Chapter 8       Traffic Services

General

Traffic services are maintenance functions necessary for the safe and efficient movement of traffic. These include maintaining highway signs, delineators, pavement markings, traffic islands, curbs, impact attenuators, barriers, guardrail, traffic signals, and highway illumination. Each serves a definite function in the control and guidance of traffic. Functions that utilize electricity, including traffic signals, ramp meters, data accumulator systems, changeable message sign systems, and highway illumination systems are discussed in Chapter 10.

The application, installation, and maintenance of all traffic service functions must conform to the accepted practice and standards set forth in the FHWA Manual on Uniform Traffic Control Devices (MUTCD), the WSDOT Design Manual M 22-01, and the WSDOT Standard Plans M 21-01.

Reconstruction Principles

The following are samples of items that are subject to reconstruction to meet current design standards. The list is not all-inclusive, but serves to illustrate the updating that can be accomplished.

• Breakaway bases on all sign supports and luminaire poles.
• Guardrail terminals and transitions.
• Guardrail post spacing.

Use the “K Job Estimating Application” in the Highway Activity Tracking System (HATS) to estimate the cost of repairing damaged highway hardware in kind. When upgrading damaged hardware to current standards, attach a sheet to the Repair Cost Estimate to document why the original installation does not conform. This sheet will also show estimated additional materials, labor, and costs to bring the installation up to present design standards. Where possible, take photographs before and after repair and updating, and include in the job file.

Repair and updating is accomplished by state forces or by contract. On state force work, include the work order number to be charged against on employee time sheets. A standby contract will be used to provide early contractor mobilization to assure fast repair of critical highway hardware damage.

In a region level contract, the Regional Administrator awards a contract in accordance with the delegated authority for contracts. Guidance for administering region level contracts can be found in WSDOT Advertisement and Award Manual M 27-02. The amount of State Force Work participation in contracts is governed by the monetary limits shown in Revised Code of Washington 47.28.030.
Signing

Highway signs are erected to convey specific messages to the traveling public. They provide regulatory, warning, and guidance information.

Signing Responsibility

The Regional Traffic Engineer has the authority for the design, location, height, and other features associated with the installation of new signs, and for any revisions that may become necessary.

Region maintenance personnel are responsible for maintaining signs once they are in place, in consultation with the Regional Traffic Engineer.

Sign Installation

Most signs are mounted at approximately right angles to approaching traffic. Parking signs may be installed at an angle 30 degrees or 45 degrees or even parallel to approaching traffic in order to provide visibility to vehicles adjacent to the sign.

Orientation. Normally, 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.

Sign Clearance

Erect signs and their supports with maximum practical lateral and vertical clearance in accordance with the MUTCD or Design Manual M 22-01 Chapter 1020. This will provide the most safety for motorists who may accidentally leave the roadway.

The near edge of signs is normally located more than six feet outside the edge of shoulder or twelve feet from the edge of the traveled lane. Where curb exists, locate the near edge of the sign no less than two feet from the face of the curb.

Take care when installing signs and their supports behind roadside barriers. Many barriers are designed to deflect upon impact. An inappropriately located sign or support within that area could prevent proper functioning of the barrier and may result in a potentially hazardous situation. Do not locate signs or supports within the deflection areas listed.
<table>
<thead>
<tr>
<th>Barrier Type</th>
<th>System Type</th>
<th>Deflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Barrier</td>
<td>Flexible</td>
<td>12 ft</td>
</tr>
<tr>
<td>Beam Guardrail Type 1, 1a, 10, and 31</td>
<td>Semi-rigid</td>
<td>3 ft</td>
</tr>
<tr>
<td>Double sided beam guardrail Type 3 and 4</td>
<td>Semi-rigid</td>
<td>2 ft</td>
</tr>
<tr>
<td>Concrete Barrier-Unanchored</td>
<td>Unrestrained-rigid</td>
<td>3 ft</td>
</tr>
<tr>
<td>Concrete Barrier-Anchored</td>
<td>Rigid</td>
<td>0.5 ft</td>
</tr>
</tbody>
</table>

Use two checks when determining the height of post-mounted signs.

1. Assure the vertical clearance from the bottom of the sign to the roadway surface meets MUTCD specifications. This ensures good visibility.

2. Install signs as shown in the standard plans. This ensures that the safety mechanism (i.e., breakaway, slip base, load concentrating coupling, etc.) of the support system will function properly.

**Maintenance**

Keep all signs in proper position, clean, and legible. Conduct periodic day and night inspections for position, damage, legibility, and general condition. In addition, check sign structures and sign-to-structure connections for structural integrity.

**Inspection**

In snowy areas, signs may be damaged by plows or by thrown snow or ice. Inspections are most effective after the winter weather has ended. Another inspection is recommended in the fall to ensure readiness for winter driving. In areas where weather is less severe, inspections may be correlated with other maintenance work.

Periodically check sign bridge and cantilever structure end post and metal sign post base connections. In addition, inspect sign mounting bolts and beam clips for proper tightness. Replace or secure missing or loose hand hole covers on overhead sign structure supports. Give special attention to steel sign post base and fuse plate connections. To properly function as a breakaway support while resisting wind loading, the bolt torque specified in the standard plans must be maintained.

**Field Repair**

Good judgment and sound economics dictate when to perform field repairs. Field repair minor sign damage whenever possible. More extensive damage normally requires sign replacement. Signs such as STOP and YIELD, whose absence can be life threatening, must receive priority replacement.

Signs that are repeatedly knocked down by vehicles may be reinstalled farther away from the roadway or at a different location along the roadway. Care must be taken to ensure that the new location meets MUTCD requirements.

Sign supports within the “clear zone” described in Chapter 2 must meet functional requirements of current safety standards. Sign support design elements are shown in the standard plans.
Never weld the steel sign post web to prevent wind blow-down. Proper fuse plate bolts and bolt torque will prevent blow-down.

Along with proper bolt torque, the area around the sign post base must be clear of obstructions that may prevent the post from slipping free of the base. Ensure that the base stub-post does not project more than 4 inches above the ground. Projections above that height may snag the undercarriage of a vehicle.

**Sign Visibility**

Promptly remove obstructions that prevent adequate sign visibility. Vegetation trimming is sometimes necessary to ensure adequate sign visibility. Maintenance crews must be particularly careful to avoid parking equipment in front of traffic signs.

At times, highway sign faces are obscured as a result of roadway snow removal. Clear all signs as soon as possible. Regulatory and warning signs have first priority.

**Sign Storage and Transportation**

Store signs indoors whenever possible to prevent sign sheeting failure. The signs may be packaged if dry. If packaged signs become wet, immediately unpack and separate them to allow drying.

At times, it is necessary to store signs outside. In this situation, remove the packing materials so that nothing is against the sign face. Never lay signs flat. Water accumulating between signs laying flat will cause sign sheeting failure.

Store signs upright on edge on blocks or other material to keep the signs off the ground. Install spacers along the sign edges to allow air circulation and normal moisture evaporation from the sign face. Avoid sign sheeting contact with treated wood. Avoid storage where dirt or water may splash on the sign face.

Transport signs on edge, face to face or back to back, to prevent sign face damage.

**Delineation**

Delineation is defined as one, or a combination of devices, (excluding signing), that warn or provide guidance to the roadway user. These devices include pavement markings, guideposts, guardrail delineators, and barrier delineators. Delineation of environmentally sensitive areas are identified with specifically marked green guideposts.


**Pavement Markings**

Pavement markings are divided into two categories – long line and transverse and symbol. Long line markings are the markings that are applied parallel to the roadway. Typically long line markings are renewed with a spray application of new material applied from a striping truck. Typically transverse and symbol markings are renewed by hand, by spray, or extruded application of new material.

Long line markings include the following – center line, no-pass line, double center line, double lane line, wide lane line, double wide lane line, lane line, edge line, solid lane line, dotted extension line, wide dotted lane line, wide broken lane line, drop lane line, barrier center line, two way left turn center line, and reversible lane line.

Transverse markings include the following – Crosswalk line, stop line and wide line.

Symbol markings include the following:

- Traffic arrows.
- Traffic letters.
- Access parking space symbol.
- High occupancy vehicle (HOV) lane symbols.
- Railroad crossing symbols.
- Bicycle lane symbols.
- Drainage markings.
- Aerial surveillance markers.

Raised pavement markers (RPMs) are installed either as positioning guides along with longitudinal markings or they are installed as a complete substitute for long line markings. Surface mounted RPMs are installed on roadways where snow removal operations use rubber blades. Recessed RPM applications consist of the installation of an RPM in a groove that has been cut into the pavement. Recessed RPM applications are allowed in areas where snow removal operations use steel blades. Various markings are identified by color code as follows:

<table>
<thead>
<tr>
<th>RPM Type</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1W</td>
<td>White Non-Reflective</td>
</tr>
<tr>
<td>Type 1Y</td>
<td>Yellow Non-Reflective</td>
</tr>
<tr>
<td>Type 2W</td>
<td>White One Side Only</td>
</tr>
<tr>
<td>Type 2WR</td>
<td>White and Red</td>
</tr>
<tr>
<td>Type 2Y</td>
<td>Yellow One Side Only</td>
</tr>
<tr>
<td>Type 2YY</td>
<td>Yellow Both Sides</td>
</tr>
<tr>
<td>Type 2YR</td>
<td>Yellow and Red</td>
</tr>
</tbody>
</table>
Descriptions and dimensions of markings are shown in the *Standard Plans*, Section M, Pavement Markings. Application requirements for various markings are shown on the standard plans, noted by type as follows:

<table>
<thead>
<tr>
<th>Marking Application</th>
<th>Standard Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center Line</td>
<td>M-20.10</td>
</tr>
<tr>
<td>Center Line supplemented with RPMs</td>
<td>M-20.30</td>
</tr>
<tr>
<td>Lane Line</td>
<td>M-20.10</td>
</tr>
<tr>
<td>Lane Line substitution with RPMs</td>
<td>M-20.50</td>
</tr>
<tr>
<td>Left Turn Channelization</td>
<td>M-3.10,M-3.20, M-3.30, and M-3.50</td>
</tr>
<tr>
<td>Left Turn Channelization substitution with RPMs</td>
<td>M-20.50</td>
</tr>
<tr>
<td>Two Way Left Turn Center Line</td>
<td>M-3.40</td>
</tr>
<tr>
<td>Gore Area Marking</td>
<td>M-2.20</td>
</tr>
<tr>
<td>Single Lane On and Off Ramps</td>
<td>M-1.20</td>
</tr>
<tr>
<td>Drop Lane Line (Wide Broken Lane Line)</td>
<td>M-20.10</td>
</tr>
<tr>
<td>Two Lane On and Off Ramps</td>
<td>M-1.40</td>
</tr>
<tr>
<td>Collector Roads</td>
<td>M-1.60</td>
</tr>
<tr>
<td>Traffic Arrows</td>
<td>M-24.20 and M-24.40</td>
</tr>
<tr>
<td>Bicycle Lane Symbol</td>
<td>M-9.50</td>
</tr>
<tr>
<td>Crosswalk line</td>
<td>M-15.10</td>
</tr>
<tr>
<td>HOV Lane Symbol</td>
<td>M-7.50</td>
</tr>
<tr>
<td>Access Parking Space Symbol</td>
<td>M-24.60</td>
</tr>
<tr>
<td>Aerial Surveillance Marking</td>
<td>M-24.60</td>
</tr>
<tr>
<td>Railroad Crossing Symbol</td>
<td>M-11.10</td>
</tr>
<tr>
<td>Roundabout Traffic Arrows</td>
<td>M-24.50</td>
</tr>
</tbody>
</table>

RPMs installed as positioning guides along with longitudinal markings are shown on Standard Plans M-20.30 and M-20.40. RPMs installed as substitute applications for longitudinal markings are shown on Standard Plan M-20.50.

**Materials**

Pavement markings are renewed with a material that is compatible with the original application material. Painted markings are renewed at a thickness of 0.015 inches or 15 mils. The glass beads are applied at a minimum rate of seven pounds per gallon of paint. Thermoplastic markings are renewed at a thickness of 45 mils for long line markings and 90 mils for transverse markings. Methylmethacrylate markings are renewed at a thickness of 45 mils for long line markings and 90 mils for transverse markings. RPMs are replaced in kind.
Application

Apply all pavement marking materials in accordance with the material manufacturer’s recommendation. Apply all materials when the pavement is clean and dry. Moisture in the pavement is the major cause of most marking failures. Apply paint and thermoplastic materials when the pavement temperature is 50 degrees and rising. Methylmethacrylate material can be applied when the pavement temperature is 40 degrees and rising, provided the pavement is dry.

Paint and methylmethacrylate material is purchased by the liquid gallon. Thermoplastic material is purchased by the pound, then heated and applied as liquid. Material requirements for pavement marking materials for a continuous four inch line are as follows:

<table>
<thead>
<tr>
<th>Millage</th>
<th>Gallons/Mile (Liquid)</th>
<th>Pounds/Mile (Dry)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>16.4</td>
<td>–</td>
</tr>
<tr>
<td>45</td>
<td>49.2</td>
<td>1100</td>
</tr>
<tr>
<td>90</td>
<td>98.3</td>
<td>2200</td>
</tr>
</tbody>
</table>

The Striping Supervisor is advised to contact the area Maintenance Supervisor in advance of any long line marking applications to coordinate maintenance activities and arrange for sweeping of the roadways.

Surface Moisture Test

The presence of moisture on the pavement should be checked whenever conditions are questionable. Presence of pavement surface moisture can be determined as follows:

- **Asphalt or Concrete Surfaces** – Place a 12 × 12 inch square piece of plastic wrap on the pavement surface using duct tape to affix the edges. Let stand approximately 15 minutes and check for moisture bubbles on the inside surface of the plastic. If moisture bubbles on the plastic are larger than a pencil eraser, then the pavement contains too much excess water. Notify the contractor of this condition and postpone all marking operations until the pavement is dry enough to prevent the large moisture bubbles from forming on the plastic.

- **Thermoplastic Applications on Asphalt Only** – Using roofing felt paper, place a 12 × 12 inch square of felt on the asphalt and install the thermoplastic material directly onto the felt paper. Let it cool for approximately 10 seconds, then lift the paper to check for moisture on the back side. If moisture bubbles larger than a pencil eraser are present on the back side of the roofing paper, then the pavement contains too much excess water. Notify the contractor of this condition and postpone all marking operations until the pavement is dry enough to prevent the large moisture bubbles from forming on the back of the felt paper.
Marking Renewal or Replacement Frequency

Pavement markings are renewed when they no longer provide guidance during daytime and nighttime conditions. Markings that may appear adequate in the daytime may have no reflectivity at night. Typically markings fail by loss of reflectivity long before they fail by daytime appearance.

On the majority of our highways, the longitudinal paint stripes will have to be restriped every year to maintain adequate line presence and retroreflectivity.

On low volume highways with minimal snow plowing activity, paint striping may last more than one year. A stripe evaluation should be done that evaluates both the amount of paint remaining on the roadway surface (durability) and the retroreflectivity of the stripe. The study should determine if the stripe will remain adequate until the next striping maintenance cycle.

Renew applications on the following schedule:

<table>
<thead>
<tr>
<th>Marking Type</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long line painted markings</td>
<td>At least once a year or less determined by evaluation</td>
</tr>
<tr>
<td>Heavy wear long line painted markings</td>
<td>At least once a year or less determined by evaluation</td>
</tr>
<tr>
<td>Thermoplastic transverse applications</td>
<td>At least once every two years</td>
</tr>
<tr>
<td>Methylmethacrylate transverse applications</td>
<td>Every five years</td>
</tr>
<tr>
<td>Reflective RPMs (except yellow)</td>
<td>By group every two years</td>
</tr>
<tr>
<td>Reflective yellow RPMs supplementing the yellow edge lines on divided highways</td>
<td>Every four years</td>
</tr>
<tr>
<td>Non reflective RPMs</td>
<td>Replaced as needed when the associated reflective RPMs are replaced</td>
</tr>
</tbody>
</table>

Removal of Markings

Removed pavement markings can sometimes reappear and confuse motorists. All removed pavement markings must be unidentifiable as pavement markings under day or night, wet or dry conditions.

Do not over-paint markings with black paint or bituminous solutions. This treatment has proven unsatisfactory because the original lines eventually reappear as the overlying material wears away. In addition, lines covered in this manner may still be visible under wet conditions or low angle illumination (headlights) conditions.

Guideposts

Guideposts are classified as guide markings rather than required warning devices. Guidepost type designations and mounting details are noted on Standard Plan M-40.10. Guidepost placement guidelines are noted in Standard Plan M-40.20 through M-40.60.

Studies have shown that wildlife warning reflector systems are ineffective at reducing the accident potential for motor vehicle/wildlife collisions. WSDOT policy is to no longer design, place, or maintain wildlife reflectors.
Barrier delineation is used in areas with guardrail or concrete barrier where guideposts are required by other roadway conditions. The spacing of barrier delineators for these applications is the same as the spacing noted for guideposts. Promptly replace damaged or missing guideposts and barrier delineators.

**Traffic Barriers and Impact Attenuators**

Traffic barriers, such as beam guardrail, cable barrier, and concrete barrier are used to protect vehicles from hazards within the Design Clear Zone (as defined in Chapter 2) that cannot be removed or otherwise relocated. Hazards may be a single point, such as a bridge pier, or an extensive area, such as steep embankments. Elements of traffic barriers include the standard run of barrier, terminals or anchors for the treatment of the ends, and transitions for connecting to stiffer barriers.

**Maintenance**

Barriers must be properly maintained to ensure that they will perform as intended when struck by errant vehicles. Keep the area under and around barriers clean and free of debris. Do not allow objects that could become projectiles to be placed on top of barriers. The area under and around barriers may or may not need to be kept free of vegetation. This is a site-specific decision based on types of vegetation and potential problems that may result from the presence of such vegetation.

**Inspection – General**

Inspect barriers periodically, either by visual drive-by or by physical inspections.

Inspect for:

- The overall condition of the barrier (including posts).
- Proper interconnection of units.
- Proper installation of anchor cables and connecting pins.
- Tightness of blocks and fasteners.
- Proper overlapping of beam guardrail.
- Secure attachment of beam guardrail.

**Inspection and Preventive Maintenance – Cable Barrier**

All cable barrier should be inspected and re-tensioned annually, as recommended by cable barrier system manufacturers. The inspection shall consist of a maintenance technician walking along the run of barrier, visually observing barrier components to determine any deficiencies and the overall condition of the barrier. The inspection should also include measuring the tension and re-setting the tension to the recommended level. All inspection and preventive maintenance work shall be documented in HATS.
Repair

Repair damaged roadside barriers promptly. All repair work on cable barrier systems shall be documented in HATS. A response within two weeks is desired unless higher priorities preempt action. Once a damaged barrier has been identified, determine if the barriers will be repaired, replaced, or removed.

Removal of a barrier may be the best solution, but this requires an evaluation of the requirement for a barrier. In some instances the need for the barrier can be eliminated (by flattening slopes or removal of a fixed object for example). Contact the Region Traffic Engineer for guidance on evaluating the requirement for a barrier. The following guidance is provided for evaluating the requirement to upgrade a barrier:

Standard Run of Barrier

The standard run of barrier is the majority of the barrier run. It includes all of the barrier except the terminals and transition sections. Barrier types continue to evolve and as a result there may be systems on Washington State highways that no longer meet current design standards.

If damage to non-standard barriers requires the reconstruction of a significant portion of the run, consider upgrading the entire run to current standards. For minor repairs, upgrade the damaged portion of w-beam barriers to current standards (post spacing, block outs, etc.). Minor repairs to non-standard barriers can be repaired in kind as upgrading may not be practical.

Terminals and Anchors

A guardrail anchor is required at the ends of a standard run of guardrail to develop its tensile strength throughout its length. In addition, when the end of any barrier is subject to head-on impacts, a crash worthy terminal is required. Guardrail anchorage may be provided as part of the terminal, as a connection to a rigid structure, or by an anchor whose only purpose is to strengthen the run (Type 10 anchor. Older guardrail systems use Type 1, 4, 5, or 7 anchors).

Many different terminal designs have been used on Washington State highways. Upgrade damaged guardrail ends that do not have a crash worthy design.

Common features of non-crash worthy designs are as follows:

- No cable anchor.
- A cable anchored into concrete in front of the first post.
- Second post not breakaway (CRT).
- Design A end section (Design C end sections are acceptable to be left in place).
- Beam guardrail on both sides of the posts (two sided).

A common terminal that was used on Washington State highways is the Breakaway Cable Terminal (BCT). These terminals included a Type 1 anchor and a parabolic flare that offset the end four feet from the tangent run of guardrail. BCTs that have sustained damage, requiring replacement of one post or one rail section, should be upgraded to a current crash worthy design. Upgrade damaged BCTs with less than a three feet offset.
If a BCT is to be repaired, no washers are permitted on posts 2 through 7.

When upgrading to current standards it may be possible to extend the run to a location where the end is less likely to be struck or where it can be buried in a back slope. When burying the end is not possible, consider a non-flared terminal as shown in Standard Plan C-22.40. For older barrier systems, a flared terminal as shown on Standard Plan C-4b or a non-flared terminal as shown on Standard Plan C-4e may be appropriate. These terminals are proprietary devices (they can only be manufactured by a licensed company) and the specific details are not shown on the standard plan. The manufacturers drawings that are used in Washington can be obtained from the WSDOT Traffic Barriers Design web page.

Transitions

Transitions are used to stiffen a system, such as w-beam guardrail before a more rigid barrier such as a bridge rail. Stiffening is accomplished by nesting the rail elements, using bigger posts and reducing the post spacing. The transitions that are currently used are shown in the Standard Plans.

If no transition is in place, upgrade a damaged rail by installing a transition as follows:

<table>
<thead>
<tr>
<th>Connection</th>
<th>Transition Type Installation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety shaped bridge rail</td>
<td>Type 20 or Type 21 with a D connection. For older barriers (27-inch mounting height) Type 1 or Type 4 (for speeds of 45 mph or lower) transition with a B or D connection</td>
</tr>
<tr>
<td>Connection to a bridge rail with a parapet that is less than 20 inches</td>
<td>Type 2 or Type 4 (for speeds of 45 mph or lower) transition with a B or C connection (depending on the width of the curb)</td>
</tr>
<tr>
<td>Connecting to unrestrained pre-cast concrete barrier</td>
<td>Type 2 or Type 4 for speeds of 45 mph or lower) transition with an A connection</td>
</tr>
<tr>
<td>Unsure of the proper transition</td>
<td>Contact the Regional Traffic Office</td>
</tr>
</tbody>
</table>

Sometimes damage to a transition is minor, not requiring the replacement of all of the posts. In these situations, existing transitions that have a w-beam rail element can be upgraded by adding an additional (nested) rail element. Upgrading the connection is not required for minor repairs.

Impact Attenuators

Impact attenuators can be used as an end treatment for barriers or to prevent errant vehicles from impacting other fixed objects. Keep records of impact attenuators in use: brand, an illustrated layout showing parts order numbers, module locations and weights, and a photograph of the installation.
Maintenance

Replace and repair impact attenuators in accordance with the manufacturer’s recommendations. Check for proper restraining cable tightness, anchor bolt tightness, diaphragm and hardware in good condition, and fender panels securely in place.

Inspect sand-filled barrels to ensure lids are firmly in place and not dented. Make sure there is no moisture inside the modules, no damage or visible cracks in the outer shell. Check that each barrel is filled with the correct amount of dry sand or dry pea gravel. (See manufacturer’s specifications.)

If the sand is found to contain moisture, mix salt with the sand at a rate of 10 percent to 20 percent (by volume) to prevent freezing. Some sand may need to be discarded before adding the salt to prevent overfilling the barrel.

Replace damaged water cell units. If one is to be left in place, check for leakage.

Islands

Islands must be properly maintained to provide protection of motorists and pedestrians. Keep island passageways clear of debris. Repaint outlines of islands as directed by the Regional Traffic Engineer. Replace missing or damaged raised pavement markers when more than three consecutive markers are missing.

Displaced or missing raised curb must be repositioned or replaced. Paint raised curb as directed by the Regional Traffic Engineer.

Transit Vehicle Stop Zones

Maintenance

Transit stops along state highways outside cities are maintained by the state. These locations should be kept free of debris, potholes and other obstacles that could cause tripping. The responsibility for maintaining transit stops on state highways inside cities is covered in the agreement discussed in the Traffic Manual’s transit vehicle stop zone guidelines. An inventory of transit stops is available at the Regional Traffic Office.