

# Management Considerations for Historic Roads in Virginia

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**FINAL REPORT**

**MANAGEMENT CONSIDERATIONS FOR HISTORIC ROADS IN VIRGINIA**

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In Cooperation with the U.S. Department of Transportation  
Federal Highway Administration

Virginia Transportation Research Council  
(A partnership of the Virginia Department of Transportation  
and the University of Virginia since 1948)

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## ABSTRACT

Historic roads—those eligible for or listed on the National Register of Historic Places—may require special planning, design, and management considerations so as to avoid negative effects on their significant elements. This study identified various issues that can affect historic roads. Drawing on this information, the study identified appropriate considerations for management of historic roads. These include documentation, considerations for planning for repair and improvement design, and maintenance practices that can be used for advance planning purposes and will not adversely affect a road’s elements of historic integrity. Because historic roads can feature a wide variety of types and significant elements, a document such as this report can be particularly useful in cultural resource review relating to transportation issues. For this reason, this study was both identified as an important need and requested by cultural resource personnel of the Virginia Department of Transportation (VDOT).

Major conclusions of the study include the following: (1) the history, needs, and condition of any historic road are unique and need to be considered as such in planning and management; (2) accurate documentation of the history, construction, and changes over time to an historic road is vital to planning any project involving such a road; (3) various elements—history, historic structures and related cultural resources, changes to the road, associated landscapes, current condition, current stakeholder input, and current transportation needs—must be considered when project planning involves historic roads; (4) it is feasible to identify and explore maintenance practices that will not overly change the appearance of historic roads or affect their historic significance but rather will improve the maintenance and safety of the roadways; and (5) appropriate actions and treatments for historic roads and roadside elements may differ from modern aesthetics.

The study also included case studies of two roads in Virginia for which maintenance and repair/improvement design practices had become issues: (1) a road listed on the National Register of Historic Places, and (2) a road eligible for the National Register of Historic Places.

Study recommendations include (1) coordination between VDOT’s Environmental Division and other appropriate VDOT divisions, depending on project scope, of activities that might have an effect on the character-defining features of an historic road for which a project is being developed; and (2) documentation of the earlier/original appearance(s) and changes to an historic road in order to have the most accurate information for planning purposes when a project involving that road is being developed.

## **FINAL REPORT**

### **MANAGEMENT CONSIDERATIONS FOR HISTORIC ROADS IN VIRGINIA**

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#### **INTRODUCTION**

Historic roads, i.e., those eligible for or listed on the National Register of Historic Places (hereinafter “National Register”), may require special planning, design, and management considerations so as to avoid negative effects on their significant elements. This study identified various issues that can affect historic roads. Drawing on this information, the study identified appropriate considerations for management of historic roads. These include documentation, considerations for planning for repair and improvement design, and maintenance practices that can be used for advance planning purposes that will not adversely affect a road’s elements of historic integrity.

The study also included case studies of two roads in Virginia for which maintenance and repair/improvement design practices had become issues: (1) a road listed on the National Register, and (2) a road eligible for the National Register. Because roads can feature a wide variety of types and significant elements, a document such as this report can be particularly useful in cultural resource review relating to transportation issues. For this reason, this study was both identified as an important need and requested by cultural resource personnel of the Virginia Department of Transportation (VDOT).

#### **PURPOSE AND SCOPE**

The purpose of this study was to identify management considerations and appropriate management practices for roads in Virginia that are listed on or eligible for the National Register. The information in this study is intended as a reference for the management of Virginia’s historic roads for VDOT cultural resource, planning, and maintenance personnel.

It should be noted that the category of historic roads, and their requirements, their reasons for significance, and their treatment, differs from the category of scenic roads (such as Virginia Byways, All American Roads, and National Scenic Byways), which have separate requirements not necessarily related to historic significance. Some roads are both historic roads and scenic roads; however, scenic roads are first and foremost roads through areas of natural beauty (although this can include historic sites) and are often closely related to tourism. Requirements and considerations for historic (i.e., National Register-eligible) roads are covered in detail in *Identification and Application of Criteria for Determining National Register Eligibility of Roads in Virginia* (Miller, 2003), published by the Virginia Transportation Research Council (VTRC). (Hereinafter, a report published by VTRC is called “a VTRC report.”)

## METHODS

Four tasks were conducted to achieve the study objective:

1. *Conduct a literature review and collect data on existing management resources, practices, and considerations for historic roads.* This task identified resources, practices, and considerations previously developed in Virginia and elsewhere in the United States. This material included previous Virginia surveys and management recommendations (both statewide and local projects and initiatives) and more wide-ranging material such as that from the National Park Service *Historic American Engineering Record* [HAER] studies, National Cooperative Highway Research Program (NCHRP) reports, and management recommendations for historic roadways developed by private entities and other states.
2. *Identify case study roads and examine historical data on these roads.* It would be outside the scope of this study to present examples of all types of historic roads in Virginia, since the history, condition, significant elements, and reasons for historic significance for any historic road vary and essentially are unique for each case. Therefore, it was proposed to identify one suburban and one rural road as case study roads, with the roads to be chosen in discussion with the study's technical review panel. Documentation on these roads was examined to identify background information and historic context, including previous repairs and alterations. The case study roads are examined in the Appendix.
3. *Identify management issues and considerations.* Various issues concerning historic roads were identified in the literature review and case study road research. This information was used to identify factors to be considered in this study.
4. *Formulate recommendations.* The information on issues and considerations was used to formulate recommendations for the management of historic roads in Virginia.

## RESULTS AND DISCUSSION

### Literature Review

The literature review identified general issues, examples of information gathering, and recommended management practices that have been undertaken in the United States on a national basis, by individual states, and specifically in Virginia.

The materials that were reviewed included materials from a collection of HAER studies; a HAER historical report; two NCHRP projects; a privately produced guide to historic road management practices; National Register nominations; and a number of publications from state departments of transportation, including those from VDOT. The publications of a number of local and regional Virginia groups were also reviewed. However, the scope and content of this

material varied widely. Some works were primarily related to historical documentation; others identified types of cultural resources for consideration or concentrated on the management of scenic roadways regardless of historic significance. A number identified and recommended context sensitive design (also commonly known as “context sensitive solutions”) and practices such as traffic calming. Other materials concentrated on the history and management of individual roads or areas, and some contained guidance or recommendations for preservation of historic roads or elements related to such roads.

In particular, an important part of many of these publications was attention to context sensitive design (also known as context sensitive solutions): the need for the highway planning and design process to consider and respond to the local context and community, particularly regarding local scenic, historical, aesthetic, environmental, and other cultural values. Since the 1990s, this process has been endorsed by the Federal Highway Administration and the American Association of State Highway and Transportation Officials (AASHTO) and adopted by state departments of transportation. A large part of this practice includes flexibility in dealing with such elements as cultural and scenic resources, local landscapes and vegetation (particularly native vegetation), and traditional cultural activities.

### **General and Non-Virginia Studies**

From the standpoint of documentary resources and sheer breadth of information, perhaps the most valuable sources identified during the literature review were *America’s National Park Roads and Parkways: Drawings from the Historic American Engineering Record* (Davis et al., 2004) and *Historic Roads—A Synthesis of Identification and Evaluation Practices* (2017), prepared for the AASHTO Standing Committee on the Environment for NCHRP Project 25-25, Task 97, by New South Associates.

*America’s National Park Roads and Parkways: Drawings from the Historic American Engineering Record* (Davis et al., 2004) provides a highly detailed record of the plans, HAER measured drawings, and related documentary data for park roads in America. This material includes valuable information on late 19th century and early and mid-20th century road, bridge, and culvert planning and construction practices for (largely but not exclusively rural) national park roads and related structures. The drawings and historical background information also include documentation on such diverse elements as landscapes, earthmoving, paving, signage, intersections, viaducts, tunnels, various cultural and natural resources, and many other components of national park landscapes.

*Historic Roads—A Synthesis of Identification and Evaluation Practices* (2017) is a useful (and exhaustive) study of historical research and documentation, context studies, and evaluation projects and practices relating to early and historic roads in the United States. Federal and state reports and publications, archival volumes and reprints, and conference papers were identified and noted in this study, as were a small number of papers referencing appropriate treatments for elements of historic roads.

*The Preservation Office Guide to Historic Roads: Clarifying Preservation Goals for State Historic Preservation Offices, Establishing Preservation Expectations for State*



*Transportation Departments* (Marriott, 2010) was produced by a private consultant with underwriting from the James Marston Fitch Charitable Foundation, with the intention that it could serve as a guide for state historic preservation offices and departments of transportation. It includes general road history / road types, terminology, and related ideas. This document is approximately one-half historical background and context. Topics include general history of roads; different types of roads (e.g., evolved roads and engineered roads); background of tourism and roads; scenic roads; historic overviews of selected major roads and initiatives (e.g., the Pennsylvania Turnpike and the interstate system); transportation policy (e.g., safety and liability); background of the Federal Highway Administration, the National Highway System, the *Manual on Uniform Highway Traffic Control Devices* (MUTCD), AASHTO, context sensitive solutions, and key transportation terms and concepts; overview of preservation policy, safety features, and selection of new or replacement features; and a glossary of terms. Particularly valuable are sections in the text that caution against inserting—in the name of context sensitive solutions—decorative features (such as ornamental lighting or pavements) where they are not appropriate to the historic appearance of the road.

The final report for NCHRP Project 25-29A, *Design and Management of Historic Roads* (McCahon et al., 2012), “explores how the inherent flexibility in the current policies, manuals, criteria, rules, standards, and data sets that underlie the transportation planning and project development process may be used to preserve historic roads and roads in historic districts and settings.” Advocacy for flexibility in design and planning documents forms a major part of this text.

Studies from other states are divided between historic roads studies/surveys and management. An exhaustive list of these is not given here (but can be gleaned from *Design and Management of Historic Roads* [McCahon et al., 2012]). Two of the most useful examples, from Maryland and New Jersey, are described here:

1. *Maryland Byways; Sustaining the Roads Less Traveled: Context Sensitive Solutions for Work on Maryland Byways* (Maryland State Highway Administration, 2008), although essentially a context sensitive design/solutions guide (rather than a guide to historic road preservation), is a valuable, concise document, with considerable application to historic roads. It gives an overview and notes context sensitive design principles, the nature of scenic qualities and resources (natural, historical, cultural, archaeological, and recreational), and the character of the road and the roadside. Points that are stressed include the importance of (1) identifying elements of the road and roadside that contribute to and define a byway’s scenic and/or historic character (including not only structures but also landscaping, signs, and native plants); (2) preserving and maintaining character-defining features and specific intrinsic qualities or resources; and (3) determining project goals and appropriate treatments. This short publication is not meant to be an exhaustive listing but rather provides broad guidelines for use in identifying important elements for planning specific projects involving byways.
2. *New Jersey Historic Roadway Design Guidelines* (2012), a joint project of the New Jersey Department of Transportation, the Federal Highway Administration, and the

New Jersey Historic Preservation Office, contains a variety of useful sections, including overviews on identification of historic significance, types of roadway elements, road history, bridge elements, preservation principles, identification of character-defining features, brief discussions of appropriate lighting, landscaping, signage, barriers, guide rails, fences, railings, paving, and bridge/structure treatments. Case studies and a glossary are also included. This study followed the *New Jersey Historic Roadway Study* (2011), which examined road history and historic roadways in the state and was issued the previous year.

Common, and significant, concerns and themes in most of these (non-Virginia) studies relate to context sensitive design/solutions as well as to historic preservation. These concerns and themes include the following:

- the need for attention to flexibility in highway design
- the need for attention to local and regional stakeholder concerns
- the need for attention not only to the structure of the roadway elements (geometry, paving, and shoulders) but also to roadside elements; these elements include adjacent buildings, structures (such as bridges, lighting, walls, fences, guardrails), and objects (such as milestones, road stones, monuments, and markers)
- the need for not creating a false sense of history with the design and maintenance work on historic roads and roadside elements
- the need for sympathetic and appropriate landscape and planting.

## **Virginia Studies**

### *Representative HAER Reports and National Register Nominations: In and Near Virginia*

National Park Service HAER projects (reports, photographs, and measured drawings) exist for a number of Virginia subjects, including roads and bridges. Several National Park Service projects on Virginia road subjects that are particularly impressive from the documentary standpoint are the following voluminous HAER historical reports:

- *George Washington Memorial Parkway* (1993) (HAER VA-69), covering the history and context of this National Register-listed Fairfax County roadway, 387 pages plus measured drawings
- *Blue Ridge Parkway* (1997) (HAER NC-42), between Shenandoah National Park in Virginia and the Great Smoky Mountains in Buncombe County, North Carolina, 346 pages plus measured drawings
- *Colonial National Monument Parkway (Colonial Parkway)* (1988) (HAER VA-48), 103 pages plus nine measured drawings.

In addition, HAER measured drawings and photographs exist for the Skyline Drive, although this material does not include the large written reports of the previous projects.

The HAER material not only documents the history and context of these roadways but is also an excellent resource for extensive construction and materials information on the various elements of the roads, with application for practices on similar parkway roads of the era.

The literature review also included a survey of National Register nominations for roads (for Virginia and elsewhere), but these were not found to contain information on construction and material that would pertain to management or preservation of the roadways. Typically, material of this type contains historical background rather than specific engineering recommendations. In addition, the historical background material may reflect an incomplete understanding of engineering aspects. These and related issues also have been noted in a previous VTRC report by Miller (2003).

#### *VDOT/VTRC Road and Roadside Element Studies*

The majority of the Virginia material consisted of studies and reports published by VTRC. The following VTRC studies have specifically addressed issues relating to historic significance of roads and management of road-related cultural resources.

The VTRC report *Identification and Application of Criteria for Determining National Register Eligibility of Roads in Virginia* (Miller, 2003) noted various types of roads and issues regarding documenting and determining the historic significance of roads in Virginia. The report includes various background materials on early and historic roads and their documentation (such as historical overview, research resources and procedures, research and integrity issues, an overview of some materials and paving types, and other research and documentary sources). The National Register guidelines that relate to the review process for resources that are eligible for or listed on the National Register, character-defining features, and the elements that are considered in assessing the historic integrity of the resource were also covered. A number of case studies were included. In particular, two major types of roads, evolved and engineered, were identified and discussed, and they are noted later in this report.

The VTRC study *Management Considerations for Cultural Resources in Virginia Department of Transportation Rights of Way* (Miller, 2007) identified and provided overviews, representative examples, management issues, and concise management guidelines for various types of cultural resources that might be found within the right of way. The types of cultural resources included in this report are noted later.

The VTRC study *A Survey of Early Virginia Road Stones: Sign Rocks, Milestones, and Related Objects* (Miller, 2009) identified and described more than 40 extant early stone highway markers and similar objects in Virginia. Management recommendations for these resources included that such stones should not be moved unnecessarily, and if moving is necessary, the stone should be reset as close as possible to its original position and in the same relationship it originally had to the highway right of way.

## *VTRC Bridge Studies*

Many of the non-Virginia reviewed studies include references to the treatment of bridges as part of historic road plans and related documents, and most states have completed at least some historical surveys of their older bridges to identify historic structures and potential management options. VDOT, through VTRC, has a long-established, robust historic bridge program that includes surveys of various bridge types, best practices documents, and management plans as resources. Much of this information, as well as management of individual National Register-eligible or National Register-listed bridges under state purview, is synthesized into the periodically updated Management Plan for Historic Bridges in Virginia. The original plan, *A Management Plan for Historic Bridges in Virginia*, was published in 2001 (Miller et al., 2001). The current iteration of the plan is *A Management Plan for Historic Bridges in Virginia: The 2017 Update* (Miller, 2017). In the course of putting together the initial management plan, it became apparent that although general guidance could be established, no one set of specific management guidelines or recommendations could apply to, or work for, all of Virginia's historic bridges. Therefore, individualized management plans and recommendations were formulated for each of Virginia's historic bridges. Each bridge was, and continues to be, evaluated and considered on its own unique merits and needs. Issues regarding/related to historic bridges in Virginia are noted later in this report.

## *Virginia Regional and Local Studies and Guidelines*

In Virginia, as well as elsewhere, various regional or local groups and some county governments have developed or are developing their own recommended guidelines for management and/or treatment of historic, perceived historic, or scenic roads. A full listing, review, and commentary on these are beyond the scope of this study. Two selected examples of these groups and guidelines are (1) the 2008 corridor management plan for the "Journey Through Hallowed Ground" (*The Journey Through Hallowed Ground National Heritage Area Corridor Management Plan*, 2008), the National Scenic Byway that runs from Gettysburg, Pennsylvania, to central Virginia, and (2) America's Routes (Mosby Heritage Area Association, n.d.), a website of the Mosby Heritage Area Association, which is interested in preserving unpaved roads in Loudoun County. *The Journey Through Hallowed Ground National Heritage Area Corridor Management Plan* (2008) combines coverage of history, historical areas, scenic areas and byways, tourist venues, traffic issues, state and local organizations and programs, and suggestions for actions by state and local governments in Virginia as well as the other states through which the byway passes. The second-cited America's Routes is discussed in more detail, along with the Loudoun County Rural Roads Committee, later in this report.

## **Selection of Case Study Roads**

As noted previously, it was proposed to identify one suburban and one rural road as case study roads for this project. In discussion with the technical review panel, the roads chosen for the case studies were as follows:

- *Suburban road*: the National Register-listed Georgetown Pike in Fairfax and Arlington counties (from the Chain Bridge on the Potomac River to Route 7 at Dranesville). This road is a Virginia Scenic Byway.
- *Rural road*: the portion of Route 39 through Goshen Pass in Rockbridge County. This portion of Route 39 is a Virginia Scenic Byway. Route 39 through Goshen Pass, although not yet formally evaluated or listed on the National Register, has been treated as eligible for the National Register by VDOT's cultural resource personnel because of its status as Virginia's first large-scale integration of highway design and landscaping to avoid or minimize highway impact to an historic/scenic area.

Documentation on the case study roads was examined in order to identify the roads' history and historic context, including previous repairs, alterations, and historic integrity. The case studies on these roads are provided in the Appendix.

### **Major Issues and Considerations Identified Regarding Historic Road Management, Planning, and Maintenance in Virginia**

The scopes of projects affecting historic roads vary greatly, from minor repairs to major construction. Such projects can range from relatively simple projects affecting short distances and one or two elements of a road (such as paving a short length of a road or resetting an historic milestone or monument) to complex projects that result in impacts to extensive distances of roadway and associated roadside elements, potentially affecting road geometry and other traffic issues, the associated landscape, and large numbers of road and roadside cultural resources and elements.

The history, needs, and condition of any historic road are unique and need to be considered as such in planning and management. Each historic road, and project involving an historic road, needs to be planned, discussed, and considered on its own history and merits. There can be general guidance, but there is no one set of management recommendations that will apply to, or work for, all historic roads.

During this study, the following significant issues and considerations were identified regarding the management of historic roads in Virginia:

- National Register eligibility issues compared to the context sensitive design process
- two specific VDOT guidance documents: Location and Design Division Instructional and Informational Memorandum IIM-LD-235.4 (VDOT, 2016b), and Location and Design Division Instructional and Informational Memorandum IIM-LD-253.2 (VDOT, 2016a)
- the need for accurate historical information for planning
- types of roads: differing potentials for extant documentation and planning use

- use of early images for documentation and planning
- use of early treatises, standards, plans, and specifications for documentation of early road construction and paving
- road and roadside elements
- bridge-related issues
- non-vehicular use of historic roads
- discussions, collaborations, and facilitation with stakeholders.

### **National Register Eligibility Issues Compared to the Context Sensitive Design Process**

It is important to note that although the context sensitive design process includes consideration of historical and cultural resources valued by a community and other stakeholders, this process differs from the formal and regulatory review and consideration of cultural resources eligible for or listed on the National Register. National Register-eligible or National Register-listed resources have well-established and specific review requirements when they may be affected by projects such as road design, maintenance, and construction. In particular, in the review process for resources that are eligible for or listed on the National Register, impacts to character-defining features, as well as the degree of integrity possessed by the resource, are primary considerations. Discussions of National Register eligibility and an overview of the related review requirements were included in a previous VTRC report (Miller, 2003).

### **Two Specific VDOT Guidance Documents: Location and Design Division Instructional and Informational Memoranda IIM-LD-235.4 and IIM-LD-253.2**

Like most other state departments of transportation, VDOT has issued a guidance document that addresses context sensitive design/solutions. This is in the form of an Instructional and Informational Memorandum (IIM): Context Sensitive Solutions: Common Sense Engineering (CSE) and Context Sensitive Solutions to Transportation Challenges (VDOT, 2016b).

This document includes overviews and guidance on public participation (including stakeholder involvement), planning, project development, project management, the environmental review process, design flexibility, geometric design standards, traffic calming, and various other issues. Key characteristics in policy points include the requirement to develop “an understanding of geography, community and valued resources before planning and engineering design is started” for a project. Particularly applicable to historic road issues are Virginia’s “Pave-in-Place” legislation and the Rural Rustic Roads Program, which under certain circumstances allow considerable flexibility in paving low-volume roads of the type that may have historic significance:

- *Pave-in-Place Legislation (Va. Code 33.2-332)*: This legislation allows non-hard surface roads with 50 to 750 vehicles per day to be paved upon request (by resolution) of the local board of supervisors within the existing right of way under certain conditions. The VDOT Commissioner grants or denies requests for Pave-in-Place projects based on (1) safety, (2) views of residents and property owners, (3) views of governing bodies, (4) historic and aesthetic significance, and (5) environmental considerations.
- *Rural Rustic Roads Program*: This program constitutes an expansion of the Pave-in-Place legislation (Va. Code 33.2-332), which permits governing bodies in consultation with VDOT to designate a road as a Rural Rustic Road when it is located in a low-density development area, has average daily traffic of no more than 1,500 vehicles per day, and has a posted speed limit not to exceed 35 mph. The IIM specifies: “Improvements on Rural Rustic Roads include paved surface width based on reduced and flexible standards that leave trees, vegetation, side slopes and open drainage abutting the roadway undisturbed to the maximum extent possible without compromising safety.”

VDOT also issued a related IIM (IIM-LD-253.2): Landscape Architecture Program: Integration of Landscape Architectural Services and Expertise (VDOT, 2016a), which has a relation to the near-contemporary context sensitive design IIM. The examples and applicable projects vary: some recommendations are appropriate for historic roadways (“adjustment of cut and fill slopes to better fit existing adjacent land use and to preserve existing vegetation where practicable” and “enhancement or protection of existing scenic view sheds”). However, some of the noted treatments that are generally decorative (architectural treatment on sound walls, decorative sidewalks and crosswalks) may not be appropriate for historic roads.

### **The Need for Accurate Historical Information for Planning**

Accurate historical information and interpretation are essential for informed planning regarding an historic road. Careful and accurate research and documentation of roads are essential for accurate assessment of historic significance; accurate National Register nominations; and management planning for any road considered historic, either individually or as a contributing element to a National Register historic district. However, the mere collection of historical data on a road, including the researching and writing of a history of the road—even a lengthy and well-documented history—does not necessarily translate to historic significance (i.e., National Register eligibility) of the road. This would apply to historical information for both a now-changed road and the road in its current (altered) condition. Criteria to establish historic significance must be carefully considered and assessed.

In particular, stakeholder perceptions may vary on the history and original appearance of early roads—and how much they have changed (or not changed). As was noted in a previous report, integrity / lack of changes must not be assumed, and most roads in Virginia have changed over time, despite common local perceptions that many roads, especially rural roads, are unchanged or virtually unchanged (Miller, 2003). Accurate research and information are

particularly vital concerning projects where stakeholders and local groups think that a road is unchanged and must be preserved as it now appears.

Research and documentation of historic roads should entail not only research into general historical records but also research to locate additional road-specific documentation (including images, drawings, specifications, plans, and information on physical material) if such materials exist. In addition to research of this type that is usually coordinated by VDOT cultural resource personnel, input from local VDOT residency and district maintenance personnel, who likely will be most familiar with local assets, soils, materials, etc., can add another, and very useful, dimension to such research. Careful research and the sharing and exchange of information from all participants—VDOT, local stakeholders, and other interested individuals and groups—will help foster the most informed discussion.

### **Types of Roads: Differing Potentials for Extant Documentation and Planning Use**

The VTRC report *Identification and Application of Criteria for Determining National Register Eligibility of Roads in Virginia* (Miller, 2003) identified two major categories of roads, evolved and engineered, which have differing potentials for the existence of documentation that can be used to support planning for management of historic roadways. As noted in the report:

Roads in the United States can be divided into two general types: evolved roads and engineered roads.

*Evolved roads* are those that have developed over time, from earlier routes (in some cases, trails or colonial roadways) to their present configurations. This category includes present roads in Virginia which have developed from the old county roads (17th through early 20th centuries). Some primaries and the majority of secondary roads in Virginia can be placed in this category. The development of these roads generally has involved extensive rebuilding, change in surface materials and treatment (i.e., from dirt to more modern paving materials), and at least some realignment of portions of the road, if not a major repositioning of the entire route. Available documentary materials on evolved roads vary greatly—dates of origin and / or change may or may not be recorded or identifiable. Surveys and construction drawings were rarely made prior to the early 20th century.

*Engineered roads* are those that were planned, designed, and built to certain specifications, and for a stated purpose, usually within a single building campaign. This category includes older turnpikes and parkways, as well as most roads of modern construction (including the post-1918 primary roads, post-1932 secondary roads, and interstate highways built to standard specifications). Older turnpikes, in Virginia, particularly those that subsequently reverted to county road status after the Civil War, have sometimes undergone considerable changes (becoming, in effect, evolved roads). Changes to other roads in this category vary according to the individual situations and pressures that have been applied to them. However, in the case of engineered roads, the dates of design, construction, and / or change are usually recorded and well documented. Surveys and construction drawings frequently were made and still exist.

### **Use of Early Images for Documentation and Planning**

Pre-20th century images of early roads in Virginia are rare and usually relate to another event (such as travel, a building or other point of interest, or a military campaign) that is being noted. Early-to-late 19th century images usually take the form of paintings, drawings, or published engravings, although period photographs may occasionally show roads and related



transportation features, particularly in images related to the Civil War and images from the post-bellum era and the late 19th century.

Photographic evidence provides often-stunning proof of the changes to Virginia roads within the past 100 to 120 years. Early images (particularly “before” and “after” photographs in the first issues of the annual reports of the State Highway Commissioner to the Governor of Virginia) give often-sobering visual images, both of existing conditions (roads virtually impassable because of such issues as deep mud, exposed rocks, and heavily eroded or rutted roadways) and of needed corrections and improvements (such as realigning, rebuilding, grading, surface treatments, etc.), to make Virginia roads passable at the beginning of the automobile age. Some particularly notable before-and-after images may be found in the first four annual reports (*First Annual Report of the State Highway Commissioner to the Governor of Virginia, 1907*; *Second Annual Report of the State Highway Commissioner to the Governor of Virginia, 1909*; *Third Annual Report of the State Highway Commissioner to the Governor of Virginia, 1910*; *Fourth Annual Report of the State Highway Commissioner to the Governor of Virginia, 1911*). Documentation in these annual reports on the location of roads or projects often allows for the specific identification of the road itself. After the mid-1920s, the annual reports became largely financial reports, with few images or specific information for documentation of individual roads.

Regional photo compilations offer similar images: a notable example is *This Was Virginia 1900-1927: As Shown by the Glass Negatives of J. Harry Shannon, The Rambler* (Stuntz and Stuntz, 1998). This extensive collection of glass plate images was taken by photographer and journalist J. Harry Shannon (1869-1928), whose pen name “The Rambler” reflected his travels around northern and central Virginia. His images show a Virginia, and a transportation system, that was still largely rooted in the 19th century, with unpaved roads and horse-drawn transport. Comparison of some of the Shannon images of one of the case study roads for this report (the Georgetown Pike) with the appearance of the modern road reveals both the extensive changes that have occurred over this corridor and how little the present road and roadside elements resemble their earlier incarnation.

Even though the above-noted images from the Shannon collection and the early annual reports were taken only about 100 years ago, the roads have changed extensively (and in many cases completely). Other photographic evidence tells similar stories.

### **Use of Early Treatises, Standards, Plans, and Specifications for Documentation of Early Road Construction and Paving**

The long-term, in-depth research on Virginia roads undertaken under the auspices of VTRC has provided detailed documentation of considerable roadbuilding throughout Virginia, right from threshold of settlement. Particularly as regards early roads (from early settlement of an area into the beginning of the automobile era), it should be noted that construction and materials were often extremely basic. In general, early roads in Virginia were not paved. Only a few roads (frequently turnpikes or plank roads constructed by private or public-private initiatives) had some sort of paving or improvement such as water-bound macadam, other broken-stone applications, or plank. In a few cases, descriptions or specifications survive, usually in the records of private individuals or those companies whose records were recorded in

the records of the Board of Public Works. Paving or other surface applications (such as “metaling” with broken stone) were rare until the early 20th century, and in some areas well into the 20th century (Miller, 2003).

Aside from information useful in general historical research into early construction and paving, a number of resource types can provide useful information on early paving and road maintenance sources that can be useful for planning and management of historic roads. Although detailed plans and specifications seldom exist for older and/or evolved roads, early treatises, manuals, and/or early standards, where extant, may be extremely useful in identifying the appearance (or determining the probable appearance) and materials of an early road.

Very early treatises covered the late 18th and early 19th century paving systems invented by paving pioneers such as Pierre-Marie-Jérôme Trèsaguet, Thomas Telford, and John Loudon McAdam. (The Trésaguet and Telford systems consisted of a base of large stones laid upright with layers of smaller stones on top; the McAdam—or macadam—system entailed several layers of graded stones that decreased in size, with the largest stones forming the bottom layer.) In the mid-19th century, plank roads (i.e., with roadways of heavy planks supported on ground-laid wooden stringers) became popular: these were economical to build but lasted only a few years. These paving and roadway systems were comparatively expensive in relation to simple dirt roads and were seldom used except by some incorporated turnpike and plank road companies. The mid-19th century also began to see an increase in published manuals and treatises on road building. One of the most popular and long-lived of these was W. M. Gillespie’s *A Manual of the Principles and Practice of Road-Making* (Gillespie, 1847), which ran to multiple editions between 1847 and the late 19th century. Numerous other manuals and treatises on road construction were produced in the later 19th and into the 20th century. The information in these publications can be useful in understanding the types of construction and material used in roads of these eras (Miller, 2003).

The first Virginia state specifications for water-bound macadam, as well as other materials and elements (including concrete, pipe culverts, drains, shaping roadbeds, gutters, and broken stone), were issued in 1907 and are provided in the *First Annual Report of the State Highway Commissioner to the Governor of Virginia* (1907). Additional specifications for road construction, and state standards for bridges and other structures, were issued within 2 years and were updated periodically shortly thereafter (*Second Annual Report of the State Highway Commissioner to the Governor of Virginia*, 1909).

After ca. 1930, compilations of Virginia Department of Highways standards and specifications publications were issued periodically. (See, for example, the 1938 *Road Specifications* that were referenced in the plans for the design of Route 39 through Goshen Pass [Virginia Department of Highways, 1938]). Additional compilations of road designs and standards, covering the period 1931-1949, were compiled as *Virginia Department of Highways—Road Designs and Standards, August 1, 1949* (Virginia Department of Highways, 1949).

## Road and Roadside Elements

### *Cultural Resources*

The VTRC study *Management Considerations for Cultural Resources in Virginia Department of Transportation Rights of Way* (Miller, 2007) identified concise management guidelines for the following types of cultural resources that might be found within the right of way and that should be considered in the case of planning purposes, especially when associated with historic roads. Some of these elements may have separate historic significance or (particularly in the case of resources such as archaeological sites and graveyards) be governed by separate regulations or legislation:

- archaeological sites
- land features and sites
- graveyards
- buildings
- structures
- objects
- signboards / posts of direction
- concrete mile markers
- boundary markers
- concrete state right-of-way markers
- privately erected memorial markers
- privately erected historical markers/monuments
- state (public) highway historical markers
- waysides
- road stones (“sign rocks” [i.e., stone directional markers], milestones)
- stone walls.

Many of these resource types can be important character-defining features to an historic road, and some, such as “sign rocks,” may be potentially historically significant in their own right.

Other resources, such as stone walls, may or may not be considered historic elements but are often highly valued by landholders and stakeholders. The exact place of such resources within a project involving an historic road probably would depend on age, workmanship, their relation to the historic resource, and their relation to the road. As was noted concerning stone walls in the VTRC report *Management Considerations for Cultural Resources in Virginia Department of Transportation Rights of Way* (Miller, 2007):

Physical impacts or damage to such walls or proposed removal of these features is often met with anger or resistance by landowners and neighbors, which consider these features to be interesting, attractive, and valuable enhancements to their properties or area. Craftspeople who can undertake the repair or rebuilding of these walls are increasingly rare (and expensive) today, and these walls may represent a considerable monetary value to the property or area. To minimize conflicts, any proposed impacts to stone walls should be discussed with surrounding landowners, and compromises reached if possible.

*Other Road and Roadside Elements That May Be Present and Need to Be Considered in a Project Involving an Historic Road*

In addition to the typical types of cultural resources noted, other types of road and roadside elements may be present and need to be considered in project planning related to historic roads. Probably more than any other features noted in this study, any of these elements may or may not relate to the significance of an historic road. (The actual significance is dependent on the relationship between the specific features of a given element and the reason that the road is considered historic.) Generally, when present in a project involving an historic road, these elements may need to be addressed on a case-by-case basis:

- road surfaces and paving
- curbs
- gutters
- drainage elements (including, but not limited to, ditches / open drainage, pipes, inlet and outlet walls)
- shoulders and slopes
- retaining walls
- guardrails and other barriers
- lighting
- signs and markers
- traffic signals
- street and roadside trees and other landscaping
- sidewalks
- bridges and culverts (including, but not limited to, related elements such as abutments, wing walls, and evidence of previous bridge or culvert structures remaining at or near the site).

Individually eligible bridges are treated separately in Virginia and are discussed later in this report.

Other traffic issues, such as the following examples, also must be addressed on a case-by-case basis and require input from traffic engineering professionals. In addition to the reason for the historic significance of a given road, the historic appearance and materials and the current

condition and needs of the road, including safety factors, must all be considered in cases that involve factors such as the following:

- road geometrics / vertical and horizontal alignments
- highway capacity
- sight distance
- lane width
- shoulder width and treatments
- stopping distance.

### *General Guidance*

As noted previously, in planning for projects, these elements must be addressed on a case-by-case basis. However, a few items of general guidance may be useful in planning for projects involving historic roads.

- *Avoid creating a false sense of history (i.e., avoid creating identical copies of historic structures or elements or what appear to be older elements).* For replacement structures, elements, or new construction, identical copies of historic elements generally are rejected by the review process for resources that are eligible for or listed on the National Register. Such copies are considered to create a false sense of history. However, replacement or new structures or new construction when designed with similar scale, massing, and materials (within modern safety standards) can be in harmony with the surrounding historic area. For replacement or new features, similar precedents (ideally local or regional examples) for design inspiration should be followed where these exist. Especially for rural roads, such precedents may not exist: in such cases, modern but attractive and non-intrusive features that will blend into the landscape should be the design inspiration. Such features as roads, paving, and related elements, such as bridges carrying roadways, can be compatible without being actual reproductions. Instead, compatibility can be expressed in overall design, massing, scale, concrete color and finish, color of stone or gravel in roads, and similar features.
- *If feasible, attempt to avoid or minimize affecting character-defining features of an historic road or its elements.* Making limited changes—or changes to certain areas or sections rather than completely rebuilding long stretches of a road—should be considered.
- *Identify and use appropriate plantings and landscape features (if feasible).* Many local and regional guidelines and stakeholder requests regarding historic roads (or roads perceived as historic) have extensive recommendations/requests regarding planting/preserving trees, walkways, trails, perceived scenic values, and other features that are more in the realm of context sensitive design than historic preservation. However, careful use of these features, if feasible, may be appropriate for use along historic roads. This is especially applicable in the cases where a new landscape design results in sympathetic and appropriate landscape and planting.

Particularly in the case of trees, it is important to assess the condition, health, and suitability of extant trees and for new plantings to specify the use of appropriate trees and other plantings (including species, scale, habit, hardiness, disease resistance, and maintenance needs). Following these practices will foster tree and plant health and vigor, reduce maintenance, and maximize safety along the roads.

- *Modern geometric needs can be difficult issues for old roads—even well-documented engineered roads may have been built for slower vehicles, either motorized or non-motorized.* Geometrics may have to be altered for safety, or the old road possibly can be bypassed and converted to non-vehicular use, as discussed later in this report.
- *Non-historic treatments (such as ornate reproduction gas lights in an area that never had gas lighting originally, faux-stone form liners on bridges or retaining walls in areas without a stone masonry building tradition, or decorative stamped paving) generally are not appropriate and may be incompatible with historic road designs—but such treatments may be considered pleasing by the community and may be desired by stakeholders.* When stakeholders request elements that are decorative or “pretty” rather than those relating to local landscapes or history (or that specifically clash with local landscapes or history), such issues should be discussed and negotiated against in detail.

## **Bridge-Related Issues**

As noted previously, VTRC has published extensive survey and management studies regarding historic bridges under state purview. Individual National Register-eligible or National Register-listed bridges are covered in the Management Plan for Historic Bridges in Virginia. The most current update of the plan is provided in *A Management Plan for Historic Bridges in Virginia: The 2017 Update* (Miller, 2017).

It should be noted that the treatment of bridges located in historic districts is of growing interest and concern, both for the bridges themselves and as part of roadways. An NCHRP study, “Context Sensitive Design Options for Workhorse Bridges in Rural Historic Districts,” is currently underway, with an expected completion date of November 2019 (Transportation Research Board, 2018). “Workhorse” bridges in the context of this study are spans of less than 300 feet and are generally girder-type structures that were assembled from standard structural components/systems. When completed, the study and its information should be of interest and use in identifying appropriate bridge designs for rural historic districts.

A number of historic bridges in Virginia have been closed to vehicular traffic and have been converted to pedestrian or bicycle/pedestrian use. Currently, additional bridges are being assessed for alternate uses in accordance with recommendations in *A Management Plan for Historic Bridges in Virginia: The 2017 Update* (Miller, 2017). Where a bridge has been closed to vehicular traffic, particularly where the bridge can carry bicycle and/or pedestrian traffic, some portions of the associated early roads have often been preserved as access paths for pedestrians. Some examples are the following:

- *Humpback bridge (Alleghany County Structure No., 9007), located off Route 60 in Alleghany County:* This structure has been listed both on the National Register and as a National Historic Landmark (the highest level of national landmark status). This 1857 covered bridge and its surrounding area were developed into a wayside in 1953-1954. The immediate access road (the old James River and Kanawha Turnpike route, later part of Route 60) is now the walking trail over the bridge, and there is interpretive material at the wayside.
- *Thacher truss (formerly Rockingham County Structure No. 6154):* This 1898 truss bridge is listed on the National Register. The structure was bypassed by a new bridge and underwent major rehabilitation in 2013; it was subsequently transferred by VDOT to the town of Broadway and is now owned by the town. The immediate access road (the formerly public road) is now a walking trail.
- *Lane truss in Highland County (Highland County Structure No. 6034):* This 1896 pony truss bridge is listed on the National Register. There are nearby alternate routes better able to handle the demands of modern traffic. The Lane truss structure was closed to vehicular traffic in 1994, and the section of Route 645 at the bridge, part of the statewide Civil War Trails series, utilizes the old roadway (formerly part of the Staunton and Parkersburg Turnpike) as part of a walking and bicycling route, with interpretive signage on the significance of the crossing during the Civil War era.

Replacement bridges (even if not themselves historic) on historic roads can be similar to, or evoke, older bridges where possible. Examples of such bridges are modern metal trusses, steel beam, or concrete structures. Identical copies of older bridges are not appropriate for replacement structures, since this would convey a false sense of history, but structures that have similar scale, massing, and materials (within modern safety standards) can be in harmony with the surrounding area.

### **Non-Vehicular Use of Historic Roads**

Several former public roads provide access to bridges that have been closed to vehicular traffic and now serve pedestrian and bicycle use, as previously noted in this report (Miller, 2017). At present, these former public roads are not considered historic (i.e., National Register-eligible or National Register-listed) roads per se, but the bypassing and non-vehicular use of such roads, or road traces (whether in concert with bridges or not), could provide a model for future planning regarding historic roads. Where historic or potentially historic roads exist, repurposing early roads for waysides, trails, historic interpretation, and combined pedestrian/bicycle use could be considered. Early roads, especially those from the pre-automobile era or early automobile era, that maintain fairly good integrity may be difficult to put into modern use and to have their integrity preserved while fulfilling modern traffic demands and safety needs. However, where feasible, such roads or road traces that have been determined historic may have the potential to be repurposed as trails.

## **Discussions, Collaborations, and Facilitation With Stakeholders**

Discussions, collaborations, and facilitation can be helpful in cases of disagreements or differing needs/expectations between stakeholders and VDOT. Two useful, recent examples have potential application for historic road management: one involved the Clarkton bridge, an historic bridge with an associated road, and the other, which is ongoing, involves roads in Loudoun County in an area perceived by many stakeholders as potentially historic.

### *Collaboration Meetings of Clarkton Bridge Stakeholders*

A series of stakeholders' collaboration meetings related to the National Register-listed Clarkton bridge on the Halifax / Charlotte County line was recently completed. The collaboration also involved required federal environmental review. In a series of meetings conducted under the direction of VDOT's Lynchburg District between the fall of 2016 and early 2018, a number of diverse local groups (VDOT, local historical and preservation groups, advocates for the historic bridge, advocates for tourism, advocates for river use, and county governments) expressed their concerns. The Clarkton bridge, built in 1901, was an extremely large (673 feet overall), early steel truss bridge listed on the National Register. Despite numerous repairs, its steel was deteriorating and its supporting Lally columns (steel cylinders filled with concrete and rock that had long passed the usual lifespan of this technology) were failing to the point that the bridge posed a hazard not only for pedestrians on the bridge but also for river traffic. Formally facilitated meetings were conducted by the University of Virginia's Institute for Environmental Negotiation, which has extensive experience in similar processes. A significant part of this process involved discussions of local and regional concerns with preserving the right of way across the Staunton River (a state Scenic River) potentially to allow for a new future bridge (probably a footbridge) and to preserve access for recreational boating use and pedestrian trails. Ultimately it was not feasible to preserve the deteriorated bridge; however, the preservation of the right of way, and with it the potential for a later bridge project, found approval with the majority of the stakeholders. This process is an example of the efficacy of using facilitators in complicated discussions involving a variety of participants and viewpoints. Although the right of way was not National Register-listed or National Register-eligible, this facilitation could serve as an example for use with projects involving historic roads.

### *Discussions of the Loudoun County Rural Roads Committee and Others*

An ongoing discussion with application to management of roads perceived as historic by many local stakeholders is occurring in western Loudoun County in Northern Virginia. This rural area contains numerous unpaved roads and is the focus of an active group, the Loudoun County Rural Roads Committee, which is seeking to preserve these roads. The committee is part of the much larger Loudoun County Preservation and Conservation Coalition (LCPCC), a group of more than 40 nonprofit and nonpartisan organizations interested in protecting environmental and historic resources in Loudoun County. The LCPCC or its committees frequently contact the county supervisors, planning commission members, state legislators, or other appropriate groups or individuals with their concerns. The total membership of the LCPCC is estimated at more than 5,000 individuals (LCPCC, n.d.).



The Loudoun County Rural Roads Committee, and various other citizens in Loudoun County, perceive the unpaved roads of the area as unique historical and scenic resources that are essentially unchanged from at least the mid-19th century. At present, much of the evidence for this perception is anecdotal, and at this time there has been no formal designation by the Virginia Department of Historic Resources. The Loudoun County Rural Roads Committee, forming a coalition with other local groups such as the Mosby Heritage Area Association, have posted their material on the America's Routes website (Mosby Heritage Area Association, n.d.).

The Loudoun County Rural Roads Committee is currently concentrating on preserving roads in this perceived early (i.e., unpaved) state. This approach may be appropriate to very-low-volume roads but is problematic for higher volume roads. Increasing traffic, including traffic from development for housing, commuting, farm businesses, and agritourism operations, is putting more demands on these roads. Currently, increasing traffic levels, washing of gravel and other damage (particularly after heavy rains), drainage issues, rutting, and other impacts to these roads have created maintenance issues that have required frequent grading and other maintenance of these roads. Ongoing discussions among local stakeholders, including the Loudoun County Rural Roads Committee, VDOT's Loudoun Residency, and VTRC, have resulted in the exploration of various options for improving the effectiveness of current maintenance practices on such roads. To date, two VTRC projects have tried to mitigate some of these issues:

1. *The first project explored the effectiveness of cement stabilization on unpaved roads.* A VTRC report on this project was published in 2017 (Hoppe and Nair, 2017). The subject road was a section of Route 703, Hurley Lane, which had an annual average daily traffic of 340 vehicles a day. In 2015-2016, full depth reclamation (FDR) was used on a sample (550-foot-long) segment of this Loudoun County gravel road, and blended with 5% cement, and a double chip seal was applied. There were some performance issues with the surface durability of the chip seal, but the underlying cement-stabilized road section performed adequately and was recommended as a viable option. As noted in the report: "The main objective of this project was to provide stability while still maintaining the appearance and 'feel' of a gravel road." Recommendations for this report included using this process for maintenance of short sections qualified as maintenance nuisance and for roads qualified under the Rural Rustic Road Program, which is designed to keep a traditional rural lane appearance while improving the riding surface within the current right of way.
2. *The second project, an experimental project undertaken in 2017, used FDR with cement stabilization to stabilize existing unbound material rather than repair a deteriorated roadway.* A short unpublished VTRC Technical Assistance Memorandum was provided to the Loudoun Residency at the close of the project. The project road section (a 2-mile section of Route 651, Hogback Mountain Road) had an annual average daily traffic of approximately of 140 vehicles. The experimental treatment was followed by tar and chip surfacing to provide a wearing surface that resembled a gravel road. Feedback from local residents indicated that the goal regarding the appearance of the road (i.e., maintaining the character of a rural road) was being accomplished. As of mid-2018, there had been no need for major

maintenance activity, although the long-term effectiveness of this approach still needs to be established (Edward J. Hoppe, personal communications, December 2018, January 2019, February 2019).

In a December 2018 news interview, a former commissioner of the Loudoun County Transportation Improvement and Safety Commission offered an alternative viewpoint to the desires of the Loudoun County Rural Roads Committee and other citizens to preserve these roads in their unpaved state (Korff, 2018):

The difficulty of preserving historical roads, particularly narrow gravel roads, is that these roads which adequately served the residents of the past must also serve today's residents not just in Loudoun County, but regional motorists for whom Loudoun County is a vital transportation link. Loudoun County still has significant agricultural business which must be supported by adequate roads for trucks and equipment which narrow roads with uncleared ditches, fences, and easements as well as one-lane bridges do not.

Preservation of history is important, but the question of whether or not it should be Loudoun County's unpaved roads or even its paved roads is a matter that should be resolved through public discussion. Preservation of unpaved roads that have low traffic volumes elsewhere in Virginia is more practical and will not have such a dramatic impact on motorist safety as it would in Loudoun County. When any of the major north-south or east-west routes become blocked because of an accident, the secondary and unpaved roads must be able to accommodate upwards of 2,000 cars an hour which is unrealistic and goes well beyond the safety designs of these roads.

Discussions regarding unpaved roads among the Loudoun County stakeholders, VDOT, and VTRC are still continuing. Additional projects to preserve the appearance of gravel roads may be planned.

## CONCLUSIONS

- *The history, needs, and condition of any historic road are unique and need to be considered as such in planning and management. Each historic road and project involving an historic road needs to be planned, discussed, and considered on its own history and merits. There can be general guidance, but no one set of management recommendations will apply to, or work for, all historic roads.*
- *Careful and accurate research and documentation of roads are essential for assessment of historic significance, accurate National Register nominations, and informed planning and management for any road considered historic, either individually or as a contributing element to a National Register historic district.*
- *Research and documentation of historic roads should entail not only research into general historical records but also research to locate additional road-specific documentation (including images, drawings, specifications, plans, and similar material) if such materials exist.*

- *A compiled history of a road, even a lengthy and well-documented history, does not necessarily translate to historic significance (i.e., National Register eligibility) of the road in its current condition, particularly if the road does not fulfil the criteria for historic significance and/or has undergone extensive changes and does not possess historic integrity.*
- *Roads in Virginia have changed over time, despite common local perceptions that many roads, especially rural roads, are unchanged or virtually unchanged.*
- *Various elements—history, historic structures and related cultural resources, changes to the road, associated landscapes, current condition, current stakeholder input, and current transportation needs, in addition to the construction of the road and roadside—must be considered when project planning involves historic roads.*
- *The context sensitive design process, including input from stakeholders and with additional facilitation if necessary, can be helpful in determining areas of common agreement among stakeholders and VDOT and for moving forward and establishing reasonable practices for road projects. The context sensitive design process, however, is distinct from the required formal review process for National Register-eligible or National Register-listed resources, which also must be undertaken in most projects involving historic roads.*
- *The use of original construction practices, materials, and features (such as water-bound macadam) that have been replaced by more modern practices and materials usually is not feasible for modern highway construction and traffic demands. However, these practices can be approximated or evoked in appearance by modern practices and materials. This can include such elements as aggregate and gravel color for paving, use of cement stabilization on unpaved roads, and use of other materials and practices.*
- *It is feasible to identify and explore maintenance practices that will not overly change the appearance of historic roads or affect their historic significance but will improve maintenance and safety of the roadways.*
- *Appropriate actions and treatments for historic roads and roadside elements may differ from those of modern aesthetics. In many instances, the most appropriate treatments for historic roads may be those that the new features blend into and are compatible with the historic structures and landscape.*

## **RECOMMENDATIONS**

1. *If during VDOT project development a road is found to be historic, VDOT's Environmental Division, with other appropriate VDOT divisions, depending on project scope, should coordinate planning and any other activities within the VDOT right of way that might have an effect on the character-defining features of the historic road. VDOT's Location and Design Division Instructional and Informational Memorandum IIM-LD-235.4: Context Sensitive Solutions: Common Sense Engineering (CSE) and Context Sensitive Solutions to Transportation Challenges (VDOT, 2016b) should always be used for initial context sensitive*

*design discussions and planning, with added formal cultural resource review and considerations as needed.*

- If during VDOT project development a road is found to be historic, VDOT's Environmental Division, with VTRC, should document the earlier/original appearance(s) and changes to the historic road in order to have the most accurate information for planning purposes when there is a project involving that road. Careful and accurate research and documentation of roads, including changes in appearance and materials, are essential for assessment of historic significance, accurate National Register nominations, and management planning for any road considered historic, either individually or as a contributing element to a National Register historic district. VDOT's Environmental Division should ensure that the appropriate VDOT divisions, as well as interested stakeholders, are aware of this information.*

## **IMPLEMENTATION AND BENEFITS**

### **Implementation**

Recommendation 1, regarding the coordination of planning and any other needed activities that might have an effect on the character-defining features of an historic road, will be implemented by VDOT's Environmental Division, in coordination with cultural resource personnel in the appropriate district environmental section, and by VDOT's Maintenance Division or VDOT's Construction Division, in coordination with district maintenance or construction personnel, as needed. The Environmental Division will implement the recommendations of this study by issuing an *Environmental Memorandum*. It is anticipated that implementation will be complete by the end of FY20.

Recommendation 2, regarding documentation of the earlier appearance of and changes to an historic road, will be implemented by VDOT's Environmental Division, in coordination with VTRC and with cultural resource personnel in the appropriate district environmental section, as needed. The Environmental Division will implement the recommendations of this study by issuing an *Environmental Memorandum*. It is anticipated that implementation will be complete by the end of FY20.

### **Benefits**

As regards the general benefits of this study, the information in this report provides accessible information on materials, issues, and resources that must be considered when there is a project involving an historic road. Having this information in hand can help VDOT to avoid delays that might have been caused by a lack of this information and particularly will benefit and facilitate VDOT cultural resources research relating to such roads.

The benefit of implementing Recommendation 1 is that identifying the character-defining features, and the associated planning (and other) activities associated with an historic road for which a project is being developed, will enable VDOT to avoid or minimize delays for planning,

maintenance, or construction activities that might affect the project. This also will allow for preparation for the public participation and stakeholder involvement, as well as required cultural resources review, regarding the historic road in question.

The benefit of implementing Recommendation 2 is that having this information available will help VDOT to avoid or minimize delays for planning for maintenance or construction activities that might be caused if questions are raised or claims are made concerning the history and earlier appearance of an historic road that will be affected by a project.

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## APPENDIX

### CASE STUDY ROADS

Overviews of the history and management issues and recommendations relating to the two case study roads for this study, Georgetown Pike and Route 39 through Goshen Pass, are provided in this Appendix. Georgetown Pike (located in Fairfax County and Arlington County) is a heavily evolved road: an altered and suburbanized road that overlays portions of an earlier turnpike. Route 39 through Goshen Pass (Rockbridge County) is a less-altered rural route, an engineered road designed and constructed as a scenic roadway in the late 1930s and early 1940s. It overlays an earlier road that was known for its impressive scenery and was popular with travelers and tourists of the 19th and early 20th centuries.

#### Georgetown Pike

##### Historical Overview

The Georgetown Turnpike (locally known as the Georgetown Pike), located in Fairfax and Arlington counties, Virginia, was listed on the Virginia Landmarks Register and the National Register in 2012 (National Register of Historic Places Registration Form: Georgetown Pike, 2012). Previous and/or alternate road names for early routes in this corridor include the Georgetown and Leesburg Turnpike, the Washington and Leesburg Turnpike, the Falls Bridge Turnpike, and the Sugarlands Rolling Road.

The Georgetown Pike runs from the boundary of the District of Columbia and Arlington County at the Chain Bridge on the Potomac River to Seneca Road (Route 7) near Dranesville in Fairfax County, for a distance of 14.4 miles. The route includes a part of present day Route 123 and Route 193. The road is also a Virginia Scenic Byway. A variety of records, maps, and descriptions exist concerning the original Georgetown Pike, as do early 20th century images and records.

Incorporated in 1813, the road was developed as a turnpike during the 1810s and 1820s, with paving following some of the broken-stone practices of the time. (The National Register nomination states that the Georgetown Pike was built on a modified Trèsaquet system, although the middle layer of rounded stones and the layer of walnut-sized broken stones that capped a Trèsaquet road appear to be absent from the following description.) As reported in the turnpike's 1820 report to the Board of Public Works, the roadway was improved with a side road (a 15-foot-wide unpaved, or "summer," road) and a paved main route 20 feet wide (National Register of Historic Places Registration Form: Georgetown Pike, 2012):

. . . its whole width is 35 feet; the summer road is 15 feet, and that which is paved 20 feet. This paving is done with large stone, closely fitted together, 12 inches deep in the centre, falling off to 6 inches on the sides, and covered with broken stone 6 inches deep from side to side, making 18 inches stone in the centre, and twelve inches on the sides; the whole is covered with sand, gravel, or clay, as was found most convenient.

Like many Virginia turnpikes, Georgetown Pike, its road and finances battered by the Civil War, reverted to the counties through which it ran after the war and became a county road. Like many other county roads, its condition further deteriorated in the late 19th and early 20th centuries, particularly west of Langley. A 1911 photograph showing the condition of the road near Langley is in the VDOT Office of Communications Photographic Archives (Figure A1). In addition, a number of the images taken by J. Harry Shannon for his “Rambler” articles between 1914 and 1918 show the road at the time, called by the alternate local names of Georgetown and Leesburg Pike and Leesburg Pike (the specific Rambler images appear as Plates VI-15, VI-16, and VI-51 in *This Was Virginia 1900-1927: As Shown by the Glass Negatives of J. Harry Shannon, The Rambler* (Stuntz and Stuntz, 1998). A 1916 “Rambler” image shows what is apparently the actual Leesburg Pike (now the Route 7 corridor), near Dranesville, just past the intersection with the Georgetown Pike (Plate VII-1a, Stuntz and Stuntz, 1998). Shannon’s captions for these images note the deteriorated (“depraved”) condition of the Georgetown Pike (Stuntz and Stuntz, 1998):

8 November 1914: The pike does not become depraved immediately west of Langley, but is travelable about as far as the hills that drop into and climb out of the valley through which Scotts run flows

28 April 1918: The valley which the pike crosses five miles west of Chain Bridge is the one that has been worn by Scotts run . . . . The rock-paved way of the Georgetown and Leesburg pike became so bad that traffic turned aside and took to the clay, first on one side of the rock bedded roadway and then on the other. The result of the side-stepping was to wear roads in many places ten feet below the grade of the stony pike.

5 May 1918: The road leading across the hill is the familiar Georgetown and Leesburg turnpike . . . which is just a plain and rough country road



**Figure A1. Georgetown Pike Near Langley, Fairfax County, 1911**

The 1927 map of Fairfax County shows the road marked as one of the “Hard Surfaced Highways” (Stuntz and Stuntz, 1998). This reflected post-1918 improvement attempts. According to the Georgetown Pike National Register Nomination Form (National Register of Historic Places Registration Form: Georgetown Pike, 2012), a 20th century attempt to construct and maintain a turnpike road from Langley to Dranesville (with a branch road to Great Falls) was incorporated in 1919 as the Washington, Great Falls, and Dranesville Highway Company). This private company upgraded the roadway via water-bound macadam and some bituminous surface binder, but the income from tolls was not sufficient to cover expenses and support the road—or provide a profit. The road was conveyed to the Commonwealth of Virginia in 1934 and became part of the recently established state secondary system (National Register of Historic Places Registration Form: Georgetown Pike, 2012).

The map of Fairfax County’s new secondary system dated July 1, 1932, shows the western 5.2 miles of the old Georgetown Pike from Dranesville (State Highway Route 54, subsequently Route 7) to Elkins as a county road, Route 19 ([Map of] Fairfax County, 1932). (Elkins was a trolley station, and later a Washington and Old Dominion Railway station, that was located at what is now the intersection of Old Dominion Drive and Georgetown Pike.) Between Elkins and Langley the old turnpike is marked “Georgetown Pike (Toll Road)” on the map and is shown as a dashed line (indicating that it was neither a county nor a state road).

The condition assessment, dated January 31, 1933, for 5.2 miles of Route No. 19 (C-604) noted that the “Local Name” was “Old Georgetown Pike” and that the 5.2-mile length was for “C-604 Between Primary Route 7 & 0.40 Mi. East C-603” (i.e., from Dranesville east to Elkins) (Commonwealth of Virginia, Department of Highways, 1933). The description read:

Type—Width Grading—Width Surface / General Description of Condition, Etc.

Begin 0.0 at Rt. 54

0.0 – 5.2 at Elkins

12’ Bituminous macadam surface, old and very badly worn, 15 to 29% of surface potholes or worn out.

Road joins Toll Road at Elkins.

Shoulders & ditches have been neglected and are in very bad condition.

Recommendations and Comments

Heavy Patching & Retread

The “Retread” recommendation appears to have referred to an overlay. The “Estimate of Materials for Year 1932-1933” included 500 tons of “Patch Pre-Mixed” (at \$6.00 per ton for a total of \$3,000); 500 tons of chips at \$2.40 per ton for a total of \$1,200; and 8,000 gallons of asphalt at \$.06 per gallon for a total of \$480. The grand total of projected repair costs was \$4,680.

Mid-20th century Virginia Department of Highways records and construction plan drawings, showing various mid-20th century changes to this road, have been examined and analyzed. The pre-1930s iterations of the road have been heavily altered, and few original features have survived. The majority of these changes date from the late 1950s into the 1960s (Ross, 2018).

A significant issue with roads of this type—and very apparent with the Georgetown Pike—is that local stakeholders and historical/preservation groups believe that the road is little altered from its early appearance and location, that later features are original features to the road, and that these (later) features should be considered and preserved as being original. With the support of local groups and the county government, the Georgetown Pike became the first Scenic Byway in Virginia in 1974. As Route 193 and part of Route 123, it subsequently became part of the Virginia primary system. The regional affection for the road culminated in a campaign to have the road listed on the National Register, a campaign that extended from the 1990s into the 2000s, until it was ultimately successful in 2012.

The National Register Form for the Georgetown Pike (National Register of Historic Places Registration Form: Georgetown Pike, 2012) includes a lengthy and interesting local history of the road and its region, citing numerous early documents and extensive amounts of local information. However, the form also identifies the road as possessing a high degree of historic integrity, noting at one point:

The Fairfax County Comprehensive Plan adopted in 1991 required maintenance of the Georgetown Pike within its existing right-of-way. Georgetown Pike today is still designated as part of the Virginia primary road system, but, due largely to continued efforts by community groups, has maintained its historic integrity.

In addition, the section in the form noting “Archaeological Potential” specifically states the following:

The potential for archaeological research yielding important information contributing to the understanding of early turnpike construction methods and the cultural history of Fairfax County in the period 1813-1934 is great throughout the entire Georgetown Pike right-of-way. The 15-foot wide unpaved summer roads and drainage ditches at either side of the paved roadbed were still heavily used for travelers on foot and horseback well into the twentieth century. Although now abandoned and occasionally used for dumping by private citizens, they remain largely undisturbed.

Although such belief in the survival and preservation of early road construction evidence—essentially undisturbed, encapsulated, and in situ—is not uncommon, it is not supported by either physical or documentary evidence. The most common (i.e., dirt) roads will have little, if any, structural evidence that would have survived for decades or centuries. In the case of paved roads, early treatises (such as the various editions of W. M. Gillespie’s widely popular 19th century volume *A Manual of the Principles and Practice of Road-Making*) specify that paved roads need periodic maintenance, including lifting stones with picks, raking, and breaking up and replacing larger stones as needed (Gillespie, 1847). Later maintenance practices, particularly in the first part of the 20th century, employed more efficient horse- or mule-drawn graders for this purpose. An image in the *Ninth Annual Report of the State Highway Commissioner to the Governor of Virginia* (1915), captioned “Shaping Old Macadam for Resurfacing,” shows an example of this work in process. Subsequently, use of motorized equipment allowed even greater reworking of the structures of old roads.

Given the various changes—erosion, reworking, alterations, and often-extensive realignments and rebuilding—to which virtually all old roads have been subjected, change, rather than no change, is the near-universal situation for Virginia roads with pre-20th century roots

(Miller, 2003). In addition, where older roadways have remained in use, the nature of road maintenance activities over the years—particularly after the advent of heavy mechanized equipment—has disturbed, altered, or destroyed most previous road evidence. The difference between the appearance of the present road and early 20th century images such as those photographed by J. Harry Shannon for his “Rambler” articles (Stuntz and Stuntz, 1998) and the numerous, and often-extensive, alterations documented in the mid-20th century plan drawings and other records tells a graphic story of such changes.

## **Management Issues and Recommendations**

Management of such a heavily altered, yet well-loved, road essentially involves context sensitive design issues, rather than specific historic preservation practices to preserve an historic road with high physical integrity. Early images, particularly photographic evidence, will be helpful in identifying actual historic structures and elements. Discussions with stakeholders, perhaps aided by formal facilitation as necessary, can assist in bringing out all concerns and identifying appropriate features that relate to the historic elements of the road and roadside. Such elements may include appropriate landscaping elements (including the use of native or historically accurate plants), preservation or planting of trees where feasible (and identification of areas where this is not feasible or appropriate), location and treatment of pedestrian walkways and crossings, and signage.

## **Route 39 Through Goshen Pass**

### **Historical Overview**

Historical research for the predecessor route of modern Route 39 through Goshen Pass indicates that the road evolved from what was reportedly a utilitarian early 19th century county roadway cleared along the passage made by the North (now the Maury) River in northwest Rockbridge County. The passage was formerly known as Dunlap’s Gap, and subsequently, in the first part of the 19th century, as Strickler’s Pass (Morton, 1920; Paxton, 1973). By the later 19th century, it was known by the present name of Goshen Pass, and with its steep mountainsides and the grand sweep of the North River, it had become a well-known and popular scenic route and tourist destination—a piece of beautiful, yet formidable and untamed, nature within long-settled rural Virginia.

*Picturesque America* (Bryant, 1872), a massive mid-19th century collection of descriptions and images of scenic areas in the United States, included an image, as well as a lengthy and florid Victorian-era description, of Goshen Pass, which already had been a favored, awe-inspiring route for adventurous tourists for decades. In contrast to earlier travel through the pass by foot and horse, the travelers of the 1870s also had the additional options, at least in part, of starting by railroad and then continuing via horse-drawn stagecoach and buggy. Jump Mountain, located on the east side of Goshen Pass, was a point of note. Rockbridge Baths, mentioned in the *Picturesque America* description of Goshen Pass and located slightly to the east of the pass, was one of the well-known spas of the era that had been developed around mineral springs (Cohen, 1981; Morton, 1920). Another spa, Wilson Springs, was located at the entrance

to Goshen Pass and had been developed from another sulphur spring, located on an island in the river (Cohen, 1981; Morton, 1920).

*Picturesque America* (Bryant, 1872) describes a visit to Goshen Pass and its surroundings ca. 1870:

. . . we proceed westward along the Chesapeake and Ohio Railroad to Goshen Pass. A stage hurries us through at night, for we are to sleep at the Rockbridge Baths, visit the Jump Mountain, and return to the Pass. We see the overhanging crags, the high, naked summits, the black masses of foliage, and hear the melancholy winds sighing in unison with the invisible river rushing far below—that is all. It is simply grand, but we rattle on to the Baths, where we have things all to ourselves, the season not having commenced.

The next morning we mount the buggy and are off for Jump Mountain. Thunder-showers drag over the top of the “Jump” as we follow the road, prospecting for a good point of view, and the mountain appears to decide not to allow his portrait to be taken that day. . . .

The western base of the Jump [Mountain] abuts on Goshen Pass, and the ascent on that side is so gradual that even ladies on horseback, during the Springs’ season, ride to the edge of the cliff, five hundred feet perpendicular, which abruptly breaks the contour of the mountain. A prodigious stream of *debris*, the result of the forces which escaped the mountain’s face, rolls from the base of the cliff nearly to the foot of the mountain, barring approach on this side. We did not even attempt it, but trotting homeward, watched the blazing splendor of the sunset upon the lofty monarch’s head, while the cool twilight of the valley enveloped all about our road.

On the morrow we are promptly at the Goshen Pass and through it—a narrow gorge, the like of which for length and depth is not in all Virginia, for it extends nearly nine miles between its frowning walls! At its southeastern entrance a spring of Sulphur-water gushes out of a rock in the middle of the stream which traverses this Cyclopean gorge. The river-waters, pure and sweet, flow around the Acherontic pool, as if shunning contact with a liquid of so infernal a savor that it is perceptible at a great distance. Rude houses hard by are empty now, but tenanted in midsummer by neighborhood folk.

And now we are fairly within the Pass. Words are of little use, and even the pencil fails, for that can give but one side at a time of this gigantic and horrible chasm. Overhanging crags, black and blasted at their summits, or bristling with stark and gnarled pines, tower in places into the very heavens, six, seven, eight hundred feet above the stream. Lower down, monstrous rocks threaten to topple and crush the foolhardy wayfarer who ventures beneath their dreadful masses. The roadway is in places walled up from the stream, which flashes deep down beneath him. The place is “uncanny” enough. A bear and cubs, killed here recently, remind the artist and his friend that to be devoured by beasts would be no unfit penalty for intruding into so wild a scene.

By the early 20th century, the tourism and traffic in Goshen Pass had declined, and the 1920 Rockbridge County history (Morton, 1920) described a more isolated, yet still impressive, piece of nature:

It extends from near the mouth of the Little Calfpasture to Wilson’s Springs, a distance of five miles. Just below the mouth of the tributary mentioned, North River begins its sinuous passage of the North Mountain. The heights, which sometimes tower a thousand feet above the swirling waters, are not generally so steep as to be destitute of a growth of wood, and in summer the forest verdure adds much to the grace and beauty of the scene. Yet here and there is a vertical ledge exhibiting the fixtures worked into the stratum by the upward pressure of the earth’s crust in remote geologic periods. The river is constantly flowing over or among masses of rock and is a continuous cascade. A new vista opens with every bend in the road, and the stranger who goes

from one end of the pass to the other and then retraces his steps finds the return nearly as replete with interest as the advance. There is not a house and not an acre of tilled land within the pass, and the view is well-nigh as primeval as it was in the day of the Indian. And yet the road was once a busy thoroughfare, a line of stages running between Lexington and Goshen.

A bill to improve the road through Goshen Pass was introduced by the state senator representing Rockbridge County: A. Willis Robertson in 1920. Improvements had been made, and the road had been named the Maury Highway, in honor of Matthew Fontaine Maury, and had become part of the state highway (primary) system by the time that the Maury monument was dedicated within the pass in June 1923 (*Fifteenth and Sixteenth Annual Reports of the State Highway Commissioner to the Governor of Virginia*, 1924). At the time, the newly named road, between Goshen and Lexington, was numbered Route 172. (Maury, one of the 19th century's most eminent oceanographers, and a Virginia Military Institute professor, had great affection for the area and had requested that his body be carried through the Goshen Pass on its way to burial; the year 1923 marked the 50th anniversary of his death.) The ceremony dedicating the monument was attended by Gov. E. Lee Trinkle and a sufficient audience to require the estimated 500 automobiles that lined the road through the pass. An article in the Rockbridge County *News* describing the event included an appreciation to the State Highway Commission for taking over the road through the pass "and so promptly inaugurating very satisfactory improvements which made it possible to handle such an amount of traffic" (Bodie, 2011; McClung, 1999; Paxton, 1973).

In the late 1920s, a proposal to dam the Goshen Pass for a hydroelectric power plant (a reflection of the increasing demands for electricity in Virginia) brought opposition from local citizens as well as wider organizations. Spearheaded by W. D. Hoyt, chairman of the biology department at Washington and Lee, the local opposition built a formidable group of allies, including the State Corporation Commission, the Garden Club of Virginia, the Izaak Walton League, the Daughters of the American Revolution, the Association for the Preservation of Virginia Antiquities, the Young Women's Christian Association, and various newspapers. Organizing as the Goshen Pass Conservation Committee (also known as the Committee for the Preservation of Goshen Pass), the group attempted to head off the permit for the dam, organized extensive lobbying efforts, and worked to raise money to purchase the land while also trying to build support for a state park at the pass. Both the dam project and fund raising ultimately fell victim to the financial strictures of the Depression (Bodie, 2011; Lyle, 1999; McClung, 1999; Paxton, 1973).

Plans to improve the state road through Goshen Pass during the 1930s brought out similar concerns from both local citizens and various other groups (including, notably, the Garden Club of Virginia), who feared that the wild, scenic beauty for which the pass had become famous would be obliterated by a modern highway design. The design concept and plans for the Route 39 road improvement project through Goshen Pass, finalized in 1939, were driven largely by these concerns. H. J. Neale, the multi-talented "Landscape Engineer" (a then-common term for Landscape Architect) for the Virginia Department of Highways, conceived an overall design that included roadway design, plantings, stone retaining walls, and the concrete rigid-frame arch Laurel Run bridge veneered with native stone, all blending seamlessly into the various portions of the design concept (Jeffords, 1951; Virginia Department of Highways, 1939).



The project was the Virginia Department of Highways' first large-scale integration of highway design and landscaping to avoid or minimize highway impact to an historic/scenic area. Ultimately the project not only avoided impact to but also actually enhanced the historic and scenic elements of the region (Figures A2, A3, and A4).



**Figure A2. Goshen Pass: The Maury River From the Main Wayside Adjoining Route 39**



**Figure A3. Goshen Pass: Route 39 at the Laurel Run Bridge**



**Figure A4. Goshen Pass: Vista Across the Maury River to Route 39 (Visible Along the Base of the Mountain)**

In 1945, the Virginia legislature changed the name of the North River to the Maury River, additionally honoring the memory of Matthew Fontaine Maury (*Acts of the General Assembly of the Commonwealth of Virginia, Extra Session 1944/45, 1945*).

Subsequent initiatives during the 1950s and 1960s, led by local citizens, were aimed at further protecting Goshen Pass. In 1954, local citizens, joining with state delegate Baldwin Locher of Glasgow, and assisted with a grant from the Perry Foundation of Charlottesville, prevented the timbering of private land on the north side of the Maury River by facilitating the purchase of the property by the Department of Conservation and Development. This area is the state's oldest state-owned natural area; the Perry Foundation's role is memorialized by a modest monument—a plaque mounted on a boulder—within Goshen Pass. In 1959, the Goshen Wildlife Management Area was established on an additional 15,000 acres between the Maury River and Route 60. In 1968, after opposition by citizens and interested groups, the Virginia Commission on Outdoor Recreation, and various state agencies, a planned high-tension power line through the pass was moved out of sight from Route 39. In the early 1970s, additional proposed changes

to automobile parking, trails, and camping areas within the pass also failed because of locally driven opposition (Bodie, 2011; Lyle, 1999; McClung, 1999; Paxton, 1973).

A major intention of Neale's plan was to minimize the apparent built environment—in the case of the large Goshen wayside, only a fraction of the wayside improvements appeared to have been constructed (although there was extensive underlying work and a large amount of plantings to give the appearance of unchanged nature). As noted in the VTRC report *Management Considerations for Cultural Resources in Virginia Department of Transportation Rights of Way* (Miller, 2007):

The Goshen Pass wayside was designed to encompass more than 100 acres, most of which was the 2 1/2 mile strip of land bordering the Maury River, with less than 5 acres devoted to several small parking lots, resting, and viewing areas overlooking the spectacular vista of the Maury River and Goshen Pass. The remaining acreage, as Department of Highways Landscape Engineer H. J. Neale noted in a 1961 report, "is held to protect and preserve the natural beauty of this entrancing gorge (VDH, 1952-1961).

The documentation for present Route 39 included original plans and identification of landscape issues, as well as a film of the route in the 1950s. Although the route itself appears to be placed lightly on the existing topography, the plans for the project showed a substantial amount of earthmoving, plantings, extensive stonework, and mortared stone rubble retaining walls to support the appearance of wild nature. It is a credit to H. J. Neale's design talents and sensitivity that the stonework and plantings (particularly the extensive plantings of native rhododendrons) blend into the landscape. Specifications for road construction and materials followed the *Virginia Department of Highways Road Specifications* dated January 1, 1938 (Virginia Department of Highways, 1938). The original 1939 paving specifications, as noted in the plans for the project (Virginia Department of Highways, 1939), were as follows:

- 20'8" traffic bound broken stone, crushed or screened gravel pavement mixed in place cold bituminous surface treatment 28' to 32' roadway
- 20'8" traffic bound broken stone, crushed or screened gravel pavement with paved ditch-mixed in place cold bituminous surface treatment variable roadway 25' to 27'

Images from the 1940s show the road without traffic markings. The road was subsequently paved with a modern asphalt mixture and, although remaining a two-lane roadway, now has standard traffic markings.

Interestingly, even a road such as Route 39, which appears to have good integrity of its original design, has been revealed to have had a considerable amount of repair, and some alterations. Repairs and alterations have in particular resulted from numerous flood episodes. (For example, after the severe flooding of the mid-1980s, over a mile of the road had to be rebuilt.) Not only are the hand-laid stone retaining walls from the original design extremely expensive to repair today but also the amount of available space there is limited—and in places even insufficient—for such work between the roadway and the river, especially after flooding and slides during the ensuing 80 years. Modern techniques and materials such as cribbing and soil nailing have been helpful in repairing damage and preventing additional erosion, even

though the technology differs from the original earth-stabilizing methods. In general, such repairs have been applied in areas that are not easily visible to members of the public using the road or associated wayside. A concern identified during the research for this report is that there apparently is no comprehensive VDOT file information recording repairs made to the road and associated features since the 1940s. An additional issue is that the original stone retaining walls do not provide a suitable base for modern guard rails (James W. White, Jr., personal communication, May 17, 2017).

Despite these various issues, repairs, and some alterations, however, the original design concepts have largely been honored and retained and the road and related features retain their historical integrity.

### **Management Issues and Recommendations**

The first case study, of the Georgetown Pike, featured a well-loved, yet heavily altered, early 19th century evolved road for which context sensitive design applications rather than specific historic preservation practices were the most reasonable choice for management of the roadway and environs. In the case of Route 39 through Goshen Pass, the significance stems from a mid-20th century engineered design that is well documented and has much better visual and physical integrity. Appropriate management practice for this road consists of identifying and preserving, or minimizing impact to, as much as possible, the road's character-defining features. The extant 1939 construction plans, the 1938 specifications, and numerous images, particularly photographic evidence, provide an excellent basis for documenting the original construction and materials and for planning any needed repairs. In the future, if a formal National Register determination of eligibility and nomination are undertaken for the Goshen Pass road and associated project area, this will help bring together the evidence and documentation for this route. In addition, if possible, a checklist of former repairs and alterations should be compiled for future reference. Given the previous examples of local concerns and mobilization for the protection of the road through Goshen Pass from perceived threats, it is arguable that local (and otherwise) stakeholder interest and input for any major projects will be available, keen, and apparent for any future project affecting this road.

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