Vendor Name: _____

Product Name: _____

---

**General Instructions:** Submit a separate form for each product including all required supporting documentation. The Nevada Department of Transportation (the department) may update this form without notice; make sure you are using the latest version. Questions should be directed to the department's product evaluation coordinator at (775) 888-7894.

**Product type:** Select only one.

| | |
|---|---|
| Mailbox support | Guardrail end terminal |
| Guardrail offset block | Transition section |
| Crash cushion | Cable barrier system |
| Truck mounted attenuator | Longitudinal channelizing barricades |

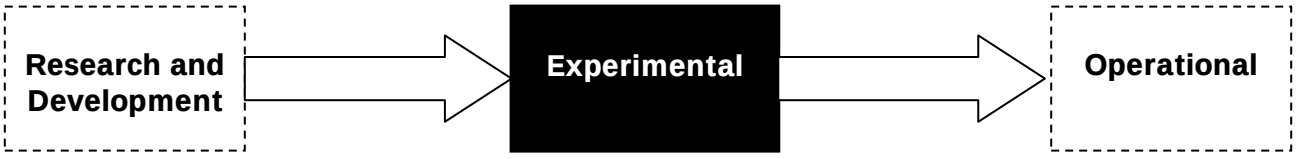
Other (describe): _____

**Application:** Indicate the product's intended use; if intended for both applications please submit a separate supplemental product information form for each.

Permanent applications

Temporary applications (work zone traffic control, incident management, etc.)

**Product status.** Use this form only if: [a] the product has successfully completed the NCHRP Report 350 "research and development phase" (testing) and the vendor is now targeting public agencies to consider introducing the product into the public transportation system per the experimental phase of NCHRP Report 350, and [b] the vendor has a letter from the Federal Highway Administration stating the product is acceptable for use on the national highway system.




Note: If another public agency has issued an in-service performance report that deems the product operational in accordance with NCHRP Report 350, the product can be submitted using the supplemental product information form for operational products. However, if the department finds that report insufficient to make its own determination on the product's status, such as when significant geographic diversity exists between the jurisdictions, then it will require the product to be resubmitted as experimental.

**Experimental process.** In accordance with NCHRP Report 350 (Chapter 7), after successful completion of the research and development phase (full scale crash testing) a product's in-service performance must then be evaluated. If, based on review of the available product information, the department deems the product's potential for use on Nevada's roads is in the public's interest; the department may elect to collaborate with the vendor on conducting an in-service performance evaluation. In that event the vendor submits a detailed in-service evaluation plan that includes

provisions for: funding, training, installation, monitoring, data acquisition, maintenance, documentation and scheduling. The plan shall also: [a] incorporate the recommendations contained in Chapter 7 of NCHRP Report 350, [b] reasonably conform to the procedures in NCHRP Report 490, and [c] conform to the in-service performance evaluation requirements of the department. If the vendor and the department reach agreement on a plan, then the product is evaluated and a report of the findings is issued. If the department deems the product operational as a result, the department is not obligated to approve the product for use on its roads.

## SECTION A: Product information

The information in this section is to be provided by the vendor at the time of submittal. Fill out this section of the form completely; use additional paper as needed to provide complete responses if you are using a hardcopy of this form. Responses of "Not Applicable" (N/A) must be accompanied by an explanation of why the inquiry is thought to be irrelevant. Any inquiry not adequately addressed will render the submittal incomplete. Incomplete, false or misleading information is cause for rejection of the submittal.

1. Product background

1.1. Describe what the product is intended to be used for:

1.1.1. What problem(s) does the product solve or address? _____

1.1.2. List any conditions that limit the use of this product to specific situations: _____

1.2. Describe in detail the operating principles of the product: _____

1.2.1. List any patents associated with the product: _____

1.3. Discuss the proliferation of the product. Where is the product deployed? Is the product in use on national, state and/or local roads? Is it in use on privately owned facilities? Attach letters from the owner agencies explaining the status of the product in regard to the developmental phases described in NCHRP Report 350.

1.3.1. List location(s) deployed: _____

1.3.2. List the total quantity deployed: _____

1.4. Describe known limitations, issues or problems associated with the product's working capabilities.

1.4.1. Describe the debris field generated by an impact including the physical properties of material that becomes separated; how far and in what direction it travels; and the potential effect on motorists, pedestrians and cyclists: _____

1.4.2. How well does the product tolerate the accumulation of trash, vegetation and other materials in or around the installation? _____

1.4.3. Does the product require adjustments, resetting or other changes to accommodate pavement overlays (height changes) on the adjacent roadway? _____

1.4.4. Other

If not, explain: _____

1.5. List any advantages or superior performance characteristics the product has relative to other products of this type: _____

1.5.1. Describe any public interest findings associated with the sole source use of the product by other agencies: _____

1.6. Explain any special requirements for your product; below are suggested considerations in this regard for each type of product: _____

- Mailbox support: mounting hardware, post size, box size

_____

_____

- Crash cushion: mounting hardware, mounting space, grading

_____

_____

- Guardrail end terminal: mounting hardware, mounting space, grading, post heights

_____

_____

- Truck mounted attenuator: attachment method, vehicle, electrical connections

_____

_____ or

- Longitudinal channelizing barricades: mounting hardware, mounting space

_____

_____.

1.7. Provide copies of any performance testing reports and/or results including videos (videos must be on CDROM or DVD, VHS or other tape format is not acceptable):

_____

_____

1.7.1. NCHRP Report 350 research and development phase:

_____

_____

1.7.2. NCHRP Report 350 experimental phase (ISPE):

_____

_____

1.7.3. European Standard EN 1317:

_____

_____

1.7.4. Australia and New Zealand Standard AS/NZS 3845:

_____

_____

1.8. What public agencies reviewed, tested and/or evaluated the product?

1.8.1. List any that have disapproved the product including when and why:

_____

_____

1.8.2. List those currently evaluating the product and the status of the evaluation:

_____

_____

1.8.3. List any that have approved this product for use on their roads, when they approved it, and any conditions or limitations associated with the approval:

_____

_____

1.9. Describe any litigation or complaints that the product is involved with:

1.9.1. Describe cases that have been completed including the case number, the outcome and/or ruling, and the court/jurisdiction where the litigation occurred:

_____

_____

1.9.2. Describe cases that are still unresolved including the case number, the nature of the complaint and the court/jurisdiction where the litigation is pending:

_____

_____

1.9.3. Describe out of court negotiations or settlements including the nature of the complaint and the outcome:

_____

_____

2. Material information

2.1. Compatibility with industry standards

2.1.1. Explain how the product connects or mount to existing industry standard materials such as W-beam and 3-beam guardrail; concrete barriers of various shapes; and bridge rails:

_____

_____

2.2. Provide copies of material safety data sheets (MSDS) for qualifying materials.

2.3. Does the product comply with federal laws and regulations regarding goods and materials used in association with federal actions (i.e. the Buy America Act)?

2.3.1. ☐ Yes. Please explain all:

_____

_____

2.3.2. ☐ No. Please explain all:

2.4. Over the years, products can evolve to where components are not interchangeable. Furthermore, an inexperienced person can easily confuse products that are similar in appearance but that require different, non-interchangeable components. Is this product, and its components, permanently labeled, stamped or otherwise marked to distinguish them from among similar models or from other similar products?

2.4.1. If the product is not so marked, explain why and discuss how the problem of identification is to be addressed:

2.5. Chemical and physical characteristics

2.5.1. Metal

2.5.1.1. Do beam-type components, normally comprised of rail members and end or terminal pieces, conform to AASHTO M180, Type I, Class A, except galvanize after fabrication? If not, explain:

2.5.1.2. Are metal posts and related mounting hardware fabricated from structural steel conforming to AASHTO M183 and galvanized according to AASHTO M111? If not, explain:

2.5.1.3. Fasteners and hardware

2.5.1.4. Galvanizing.

2.5.1.5. Does galvanizing of products one eighth of an inch thick and thicker, that are fabricated from rolled, pressed, and forged iron and steel shapes, castings, plates, bars, and strips, conform to ASTM A123? If not, explain:

2.5.1.6. Does galvanizing of bolts, nuts, washers, and fastenings conform to ASTM A153? If not, explain:

2.5.1.7. If hot-dipped galvanizing is not used, are ferrous metals mechanically galvanized according to ASTM B695? If not, explain:

_____

_____

2.5.1.8. Do the galvanized products conform to the coating thickness, adherence, and quality requirements of AASHTO M232? If not, explain:

_____

_____

2.5.1.9. Does the material and procedures for repair of damaged galvanizing conform to ASTM A780? If not, explain:

_____

_____

2.5.2. Wood

2.5.2.1. Species. Are wood components fabricated from species recognized by the department as follows: Douglas Fir, coastal (Pseudotsuga menziesii var. menziesii); Douglas Fir, interior (Pseudotsuga menziesii var. glauca); Western Hemlock (Tsuga heterophylla); Western Larch (Larix occidentalis); Lodgepole (Pinus contorta); Redwood (Sequoia sempervirens); Southern Pine (Pinus taeda); Ponderosa Pine (Pinus ponderosa); Jack Pine (Pinus banksiana)? If so, which ones? _____ If not, explain:

_____

_____

2.5.2.2. Grades. AASHTO M168, the West Coast Lumber Inspection Bureau and the Western Wood Products Association grading rules may be used.

2.5.2.3. Do structural timber and lumber components meet appropriate numerical stress requirements when graded by rules developed according to AASHTO M168 or the equivalent? _____ If not, explain:

_____

_____

2.5.2.3.1. Do guardrail posts and blocks meet the following requirements?

_____

_____

- Douglas Fir or Western Larch shall conform to the requirements for "No. 1 Structural" grade as set forth in the grading rules of the West Coast Lumber Inspection Bureau or the grading rules of the Western Wood Products Association.
- Western Hemlock shall conform to the requirements for "Select Structural" grade as set forth in the grading rules of the West Coast Lumber Inspection Bureau or the grading rules of Western Wood Products Association.
- Southern Pine shall conform to the requirements for "No. 1 SR" grade as set forth in the grading rules of the Southern Pine Inspection Bureau.

2.5.2.4. Preservatives. Describe the type of preservative and the method of treatment for each wood component citing the applicable American Wood-Preservers Association (AWPA) standards:

_____

_____

2.5.3. Plastic. Provide the ASTM D-4000 classification for plastic components _____; the department may require different or additional tests accordingly. Certain plastics deteriorate under exposure to sunlight and other natural elements; accordingly, plastic components must demonstrate acceptable performance characteristics under exposed conditions per testing with the current version of the following ASTM. New samples and samples subjected to the current version of ASTM G90 – Accelerated weathering, for cycles representing 20 and 40 years, shall be used in each of the following test methods:

- D543 - Resistance to chemical reagents;
- D570 - Water absorption;
- D638 - Tensile properties;
- D695 - Compressive properties;
- D790 - Flexural properties;
- D2244 - Color differences;
- 5420 - Impact resistance;
- B117 - Salt spray exposure.

Note. Provide an explanation if other tests are substituted for those listed above; however, such substitutions will be rejected if, at the sole discretion of the department, the original or another test is more appropriate.

_____

_____

2.5.4. Liquid, gas, paste, powder, etc.

2.5.4.1. Describe the materials used for installing and maintaining the system including their purpose, application rates, specific brand names, temperature restrictions, mixing and application instructions, and other relevant information:

2.5.4.1.1. Lubricants:

_____

_____

2.5.4.1.2. Bond breakers and/or anti-seize:

_____

_____

2.5.4.1.3. Adhesives (including thread lock):

_____

_____

2.5.4.1.4. Coatings (paint, preservatives, etc.):

_____

_____

2.5.4.1.5. Other:

_____

_____

2.5.4.2. Provide the MSDS for each product.

3. Construction and maintenance

3.1. Describe the work force needed for constructing and maintaining the product:

3.1.1. How many workers are needed, and why, to:

3.1.1.1. Install and/or construct the product?

_____

_____

3.1.1.2. Maintain, repair and/or replace the product?

_____

_____

3.1.2. What special training or technical expertise (i.e. journeyman crane operator) is needed to:

3.1.2.1. Install and/or construct the product?

_____

_____

3.1.2.2. Maintain, repair and/or replace the product?

_____

_____

3.2. Describe the equipment needed for constructing and maintaining the product:

3.2.1. What standard tools and/or equipment (those commonly found around a shop or worksite) are needed to:

3.2.1.1. Install and/or construct the product?

_____

_____

3.2.1.2. Maintain, repair and/or replace the product?

_____

_____

3.2.2. What specialized tools and/or equipment (those that will likely need to be obtained for use with the product) are needed to:

3.2.2.1. Install and/or construct the product?

_____

_____

3.2.2.2. Maintain, repair and/or replace the product?

_____

_____

3.3. Describe any disposal requirements or details associated with the product including the packaging and shipping materials:

3.3.1. Does the United States of America or the State of Nevada regulate the disposal of any materials contained in the product?

_____

_____

3.3.2. Explain the salvage and/or recycling potential of the product's components:

3.4. Describe the sequence of activities, and the associated time requirements, that are normally needed to:

3.4.1. Install and/or construct the product.

3.4.2. Maintain, repair and/or replace the product.

3.5. Describe the equipment and methods recommended to load and transport the product:

3.5.1. To and around the worksite.

3.5.2. Around the storage facility.

3.6. Describe the storage requirements for:

3.6.1. Spare parts, hardware and materials needed to maintain, repair and/or replace the product:

3.6.1.1. What is the recommended supply of parts to keep on hand,

3.6.1.2. How much indoor or outdoor space is needed,

3.6.1.3. Restrictions on the storage area (temperature, moisture, etc.)

3.6.1.4. What is the shelf life of each:

_____

_____

3.6.2. Complete replacement units:

3.6.2.1. How much indoor or outdoor space is needed,

_____

_____

3.6.2.2. Restrictions on the storage area (temperature, moisture, etc.)

_____

_____

3.6.2.3. What is the shelf life:

_____

_____

3.7. Availability

3.7.1. Lot descriptions (what is the number provided or the number you have to order at one time, number per run cycle – example: sold buy the each, ten per case, ten cases per lot):

_____

_____

3.7.2. Back stock (what is the quantity you have on hand at all times – parts and whole units, are we able to obtain parts from other sources'): Please explain:

_____

_____

3.7.3. Procurement time (what is the time frame after the order is placed to receive – parts and whole units – in Nevada): Please explain:

_____

_____

4. Design

4.1. Describe the preparation of the installation site:

4.1.1. Grading requirements (approach area, runout area, slope and grade limitations, drainage, soil requirements, etc.):

_____

_____

4.1.2. Removal of incompatible features (curbs, poles, sub-surface utilities, etc.); include minimum clearances and other relevant information:

_____

_____

4.1.3. Other:

_____

_____

4.2. Describe any factors that should be considered when determining appropriate locations for the product:

4.2.1. Debris field:

4.2.1.1. The size and relative shape of the affected area:

_____

_____

4.2.1.2. The mass and velocity (energy) of the released objects:

_____

_____

4.2.2. Post-impact vehicle trajectory and/or containment:

_____

_____

4.3. Describe applications that the product is intended for and any similar applications the product is not suited for (i.e. may be suitable for temporary situations but not for permanent; or may not be suitable for urban areas):

_____

_____

4.4. Summarize the product's operational characteristics (i.e. gating or non-gating, restorative properties, side-impact redirection, deflection limits, and NCHRP350 test levels):

4.5. Summarize the factors that should be considered to determine appropriate use of the product:

4.6. Describe the requirements for connecting or anchoring the product to the road; include concrete slabs and foundations, backing, cables, traffic barrier connections, etc.:

5. Service

5.1. Maintenance

5.1.1. Summarize the annual cost for labor, materials, equipment and time:

5.1.2. Describe the routine maintenance needed to keep the system working properly:

5.1.3. Replacement schedule

5.1.3.1. How often will the product, or parts thereof, need replacement due to normal wear?

5.1.3.2. What could require replacement due to natural events (floods, mud slides, hail storms, dust storms, blizzards, excessive snow accumulations, etc.):

5.1.4. Discuss any maintenance considerations not addressed above:

5.2. Durability and continued performance

5.2.1. Discuss the susceptibility of the product and its components to dilapidation:

_____

_____

5.2.1.1. Fatigue (the weakening of materials from dead load stresses); cite tests that were conducted and include lab reports:

_____

_____

5.2.1.2. Wear (the erosion of structural components from friction); cite tests that were conducted and include lab reports:

_____

_____

5.2.1.3. Decomposition (the failure of materials from chemical change); cite tests that were conducted and include lab reports:

5.2.1.3.1. Cracking:

_____

_____

5.2.1.3.2. De-lamination:

_____

_____

5.2.1.3.3. Blistering:

_____

_____

5.2.1.3.4. Corrosion:

_____

_____

5.2.2. Traffic conditions. Comment on each regarding the potential failure of the system or its components that could affect the long term service life due to the following:

5.2.2.1. Dynamic loading:

5.2.2.2. Vehicle emissions:

5.2.2.3. De-icing or anti-icing materials:

5.2.2.4. Vibration:

5.2.2.5. Build up of blow sand and tire rubber:

5.2.3. Environmental. Comment on each regarding the potential failure of the system or its components that could affect the long term service life due to the following:

5.2.3.1. Solar radiation:

5.2.3.2. Soils:

5.2.3.2.1. Moisture:

5.2.3.2.2. Chemical reactivity:

5.2.3.2.3. Insects:

5.2.3.2.4. Vegetation:

5.2.3.3. Temperature:

5.2.3.3.1. Operational range:

5.2.3.3.2. Freeze-thaw cycle:

5.2.3.4. Climate:

5.2.3.4.1. Wind:

5.2.3.4.2. Dust:

5.2.3.4.3. Rain:

5.2.3.4.4. Snow:

5.2.3.4.5. Humidity:

6. Other

6.1. Aesthetics

6.1.1. Describe the product's resistance and/or susceptibility to graffiti:

6.1.2. Describe the available options of finish textures:

6.1.3. Describe the available options of finish colors:

6.2. Bicycle issues

6.2.1. Discuss how the product relates to, or potentially affects, bicyclists:

6.3. Pedestrian issues

6.3.1. Discuss how the product relates to, or potentially affects, pedestrians:

7. Supporting information

7.1. Attach an in-service performance evaluation plan (ISPE) in accordance with NCHRP Report 350, NCHRP Report 490 and the department's "Conducting In-Service Performance Evaluations of Proprietary Products on Nevada's Roads". The plan must include provisions for funding, training, installation, monitoring, data acquisition, maintenance, documentation and scheduling.

7.2. Summarize any proprietary items or components associated with this product. Proprietary indicates that a party, or proprietor, exercises private ownership, control or use over an item of property, usually to the exclusion of other parties:

7.3. Summarize your plan for the long term availability of the product and it's parts:

7.4. Discuss your product in terms of providing new or better products:

7.4.1. Market competition:

7.4.2. Improved performance:

7.4.3. Improved cost/benefit ratio:

7.4.4. General public safety:

## SECTION B: Departmental review

The information in this section is to be completed by NDOT Standards and Manuals Engineer at the time of review. Please use additional paper as needed to provide complete responses.

8. Applicable standards

8.1. ASTM (American Society for Testing and Materials Standards): Please explain:

8.2. AASHTO (American Association of State Highway and Transportation Officials): Please explain:

8.3. ADA (American Disability Act): Please explain:

8.4. FHWA (Federal Highway Administration): Please explain:

8.5. EPA (Environmental Protection Agency): Please explain:

8.6. TRPA (Lake Tahoe Regional Planning Agency): Please explain:

8.7. NDOT (Nevada Department of Transportation) (comment on how the product meets the following industry standards):

8.7.1. Specifications: Please explain:

8.7.2. Construction details: Please explain:

8.7.3. Design Policy: Please explain:

8.7.4. Engineering: Please explain:

8.7.5. Aesthetics: Please explain:

9. Other issues

9.1. Proprietary items: Please explain:

9.2. long term availability:

9.3. Need for new products: Please explain:

9.4. Market competition: Please explain:

9.5. Improved performance: Please explain:

9.6. Improved cost/benefit ratio: Please explain:

9.7. Safety: Please explain: