

January 26, 2026

TO: WSDOT Project Development Engineers

FROM: Mark Gaines, Development Division Director, State Design Engineer 

SUBJECT: Project Delivery Memo #26-01 – NCHRP 350 Temporary Barrier Sunset Date & Evaluation of Existing Barrier on Preservation Projects

Purpose

The purpose of this Project Delivery Memo is to provide policy and instruction for the following roadside safety related topics:

1. **NCHRP 350 Temporary Barrier Sunset Date** – The Washington State Department of Transportation (WSDOT) is implementing an NCHRP 350 Temporary Barrier Sunset Date on December 31st, 2030. After the sunset date, NCHRP 350 compliant concrete and steel barrier will no longer be allowed for temporary use on WSDOT projects, and only MASH compliant barriers will be allowed for temporary use¹.
2. **Evaluation of existing barrier on Washington Department of Transportation (WSDOT) preservation projects** – Design policy associated with evaluating existing barrier on all WSDOT preservation projects has been revised.

Background

1. **NCHRP 350 Temporary Barrier Sunset Date:**

On 1/7/2016, FHWA issued the ***AASHTO/FHWA Joint Implementation Agreement for the AASHTO Manual for Assessing Safety Hardware (MASH)***. The implementation agreement outlined a series of due dates for State Agencies to implement MASH compliancy of different roadside safety hardware categories with a final implementation date of December 31st, 2019. For the temporary work zone devices category, the implementation agreement stated that all new devices (including

¹ *The Manual for Assessing Safety Hardware (MASH), 2016 Edition is the current national standard for evaluating roadside safety hardware which has been adopted by WSDOT. MASH presents guidelines for crash testing permanent and temporary highway safety hardware and recommends evaluation criteria to assess test results. MASH crash testing guidelines (2009 – present) have replaced the previous NCHRP 350 crash testing guidelines (1993 – 2008).*

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temporary concrete or steel barrier) manufactured after the 12/31/2019 implementation date must be MASH 16 compliant. However, NCHRP 350 compliant temporary work zone devices manufactured on or before 12/31/2019 are still allowed to be used past the final implementation date.

In response to the joint implementation agreement, WSDOT HQ Development Division began work to implement MASH compliancy of the different roadside safety hardware categories. In 2018 and 2019, WSDOT met with the Association of General Contractors (AGC) and concrete industry about MASH compliancy of temporary barrier (primarily Type 2 concrete barrier). The AGC and concrete industry raised several valid concerns about requiring MASH compliant temporary barrier immediately after the 12/31/2019 sunset date and requested at least 7 years of time before requiring MASH compliant temporary barriers.

Also, WSDOT contacted the Oregon Department of Transportation (ODOT) about their implementation plans for MASH compliant temporary barrier. ODOT stated they are allowing NCHRP 350 compliant temporary barrier on ODOT projects until 12/31/2030 to give industry adequate time to procure stocks of MASH compliant barrier.

After outreach, WSDOT is setting its NCHRP 350 Temporary Barrier Sunset Date to 12/31/2030. This date follows the requirements of the AASHTO/FHWA MASH Joint Implementation Agreement, allows sufficient time for industry to update their temporary barrier stocks to MASH, and matches ODOT's sunset date providing regional consistency for the application of temporary barrier².

2. Evaluation of existing barrier WSDOT preservation projects:

On 10/7/2025, the WSDOT Development Division issued an e-mail modifying the criteria for assessing and replacing existing safety hardware on all preservation projects advertised for construction as of the e-mail date. This direction was made to more effectively balance the Department's statewide preservation needs and priorities while still maintaining the basic functionality and serviceability of the roadway system.

² On May 1st, 2024, ODOT issued Technical Services Advisory No. TR24-01(A) establishing an NCHRP 350 Temporary Barrier Sunset Date of 12/31/2030

Direction

1. NCHRP 350 Temporary Barrier Sunset Date:

For all projects beginning design (i.e., Project Summary Documents approval) on or after the date of this Project Delivery Memo, Design Manual Section 1610.06(1) is revised to read as follows:

1610.06(1) Concrete Barrier Shapes (Revised 2026)

Concrete barriers use a single-slope or safety shape (New Jersey or F-Shape) to redirect vehicles while minimizing vehicle vaulting, rolling, and snagging. A comparison of these barrier shapes is shown in Exhibit 1610-17.

The single-slope barrier face is the recommended option for embedded rigid concrete barrier applications.

The New Jersey shape and F-shape barriers are commonly referred to as “safety shapes.” The New Jersey shape and F-shape have an initial overall height of 32 inches.

As part of the implementation of MASH-compliant hardware, WSDOT has transitioned from using New Jersey shape barrier (Type 2 barrier) for precast concrete barrier to using F-shape concrete barrier (Type F barrier) instead. MASH compliant F-Shape (Type F) barrier is used in permanent or temporary installations. NCHRP 350 compliant New Jersey shape (Type 2) barrier is only allowed to be used in temporary installations until the December 31, 2030, NCHRP 350 Temporary Barrier Sunset Date. After the sunset date, NCHRP 350 compliant temporary concrete barrier (e.g., Type 2) will no longer be used in temporary installations. WSDOT is implementing the following MASH Temporary Barrier Implementation Plan for all projects:

MASH Temporary Barrier Implementation Plan

| <u>Contract Advertisement Date</u> | <u>Temporary Barrier Quantity</u> | <u>Barrier Standard Used</u> |
|--|-----------------------------------|------------------------------|
| <u>February 2020 (current policy)</u> | <u>< 1000 LF</u> | <u>MASH only</u> |
| | <u>≥ 1000 LF</u> | <u>MASH or NCHRP 350</u> |
| <u>September 2026</u> | <u>< 2000 LF</u> | <u>MASH only</u> |
| | <u>≥ 2000 LF</u> | <u>MASH or NCHRP 350</u> |
| <u>September 2027</u> | <u>< 3000 LF</u> | <u>MASH only</u> |
| | <u>≥ 3000 LF</u> | <u>MASH or NCHRP 350</u> |
| <u>September 2028</u> | <u>< 4000 LF</u> | <u>MASH only</u> |
| | <u>≥ 4000 LF</u> | <u>MASH or NCHRP 350</u> |
| <u>September 2029</u> | <u>< 5000 LF</u> | <u>MASH only</u> |
| | <u>≥ 5000 LF</u> | <u>MASH or NCHRP 350</u> |
| <u>December 31, 2030 (Sunset Date)</u> | <u>All Quantities</u> | <u>MASH only</u> |

Existing runs of serviceable Type 2 barrier permanently installed are allowed to remain in place (see Section 1610.03(2) for more information about the serviceability of concrete barrier). Use Type F when replacing existing Type 2 concrete barrier. If an existing run of Type 2 barrier requires extending, use Standard Plan C-60.30 Concrete Barrier Transition Type F to (32") Type 2 (Precast), and complete the barrier extension using Type F barrier. When removing and resetting Type 2 barrier, contact HQ Design for more details.

2. Evaluation of existing barrier on WSDOT preservation projects:

For all preservation projects advertised for construction on or after 10/7/2025, the following Design Manual Sections are revised to read as follows:

1610.03(2) Existing Roadside Safety Hardware (Revised 2026)

When directed in Exhibit 1105-1 to apply the policy and guidance in this chapter, evaluate the need to ~~upgrade~~update existing roadside safety hardware to a MASH-compliant product or design. Consider the standard to which the existing barrier or device was originally designed and tested: MASH, NCHRP 350, and pre-NCHRP 350. The decision to replace existing hardware that is not MASH-compliant is based on the project type as follows:

- All projects directed to use this chapter in Exhibit 1105-1 are required to replace pre-NCHRP 350 hardware, except for ~~breakaway cable (guardrail) terminals, which have their own independent replacement program.~~ pre-NCHRP 350 guardrail terminals (e.g., breakaway cable (guardrail) terminals (BCTs)). See Amended Project Delivery Memo #23-06 for policy and direction to evaluate and replace pre-NCHRP 350 guardrail terminals.
- In addition, all improvement and preservation projects directed to use this chapter in Exhibit 1105-1 may leave in place existing NCHRP 350 compliant hardware that is still in serviceable condition³, or alternatively may relocate it within the project limits. Note that NCHRP 350 hardware found to be in serviceable condition that is temporarily moved as part of work zone activity may also be reinstalled in its original location without the need to upgrade. See Sections 1610.03(2)(a), 1610.03(2)(b), and 1610.03(2)(c) to determine if existing roadside safety hardware is in serviceable condition. See Section 1610.04(1)(b) when placing new fixed objects behind existing Type 1 guardrail.

³ Non-serviceable barrier is solely defined as barrier eligible for replacement or repair and does not imply that the barrier is non-functional.

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- See Section 1610.04(5) for additional evaluation instructions for beam guardrail terminals.

See Chapter 1120 for additional policy on addressing existing roadside safety hardware in preservation projects.

When leaving existing barrier in place per the direction above, confirm that the configuration and layout (height, length, offset, etc.) are according to the original standard, and correct if necessary.

To promote the quantity and availability of serviceable Type 2 concrete barrier for WSDOT maintenance stocks (see 1610.03(2)(b)), stockpile existing serviceable Type 2 concrete barrier being removed as part of any given project at a local WSDOT maintenance stockyard(s) as determined by the Engineer in coordination with region maintenance (see 1610.03(2)(b) for concrete barrier serviceability). Modify contract documents as needed to support this effort to stockpile serviceable Type 2 concrete barrier at the identified WSDOT Maintenance location(s) in accordance with instructions given by the identified Maintenance staff at those location(s).

Consult with your ASDE for more information and for the latest guidance on documenting the decision to replace or not replace NCHRP 350 hardware on a project.

1610.03(2)(a) Guardrail and Guardrail Terminal Condition (Revised 2026)

On all improvement projects, Examine examine guardrail condition using the procedure and metrics in the WSDOT publication “Field Guide for Guardrail Condition Assessment,” which is found on the [Roadside Safety](#) webpage. Establish and record the specific locations that match damage classes Medium and High as described in the guide and provide a replacement or repair of the hardware at those locations as part of the project. ~~For replacement of sections in Type 1 guardrail runs involving six or more (75-foot or more) adjacent rail panels or posts and hardware associated with the adjacent panels, replace the damaged length with Type 31 guardrail components including adaptor sections to the rest of the run (see Std Plans C 20.10 and C 25.80).~~ For areas of damage with lengths \geq 100-feet, replace the entire damaged area with Type 31 guardrail including adaptor sections to the rest of the run when needed (see Std Plans C-20.10 and C-25.80). For areas of damage that comprise \geq 75% of the overall run length, replace the entire run (including transitions and/or anchors/terminals) with a new Type 31 guardrail run. When the rail damage is within 100 feet of the end of a run, replace the end of the run and upgrade the terminal if it is not MASH compliant per Section 1610.04(5).

On all preservation projects, examine guardrail condition using the procedure and metrics in the WSDOT publication "Field Guide for Guardrail Condition Assessment," which is found on the Roadside Safety webpage. Establish and record the specific locations that matches damage class High as described in the guide and provide a replacement or repair of the hardware at those locations as part of the project. For areas of damage with lengths \geq 100-feet, replace the entire damaged area with Type 31 guardrail including adaptor sections to the rest of the run when needed (see Std Plans C-20.10 and C-25.80). For areas of damage that comprise \geq 75% of the overall run length, replace the entire run (including transitions and/or anchors/terminals) with a new Type 31 guardrail run.

1610.03(2)(b) Concrete Barrier Condition (Revised 2026)

Examine the condition of the concrete barrier with respect to the following criteria.

- Concrete barrier is considered to be in potentially non-serviceable condition and needs to be replaced ~~Replace concrete barrier when~~ having one or more of the following listed issues:
 - One or more cracks that penetrate through the entire section.
 - ~~○ One or more spalls in the concrete with a depth of greater than 1.5 inches.~~
 - Exposed rebar or bolt(s) that are ~~protruding through the barrier surface~~ significantly corroded with loss of section.
 - Cracked or broken concrete that could be easily dislodged if struck by a vehicle.
 - End connection hardware that is deformed, bent, broken, corroded/rusted, and/or no longer functional.
- Concrete barrier is considered to be in serviceable condition and does not need to be replaced when having one or more of the following:
 - Only minor blemishes (e.g., dirt, scuffs, traffic marks, superficial surface cracking, spalls, etc.).
 - ~~○ Cracks or chips less than 1/2 inch deep.~~
 - ~~○ Spalls in the concrete with a depth less than 1.5 inches.~~
 - Exposed rebar or bolt(s) with minor surface corrosion and/or minor loss of section.
 - End connection hardware that is intact, undamaged, and functional.

For all preservation projects, replace existing potentially non-serviceable Type 2 concrete barrier with existing WSDOT maintenance stocks of serviceable Type 2 concrete barrier when available, or with existing serviceable Type 2 concrete barrier that is being removed elsewhere as part of the same project. If existing serviceable Type 2 concrete barrier stock from WSDOT

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maintenance yards or elsewhere on a project are not available and/or cost-effective, replace existing potentially non-serviceable Type 2 concrete barrier as follows:

- Replace damaged potentially non-serviceable Type 2 concrete barrier locations > 50-feet in length with MASH compliant Type F concrete barrier (use the required quantity of Type F barrier (Standard Plan C-60.10) with shape transitions (Standard Plan C-60.30) at the ends of the repair limits).
- Replace damaged potentially non-serviceable Type 2 concrete barrier locations ≤ 50-feet in length with either:
 - MASH compliant Type F concrete barrier (use the required quantity of Type F barrier (Standard Plan C-60.10) with shape transitions (Standard Plan C-60.30) at the ends of the repair limits); or,
 - New or existing serviceable Type 2 concrete barrier. The contractor may procure existing serviceable Type 2 concrete barrier from other sources or fabricate new Type 2 concrete barrier.

Questions

Contact your ASDE for questions or information on how to implement this Project Delivery Memo.

MG:tjm

Attachments:

cc: Regional Administrators
Assistant Regional Administrators
Assistant State Design Engineers
Assistant State Construction Engineers
Omar Jepperson - SR 520 and AWV Program Administrator
Frank Green - IBR WA Assistant Program Administrator
John H White - Puget Sound Gateway Program Administrator
Lisa Hodgson - I-405/SR 167 Program Administrator
Tim Rydholm - Deputy Director, Capital Program Development & Management Division