

ROAD LIGHTING, SIGNAGE & STRIPING POLICY

Sec. 1. - Introduction

- (a) *Short title.* This chapter shall be known and may be cited as "The TexAmericas Center Lighting, Signage & Striping Policy." This chapter may also be cited as the "The TAC Lighting, Signage & Striping Policy." or the "The Lighting, Signage & Striping Policy."
- (b) *The Texas Manual on Uniform Traffic Control Devices, Revision 2, October 2014 (TMUTCD) adopted.*
- (c) *Minimum standards.* The requirements of these regulations are minimum permissible standards; and it is expected that TAC, developers and the respective decision-making authority will normally strive for elements which will exceed these minimum requirements.

Sec. 2. - Purpose

The regulations as herein established have been made for the purpose of promoting the health, safety, morals and general welfare of TexAmericas Center (TAC). They have been prepared to provide requirements and guidance for street lighting, street regulatory signage, warning signage, guide signage and street striping, to facilitate the adequate provision of transportation.

Sec. 3 - Street Lights

TAC recognizes that adequate illumination of the roads on the different campuses is important for activity on the property and safety for tenants. TAC shall make suitable arrangements with the responsible electric utility company to provide adequate electric power service facilities to the location of proposed streetlights. Adequate electric power service is defined as secondary power service lines from a transformer to a point within the street right-of-way. The location of the streetlights shall be approved by TAC. Actual installation and operation of streetlight fixtures and appurtenances shall be accomplished at the appropriate time by TAC under its working agreements with the electric company.

TAC may elect to utilize a street light consisting of a pole and fixture of its own choosing rather than utilizing the pole and fixture of the responsible utility company. All costs associated with the utilization of a street light other than from the responsible utility company will be the responsibility of TAC. Metal pole street lighting must meet the following requirements for materials and design and is subject to approval by the Executive Director of TAC or his designee.

- Pole shafts shall be black in color, six inches (6") square and conform to ASTM-500 Grade B with a minimum yield strength of 46,000 PSI;
- Poles are to have an EPA rating of 9.0 with 80 miles per hour winds and a 1.3 gust factor. Length of shaft to be 39 feet;
- Poles shall have a three-inch by five-inch hand hole located near the base with a welded ground lug opposite the hand hole;
- Poles are to be drilled for direct mounting of the fixture and shall be painted dark bronze to match the fixture;
- Poles are to have a 12³/₄-inch bolt circle in the base plate;
- Breakaway transformer bases are to be supplied, painted to match the pole and fixture;
- Breakaway transformer bases are to have top and bottom bolt circles of 12³/₄-inch with one-inch diameter bolts and are to be equipped with a hinged access door;
- Light fixtures shall use 250-watt lighted emitting diode (LED) bulb;
- Light fixtures shall be for 480 line voltage;

- Street light conduit shall be one inch (1") minimum Schedule 40 PVC with #6 wire. Contractor responsible for design to upsize conduit and conductors to have a minimum of a 3% voltage drop at the end of a run
- Light fixtures shall have a flat clear tempered glass and a forward throw projection;
- Light fixtures to have a radiused top and rectangular shaped housing;
- Light fixtures to have a mounting arm length of four inches;
- Power conductors to be engineered or designed by a licensed electrician;
- Power conductors to be installed underground in electrical conduit and shall meet all applicable codes. Conduit to be buried a minimum of twenty-four inches (24") below finished grade;
- Each fixture to be fused with breakaway fuse holders located in the breakaway transformer bases;
- The installation will be subject to a one-year maintenance responsibility for defective materials and/or workmanship.

Sec. 4 - Street Name Signs

Street name signs shall be installed at all intersections of all recognized/dedicated streets with the following characteristics:

- Street name signs shall be six inch (6") tall flat aluminum;
- The TexAmericas Center Logo will be affixed to the left edge;
- The street name shall be left justified within one inch (1") of the TAC logo, with block numbers located in the upper right-hand corner;
- Abbreviated street designations shall be located in the lower right-hand corner and right-justified;
- The lettering of the street name shall be Clear View 2W, four inches (4") tall and upper/lower case;
- Letters of abbreviated street designations shall be three inches (2") tall and all uppercase (i.e...LN, PKWY, DR, CT, etc.). Block numbers shall be 2" tall;
- Sign sheeting shall be diamond grade intensity. Signs designating a recognized/dedicated street shall have a white background with blue text;
- Where an intersection leads to a cul-de-sac, a standard W14-2a sign (per TMUTCD) shall be mounted over the street name sign. Where an intersection leads to two cul-de-sacs, two standard W14-2a signs shall be mounted over the street name sign in the appropriate directions. The words "NO OUTLET" on a yellow background can be incorporated into the appropriate end of the street name sign in lieu of a W14-2a sign if such use will not create an excessive length street name sign;
- Block numbers are required on all street name signs, even if no homes or buildings front onto the street.

Sec. 5 – Function and Purpose of Signs

This ordinance contains Standards, Guidance, and Options for recognized/dedicated streets open to public travel. The functions of signs are to provide regulations, warnings, and guidance information for road users. Words, symbols, and arrows are used to convey the messages. Signs are not typically used to confirm rules of the road.

Signs shall be defined by their function as follows:

- A. Regulatory Signs – signs that give notice of traffic laws or regulations;
- B. Warning Signs – Signs that give notice of a situation that might not be readily apparent;

- C. Guide Signs – Signs that show route designations, destinations, directions, distances, services, points of interest and other geographical information.

Signs should be used only where justified by engineering judgment or studies. Results from traffic engineering studies of physical and traffic factors should indicate the locations where signs are deemed necessary or desirable. Roadway geometric design and sign application should be coordinated so that signing can be effectively placed to give the road user any necessary regulatory, warning, guidance, and other information.

Each standard sign shall be displayed only for the specific purpose as prescribed in this ordinance. Determination of particular signs to be applied to a specific condition shall be made in accordance with the provisions set forth in the TUMTCD. Before any new road, detour, or temporary route is opened to public travel, all necessary signs shall be in place. Signs required by road conditions or restrictions shall be removed when those conditions cease to exist or the restrictions are withdrawn.

Regulatory and warning signs should be used conservatively because these signs, if used to excess, tend to lose their effectiveness. If used, route signs and directional guide signs should be used frequently because their use promotes efficient operations by keeping road users informed of their location.

The general appearance of the legend, color, and size of signs shall be in accordance to the TMUTCD.

The basic requirements of a sign are that it be legible to those for whom it is intended and that it be understandable in time to permit a proper response. Desirable attributes include:

- A. High visibility by day and night;
- B. High legibility (adequately sized letters, symbols, or arrows, and a short legend for quick comprehension by a road user approaching a sign);
- C. Standardized colors and shapes are specified so that the several classes of traffic signs can be promptly recognized. Simplicity and uniformity in design, position, and application are important;
- D. Uniformity in design shall include shape, color, dimensions, legends, borders, and illumination or retroreflectivity;
- E. Standardization of these designs does not preclude further improvement by minor changes in the proportion or orientation of symbols, width of borders, or layout of word messages, but all shapes and colors shall be as indicated;
- F. All symbols shall be unmistakably similar to, or mirror images of, the adopted symbol signs, all of which are shown in the TMUTCD. Symbols and colors shall not be modified unless otherwise provided in this Ordinance;
- G. Although the standard design of symbol signs cannot be modified, the orientation of the symbol may be changed to better reflect the direction of travel, if appropriate.

Where a standard word message is applicable, the wording shall be as provided in the TMUTCD. In situations where word messages are required other than those provided in the TMUTCD, the signs shall be of the same shape and color as standard signs of the same functional type.

TAC may develop special word message signs in situations where roadway conditions make it necessary to provide road users with additional regulatory, warning, or guidance information, such as when road users need to be notified of special regulations or warned about a situation that might not be readily apparent.

Where engineering judgment determines that sizes that are different than the prescribed dimensions are appropriate for use, standard shapes and colors shall be used and standard proportions shall be retained as much as practical. When supplemental plaques are installed with larger sized signs, a corresponding increase in the size of the plaque and its legend should also be made. The resulting plaque size should

be approximately in the same relative proportion to the larger sized sign as the conventional sized plaque is to the conventional sized sign.

Unless otherwise provided in the TMUTCD, signs should be vertically mounted at right angles to the direction of, and facing, the traffic that they are intended to serve. Where mirror reflection from the sign face is encountered to such a degree as to reduce legibility, the sign should be turned slightly away from the road. Signs that are placed 30 feet or more from the pavement edge should be turned toward the road. On curved alignments, the angle of placement should be determined by the direction of approaching traffic rather than by the roadway edge at the point where the sign is located. On grades, sign faces may be tilted forward or back from the vertical position to improve the viewing angle.

Sign posts, foundations, and mountings shall be so constructed as to hold signs in a proper and permanent position, and to resist swaying in the wind or displacement by vandalism. Post-mounted sign supports shall be crashworthy (breakaway, yielding, or shielded with a longitudinal barrier or crash cushion) if within the clear zone.

Where engineering judgment indicates a need to draw attention to the sign during nighttime conditions, a strip of retroreflective material may be used on regulatory and warning sign supports. If a strip of retroreflective material is used on the sign support, it shall be at least 2 inches in width, it shall be placed for the full length of the support from the sign to within 2 feet above the edge of the roadway, and its color shall match the background color of the sign, except that the color of the strip for the YIELD and DO NOT ENTER signs shall be red.

Light Emitting Diode (LED) units may be used within the symbol of a sign and in the border of a sign, except for changeable message signs, to improve the conspicuity, increase the legibility of sign legends and borders, or provide a changeable message.

Sec. 6 – Pavement Markings

Markings on roads open to public travel have important functions in providing guidance and information for the road user. Major marking types include pavement and curb markings, delineators, colored pavements, channelizing devices, and islands. In some cases, markings are used to supplement other traffic control devices such as signs, signals, and other markings. In other instances, markings are used alone to effectively convey regulations, guidance, or warnings in ways not obtainable by the use of other devices. Markings also have limitations. Visibility of the markings can be limited by snow, debris, and water on or adjacent to the markings. Marking durability is affected by material characteristics, traffic volumes, weather, and location. However, under most road conditions, markings provide important information while allowing minimal diversion of attention from the roadway. Each standard marking shall be used only to convey the meaning prescribed for that marking in this ordinance. When used for applications not described in this ordinance, markings shall conform in all respects to the principles and standards set forth in the TMUTCD.

Pavement and curb markings are commonly placed by using paints or thermoplastics; however, other suitable marking materials, including raised pavement markers and colored pavements, are also used. The materials used for markings should provide the specified color throughout their useful life.

Markings shall be yellow, white or red. The colors for markings shall conform to the standard highway colors identified in the TMUTCD.

- Black in conjunction with one of the colors mentioned above shall be a usable color.
- White markings for longitudinal lines shall delineate:
 - The separation of traffic flows in the same direction;
 - The right-hand edge of the roadway.
- Yellow markings for longitudinal lines shall delineate:
 - The separation of traffic traveling in opposite directions;

- The left-hand edge of the roadways of divided highways and one-way streets or ramps;
- The separation of two-way left-turn lanes and reversible lanes from other lanes.
- Red raised pavement markers or delineators shall delineate:
 - Truck escape ramps;
 - One-way roadways, ramps, or travel lanes that shall not be entered or used in the direction from which the markers are visible.

Center line pavement markings, when used, shall be the pavement markings used to delineate the separation of traffic lanes that have opposite directions of travel on a roadway and shall be yellow. On roadways without continuous center line pavement markings, short sections may be marked with center line pavement markings to control the position of traffic at specific locations, such as around curves, over hills, on approaches to grade crossings, at grade crossings, and at bridges.

The center line markings on two-lane, two-way roadways shall be one of the following

- A. Two-direction passing zone markings consisting of a normal broken yellow line where crossing the center line markings for passing with care is permitted for traffic traveling in either direction;
- B. One-direction no-passing zone markings consisting of a double yellow line, one of which is a normal broken yellow line and the other is a normal solid yellow line, where crossing the center line markings for passing with care is permitted for the traffic traveling adjacent to the broken line, but is prohibited for traffic traveling adjacent to the solid line;
- C. Two-direction no-passing zone markings consisting of two normal solid yellow lines where crossing the center line markings for passing is prohibited for traffic traveling in either direction.

A single solid yellow line shall not be used as a center line marking on a two-way roadway.

The center line markings on undivided two-way roadways with four or more lanes for moving motor vehicle traffic always available shall be the two-direction no-passing zone markings consisting of a solid double yellow line.

Center line markings should also be placed on other traveled ways where an engineering study indicates such a need. Engineering judgment should be used in determining whether to place center line markings on traveled ways that are less than 16 feet wide because of the potential for traffic encroaching on the pavement edges, traffic being affected by parked vehicles, and traffic encroaching into the opposing traffic lane. Center line markings may be placed on other paved two-way traveled ways that are 16 feet or more in width.

When used, lane line pavement markings delineating the separation of traffic lanes that have the same direction of travel shall be white. Lane line markings should be used on all roadways that are intended to operate with two or more adjacent traffic lanes in the same direction of travel. Lane line markings should also be used at congested locations. Where crossing the lane line markings with care is permitted, the lane line markings shall consist of a normal broken white line. Where crossing the lane line markings is discouraged, the lane line markings shall consist of a normal or wide solid white line.

Edge line pavement markings shall delineate the right or left edges of a roadway. Edge line markings shall not be continued through intersections or major driveways. If used on divided roads or one-way streets, left edge line pavement markings shall consist of a normal solid yellow line to delineate the left-hand edge of a roadway or to indicate driving or passing restrictions left of these markings. Right edge line pavement markings shall consist of a normal solid white line to delineate the right-hand edge of the roadway. Edge line markings should not be broken for minor driveways.

Edge line markings shall be placed on paved streets with a traveled way of 20 feet or more in width. Edge line markings may be placed on streets with or without center line markings. Edge line markings may be excluded, based on engineering judgment, for reasons such as if the traveled way edges are delineated by curbs, parking, or other markings. Edge line markings may be used where edge delineation is desirable to minimize unnecessary driving on paved shoulders or on areas that have lesser structural pavement strength than the adjacent roadway.

Stop lines should be used to indicate the point behind which vehicles are required to stop in compliance with a traffic control signal. Stop lines may be used to indicate the point behind which vehicles are required to stop in compliance with a STOP or some other traffic control device that requires vehicles to stop. Stop lines shall not be used at locations where drivers are required to yield in compliance with a YIELD sign or a Yield Here To Pedestrians sign or at locations on uncontrolled approaches where drivers are required by State law to yield to pedestrians. Stop lines shall consist of 12" to 24" wide solid white lines extending across approach lanes to indicate the point at which the stop is intended or required to be made. If used, stop lines should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections. In the absence of a marked crosswalk, the stop line should be placed at the desired stopping point, but should not be placed more than 30 feet or less than 4 feet from the nearest edge of the intersecting traveled way.

Yield lines may be used to indicate the point behind which vehicles are required to yield in compliance with a YIELD sign or a Yield Here To Pedestrians sign. Yield lines shall not be used at locations where drivers are required to stop in compliance with a STOP sign, a traffic control signal, or some other traffic control device. Yield lines shall consist of a row of solid white isosceles triangles pointing toward approaching vehicles extending across approach lanes to indicate the point at which the yield is intended or required to be made. The individual triangles comprising the yield line should have a base of 12 to 24 inches wide and a height equal to 1.5 times the base. The space between the triangles should be 3 to 12 inches. If used, yield lines should be placed a minimum of 4 feet in advance of the nearest crosswalk line at controlled intersections. In the absence of a marked crosswalk, the yield line should be placed at the desired yielding point, but should not be placed more than 30 feet or less than 4 feet from the nearest edge of the intersecting traveled way.

Sec. 7. - Notice

TAC reserves the right to amend or terminate the requirements at any time.