SPECIFICATIONS
FOR
LED WARNING LIGHT SYSTEM

Trucks are to be equipped with an LED warning light system using the following specifications. MoDOT Fleet Manager must evaluate and pre-approve the warning light system.

1. Warning light system must meet SAE Class 1 requirements.
2. System shall be plainly visible at a minimum distance of 1000 feet on a sunny day.
3. System shall emit light that is amber in color.
4. System shall provide 360 degrees of visibility in a horizontal plane around the truck.
5. System shall flash the two light head assemblies on the cab shield simultaneously, then the two light head assemblies on the rear corners of the dump body simultaneously, alternating back and forth.

1. CENTRALIZED CONTROLLER

A. The LED controller shall operate on 12 volts DC and operate through the range of approximately 10-16V DC with nominal degradation of performance in either intensity or flash rate. All standard mounting hardware shall be included. The LED system controller shall be mounted behind driver's seat on the back wall of the cab.

B. The LED controller shall have RFI suppression circuit(s) to prevent radiated, as well as conducted, interference problems.

C. The controller shall be powered by a factory work light circuit, or the chassis electric accessory power supply. This circuit shall provide key-on and key-off operation of the LED light system. Circuit shall have its own factory-installed circuit protection and switch. A dash mounted indicator light shall indicate when the warning lights are operating.

D. The LED controller shall have four outputs, one for each of the four individual light heads to be installed on the truck. Outputs shall power each light head by means of a two-wire circuit. Controller connections for the individual light heads shall be made using male/female spade terminals. Controller housing shall also provide strain relief for the individual light head harnesses.

E. The LED controller shall produce a burst of four impulses per burst to each light head, at a minimum flash rate of 70, maximum flash rate of 110 bursts per minute. MoDOT Fleet Manager must pre-approve flash pattern.

F. The LED controller shall be reversed input polarity protected. Controller shall also provide full output short-to-ground protection to prevent damage to the controller and light heads.

2. LED MODULES

The system shall use individual LED modules, approximately 3-inch x 5-inch in size. This module must be used in all of the installed light heads. The modules shall be easily replaced.

3. CAB SHIELD (TOP) LIGHT ASSEMBLIES

A. Two light heads shall be mounted to the cab shield of the dump body, one on each side of the body. Light heads are to be permanently mounted to a fixed mount, and elevated to provide ample cross-visibility of the light head from the front and rear of the truck. Each light head assembly shall contain a minimum of three LED modules inside a common housing. For each light head, one module shall face to the front, one shall face to the rear, and one shall face to the side of the truck. The combination of the two light heads shall provide 360 degrees of visibility in a horizontal plane. The light head lenses shall be made of polycarbonate material, and have a smooth outer surface. All module connections shall be made inside the light head housing. Light heads shall provide a means of connecting the individual modules together, such as bus bars with spade terminals, so that all LEDs in the head light simultaneously. The configuration of the bus bar/s shall allow for potentially different lighting configurations of future operations. Each light head shall have a 12-inch maximum two-wire cable with a two-pin weatherpak connecter for connecting to the extension harness from the central controller. Each light head shall have protective guards sufficient enough to protect the light head assembly from low hanging tree branches. Protective guards shall not compromise the intensity or visibility of the light head.

B. Mirror or gutter-mounted light bars are not acceptable.

4. REAR LIGHT HEAD ASSEMBLIES

Light heads shall be mounted on each rear corner of the dump body. Each light head shall contain a minimum of two LED modules inside a common housing, with the modules flush or slightly below the surface of the housing to afford protection for the modules and lenses. For each light head, one module must face to the rear and one shall face to the side of the truck. The combination of the two heads shall provide a minimum of 180 degrees of visibility in a horizontal plane from the rear of the truck. Each light head shall also be capable of emitting light in a vertical plane to provide adequate visibility of the light from the rear of the truck when the dump body is in the raised position. The light head lenses shall be made of polycarbonate material, and have a smooth outer surface. Light heads shall provide a means of connecting the individual modules together so that all LEDs in the head light simultaneously. Each light head shall have a 12-inch maximum, two wire cable with a two-pin weatherpak connecter for connecting to the extension harness from the central controller.

5. CABLE HARNESSES

A. The cable shall be expected to maintain its electrical, mechanical, and environmental integrity for the life of the vehicle on which it is originally installed on, without the need for re-wiring at any future time.

B. The cable shall be flexible in cold weather, and tolerant of hot temperatures.

C. Cables shall be two-conductor, with each power conductor a minimum of 14-gauge. Cable shall have an outer jacket enclosing both conductors.

D. Insulation jacket shall be highly resistant to abrasion, corrosion, oil / grease, and normal highway chemicals or environmental abuse for the normal life expectancy of the vehicle.
E. The cable will be available in bulk from the manufacturer.
F. Splices will not be allowed.