Chapter 4 - Lighting

Section 1. General

Authority

Transportation Code, §547.001 through §547.383

General

All TxDOT on-road and off-road equipment shall, as a minimum, meet the lighting requirements specified in the Texas Transportation Code.

The Texas Transportation Code authorizes TxDOT to adopt additional warning light standards. These additional standards are identified in Section 2.

The National Highway Traffic Safety Administration and Federal Motor Carrier Safety Administration of the federal Department of Transportation (DOT) have the authority to change lighting requirements. Some changes may conflict with TxDOT requirements. Should equipment be delivered that does not meet TxDOT requirements, but which the supplier says meets federal DOT requirements, obtain as much information as possible regarding the discrepancy and contact the General Services Division immediately.

A unit not equipped with the required lighting shall be transported on a trailer or other suitable conveyance equipped with the required lighting. The unit shall not be driven or towed to and from a designated work zone.

Definitions

Highway — The entire width between the boundary lines of every way publicly maintained when any part thereof is open to the use of the public for purposes of vehicular travel. Roadway — That portion of a highway improved, designed, or ordinarily used for vehicular travel, exclusive of the berm or shoulder. In the event a highway includes two or more separate roadways, the term "roadway" as used herein shall refer to any such roadway separately, but not to all such roadways collectively. Vehicle — A device in or by which a person or property is or may be transported or drawn on a public highway, other than a device used exclusively on stationary rails or tracks. (Transportation Code, §502.001) On-Road Equipment — Equipment used on the roadway. This includes snow removal equipment, aerial devices, paint-stripe equipment, skid-test equipment, sweeping equipment, spraying equipment or high-speed profilometers. Off-Road Equipment — Equipment used primarily off the roadway. This includes motor graders, rollers, excavators, pneumatic-tired equipment, mowers or
tractors. **Highway Maintenance and Service Equipment** — For the purpose of this chapter, this includes both on-road and off-road equipment. **Incident Response Vehicle** — Any vehicle whose purpose is to respond to incident situations affecting flow of traffic on a highway maintained by the department. **Advance Warning Equipment** — Devices, with or without motive power, designed to display instructions or an advance warning to motorists of the presence of a vehicular traffic hazard requiring the exercise of care in approaching, overtaking, or passing. It includes arrow boards and changeable message boards.

### Section 2. Warning Lights

**Authority**

*Transportation Code, §547.105,* "Maintenance and Service Equipment Lighting, " authorizes TxDOT to adopt standards and specifications relating to lamps and other lighting on highway maintenance and service equipment that are in lieu of the standards and specifications otherwise required by law for lamps on vehicles.

*Transportation Code, §547.305,* "Restrictions on Use of Lights, " prohibits a person from operating highway maintenance or service equipment that is not equipped with lamps or does not display lighted lamps as required by the standards and specifications adopted by the TxDOT.

**Reference**


**Use of Amber Warning Lights**

The use of amber warning lights is intended to identify highway maintenance and service equipment. Follow these guidelines carefully to help the traveling public distinguish between highway maintenance and service equipment and authorized emergency vehicles, e.g., police, fire truck and ambulance.

Amber warning lights shall be used whenever:

- highway maintenance and service equipment is operating or stopped on the roadway or shoulder in such a manner as to require caution from approaching motorists, or
- on-road equipment is used to perform specific functions on the roadway.
Vehicles used for incident response shall use warning lights when parked at an incident location or while maneuvering through congestion caused by the incident.

**Configuration**

**On-road equipment.** On-road equipment shall be equipped with one of the following configurations:

♦ One amber mini-light bar in the middle of the roof and two amber strobes on each side of the roof.
  
  Note: One blue strobe may be substituted for the left amber strobe for use in authorized slow-moving applications.

♦ Two amber mini-light bars on each side of the roof and one amber strobe light in the middle of the roof.
  
  Note: One blue mini-light bar may be substituted for the left amber mini-light bar for use in authorized slow-moving applications.

**Dump trucks** may use only one center-mounted amber mini-light bar.

Trucks with **headache racks** may also add two small light emitting diode (LED) red lights facing to the rear and mounted high on the headache rack. These lights must be wired into the Original Equipment Manufacturer (OEM) brake-light/hazard-light circuit and function synchronously with the OEM brake/hazard lights.

**Courtesy Patrol and Motorist Assistance.** A district with an established Courtesy Patrol and Motorist Assistance program may equip its vehicles with a light bar with multiple lens colors and amber strobe lights on the ends. The bar may have directional red and blue lights facing to the rear and directional white and blue lights facing to the front, as shown below:

<table>
<thead>
<tr>
<th>Front of Vehicle</th>
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</thead>
<tbody>
<tr>
<td>Amber</td>
<td>Blue</td>
<td>White</td>
<td>Amber</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>Red</td>
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<table>
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<tr>
<th>Rear of Vehicle</th>
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<tbody>
<tr>
<td>Blue</td>
</tr>
<tr>
<td>Red</td>
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**Off-road Equipment.** Off-road equipment shall be equipped with one amber strobe warning light, as a minimum. The minimum warning light configuration may be supplemented with the following combination of warning lights:

♦ one or more amber strobe warning lights or

♦ a light bar instead of or in addition to the strobe warning lights. Amber shall be
the standard color of all light bar lenses.

**Lens Colors**

The standard color for the warning light(s) for all highway maintenance and service equipment is amber.

**Requirements for Using Blue Lenses.** Simultaneous amber and blue warning lights also may be used on equipment:

♦ for snow and ice removal.
♦ in a mobile operation in a traffic lane traveling at an average speed that is either less than 3 MPH, or at least 30 MPH below the posted speed of traffic on a roadway.
♦ when responding to or parked at an incident.
♦ when employees must be out of the equipment and in a lane of traffic, and channeling devices are not present upstream of the equipment to close the lane.
   Note: Channeling devices refer to cones, tubular markers, drums, vertical panels, etc.

**Note:** Turn off blue warning lights when the vehicle is not in use for one of the applications above.

**Authorization.** District engineers or division directors may approve using blue warning lights for equipment if it meets the requirements listed above.

TxDOT vehicles will never display a red flashing color visible from the front of the vehicle, nor a flashing white light visible from the rear of the vehicle.

**Installation**

Mount warning lights as high as practicable on the exterior of the equipment and clearly visible from all directions. If a blue warning light is approved, it must be mounted on the left (driver's) side of the equipment and must have a separate mechanism to de-activated it.

Do not install warning lights:

♦ inside any vehicle cab
♦ behind a grill
♦ on a bumper
♦ inserted into the OEM standard light or lenses.
Multiple warning lights may flash simultaneously or randomly, but not rhythmically in a "wig-wag" manner.

The DHT numbers for the strobes and mini-light bars are as follows:

♦ Amber Mini-Light Bar: DHT # 159421  
♦ Blue Mini-Light Bar: DHT # 160046  
♦ Amber Quad Flash Strobe Light: DHT # 158868  
♦ Blue Quad Flash Strobe Light: DHT # 160045

Existing strobes may be used during upgrades. All equipment must be upgraded to the new configuration by September 1, 2004.

**Four-way Flashing Lights**

If the equipment has four-way flashing lights, provided by the OEM, they may be used in addition to warning lights.

**Advance-warning Equipment**

Use warning sign trailers and truck-mounted advance-warning equipment (arrow boards) in accordance with the Texas Manual of Uniform Traffic Control Devices (TMUTCD).

To avoid diminishing the operational effectiveness of the advance-warning device, turn off the vehicle's flashing warning lights when advance-warning equipment is attached to a vehicle and is operating.

**Low-Profile Light-Bar**

Low-profile light-bar type traffic or channeling devices, such as StarStik and ArrowStik, are **not approved** for traffic control or as channeling devices in accordance with the TMUTCD and will not be used in the channeling mode in place of an approved arrow board.

De-activate the channel (direction) mode selector-switch in the low-profile light, either mechanically or electrically, to ensure the channeling mode is not used.

**Sirens and Audible Devices**

Sirens or other similar audible emergency warning devices are strictly forbidden and must not be used.