 3. Installation. Any such speed feedback signs may be installed on local municipal streets only after an appropriate design plan depicting the location of the new speed feedback signs has received approval from the County and must be submitted to the Department of Transportation and Public Works (“DTPW”) of the County. Any such speed feedback signs may be installed on local municipal streets only after signed and sealed design plans have been reviewed, permitted, and received written approval by the City, through its City Manager or his/her designee. Provided that such design plans utilize the standard design attached hereto as Exhibit “A”, no additional review or approval by the County shall be required before installation. Purchase and installation of speed feedback signs shall be carried out in accordance to County approved standards, procedures, and material requirements as determined in the sole and absolute discretion of the County. The City assumes sole and complete responsibility for the installation and maintenance of all such speed feedback signs that are installed by the City within its boundaries.

Section 4. Decals. The City of Doral shall attach a decal to the back of the sign panels indicating the City of Doral's ownership and date of installation.

Section 5. Standards. All Speed Limit Signs installed by the City of Doral in accordance with this Agreement shall conform to the applicable requirements established by the following publications including latest revisions:

- Manual on Uniform Traffic Control Devices for Streets and Highways, U.S. Department of Transportation Federal Highway Administration
- Standard Highway Signs, U.S. Department of Transportation, Federal Highway Administration
- Florida Department of Transportation's Standard Specifications for Road and Bridge Construction
- Miami-Dade County Public Works Standard Details Manual, or any other comparative criteria available to municipalities which has been approved by the County.

Section 6. Maintenance Responsibility. The City of Doral assumes sole and complete responsibility for the maintenance of all 25 mph speed limit signs installed by the City on local municipal roads within the City's boundaries. The City shall be responsible for the aesthetics of all installed speed feedback signs (e.g. peeling, graffiti, flyers, stickers, etc.). If the City fails to maintain the speed feedback signs, it shall be the responsible for any and all costs incurred by the County to replace them or remove them.

Section 7. Liability and Indemnification. The City of Doral assumes sole and complete liability for any and all accidents, damages, claims, and/or injuries which may, or are alleged to, occur or arise out of the installation, operation or maintenance of said Speed Limit Signs, and hereby indemnifies to the extent allowed by Section 768.28, Florida Statutes, and saves harmless the County from any and all claims and damages arising from such installation, operation or maintenance of the Speed Limit Signs.

Section 8. No Waiver of Sovereign Immunity. Notwithstanding any other term in this Agreement, nothing shall be deemed to be a waiver of either the City of Doral or the County's immunity or limitation of liability as provided pursuant to Section 768.28, Florida Statutes, as may be amended from time to time.

Section 9. Public Records. The City of Doral shall be responsible for keeping records of any and all installations and repairs, and for furnishing pertinent documents as and when said records may be requested by the County. The Parties shall each maintain their own requirements for records retention set forth in Chapter 119, Florida Statutes.

Section 10. Headings. The headings or captions of sections or paragraphs used in this Agreement are for convenience of reference only and are not intended to define or limit their contents, nor are they to affect the construction of or to be taken into consideration in interpreting this Agreement.

Section 11. Ambiguities. The preparation of this Agreement has been a joint effort of the Parties hereto and both Parties have had the benefit of consultation with legal counsel of their choosing prior to its execution. The resulting document shall not, solely as a matter of judicial construction, be construed more severely against one of the Parties than the other.

Section 12. Entirety. This Agreement embodies the entire agreement between the Parties with respect to the matters addressed herein. Previous agreements and understandings of the Parties with respect to such matters are null, void, and of no effect. Notwithstanding any other provision contained herein, no third-party beneficiaries are created with respect to any claims against the County by virtue of this Agreement.

Section 13. Amendments. This Agreement may be amended, modified, or altered, and its material provisions may be waived, only by written instrument, and only if properly executed by all parties hereto.

Section 14. Effective Date. That this Agreement shall become effective on the date first written above after such Agreement is fully executed by all parties hereto.

Section 15. Termination. Either the City of Doral or the County may, in their respective sole and complete discretion, terminate this Agreement, with or without cause and/or convenience of the terminating party, upon twenty (20) business days written notice; provided, however, the City of Doral shall continue to maintain, repair, and be responsible for any Speed Limit Signs installed by the City of Doral while this Agreement was in effect. Prior to the termination of this Agreement, however, the City of Doral may elect to remove any one or all Speed Limit Signs installed by the City of Doral; provided the City of Doral shall restore the roadway and area in which the Speed Limit Sign was located to the condition that existed before the City of Doral's installation.

Section 16. Execution. This Agreement may be executed in one or more hard or electronic counterparts, which, when taken together, shall constitute one fully executed instrument.

Section 17. Notice. Any notices to be given hereunder shall be in writing and shall be deemed to have been given if sent by hand deliver, recognized overnight courier (e.g. Federal Express), or by written certified U.S. mail, with return receipt requested, addressed to the Party for whom it is intended, at the place specified. The method of delivery shall be consistent among all of the persons listed herein. For the present, the Parties designate the following as the representative for notice purposes:

- a. **For the County:** Miami-Dade Department of Transportation and Public Works,
Attn: Director, 111 NW 1st Street, Suite 1510, Miami, FL 33128

With a Copy To: Miami-Dade County Attorney's Office,
111 NW 1st Street, Suite 2910, Miami FL 33128

- b. **For the City:** City of Doral, Attn: Albert P. Childress, City Manager,
8401 NW 53rd Terrace, Doral, FL 33166

With a Copy To: Luis Figueredo, City Attorney,
8401 NW 53rd Terrace, Doral, FL 33166

With a Copy To: City of Doral Public Works Department,
Attn: Director, 8401 NW 53rd Terrace, Doral, FL 33166

IN WITNESS WHEREOF, the City and the County have set their hands the day and year above written.

ATTEST:

HARVEY RUVIN, CLERK

MIAMI-DADE COUNTY

By:

County Mayor

By: _____
County Deputy Clerk

(Affix County Seal)

Approved as to form and legal sufficiency:

Assistant County Attorney

THE CITY OF DORAL, FLORIDA

ATTEST:

CITY OF DORAL, FLORIDA, a municipal
Corporation of the State of Florida

By: _____
Connie Diaz, MMC, City Clerk

By: _____
Albert P. Childress, City Manager

(Affix City of Doral Seal)

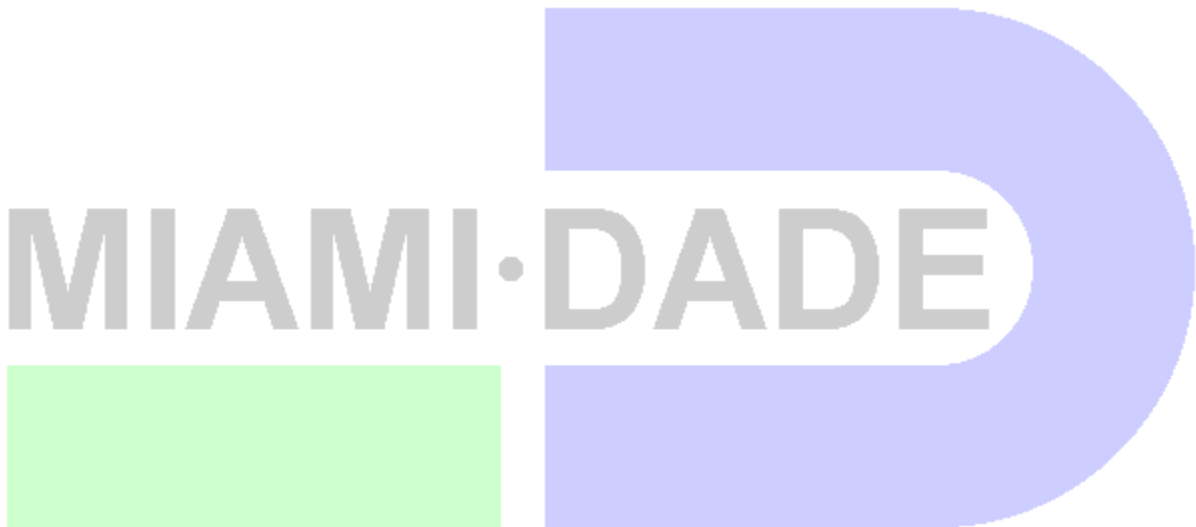
APPROVED AS TO LEGAL FORM
CORRECTNESS:

By: _____
Luis Figueredo, City Attorney

**Miami-Dade County Public Works Department
Traffic Signals & Signs Division**

SECTION 700 - Electronic Display Signs

**Technical Specifications
for
ELECTRONIC SPEED FEEDBACK SIGN
(ESFS)**



Esther Calas, P.E.
Director
Public Works Department

Robert Williams, P.E., PTOE
Chief
Traffic Signals & Signs Division

Prepared by:

Robert Janosi
Traffic Control Standards & Specifications Coordinator

Miami-Dade County specification for Electronic Speed Feedback Signs (ESFS) meet or exceed the Florida Department of Transportation's (FDOT current Minimum Specifications for Traffic Control Signals and Devices (MSTCSD), used for the evaluation and certification/approval for listing on the FDOT Approved Product List (APL), and establishes the minimum standards required on MDPW Qualified Product List (QPL) for use in Miami-Dade County, FL.

A700-1 Description

Electronic Display Signs (EDS) as listed under Section 700 by the Florida Department of Transportation (FDOT) are specialized electronic signs that include dynamic display components. The term EDS refers to a general category of electronically enhanced signs. All EDS shall meet the physical display and operational requirements for warning or regulatory signs described in the FHWA Manual on Uniform Traffic Control Devices (MUTCD) and its companion document, the Standard Highway Signs Book (SHS).

This specification shall cover only one (1) type of electronic signs under this general category of signs, the Electronic Speed Feedback Sign (ESFS). The ESFS is designed to alert motorists of their speed as they approach the sign to alert all road users to conditions that call for a reduction of speed in the interest of safety and to improve efficiency of traffic operations in a particular area along the roadway.

A700-2 General Requirements

ESFS shall allow attachment to vertical and horizontal support structures as part of a single sign post configuration. All electronic assemblies shall meet the requirements of FCC, Title 47 Subpart B Section 15.

The sign shall be designed to withstand the loads defined in the FDOT Structures Manual without deformation or damage. All ESFS assemblies shall be 150 mph wind load rated when installed to Miami-Dade specifications. Signs shall provide an option to include flashing beacons. Printed circuit boards shall be conformally coated. Housings that contain electronics shall be constructed of aluminum alloy sheet a minimum of 0.125 inches thick. Welding used during the construction of Electronic Display Signs (EDS) shall conform to the ANSI/AWS Structural Welding Code - Aluminum.

ESFS type EDS shall include a Static Sign Panel with an integrated dynamic display. Devices included on the FDOT Approved Products List (APL) and MDPW Qualified Products List (QPL) will be designated with a size and type category. On the MDPW QPL the signs are listed separately with restrictions (i.e. ESFS: "School Speed Zones", shall be programmed to operate during school hours only; ESFS: "Non-School Warning Signs", shall operate continuously 24/7 at hazardous locations only).

A700-2.1 Electronic Display Signs with Static Sign Panel

The electronic signs shall have a modular system design comprised of a static sign with an attached electronic display.

A700-2.1 Electronic Display Signs with Static Sign Panel (Continued)**A700-2.1.1 Static Sign Panel**

Static sign panels shall meet the appropriate FDOT requirements for Highway Signing found in Section 700 of the Standard Specifications for Road and Bridge Construction (SSRBC).

A700-2.1.1.1 Static Sign Legend

The sign legend "YOUR SPEED" shall be printed in black on two (2) lines with approximately 6-inch letter height. The minimum letter size of the legend shall meet or exceed the letter size prescribed in the MUTCD and SHS companion document. Font shall mimic the characteristics of fonts defined in the MUTCD and SHS.

A700-2.1.1.2 Static Sign Background Material and Colors

Static sign panels shall be provided with full cubed micro-prismatic retroreflective sheeting, ASTM Type XI with the following colors:

- A) School Zones: Fluorescent Yellow/Green
- B) Non-School Warning Signs: Yellow

A700-2.1.1.3 Static Sign Dimensions

The sign shall adhere to the MUTCD sign dimension requirements for the regulatory speed limit sign. In order to cover multi-lane highway applications, the minimum size requirement is 30" x 36" as specified in MUTCD Section 2B, Table 2B-1

A700-2.2 Electronic Display

Electronic displays shall appear completely blank (dark) when not energized. No phantom characters shall be allowed under any ambient light conditions.

A700-2.2.1 Housing

The electronic display panel cover shall be a non-glare 1/4 - inch (6.35mm) minimum thickness shatter-resistant polycarbonate face to protect and seal the dynamic display and other internal electronics. The display window shall be constructed to absorb impacts from thrown objects by allowing the display boards to deflect inward without damaging internal components.

The polycarbonate face shall be a minimum 90% ultraviolet (UV) opaque and resistant to fading and yellowing. Electronic displays incorporated within static signs shall be mounted to the back of the static sign face. The polycarbonate face shall not be recessed more than 1/4- inch from the front of the static sign.

A700-2.2 Electronic Display (Continued)

The housing shall be NEMA 3R rated and designed to prevent unauthorized access. The housing shall include weathertight cable entry or connection points for any required power or data connections. The housing shall use 1/4- inch stainless steel hex key button head screws to deter tampering while still allowing maintenance personnel a more compatible tool for removal.

A natural aluminum finish or a white 2-part epoxy paint coating may be used to minimize solar heat absorption to keep internal temperatures to a minimum for maximum component life.

Housing shall have a permanent weatherproof metallic label externally mounted. The label shall indicate whether the device is Set-up for AC, DC or both. The manufacturer's name, date of manufacture, model number, serial number, voltage requirement, and FCC approval number shall also be included.

A700-2.2.2 External Cabinet

All separate equipment cabinets provided with the ESFS shall be listed on the FDOT APL and MDPW QPL. The cabinet shall be equipped with a standard PPB-1 key lock. No other locks shall be accepted.

A700-2.2.3 Optical, Electrical, and Mechanical Specifications for Display Modules

All LEDs shall operate within the LED manufacturer's recommendations for typical forward voltage, peak pulsed forward current, and other ratings. Component ratings shall not be exceeded under any operating condition.

A700-2.2.4 LEDs and Pixels

All LEDs used in the display shall have a wavelength output that varies no more than ± 2 nanometers from the specified peak wavelength. The display and LED pixel cone of vision shall have a minimum of 30 degrees (centered around the optical axis, or zero point, of the pixel). The cone perimeter is defined by the point where light output intensity is 50 percent of the intensity measured at the zero point of the pixel. For all colors other than white, ensure that the sign display produces an overall luminous intensity of at least 9200 candelas per square meter when operating at 100 percent intensity. Manufacturer shall provide documentation that indicates the LED brightness and color bins that are used in each pixel. LEDs shall be individually mounted on a PCB, and are able to be removed and replaced using conventional electronic repair methods. Encapsulated LEDs within a pixel are not allowed.

A700-2.2 Electronic Display (Continued)**A700-2.2.4.1 ESFS Background/Foreground Colors**

The ESFS display background shall be flat black (Federal Standard 595A-37038) with a reflectance value not exceeding 25 percent. ESFS shall utilize amber LEDs with a peak wavelength of 590 nanometers. ESFS shall have a minimum 1-inch contrasting margin around illuminated characters.

A700-2.2.4.2 Legend Sizes and Fonts

The minimum numeral and letter size of the electronic display shall meet or exceed the numeral and letter sizes prescribed in the MUTCD and SHS companion document. Fonts shall mimic the characteristics of fonts defined in the MUTCD and SHS. A two-digit speed display which flashes the approaching vehicle's speed shall be comprised of amber color LEDs forming numerals approximately 15-inches in height. The "SLOW DOWN" message shall be amber color LEDs forming the letters that shall be approximately 6-inches in height.

A700-2.3 Electronic Display Controller

The electronic display controller required for the operation of the ESFS shall be housed within the sign and be equipped with a security lockout feature to prevent unauthorized use. There shall be an option that allows downloading of data but restricts users to read-only access for all other areas. Read-only access shall not allow any changes that will affect the operation of the sign. The electronic display shall not be adversely affected by radio transmissions. The controller shall provide a "blank" default message upon loss of controller function.

A700-2.3.1 Programmed Settings Backup Power Supply

Display control electronics shall maintain programmed settings and schedules indefinitely and shall incorporate a separate real-time clock backup power supply to maintain on-board clock settings through a power outage for up to two (2) weeks and recharge itself when power is restored. The backup power supply shall utilize no batteries.

A700-2.3.2 Communication

The sign shall have capabilities of wireless communication at the install site and be upgradeable to communicate from a remote location. The Electronic Display Controller shall possess a minimum of one (1) serial interface with the ability to connect to a laptop computer. The serial data interface shall support multiple data rates from 9600bps to 115200 bps.

A700-2.3.3 Configuration and Management

The sign shall be provided with computer software, by the manufacturer that allows a user to program, operate, exercise, diagnose, and read current status of all sign features and functions using a laptop.

A700-2.3 Electronic Display Controller (Continued)**A700-2.3.3.1 Sign Set-up**

The following functions shall be programmable wirelessly in the field or remotely:

- A) Date and time of day;
- B) Real-time clock correction factor;
- C) User-selectable alphanumeric sign identification code of at least 22 characters to allow unique identification of each sign location;
- D) Firmware Upgrades;
- E) Sign Schedule;
- F) Data Management - Traffic data download and memory reset

A700-2.3.3.2 Sign Scheduling

The sign schedule manages how the sign operates based on time-of-day and day of the week. The schedule shall be capable of supporting annual school calendars.

Schedule components include operating modes, daily timetables, weekly schedules, and exceptions. Software shall allow schedules and schedule components to be:

- A) Created while disconnected from the display sign and stored in the PC to upload to the ESFS wirelessly in the field or remotely;
- B) Copied and modified to easily create new schedules or schedule components;
- C) Identified with a minimum 22 alphanumeric characters;
- D) Easily transferrable to field PCs without requiring new software installation.

A700-2.3.3.3 Operating Modes

Should be able to support up to 500 operating modes to support "On", "Off", stealth functions, and varying speed limits. A mode consists of the following settings:

- A) Display "On" or "Off";
- B) Data Collection "On" or "Off";
- C) Speed Detector Settings (Speed Limit, Violation Alert, Slow Down alert, Minimum display speed, and maximum display speed/high-speed cutoff);
- D) External Device "A" and External Device "B" speed thresholds and flashing patterns (flashing in unison, alternating with each other, or flashing in synchronization with the violation alert display).

A700-2.3 Electronic Display Controller (Continued)**A700-2.3.3.4 Daily Operation**

Should be able to support 500 daily timetables that determine operating mode by time-of-day and supports up to 16 mode changes per day.

A700-2.3.3.5 Weekly Operation

Should be able to support 500 weekly schedules to be defined that determine the timetable in use by day of the week.

A700-2.3.3.6 Schedule Exceptions

Should be able to support 364 exceptions per year for up to two (2) years to be pre-programmed by date and time to support special events, construction zones, and in the case of school zones, non-school days.

A700-2.4 Operation and Performance

ESFS shall be visible from a distance of at least 1/4 mile and legible from a distance of 400 feet for applications on roads with a speed limit less than 45 miles per hour and visible from a distance of at least 1/2 mile and legible from a distance of at least 650 feet for roads with speed limits 45 miles per hour or higher. In both cases, the requirements shall be met under both day and night conditions.

A700-2.4.1 Display Intensities

The electronic display shall automatically adjust brightness for day and night operation in order to meet or exceed visibility requirements. The signs shall be equipped with a light sensor that accurately measures ambient light level conditions at the sign location. The signs shall automatically adjust LED intensity based on the ambient light conditions in small enough increments that the sign's brightness changes smoothly, with no perceivable brightness change between adjacent levels. Stray headlights shining on the photoelectric sensor at night shall not cause LED brightness changes.

A700-2.4.2 Flash Rates

Message dwell time shall be approximately one (1) second after the target passes the sign. The message flash rate shall be individually programmable between 90 and 120 flashes per minute. Flasher outputs for external flashers shall be fixed between 50-60 flashes per minute.

A700-2.5 Mechanical

Sign mounting provisions and mounting hardware shall accommodate sign weight and wind loading requirements of the FDOT Structures Manual.

A700-2.5 Mechanical (Continued)**A700-2.5.1 Sign Weight**

The housing with all components shall not exceed forty-five (45) pounds.

A700-2.5.2 Fasteners and Attachment Hardware

Use only nuts, bolts, washers, and other fasteners meeting Section 603 of the FDOT SSRBC.

A700-2.6 Electrical

All power inputs shall be fuse and reverse polarity protected. Signs shall be able to recover from power loss and return to their operational state without user intervention. The signs shall be designed to operate as either Solar Power (SP) or 120 VAC.

A700-2.6.1 Solar Power

Solar powered signs shall be capable of fully autonomous operation 24 hours per day, 365 days per year. The system shall provide for automatic battery charging, overcharge protection, and have indications that display current status and faults. Solar systems shall be designed to take into account the following factors: Minimum solar radiation available in the geographic region; total power draw for all devices connected to the sign as ordered; local site conditions.

A700-2.6.1.1 Solar Controller and Panel System

The solar controller and panel system shall include: temperature compensation, constant voltage, allowing up to 100 percent capacity, reverse leakage current protection, ambient temperatures from - 40° F to at least 122° F (- 40°C to at least + 50°C), anodized casing or equivalent, and charging indicator. Solar power signs shall have a maximum power draw of 17 watts. Solar controller shall meet all requirements of Underwriters Laboratories UL 1741.

The solar power system should be designed and supplied by the ESFS manufacturer. In the event that the solar power system is not directly provided by the ESFS manufacturer, the Vendor shall be required to obtain Manufacturer approval of the solar system to ensure proper illumination and sign operation as specified. Failure to do so, by the Vendor, shall require the Vendor to upgrade, modify, or exchange the system component(s) at their expense.

A) Solar Controller

The solar controller shall be connected to the solar panels and batteries inside a MDPW QPL approved weatherproof NEMA 3R cabinet enclosure with a natural aluminum finish reflecting sunlight for increased battery life.

A700-2.6 Electrical (Continued)

B) Solar Batteries

- 1) Battery shall be 55AH 12V DC deep cycle solar rated, sealed valve regulated, gelled electrolyte or AGM lead acid battery, and rated as non-spill able suitable for the application and operating environment.
- 2) Flooded lead acid batteries are prohibited.
- 3) Batteries shall be capable of providing ten (10) days of continuous operation without sunlight.
- 4) Battery life shall have a minimum of five (5) years.

C) Solar Array Panel(s)

- 1) Single solar panel with maximum wattage (Pmax) of 50W or higher, industry-standard 12V DC design with tempered glass.
- 2) Frames shall be anodized aluminum and rain tight, with industry-standard cable fittings.
- 3) The power output shall be designed for twenty-five (25) years of usable output and shall be free from defects in materials and workmanship for five (5) years.

D) Solar Array Panel Mounts

- 1) Mounts may be fixed-angle and shall be manufactured from corrosion proof aluminum.
- 2) Fastening hardware shall be Grade 316 Stainless Steel.
- 3) Mounts, if adjustable, shall include similar materials for adjustable leg parts for the solar array pitch angle adjustment.

A700-2.6.2 AC Power

AC powered signs shall be capable of operation from 89 - 135 volts with a frequency of 60 Hz +/- 3. Fluctuations in line voltage, within normal limits shall have no visible effect on the appearance of the luminous intensity of the display. AC power signs shall have a maximum power draw of 20 watts.

A700-2.7 Speed Detector**A700-2.7.1 Programmable Speed Thresholds and Violation Alerts**

The signs shall be programmable for the posted speed limit, violation alert flashing, Slow Down alert, and the minimum and maximum speed to display. The sign will display the driver's speed when the minimum speed threshold is reached. The signs shall detect when the posted speed is exceeded by one mile per hour (1 mph) and then activate the violation alert.

A700-2.7 Speed Detector (Continued)

When the alert is activated, the display shall flash the driver's speed. When the detected speed exceeds the maximum programmed speed (high speed cut-off) threshold, the display shall blank out or display the alert message "SLOW DOWN" until the driver's speed is lower than the message threshold. When no advancing traffic is detected, the display shall be blank. The speed detector shall not activate alerts or display speeds for vehicles outside the display's cone of vision.

A700-2.7.2 Speed Detector FCC and Power Requirements

The speed detector shall not be affected by normal radio transmissions. The signs shall meet the requirements of FCC Part 90. Radar device shall meet specifications for an FCC Part 15 Low Power Device - 24.150 GHz (K-band) and shall not require an operating license. The speed detector *shall operate on 10.8 to 16.6V DC.*

A700-2.7.2 Approach Only Radar

Signs shall monitor and display the speed of approaching traffic only. The detector shall be able to accurately detect and determine the speed of approaching vehicles. The signs shall be able to detect a motorized vehicle 1000 feet in advance of the sign. The radar shall be capable of measuring speeds between 10 and 99 mph with an accuracy of +/- 1 mph.

A700-2.8 Traffic Data Collection and Reporting**A700-2.8.1 Data Capturing and Storage**

Sign shall record and store separate data points for each target (vehicle), which shall include final speed as the target passes the sign and the date and time for each detected target. To prevent individual data points from being lost, the individual data points shall remain available in the sign until the maximum capacity is met or the end-user downloads the data into the PC. The ESFS shall have the capability of capturing vehicle speed data with the display off (stealth mode) to support "before and after" studies.

There shall be an option for circulating data collection which overwrites the oldest data records. ESFS shall have capacity to store data at least thirty-one (31) calendar days with a minimum data capture of 4500 targets (vehicles) per day before overwriting for the maximum traffic volume.

A700-2.8.2 Data Analysis and Reporting

Data collection, reporting, and graphing shall run locally on a desktop PC or a notebook PC without requiring the internet.

A700-2.8 Traffic Data Collection and Reporting (Continued)

Data shall be formatted as a comma separated value (.csv) file in ASCII file format providing access to the raw data and the ability to import into other traffic analysis tools.

Data windowing available with the ability to automatically generate reports with the subset of data; shall have the ability to select a range of dates and times that is less than the total time period for which data is collected.

Reporting software shall be easy to use and charts easy to modify. Automatic reports shall be provided in tabular and graphical analysis of the following data using a personal computer running Microsoft Excel™, and shall report the following information:

- I. Average vehicle speeds;
- II. 85th percentile vehicle speeds;
- III. Three additional percentile vehicle speeds defined by the user
- IV. Percent of conforming vehicles;
- V. Total number of vehicles;
- VI. Moving averages of vehicle speeds with the ability for the user to adjust the number of data points used in calculating the moving average.

A700-2.9 Serviceability***A700-2.9.1 Wireless Diagnostics***

For field support, programmability, data downloads and diagnostics shall be accessible via Bluetooth™ wireless link to a Windows-compatible notebook computer, and shall have the following display diagnostics with the ability to:

- I. Run a test sequence that initiates a display digit roll-up test to verify the ESFS is operating properly;
- II. Ability to measure DC voltage to the system on Solar Powered units;
- III. Validate that data is being collected and radar is operational;
- IV. Display firmware version and update to latest version, when required.

A700-2.9.2 Field Repair and Upgrades

Display alignment shall be easily adjusted, without exchanging internal parts, to work on the center median, left, or right side of the roadway.

Display shall be comprised of modular components that can be exchanged easily in the field without removal of the sign from the mounting pedestal or mast. The following components shall be field replaceable:

A700-2.9 Serviceability (Continued)

- I. Radar unit;
- II. Controller board;
- III. Fuse block(s);
- IV. Communication options such as modems or adapters;
- V. LED Display panels;
- VI. GPS time-reference antenna;
- VII. AC power supply, fuses, internal cabling;
- VIII. For solar power packages, the solar controller, battery and panels

The ESFS shall be upgradeable in the field to add a GPS time-reference antenna and/or to add support remote communication via Ethernet, cell-modem, or other method.

A700-3 Environmental

The electronic display shall meet the environmental requirements as described in Section A615 of FDOT Minimum Specifications for Traffic Control Signals and Devices manual. The display shall be designed and constructed in a manner that prohibits fogging, frost, or condensation from forming within the dynamic portion of the sign.

A700-4 Warranty

The ESFS shall have a manufacturer's warranty covering defects in assembly, fabrication, and materials for five (5) years from date of receipt from manufacturer. In addition, the manufacturer's warranty on the LEDs, comprising the display segments, shall be ten (10) years from date of receipt of the ESFS.

The manufacturer at no charge shall provide replacement components for in-warranty repairs when provided in exchange for the part being replaced. Outbound shipping costs for warranty replacements signs/parts shall be paid for by the manufacturer.

All control software and/or firmware updates shall be available to the County at no additional charge, during the warranty period. Manufacturer shall supply technical telephone support at no extra charge to the County.

A700-5 Certificate of Compliance

For MDPW QPL approval, the Manufacturer shall provide to Miami-Dade County a Certificate of Compliance on company letterhead. The document shall certify that all components of the ESFS fully comply with the specifications and all other requirements as specified herein or have been amended to comply with this specification and will be fully honored, by the Manufacturer.

A700-6 Conflicts and Waiver

In the event the Manufacturer takes an exception to full compliance, it shall be clearly specified in writing, any non-compliance to the specifications and/or requirements. MDPW TSS, at its discretion, has the right to waive in writing, any exception(s) of non-compliance, if in the best interest of the County. Failure by the Manufacturer to note non-compliance(s) shall therefore waive any rights the Manufacturer may have with conformance to the specified requirements, by the County.

A700-7 MDPW QPL Review Process

The Manufacturer shall follow the requirements, as noted on the following pages, for MDPW QPL approval for all ESFS.

A700-7.1 Compliance Requirements and QPL Submittals***A700-7.1.1 Product Samples***

As a requirement for MDPW QPL testing and acceptance portion of the ESFS, the Manufacturer/Vendor shall donate to Miami-Dade County a minimum of two (2) ESFS for testing and field evaluation. The length of the actual field testing portion shall be a minimum of three (3) months from the field turn-on date. Unless the device is deemed unacceptable, by the County, it shall remain the property of MDPW, at no cost to the County. In the event the device is not accepted, it shall be returned to the Manufacturer/Vendor, by the County.

Failure by the Manufacturer to comply with all QPL testing/evaluation requirements shall deem the device not approved for installation/use within the jurisdictional boundaries of Miami-Dade County, Florida.

Additional QPL process information and requirements can be found at:

http://www.miamidade.gov/pubworks/traffic_signals.asp

A700-7.1.2 Shop Drawings

The Manufacturer shall provide complete shop drawings on ESFS sign along with additional drawings showing various mechanical sign support(s) for the installation of both solar power and ac systems for pedestal installations, etc.

A700-7.1.3 Manuals and Schematic Drawings

The Manufacturer shall provide Installation, Operation and Maintenance Manuals along with electrical and electronic schematic drawings, as noted:

- A) Installation Manuals: 2 required
- B) Operation Manuals: 3 required
- C) Maintenance Manuals: 2 required
- D) Schematic Drawings: 2 required

A700-7.1 Compliance Requirements and Submittals (Continued)

A700-7.1.4 Parts List with Pricing

The Manufacturer shall supply a complete list of parts for the ESFS along with a current pricelist for said parts.

A700-7.1.5 Warranty Documentation

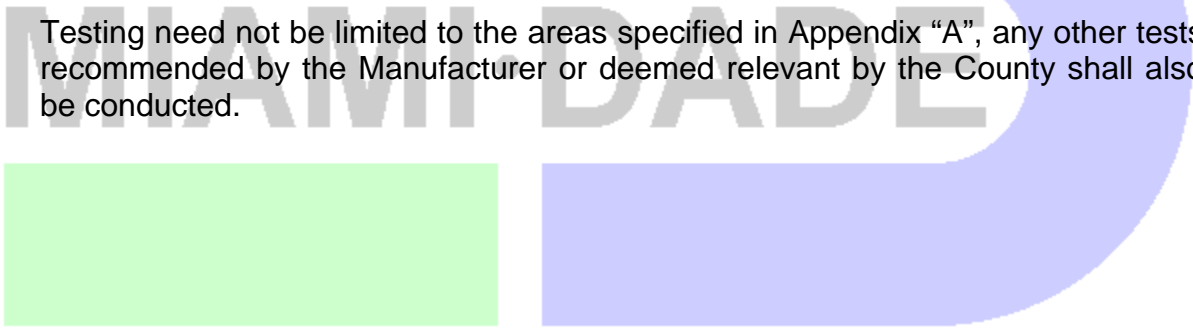
The Manufacturer shall submit complete product warranty information.

A700-7.2 Product Testing and Specification Verification

The ESFS shall be tested and evaluated at the County's Public Works Department, Traffic Signals & Signs Division Electronic Shop, 7100 NW 36 Street Extension, Miami, Florida 33166.

The two (2) product samples provided by the Manufacturer, in addition with any in-house equipment tests conducted by the County, shall require field site installation, operation, data and scheduling functional testing along with specification verification. This shall require a qualified representative of the sign Manufacturer/Vendor to be present along with various County TSS and TED staff. A mutually agreed date and time shall be scheduled between all parties involved.

Testing need not be limited to the areas specified in Appendix "A", any other tests recommended by the Manufacturer or deemed relevant by the County shall also be conducted.



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APPENDIX "A"

Product Testing and Specification Verification

The Manufacturer/Vendor shall conduct and/or demonstrate with Miami-Dade County the following field tests and/or operations for verification and conformance with the specification:

Sign Operation		
	Feature	Verification
1)	Real-Time Connection	Demonstrate the real-time wireless connection to the ESFS.
2)	Test Sequence Display	Run a test sequence that will initiate a display digit roll-up test to verify that the device is operating properly.
3)	Vehicle Detection	Demonstrate that the ESFS is set to detect only approaching traffic
4)	Instant "ON"	Demonstrate that the display will activate within Perception-Response Time (PRT) per MUTCD Table 2C-4. Guidelines for Advance Placement of Warning Signs to allow motorists to see and react to the ESFS.
5)	Minimum Display Speed	Demonstrate that the ESFS will begin displaying the speed once the driver speed reaches this threshold
6)	Violation Alert	<p>A. Demonstrate that the display will "flash" the driver's speed once the radar detects the pre-set violation alert speed threshold;</p> <p>B. Demonstrate that the display will "flash" the "SLOW DOWN" message once the radar detects the pre-set Slow Down speed threshold;</p> <p>C. Demonstrate that the display will "blank-out" or display "SLOW DOWN" message once the radar detects the pre-set high speed threshold.</p>
7)	Visibility	Demonstrate that the ESFS will be fully visible in all lighting conditions; and that the display will have high contrast and visibility.

Sign Scheduling		
	Feature	Verification
1)	Schedule creation	Demonstrate the ability to set up sign schedules while disconnected from sign.
2)	Creating operating modes	Demonstrate the ability to support at least twenty (20) unique operating modes. A. Display "On" and "Off" control; B. Stealth mode (data collection "On", display "Off"); C. At least five (5) modes with unique school and non-school speed limits, minimum display, violation alert, Slow Down alert and high-speed cut-off speed thresholds, "On/Off" times, and data collection times.
3)	Daily schedule	Demonstrate the ability to support at least sixteen (16) sign operating mode changes per day.
4)	Weekly Schedule	Demonstrate the ability to support at least five (5) weekly schedules with different operating schedules for each day of the week.
5)	Exception Days	Demonstrate the ability to support planned and unplanned events by date and time to support special events, construction zones, and in the case of school zones, non-school days, early release days, and holidays.
6)	Yearly Schedule	A. Demonstrate the ability to support at least five (5) unique annual school schedules; B. Demonstrate the ability to support two (2) year schedules for non-school applications.
7)	Miami-Dade County School schedules	Demonstrate the ability to support operating schedules for existing and planned school schedules in Miami-Dade County and planned events in non-school installations.
8)	Future Capacity	Explain how the sign features and functionality will be capable of handling up to 500 unique schedules.
9)	Ease of schedule creation	Demonstrate the ability to create new schedule and schedule components by copying and editing existing modes and daily, weekly, and annual and two (2) year schedules.
10)	Sign Scheduling	A. Demonstrate that schedules are easily transferrable between notebooks to support field operations and support; B. Demonstrate the ease of updating sign schedules in the field.

Data Collection Verification and Analysis		
	Feature	Verification
1)	Data Collection	Verify data is being collected as programmed and collects the date, time, and speed of each target vehicle.
2)	Data Storage	Verify data storage will support a minimum of 4500 target vehicles per day for thirty-one (31) calendar days.
3)	Data Retrieval	Demonstrate downloading data to notebook PC.
4)	Data Management	A. Demonstrate the option of clearing or saving data currently in the ESFS; B. Demonstrate the ability to utilize circular data collection as well as keeping data once the memory is full.
5)	Data Accessibility	Show that the data is available in .csv format on the PC.
6)	Data Analysis & Reporting	Demonstrate the traffic data analysis and reporting capabilities of the software.
7)	Data Windowing	Demonstrate the ability to select, analyze, and report a subset of the data.

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Sign Set-up and Operation		
	Feature	Verification
1)	Sign Set-up	Demonstrate Sign Set-up: A. Date and time-of-day; B. Real- time clock correction factor; C. User-selectable alpha-numeric identification code of at least twenty-two (22) characters to allow unique identification of each sign location; D. Wireless programming of sign operating schedule.
2)	Display Activation	Demonstrate that the display does not display vehicles traveling less than the minimum display speed threshold.
3)	Violation and Slow Down Message Alert	A. Demonstrate that the display digits will “flash” while displaying a speed which is in excess of a pre-set speed threshold to assist in getting the attention of the speeding driver; B. Demonstrate that the “SLOW DOWN” message will display at a preset speed threshold that is higher than the speed threshold set for flashing the display and will alternate with the driver’s speed.
4)	High-Speed Cut-off	Demonstrate that the driver’s speed will no longer display once the high-speed cut-off speed is reached.
5)	External Device(s) Control	A. Demonstrate that the display can operate up to two (2) external devices to trigger at different speed thresholds or be controlled by time-of-day to support integration of external flashers or other devices; B. Demonstrate powering of up to two (2) AC or DC devices or flashers upon speed threshold or schedule; C. Show that external contact-closure input can switch between two (2) programmed speed thresholds if scheduling function is not used; D. Show that external devices can be enabled to operate either in: unison; alternating with each other; or flashing in synchronization, with the violation alert condition.

Wireless and Remote Communication		
	Feature	Verification
1)	Communication	Demonstrate the ability to connect to the ESFS at the install site and from a remote office location and perform sign set up, diagnostics, and programming functions.

