## Site Conditions and Placement Guidelines

<table>
<thead>
<tr>
<th>Condition</th>
<th>Recommendation</th>
<th>Illustration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Angle of Array in Relation to Center Line of Obstacle</td>
<td>Not Recommended for More Than 10°</td>
<td><img src="image1.png" alt="Diagram" /></td>
</tr>
<tr>
<td>2. Module Spacing</td>
<td>12&quot; to 24&quot;</td>
<td><img src="image2.png" alt="Diagram" /></td>
</tr>
<tr>
<td>3. Bi-Directional Traffic</td>
<td>Offset Array to Avoid Rear Corner Module Snagging, Potential By Traffic in the Upstream Direction of Flow.</td>
<td><img src="image3.png" alt="Diagram" /></td>
</tr>
<tr>
<td>4. &quot;Coffin&quot; Corner</td>
<td>Shield 30&quot; Minimum Outside of Fixed Object</td>
<td><img src="image4.png" alt="Diagram" /></td>
</tr>
<tr>
<td>5. Sloping Sites</td>
<td>See Detail B Showing Bi-Directional Traffic</td>
<td><img src="image5.png" alt="Diagram" /></td>
</tr>
<tr>
<td>6. Curb</td>
<td>No More Than 4&quot; High (Remove if Possible)</td>
<td><img src="image6.png" alt="Diagram" /></td>
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<tr>
<td>7. Foundation Pads</td>
<td>Concrete or Asphalt</td>
<td><img src="image7.png" alt="Diagram" /></td>
</tr>
<tr>
<td>8. Maintenance</td>
<td>Keep Site Clear of Trash, Road Debris, Etc</td>
<td><img src="image8.png" alt="Diagram" /></td>
</tr>
<tr>
<td>9. Sand Densities</td>
<td>100 Lb / Cf</td>
<td><img src="image9.png" alt="Diagram" /></td>
</tr>
<tr>
<td>10. Vandalism</td>
<td>Check Periodically for Changes, Graffiti,</td>
<td><img src="image10.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

### General Notes
1. For specific information regarding installation and technical guidance of the available MASH compliant systems, contact: Traffix Devices, Inc. at (949) 361-5663 or PSS Innovations, Inc. at (800) 662-6338.
2. Rear modules should overlap the hazardous fixed object in width on each side by a minimum of 30 inches, see details A, B.
3. Barriers can be installed at any distance from the shoulder, at roadway and median locations from zero ft up to 30 ft, depending upon the location of the hazardous fixed object.
4. Angling the barrier towards on-coming traffic is suggested, 3-degrees up to 10-degrees depending on space available.
5. Whenever possible, curbs 4 inches and higher should be removed from the hazardous sites. However, when removal is not possible, modules can be separated along the barrier axis to fill the situation.
6. Longitudinal spacing of modules may be increased where space permits, e.g., 2 ft up to 3 ft spacing of selected modules may permit the designer to use all the space allocated for an energy-absorbing barrier.
7. The entire area of the crash cushion installation and approaches shall be graded so that the maximum slope does not exceed 1V:10H vertically or 1H:10V horizontally in any direction.
8. Where required, support pads, concrete, asphalt, etc., will be measured and paid for in accordance with pertinent bid item.
9. Traffix Devices and PSS Innovations Sand Barrel Systems have been assessed as MASH compliant.

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**Typical Module Arrays with Corresponding Design Speed and Sand Weight (x 100 lb) Shown in Circles.**

**Configuration = 12,300 lb**

- TL-2 = 45 MPH or Lower
- TL-3 = 50 MPH or Greater

**Configuration = 14,000 lb**

- TL-2 = 45 MPH or Lower
- TL-3 = 50 MPH or Greater

**TYPICAL MODULE ARRAY**

Note: Module arrays shown are the minimum designs required. Site-specific variations of these designs will require additional details with an engineer's seal.

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**Texas Department of Transportation**

**Design Division Standard**

**VEHICLE IMPACT ATTENUATOR**

**SAND FILLED PLASTIC MODULES**

**MASH TL-3 & TL-2**

**VIA (SFPM) - 19**

**SACRIFICIAL**