CHAPTER 5

OTHER TYPES OF TRAFFIC SIGNALS

5.0 Highway Traffic Signals – The primary type of traffic signal device in use is the traditional traffic control signal at an intersection (see Chapter 4 for detail on traffic control signals). However, a traffic signal can be a device other than a typical traffic control signal.

Other types of traffic signals are:

A. Emergency Vehicle Traffic Control Signals – a special traffic control signal that assigns the right-of-way to an authorized emergency vehicle.

B. Lane-Use Control Signals – a signal face displaying signal indications to permit or prohibit the use of specific lanes of a roadway or to indicate the impending prohibition of such use.

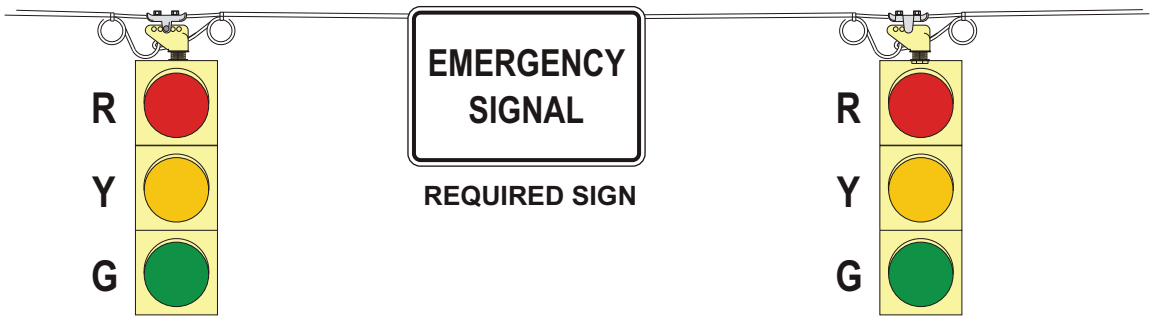
C. Ramp Control Signal – a highway traffic signal installed to control the flow of traffic onto a freeway at an entrance ramp or at a freeway-to-freeway ramp connection.

D. Flashing Beacons – a highway traffic signal with one or more signal sections that operates in a flashing mode.

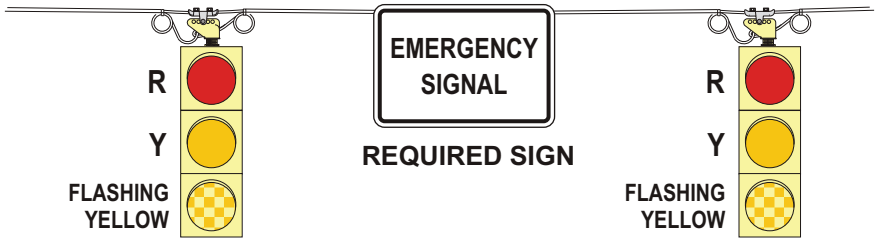
- **Intersection Control Beacon –** a beacon used only at an intersection to control two or more directions of travel.
- **Speed Limit Sign Beacon –** a beacon used to supplement a SPEED LIMIT sign.
- **Stop Beacon –** a beacon used to supplement a STOP sign, a DO NOT ENTER sign, or a WRONG WAY sign.
- **Warning Beacon –** a beacon used only to supplement an appropriate warning or regulatory sign or marker.

5.1 Emergency Vehicle Traffic Signals – Emergency signals may be installed to permit access from a location housing an emergency vehicle (e.g. fire station) in the absence of other warrants.

5.1.1 Displays – The emergency signal shall display either steady green or flashing yellow to the public street approaches when not activated. If the flashing yellow signal indication is used instead of the steady green signal indication, it shall be displayed in the normal position of the steady green signal indication; while the red and steady yellow signal indications shall be displayed in their normal positions (see Figure 5.1). When an emergency vehicle actuation occurs, a steady yellow change interval followed by a steady red interval shall be displayed to traffic on the public street.



TYPICAL EMERGENCY VEHICLE TRAFFIC SIGNAL LAYOUT (GREEN REST)



ALTERNATE EMERGENCY VEHICLE TRAFFIC SIGNAL LAYOUT (FLASHING YELLOW REST)

REQUIRED ADVANCE WARNING SIGN

Tennessee Department of Transportation
Traffic Design Manual

Emergency Vehicle Traffic Signal

Figure 5.1

5.1.2 Control – An emergency-vehicle traffic control signal sequence may be initiated manually from a local control point such as a fire station or police headquarters or from an emergency vehicle equipped for remote operation of the signal.

5.1.3 Signing – If an emergency signal is used, the following signs shall be installed:

A. An EMERGENCY VEHICLE (W11-8) sign with an Emergency Signal Ahead (W11-12P) supplemental plaque shall be placed in advance of an emergency vehicle signal. A warning beacon may be installed to supplement the Emergency Vehicle sign.[1]

B. An EMERGENCY SIGNAL (R10-13) sign shall be mounted adjacent to a signal face on each street approach.[2]

5.2 Flashing Beacons – A flashing beacon is composed of one or more traffic signal sections operating in a flashing mode. If LED signal indications are used, an automatic dimming feature may be used to reduce the nighttime brightness.

5.2.1 Intersection Control Beacons – Intersection control beacons consist of two signal faces per intersection approach, each with one signal section having a 12-inch lens (see Figure 5.2). Normally, flashing yellow signal indications will be displayed to the major street and flashing red signal indications to the minor street. At the intersection of two streets of equal importance, flashing red signal indications may be displayed to both streets.

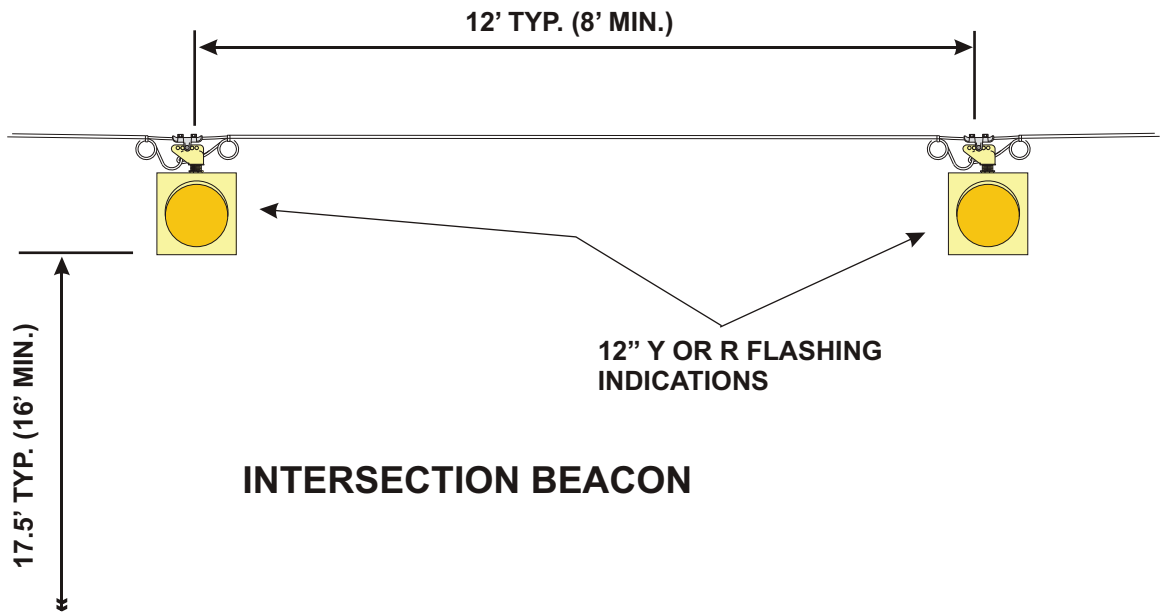
STOP signs shall be installed for approaches to which a flashing red indication is shown. Individual intersection control beacons shall flash for each approach shall flash simultaneously, similar to intersection traffic signals.

Intersection control beacons are intended to be used as a supplement to and not a replacement for other traffic control devices at the intersection. An intersection beacon may be installed when conditions do not justify the installation of a conventional traffic signal, but crash rates indicate the possibility of a special need.[3]

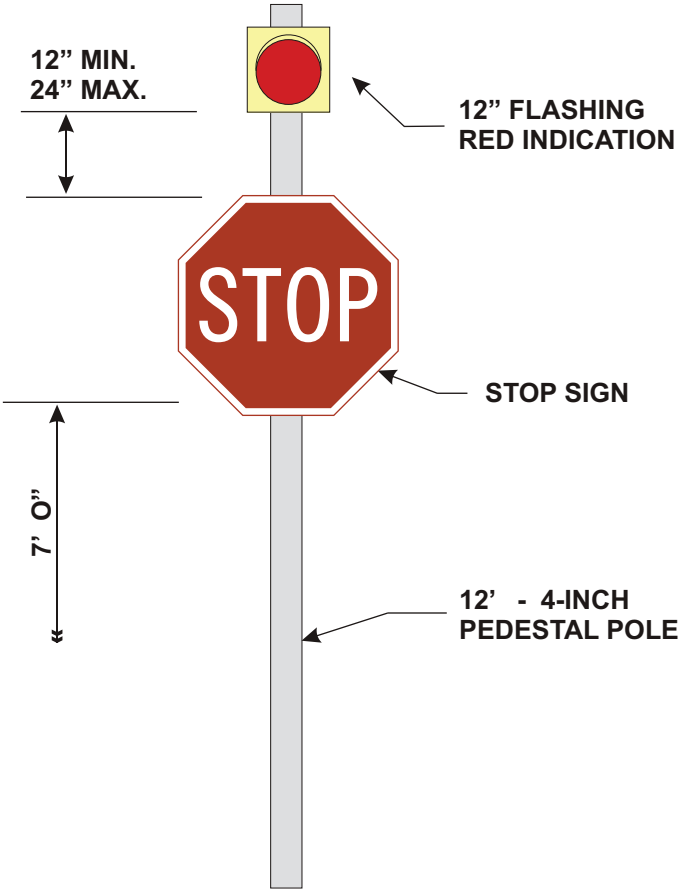
The most common application for these beacons is at intersections with minor approach stop control where some approaching vehicles on the controlled legs have failed to stop.

---

[1] MUTCD, FHWA, 2003, p. 4F-1
[2] Ibid.
[3] MUTCD, FHWA, 2003, p. 4K-1



INTERSECTION BEACON



STOP BEACON

Tennessee Department of Transportation
Traffic Design Manual

Intersection Beacon and Stop Beacon

Figure 5.2

5.2.2 Speed Limit Sign Beacons – A speed limit sign beacon consists of one or more signal sections with flashing circular yellow signal indication in each section. It is used to supplement a SPEED LIMIT sign. It may be installed with a fixed or variable SPEED LIMIT sign (R2-1) where studies show a need to emphasize that a speed limit is in effect. Signal indications may be either 8" or 12" and they shall flash alternately.[4]

5.2.3 School Zone Speed Limit Beacons – A special type of speed limit sign beacon is a school zone speed limit sign beacon. A school zone flashing beacon consists of two (2) signal sections with a flashing circular yellow signal indication in each section and is used in conjunction with the standard School Zone sign (S5-1). Figure 5.3 display the typical layout in Tennessee. Eight inch lenses may be used and install within the borders of the sign. If 12-inch signal heads are used, they must be mounted on the outside of the sign. The two indications in a school zone speed limit beacon shall flash alternately.

A school zone beacon may be installed and maintained by a school board or local government at an established school zone under a Traffic Control Device Permit. School zone beacons on State highways must be coordinated through the TDOT Regional Traffic Engineer.

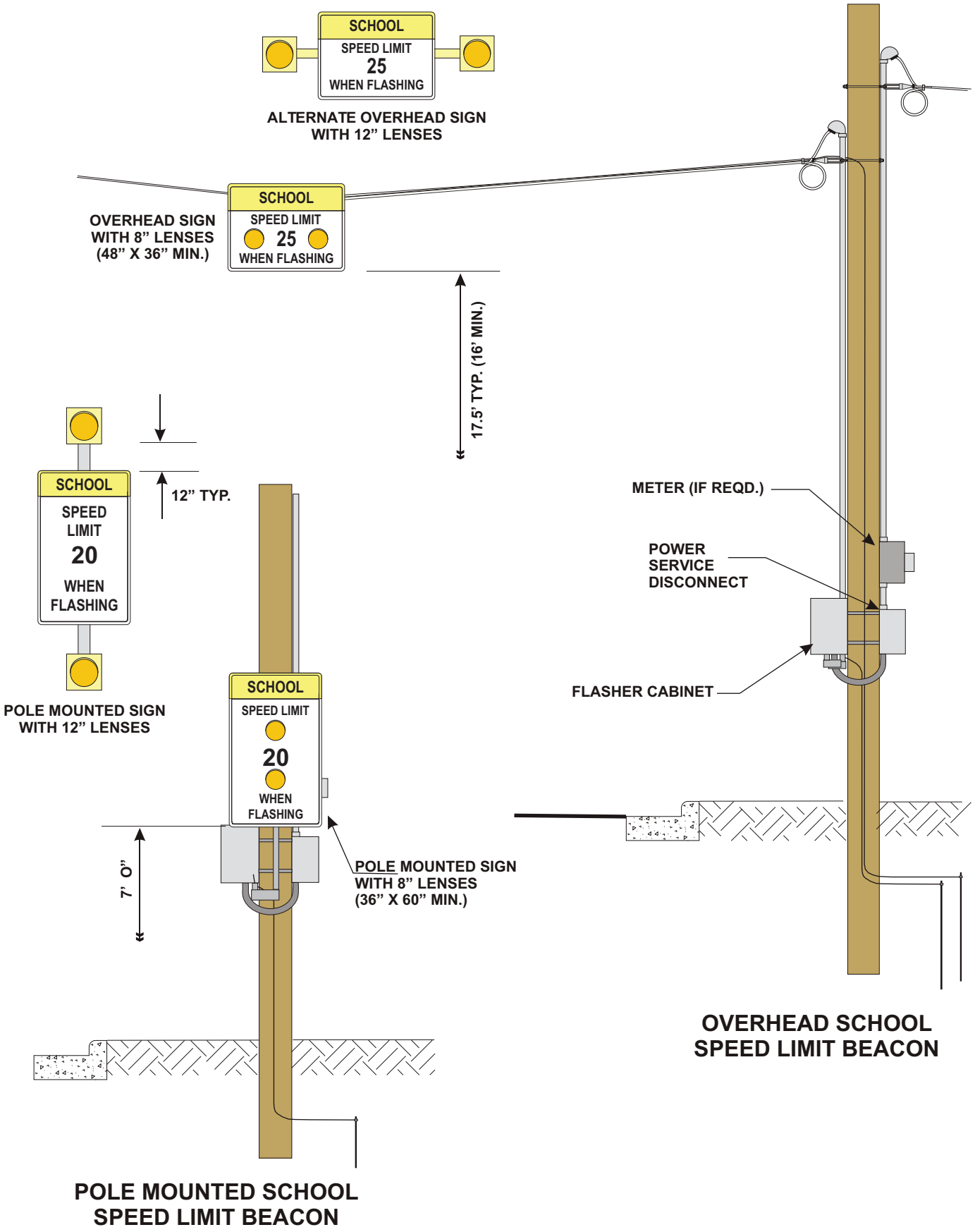
5.2.4 Stop Beacons (Red) – Stop beacons are a beacon used to supplement a STOP sign, a DO NOT ENTER sign, or a WRONG WAY sign. Stop sign beacons consist of one or more signal sections having flashing red 12" signal indications and are mounted above a STOP sign (see Figure 5.2). If two flashers are used on one sign, they shall flash simultaneously if mounted horizontally and alternately if mounted vertically.[5]

Stop beacons can be justified for STOP signs and may be used where:

A. Violations – A significant number of vehicles violate the stop condition.

B. Crashes – A crash rate exists that indicates the presence of a special need.

[4] MUTCD, FHWA, 2003, p. 4K-2.
[5] Ibid.



Tennessee Department of Transportation
Traffic Design Manual

School Speed Limit Beacons

Figure 5.3

5.2.5 Warning Beacons (Yellow) – Warning beacons are used only to supplement an appropriate warning or regulatory sign or marker (see Figure 5.4). Warning beacons consist of one or more signal sections, each having flashing yellow signal indications which flash alternately.

Warning beacons may be justified by either of the following:

A. Obstruction Identification – Warning beacons may be used to help identify obstructions in or immediately adjacent to the roadway where crash experience indicates that additional emphasis is needed to supplement existing signing and markings. Such obstructions could include guardrail at "T" intersections, bridge supports in or near the roadway, etc.

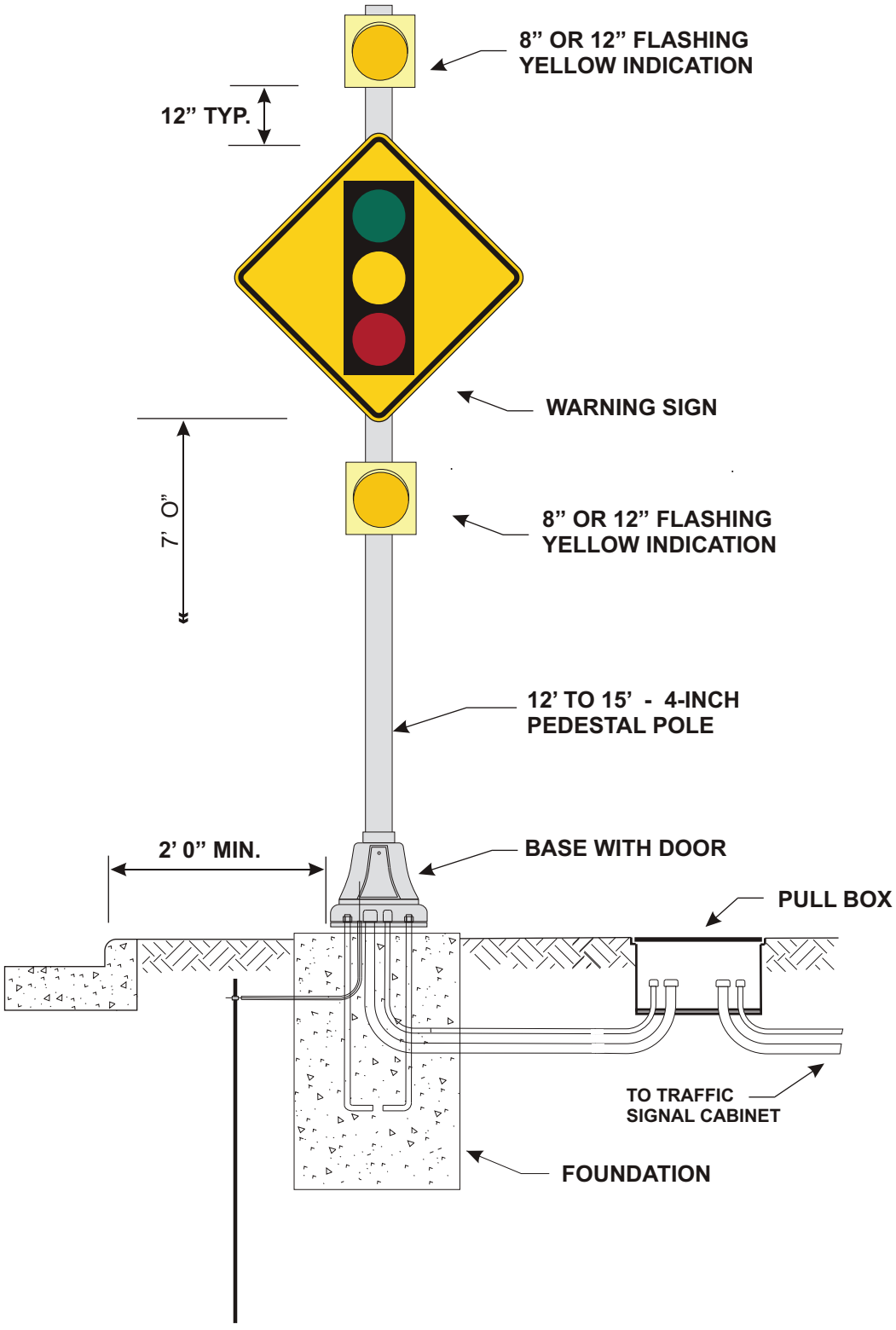
B. Supplement To Advance Warning Signs – A flashing beacon may be used to supplement advance warning signs for a variety of conditions where crash experience or field observation reveals that the warning signs alone are not effective. Such conditions could include sharp curves, obscured stop conditions, weather-related hazards such as fog and ice, obscured railroad crossings, truck crossings, plant entrances, etc.

5.2.6 Signal Ahead Beacons – Signal ahead beacons consist of one or more signal sections, each having alternately flashing yellow signal indications (see Figure 5.4). They are used in conjunction with the standard SIGNAL AHEAD warning sign (W3-3).

Signal ahead beacons may be justified under either of the following conditions:

- **First Signal –** On high speed (45 mph or greater) highways approaching the first signalized intersection of a community or town, and the intersection experiences a crash rate that indicates the presence of a special need.

- **Sight Distance –** On high speed (45 mph or greater) approaches to a traffic signal whose signal visibility is less than that called for in Part 4 of the Manual on Uniform Traffic Control Devices, Table 4D-1.



SIGNAL AHEAD BEACON

Tennessee Department of Transportation
Traffic Design Manual

Flashing Warning Sign Beacon

Figure 5.4