

# City of Lakeland

## Minimum Requirements for Traffic Sign

\*NOTE: all equipment cut sheets **MUST** be approved by the City of Lakeland Traffic Operations.

### **Sign Specifications**

1. All signs must meet the MUTCD and mounted in accordance with the MUTCD. Minimum mounting height for primary sign will be 7'.
2. Round poles for mounting signs are **NOT** allowed.
3. Single faced signs are allowed to be mounted on U-channel 12 gauge hot dipped galvanized steel post 2 # per foot. Each pole will have 7/16" holes drilled at 1" spacing for the entire length of the pole. Minimum length of sign post will be 12'. Poles will be installed with a minimum of 3' embedded in the ground.
4. All street name signs will be mounted on square 2" pre-punched 12 gauge galvanized steel post, 2 # per foot. Poles will be drilled with 7/16" holes spaced on 1" centers for the entire length of the pole. If the street name is mounted in combo with a STOP or YIELD then these will be considered the primary sign and the minimum height to the bottom of the STOP or YIELD will be 7'. All square post shall have a pyramid cap attached to the top of post. Minimum length of sign post will be 12'. Poles will be installed with a minimum of 3' embedded in the ground.
5. All street name sign blanks will be punched with a 7/32 hole centered 1" from edge vertically and a 3/8 hole punched centered horizontally. (All sign blanks must be punched with holes that match whole number spacing by 1").
6. All square blanks must be horizontally and diagonally punched with a 3/8 hole (All sign blanks must be punched with holes that match whole number spacing by 1").
7. All sign blanks must have edges de-burred.
8. All sign blanks must be punched with holes that match whole number spacing by 1".
9. Street sign assemblies will be fabricated with aluminum alloy 5052-H38 with a standard thickness of 0.080 inches, and nine inches (9") high in various lengths with 3/4" radius corners.
10. Sign blanks with a thickness of 0.063 inches will be accepted with prior approval of the City of Lakeland.
11. Signs are NOT allowed to be attached to sign post using rivets.
12. There shall not be more than 3 signs attached to one post.
13. Minimum size for STOP or YIELD shall be 30" but must be proper size for rated speed.
14. All mounting hardware shall be stainless steel.
15. Signs shall not be allowed to overlap other signs.
16. Sign post are not to be poured into concrete curb or sidewalk. 4" PVC or aluminum sleeve **MUST** be used for sign. (Refer to Appendix A)
17. All signs installed within the CBD must have back of sign black and mounted on black, powder coated 2" sign post with black pyramid cap.

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18. **Any substitutes must be accepted by the City of Lakeland Traffic Operations prior to ordering.**

**All materials must be accepted from the FDOT Approved Products List (APL), or be pre-approved by the City of Lakeland in writing.**

### **Fabrication Specifications for Street Name Signs**

**All ground mounted street name sign assemblies shall be fabricated using the following material:**

1. Street Sign assemblies will be fabricated with aluminum alloy 5052-H38 with a standard thickness of 0.080 inches, and nine inches (9") high in various lengths with 3/4" radius corners.
2. Sign blanks with a thickness of 0.063 inches will be accepted with prior approval of the City of Lakeland.
3. A Green and White sign, ASTM D4956 Type 1 (EG) is the minimum material that will meet FHWA requirements for the green background. For ground-mounted signs, ASTM D4956 Type II is the minimum material that will meet the proposed requirement for the white legend. For overhead signs, ASTM D4959 Type III prismatic is the minimum material that will meet the proposed requirements for the white legend.
4. Lettering on street name signs shall be six inches (6"), highway font B text. Supplementary lettering to indicate the type of street (such as St, Av, Rd, etc.) or prefix (such as N, S, E, W) shall be in smaller lettering of four inches (4") in height. All signs shall have the City of Lakeland logo (swan). Block number shall be highway font C. A diagram showing dimensions, layout, spacing, etc. is shown in appendix.
5. CITY STREETS WILL BE GREEN BACK GROUND WITH WHITE TEXT.
6. PRIVATE STREETS WILL BE WHITE BACK GROUND WITH GREEN TEXT.
7. One street name assembly will consist 2 separate sign blanks with text on one side each per street, (one street name is two blanks).
8. Each sign shall be identically faced on each side of aluminum blank.
9. Block number must be reversed on opposite side.

**Refer to Appendix A for sign detail.**

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### Prefix and Suffix

- City of Lakeland street signage will include a swan design. (See Details Sheet)
- Suffixes shall be abbreviated as follows:

#### FULL SUFFIX

#### ABBREVIATED

Alley.....	ALY
Avenue.....	AV
Boulevard.....	BLVD
Circle.....	Cir
Court.....	CT
Cove.....	CV
Crescent.....	CS
Drive.....	DR
Heights.....	Hgts
Highway.....	Hwy
Lane.....	Lane
Loop.....	Loop
Mobile Home Park.....	MHP
Park.....	Park
Parkway.....	Pkwy
Path.....	Path
Place.....	PLZ
Plaza.....	PA
Point.....	POINT
Road.....	RD
Run.....	RUN
Square.....	Square
Street.....	ST
Terrace.....	Ter
Trace.....	Tr.
Trail.....	Trl.
Way.....	Way
Walk.....	Walk

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### **Over Head Illuminated Street Name Signs**

#### **GENERAL-refer to Appendix B**

Street name guide signs for most streets that intersect with a road on the State Highway System are normally furnished, installed, and maintained by the appropriate local government. However, at signalized intersections on the State Highway System, larger overhead street name signs should be used. These signs may be furnished and installed, by the Department.

#### **STANDARDS**

1. Street name signs shall only be used to identify cross streets. They are not intended to identify destinations such as cities or facilities.
2. The word Street, Boulevard, Avenue, etc., may be abbreviated or deleted to conserve sign panel length. However, if confusion would result due to similar street names in the area, for example Seminole Street and Seminole Avenue, this deletion should not be made.
3. When a cross street is known by both route number and a local name, use of the local name is preferred on the overhead street name signs since the route number is identified on route markers along the route.
4. When a cross street has dual local street name designations, for example N.W. 31 Avenue and Martin Luther King Jr. Boulevard, both names may be used on the overhead street name signs. However, the Department is responsible for the primary designation (i.e., name shown on the Official Florida Transportation Map). If a secondary designation is approved by local resolution, the local government shall be responsible for the installation of this secondary designation.
5. When a cross street has a different name on each side of the intersection, both names shall be shown on the overhead street name sign, two signs should be used with one on the left and one on the right side of the intersection. In some instances, the type of signal span design may dictate the need for the use of a single sign with both names. When used, the names should be separated and accompanied by directional arrows, with the left name displayed over the right.  
Overhead Street Name Signs 2-2-1  
Topic No. 750-000-005 March 1999  
Traffic Engineering Manual Revised: April 2007
6. The display of block numbers is not required when two street names with arrows are provided on a single panel.
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### **Illuminated Street Name Sign**

#### **1. SIGN HOUSING**

- UL 48 Listed Sign Assembly – Electric Sign
- Sticker with manufactured name, date of manufacture, input voltage, and input amperage adhered next to the UL sticker – Required by UL
- Continuously welded 5052-H32 aluminum sign housing assembly
- Sign body is a box type enclosure with 0.25" drain holes, and separate hinged door assembly
- All surfaces are powder coated – Interior is white and exterior is black
- UL listed foam gasket installed, continuously, along sign body to prevent water from entering sign
- Stainless steel hinge mounted the entire length of opening
- Stainless steel hinge mounted the entire length of opening
- Stainless steel latching assembly for sign door
- All hardware must be stainless steel (Cable Type)

#### **2. SIGN FACE**

- 0.125" White polycarbonate sign face that meets UL 48
- 3M EC Green Film pressure rolled on
- 3M Double sided tape bonds sign face to door while open

#### **3. ELECTRICAL**

- All electrical wiring is stranded copper wire - #18 AWG 600 volts at 103°C
- Signs are to be wired to a separate 15 amp circuit breaker at the electrical service.
- Photo cells for the overhead illuminated signs will be installed at the electrical service.
- All wire connections made with compression wire nuts

#### **4. OVERHEAD SIGN DETAILS**

- Sign frame 5052-H32 aluminum .090
- LED (Light Emitting Diode) (Back lit)
- Continuous stainless steel hinge
- Stainless steel latches
- Sign panel .125 white polycarbonate
- Powder coat - Customer selected
- Legend - Green 3M EC film
- Mounting - PELCO Astro bracket, on-mast arm or under mast arm, as required
- Photocell
- Size
  - Sign
    - 20" high x 72" long x 6" deep
    - 1" border to provide an 18" view
  - Lettering
    - Street name - 8" EMOD/HLM, SHX
    - Suffix – 4"
    - Block Number – 3"

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### **Additional Notes**

1. In business, commercial or residential districts where parking and/or pedestrian movement is likely, the clearance to the bottom of a sign shall be at least seven (7) feet.
2. Lateral clearance for regulatory and warning signs or small directional signs should be six (6) to twelve (12) feet from the edge of the pavement or traveled way in rural areas; signs are generally mounted alongside the roadway in the space between the curb and the sidewalk. Two (2) feet is recommended as a working urban minimum.
  - o STANDARD SIZES OF SIGNS
  - o STOP: 30" (OCTAGON)
  - o YIELD: 36" (EQUILATERAL TRIANGLE)
  - o NO TURN (SYMBOL): 24" X 24" (SQUARE)
  - o DO NOT ENTER: 30" X 30" (SQUARE)
  - o REGULATORY (SPEED LIMIT, KEEP RIGHT): 24" X 30" (RECTANGLE)
  - o WARNING (RIGHT OR LEFT CURVE, NO OUTLET...): 30" X 30" OR 36" X 36" (DIAMOND)
  - o STREET NAME: 6" HIGH WITH 1/4" HIGH LETTERING (RECTANGLE)
  - o HANDICAPPED PARKING: 12" X 18"
  - o ALL HC PARKING SIGNAGE MUST HAVE SUPPLEMENTAL FINE

### **Maintaining Minimum Retro reflectivity**

Replace the previous title and parenthetical note that reserved this section for future rulemaking with the title shown above and the text shown below:

Support:

Retro reflectivity is one of several factors associated with maintaining nighttime sign visibility (see Section 2A.22).

**Standard:**

**Public agencies or officials having jurisdiction shall use an assessment or management method that is designed to maintain sign retro reflectivity at or above the minimum levels in Table 2A-3.**

Support:

Compliance with the above Standard is achieved by having a method in place and using the method to maintain the minimum levels established in Table 2A-3. Provided that an assessment or management method is being used, an agency or official having jurisdiction would be in compliance with the above

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Standard even if there are some individual signs that do not meet the minimum retro reflectivity levels at a particular point in time.

Guidance:

Except for those signs specifically identified in the Option in this Section, one or more of the following assessment or management methods should be used to maintain sign retro reflectivity:

- A. Visual Nighttime Inspection – The retro reflectivity of an existing sign is assessed by a trained sign inspector conducting a visual inspection from a moving vehicle during nighttime conditions. Signs that are visually identified by the inspector to have retro reflectivity below the minimum levels should be replaced.
- B. Measured Sign Retro reflectivity – Sign retro reflectivity is measured using a retroreflectometer. Signs with retro reflectivity below the minimum levels should be replaced.
- C. Expected Sign Life – When signs are installed, the installation date is labeled or recorded so that the age of a sign is known. The age of the sign is compared to the expected sign life. The expected sign life is based on the experience of sign retro reflectivity degradation in a geographic area compared to the minimum levels. Signs older than the expected life should be replaced.
- D. Blanket Replacement – All signs in an area/corridor, or of a given type, should be replaced at specified intervals. This eliminates the need to assess retro reflectivity or track the life of individual signs. The replacement interval is based on the expected sign life, compared to the minimum levels, for the shortest-life material used on the affected signs.
- E. Control Signs – Replacement of signs in the field is based on the performance of a sample of control signs. The control signs might be a small sample located in a maintenance yard or a sample of signs in the field. The control signs are monitored to determine the end of retro reflective life for the associated signs. All field signs represented by the control sample should be replaced before the retro reflectivity levels of the control sample reach the minimum levels.
- F. Other Methods – Other methods developed based on engineering studies can be used.

Support:

Additional information about these methods is contained in the 2007 Edition of FHWA's "Maintaining Traffic Sign Retro reflectivity" (see Section 1A.11).

### ***Minimum Maintained Retro reflectivity Levels***

Minimum Maintained Retro reflectivity Levels <sup>1</sup>					
Sign Color	Sheeting Type (ASTM D4956-04)				Additional Criteria
	Beaded Sheeting			Prismatic Sheeting	
	I	II	III	III, IV, VI, VII, VIII, IX, X	
White on Green	W*; G ≥ 7	W*; G ≥ 15	W*; G ≥ 25	W ≥ 250; G ≥ 25	Overhead
	W*; G ≥ 7	W ≥ 120; G ≥ 15			Ground-mounted
Black on	Y*; O*	Y ≥ 50; O ≥ 50			2

<sup>1</sup> REV. 01/14/2015

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Yellow or Black on Orange	Y*; O*	Y ≥ 75; O ≥ 75	3
White on Red	W ≥ 35; R ≥ 7		4
Black on White	W ≥ 50		—
<div>1. The minimum maintained retro reflectivity levels shown in this table are in units of cd/lx/m2 measured at an observation angle of 0.2° and an entrance angle of -4.0°.</div> <div>2. For text and fine symbol signs measuring at least 1200 mm (48 in) and for all sizes of bold symbol signs</div> <div>3. For text and fine symbol signs measuring less than 1200 mm (48 in)</div> <div>4. Minimum Sign Contrast Ratio ≥ 3:1 (white retro reflectivity ÷ red retro reflectivity)</div> <div>* This sheeting type should not be used for this color for this application.</div>			
Bold Symbol Signs			
<div><div>• W1-1, -2 – Turn and Curve</div><div>• W1-3, -4 – Reverse Turn and Curve</div><div>• W1-5 – Winding Road</div><div>• W1-6, -7 – Large Arrow</div><div>• W1-8 – Chevron</div><div>• W1-10 – Intersection in Curve</div><div>• W1-11 – Hairpin Curve</div><div>• W1-15 – 270 Degree Loop</div><div>• W2-1 – Cross Road</div><div>• W2-2, -3 – Side Road</div><div>• W2-4, -5 – T and Y Intersection</div><div>• W2-6 – Circular Intersection</div></div>	<div><div>• W3-1 – Stop Ahead</div><div>• W3-2 – Yield Ahead</div><div>• W3-3 – Signal Ahead</div><div>• W4-1 – Merge</div><div>• W4-2 – Lane Ends</div><div>• W4-3 – Added Lane</div><div>• W4-5 – Entering Roadway Merge</div><div>• W4-6 – Entering Roadway Added Lane</div><div>• W6-1, -2 – Divided Highway Begins and Ends</div><div>• W6-3 – Two-Way Traffic</div><div>• W10-1, -2, -3, -4, -11, -12 – Highway-Railroad Advance Warning</div></div>	<div><div>• W11-2 – Pedestrian Crossing</div><div>• W11-3 – Deer Crossing</div><div>• W11-4 – Cattle Crossing</div><div>• W11-5 – Farm Equipment</div><div>• W11-6 – Snowmobile Crossing</div><div>• W11-7 – Equestrian Crossing</div><div>• W11-8 – Fire Station</div><div>• W11-10 – Truck Crossing</div><div>• W12-1 – Double Arrow</div><div>• W16-5p, -6p, -7p – Pointing Arrow Plaques</div><div>• W20-7a – Flagger</div><div>• W21-1a – Worker</div></div>	
Fine Symbol Signs – Symbol signs not listed as Bold Symbol Signs.			
Special Cases			



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- W3-1 – Stop Ahead: Red retro reflectivity  $\geq 7$
- W3-2 – Yield Ahead: Red retro reflectivity  $\geq 7$ ; White retro reflectivity  $\geq 35$
- W3-3 – Signal Ahead: Red retro reflectivity  $\geq 7$ ; Green retro reflectivity  $\geq 7$
- W3-5 – Speed Reduction: White retro reflectivity  $\geq 50$
- For non-diamond shaped signs such W14-3 (No Passing Zone), W4-4p (Cross Traffic Does Not Stop), or W13-1, -2, -3, -5 (Speed Advisory Plaques), use largest sign dimension to determine proper minimum retro reflectivity level.

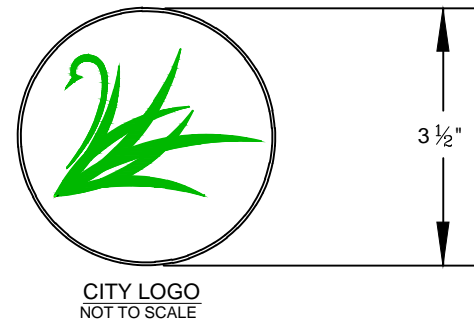
FABRICATION SPECIFICATIONS

Sign assemblies shall be fabricated using the following materials:

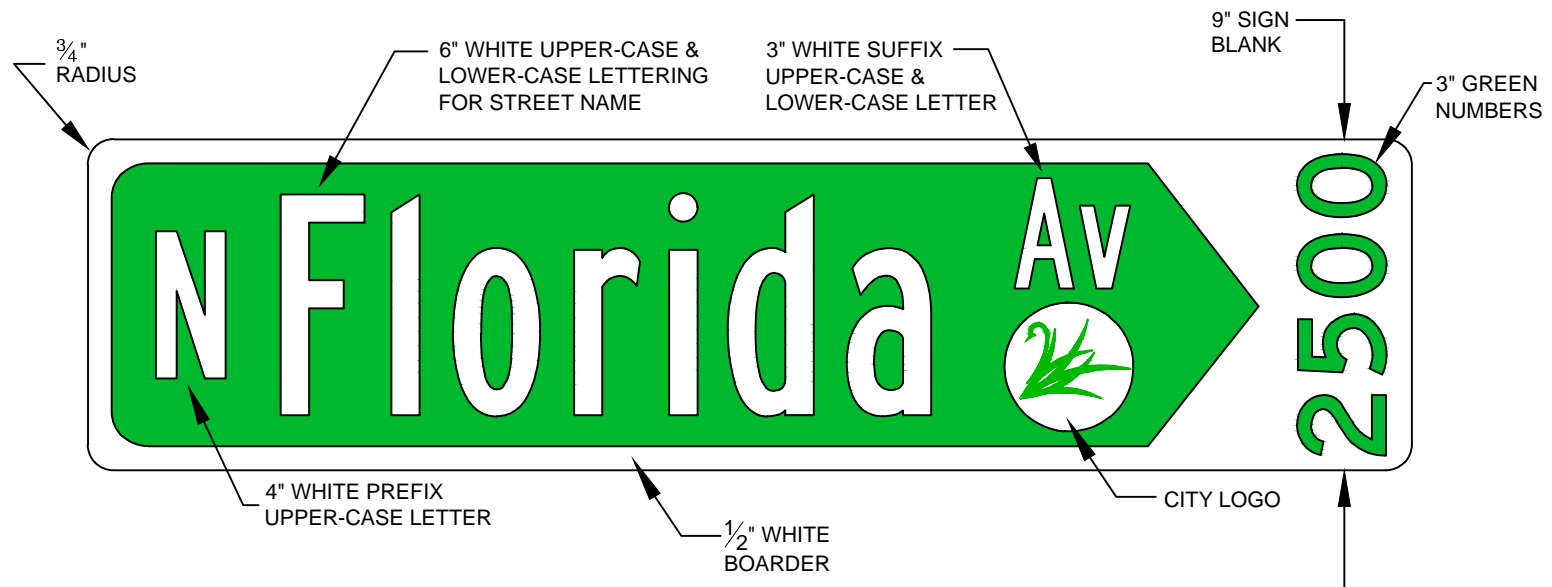
- Sign assemblies will be fabricated with aluminum alloy 5052-H38 with a standard thickness of .080 inches, and nine inches (9") high by various lengths with 3/4" radius corners.
- Prismatic Sheeting "White"
- Green ATSM EC 177

Lettering on street name signs shall be six inches (6") high in upper & lower case letters. Supplementary lettering to indicate the type of street (such as St, Av, Rd, etc.) shall be in smaller lettering of three inches (3") in height. Prefix lettering (such as N, S, E, W) shall be in smaller lettering of four inches (4") in height. All signs shall have the City of Lakeland logo (swan). All lettering shall be upper & lower case highway font B. Block number shall be highway font C. A diagram showing dimensions, layout, spacing, etc. is shown at right.

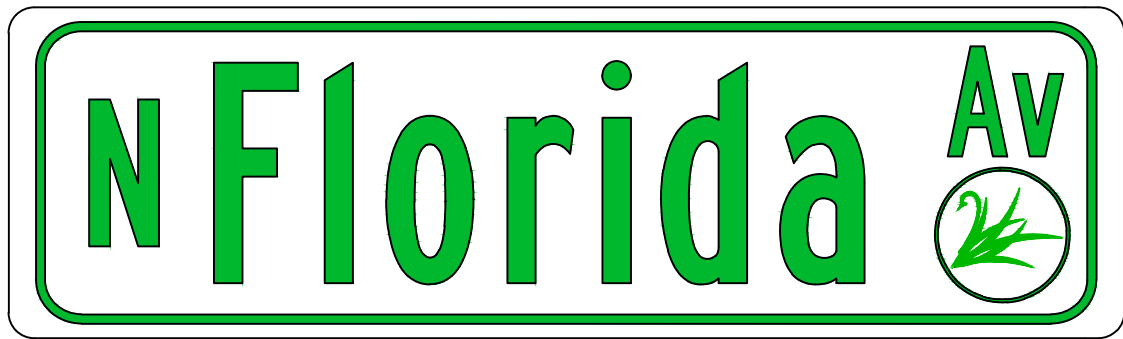
For questions regarding specifications please contact:  
CITY OF LAKELAND  
TRAFFIC OPERATIONS  
863.834.3490



NOTE:  
CITY STREETS WILL BE GREEN BACK GROUND WITH WHITE TEXT.  
PRIVATE STREETS WILL BE WHITE BACK GROUND WITH GREEN TEXT WITH NO BLOCK NUMBERS.



ARROW NEEDS TO BE REVERSED  
ON MATCHING SIGN



PRIVATE STREET MARKER



CITY OF LAKELAND  
PUBLIC WORKS DEPARTMENT, TRAFFIC DIVISION  
834 EAST ROSE STREET, LAKELAND, FL 33801  
PROJECT NAME: Street Marker Detail Sheet  
PROJECT NO:

FILENAME:  
City Street Marker Detail 2014  
DRAWN BY:  
R Grube  
DATE:  
October 2nd, 2014  
SCALE:  
Not to Scale

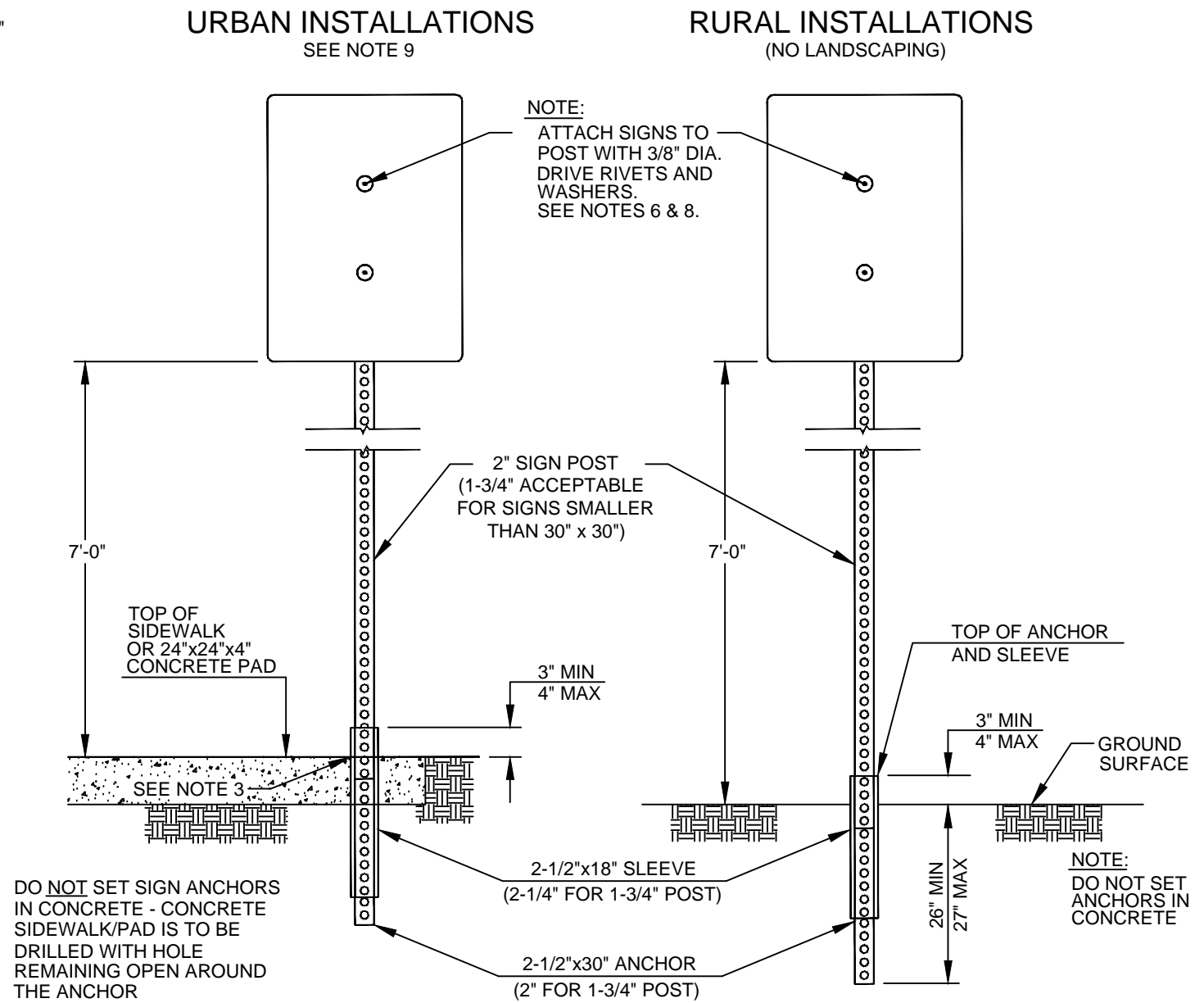
FDOT Advanced MOT Certification  
Rick G. Grube  
Traffic System Operator  
Certification: TPA-MOT-23921  
Expiration Date: 1/24/2017

THESE PLANS HAVE BEEN PREPARED UNDER MY DIRECT SUPERVISION AS AN EMPLOYEE OF THE CITY OF LAKELAND. PLANS MUST BE STAMPED "APPROVED FOR CONSTRUCTION" AND MUST BE SIGNED AND SEALED TO BE CONSIDERED FINAL. ALL PLANS NOT STAMPED, SIGNED AND SEALED ARE PRELIMINARY.  
DAVID URIA, P.E. 43556

DESCRIPTION		DATE	BY
SHEET NO.			
1			

NOTES:

1. ATTACH ANCHOR AND SLEEVE TOGETHER PRIOR TO DRIVING INTO GROUND. LEAVE AT LEAST TWO HOLES, BUT NO MORE THAN THREE HOLES ABOVE GROUND OR ABOVE SIDEWALK.
2. FOR SIDEWALK INSTALLATION, DRILL SIDEWALK AND CONCRETE PAD INSTALLATION, DRILL A 3" TO 4" DIA. HOLE (DEPENDENT UPON ANCHOR SIZE), THE CENTER TO BE 6" FROM THE BACK OF SIDEWALK.
3. ATTACH POST TO ANCHORING SYSTEM BY USING AT LEAST TWO 3/8" DIA. DRIVE RIVETS.
4. PROVIDE 4" MINIMUM LAP BETWEEN BOTTOM OF POST AND THE BOTTOM OF THE ANCHOR/SLEEVE ASSEMBLY.
5. SIGNS LARGER THAN 24"x30" REQUIRE 3/8" x 1-1/2" FENDER WASHERS UNDER DRIVE RIVETS.
6. "U-CHANNEL" POSTS ARE NOT ACCEPTABLE.
7. ALL URBAN SIGN INSTALLATIONS ARE TO BE INSTALLED IN A CONCRETE SIDEWALK, OR IN A CONCRETE PAD (24"x24"x4") WHEN NO SIDEWALK EXISTS.
8. INSTALLATION OF SIGNS SHALL MEET LATEST ADA REQUIREMENTS.
9. SIGNS SHALL HAVE A STICKER AT THE BACK WITH THE NAME OF THE CONTRACTOR AND THE DATE OF INSTALLATION.



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DAVID URIA, P.E. 43356

FDOT Advanced MOT Certification  
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Expiration Date: 1/24/2017

	
CITY OF LAKELAND PUBLIC WORKS DEPARTMENT, TRAFFIC DIVISION 834 EAST ROSE STREET, LAKELAND, FL 33801	
PROJECT NAME: Sign Installation Detail Sheet PROJECT NO:	
FILENAME: City Street Marker Detail 2014	
DRAWN BY: R Grube	
DATE: October 2nd, 2014	
SCALE: Not to Scale	
DATE	DESCRIPTION
BY	
DATE	DESCRIPTION
BY	
SHEET NO.	
1	