

SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION PROCESS FOR DETERMINING CRASHWORTHINESS OF ROADSIDE SAFETY HARDWARE USED ON THE NATIONAL HIGHWAY SYSTEM

In conjunction with the AASHTO/FHWA Joint Implementation Agreement for the AASHTO Manual for Assessing Safety Hardware (MASH), the South Dakota Department of Transportation (SDDOT) will determine crashworthiness of roadside safety hardware used on the National Highway System (NHS). If SDDOT determines safety hardware is crashworthy and meets SDDOT's needs, the hardware will be approved for use on NHS projects. To determine if the hardware meets SDDOT's needs, SDDOT will consider factors including but not limited to ease of installation, maintenance requirements, cost, materials, in-service performance, and appropriateness for South Dakota climate.

If SDDOT has determined a product or system is crashworthy and meets SDDOT's needs, SDDOT will use good faith efforts to develop design guidance and standards so that the hardware may be integrated into construction plans. Until the guidance and standards are complete, the product or system will not be used on NHS projects.

Until acceptable equivalent hardware is available and deemed crashworthy by SDDOT, SDDOT will consider safety hardware that complies with the National Cooperative Highway Research Program (NCHRP) Report 350 to be crashworthy.

SDDOT's process for determining crashworthiness of roadside safety hardware is as follows:

Procedures for Proprietary Hardware:

1. SDDOT will determine if Federal Highway Administration (FHWA) has issued a federal-aid reimbursement eligibility letter for the proprietary hardware. Although an FHWA federal-aid reimbursement eligibility letter is desired and will be given consideration in SDDOT's crashworthiness determination, it is not a requirement.
2. Proprietary hardware must be tested at an accredited crash test laboratory that is independent of the manufacturer. The laboratory must identify and perform the tests necessary to demonstrate crashworthiness and must generate a report of test results.
3. All pertinent crash test videos, crash test reports, in-service performance records, detailed drawings, installation guidelines, specific use requirements, and specifications must be provided to SDDOT. Any efforts to receive a federal-aid reimbursement eligibility letter from FHWA must be summarized within the submittal to SDDOT. The submittal must include the manufacturer's certification that the hardware is crashworthy.

4. SDDOT will review the submitted information and determine whether the hardware complies with crashworthy requirements.
5. If SDDOT determines the hardware is crashworthy and meets SDDOT's needs, the hardware may be used on the NHS.
6. If SDDOT determines the hardware is crashworthy and meets SDDOT's needs, but a federal-aid reimbursement eligibility letter has not been issued by FHWA, SDDOT will provide FHWA with the information pertinent to SDDOT's determination. FHWA concurrence is not required for SDDOT to use the hardware on the NHS.
7. SDDOT will monitor the performance of the hardware through review of crash reports and other information.
8. At any time, SDDOT may determine that the hardware will no longer be installed on the NHS.

Procedures for Modifications to Proprietary Hardware Previously Approved for Use on NHS:

1. If SDDOT has approved proprietary hardware for use on the NHS and the hardware is subsequently modified, the hardware may not be used on the NHS until SDDOT and the manufacturer completes the process set out in this section.
2. The manufacturer will provide SDDOT with an analysis from an accredited crash test laboratory that is independent of the manufacturer. The analysis will address whether the modification will affect the hardware's performance and whether any additional testing or evaluation is needed.
3. If the crash test laboratory recommends additional testing or evaluation, then the manufacturer will provide the complete test or evaluation results to SDDOT.
4. SDDOT will review the information and determine whether the hardware is crashworthy and meets SDDOT's needs.
5. If SDDOT determines the hardware is crashworthy and meets SDDOT's needs, but a federal-aid reimbursement eligibility letter has not been issued by FHWA, SDDOT will provide FHWA with the information pertinent to SDDOT's determination. FHWA concurrence is not required for SDDOT to use the hardware on the NHS.
6. SDDOT will monitor the performance of the hardware through review of crash reports and other information.
7. At any time, SDDOT may determine that the hardware will no longer be installed on the NHS.

Procedures for Non-Proprietary Hardware:

1. SDDOT will determine if FHWA has issued a federal-aid reimbursement eligibility letter for the hardware. Although an FHWA federal-aid reimbursement eligibility letter is desired and will be given consideration in SDDOT's crashworthiness determination, it is not a requirement.
2. SDDOT will obtain and review reports and other documentation relating to whether the non-proprietary hardware is crashworthy.
3. If SDDOT determines the hardware is crashworthy, SDDOT will consider additional factors to determine if the hardware meets SDDOT's needs. The hardware may be used on the NHS if SDDOT determines the hardware meets SDDOT's needs.
4. If SDDOT determines the non-proprietary hardware is crashworthy and meets SDDOT's needs, the hardware will be shown on SDDOT's standard plates and will be included in SDDOT's standard specifications, where appropriate.
5. If SDDOT determines the hardware is crashworthy and meets SDDOT's needs, but a federal-aid reimbursement eligibility letter has not been issued by FHWA, SDDOT will provide FHWA with the information pertinent to SDDOT's determination. FHWA concurrence is not required for SDDOT to use the hardware on the NHS.
6. SDDOT will monitor the performance of the hardware through review of crash reports and other information.
7. At any time, SDDOT may determine that the hardware will no longer be installed on the NHS.

In-Service Performance:

In rare circumstances, as an alternative to any of the procedures identified above, SDDOT may determine crashworthiness based on in-service performance. In-service performance evaluation will be conducted through pooled fund studies or other research projects, or in accordance with NCHRP Report 490.