

**DIFFERENCES IN TECHNICAL VOCABULARY WHEN REFERRING TO DESIGN TREATMENTS FOR HISTORIC BRIDGES**

Preservation professionals and bridge engineers have different definitions for commonly used terms applied to maintenance and design treatments for historic bridges, which indicate differences in perspectives and can lead to confusion between engineers and preservation professionals. The technical definitions used by bridge engineers reflect a focus on functionality, service life, safety, and structural integrity of historic bridges. The technical definitions used by preservation professionals reflect a focus on identifying and protecting features that convey historical significance and includes assessing a project’s impacts on the seven aspects of physical integrity (location, setting, materials, design, workmanship, feeling, association), as defined by federal regulations at 36 CFR Part 60.4. Understanding the differences between these professional viewpoints is vital to effective communication and collaboration on historic bridge projects. The table below highlights these different perspectives on bridge activities.

<b>Preservation Professional’s Definition<sup>1</sup></b>	<b>Bridge Engineer’s Definition<sup>2</sup></b>	<b>Differences in Perspective</b>
<p><b>Preservation</b> – The act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction.</p>	<p><b>Preservation</b> – The act or process of preventing, delaying, or reducing deterioration of bridges or bridge elements; restoring the function of existing bridges; keeping bridges in good condition; and extending their life. Preservation can be achieved through preventative maintenance or rehabilitation activities.</p>	<p>Guided by the <i>Secretary of the Interior’s Standards for the Treatment of Historic Properties</i>, preservation professionals focus on long-term retention of historic materials.</p> <p>Bridge engineers focus on maintaining functionality and meeting safety and capacity requirements.</p> <p>Preservation activities from an engineering perspective may involve modifications or additions to historic fabric, which may not be considered “preservation” to preservation professionals.</p>

<sup>1</sup> Source: *Secretary of the Interior’s Standards for the Treatment of Historic Properties*

<sup>2</sup> Source: Federal Highway Administration (FHWA) Bridge Preservation Task Group.

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**Preservation Professional's Definition<sup>1</sup>****Bridge Engineer's Definition<sup>2</sup>****Differences in Perspective**

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**Rehabilitation** – The act or process of returning a property to a state of utility and making a possible compatible use for a property through repair, alterations, and additions which makes possible an efficient contemporary use while preserving these portions or features which convey its historical, cultural, or architectural values.

**Rehabilitation** – The act or process of completely restoring bridge elements or components to improve structural integrity and correct major safety defects. Per FHWA, rehabilitation is one of two preservation activities, the other being preventative maintenance.

Guided by the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, preservation professionals focus on a combination of retention and repair of historic materials to maintain the overall historic character of the bridge. Replacement of historic materials may be permitted if retention and repair are not feasible.

Bridge engineers focus on safety, capacity, and functionality requirements. Rehabilitation activities from an engineering perspective may involve replacement or major repairs, and strengthening of bridge components, which may not be considered "rehabilitation" to preservation professionals.

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**Restoration** – The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period.

**Restoration** – No comparative definition.

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Guided by the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, preservation professionals focus on retention of materials from a specific time in a property's history and permits removal of materials outside that historic period. Bridges are functional structures that change over time to meet traffic needs and other requirements. Bridge restorations are not typical but may be used in cases of fire to a timber bridge or for interpretive use, such as at a museum.

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## Preservation Professional's Definition<sup>1</sup>

**Reconstruction** – The act or process of depicting by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

## Bridge Engineer's Definition<sup>2</sup>

**Reconstruction** – No comparative definition.

## Differences in Perspective

Guided by the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, preservation professionals may work to accurately depict the appearance and location of an historic bridge in the design of a new structure. From an engineering perspective, a new bridge must be designed to meet standards for safety and capacity and accurately depicting the appearance may be of secondary importance.

## SOURCES FOR MORE INFORMATION

*Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*. Available at [http://www.nps.gov/hps/tps/standguide/overview/choose\\_treat.htm](http://www.nps.gov/hps/tps/standguide/overview/choose_treat.htm). Standards and guidelines provided by the National Park Service intended to promote responsible preservation practices.

*Guidelines for Historic Bridge Rehabilitation and Replacement of Historic Bridges*, American Association of State Highway and Transportation Officials. Available at [http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25\(19\)\\_FR.pdf](http://onlinepubs.trb.org/onlinepubs/archive/NotesDocs/25-25(19)_FR.pdf). Summarize a survey of state and local transportation agencies regarding historic bridge rehabilitation and replacement decisions and presents nationally applicable decision-making guidelines for historic bridges. The guidelines also identify approaches to bringing historic bridges into conformance with current design and safety guidelines/standards, and the effect or implications of remedial action on historical significance.

*A Management Plan for Historic Bridges in Virginia* with adapted Standards for historic bridges, Virginia Transportation Research Council. Available at <http://www.virginiadot.org/programs/resources/01-r11.pdf>. The *Secretary of the Interior's Standards for the Treatment of Historic Properties* are typically interpreted and applied to historic buildings; because the function of bridges is reflected in their design and construction this imposes limitations on continued or alternative uses that do not apply in the same degree to buildings. As a result, the Virginia Transportation Research Council adapted the *Secretary of the Interior's Standards for the Treatment of Historic Properties* to address the unique requirements of historic bridges and this management plan includes 10 Standards for rehabilitating historic bridges.

*Bridge Preservation Guide*, Federal Highway Administration. Available at <http://www.fhwa.dot.gov/bridge/preservation/guide/guide.pdf>. Provides guidance on bridge preservation and a framework for a systematic approach to a preventative maintenance program.