
Improving the Road

Ensuring a Safe & Pleasant Driving Experience

This section of the Plan addresses issues associated with the management and improvement of conditions within the road and right-of-way. Issues associated with safety, design quality and sensitivity, roadside maintenance, and traffic calming are explored below.

Context-Sensitive Design

The practices of MD SHA and other state transportation agencies throughout the U.S. are strongly shaped by standards established by the Federal Highway Administration (FHWA) and the American Association of State Highway & Transportation Officials (AASHTO). These standards provide a range of choices regarding treatment and geometry, shoulder width and surface, and design features like guiderails, bridges and other structures, placement and nature of fixed objects in the right-of-way, and signs and traffic control devices. While there is some flexibility built into these standards, the common practice of most Departments of Transportation (DOTs) is to use the most stringent standards when dealing with matters involving safety and design.

Before 1991, all roads receiving Federal funds had to meet the highly-detailed guidelines set forth in the AASHTO publication *A Policy on Geometric Design of Highways and Streets*, commonly referred to

as the “Green Book.” Under this framework, states classified roads according to their use characteristics, function in local and regional road networks, and general context—rural vs. urban—and applied the standards when planning for changes or improvements. If local officials wished to apply different standards, they had to receive design exceptions from FHWA or build the road with local funds.

Integrate Byway Planning with Maryland’s “Beyond the Pavement” Program

Several major actions have had a dramatic influence on AASHTO’s management framework, leading to major changes in the



Recently completed Neighborhood Conservation improvements in Queenstown.

ways Maryland and a handful of other states plan for road improvements. The passage of ISTEA in 1991 and the National Highway System Act of 1995 signaled a change in thinking at the federal level. Under these laws, it was made very clear that it was appropriate, even desirable, to take into account the environmental and physical context of improvements and the environmental, scenic, aesthetic, historic community and preservation impacts of a proposed project. In 1997, this evolution in thinking advanced to another stage with the FHWA publication *Flexibility in Highway Design*. This manual illustrates how context-sensitive design can be accommodated with the traditional design standards reported in the *Green Book*.

Maryland has assumed a leadership role in incorporating context-sensitive design in its decision-making. In 1998, MD SHA joined FHWA in the sponsorship of the highly successful “Thinking Beyond the Pavement” conference at the University of Maryland. Since then, MD SHA has volunteered with five other states to participate in a pilot project to adopt context-sensitive design principles to guide its decision-making.

To get started, MD SHA prepared a working definition of context-sensitive design: a

collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility. Next they prepared and approved “Thinking Beyond the Pavement” principles and set forth a plan to study ways to incorporate the principles in the project development process.

While the study process is still underway, early evidence of MD SHA’s “Thinking Beyond the Pavement” initiative can be seen in several recent projects throughout the state and along the Byway. Since 1999, the state has completed two improvement projects under the auspices of its Neighborhood Conservation Program—the bridge reconstruction, sidewalk, and drainage improvements in Stevensville, and the streetscape and traffic-calming improvements in Queenstown. Both projects demonstrate a high context sensitivity and commitment to collaborative planning. Currently, planning is underway for improvements in Chruch Hill, Rock Hall, Galena, and Cecilton.

Drivers along MD Route 20 through Edesville have few clues they are entering a settlement.



Develop Byway-Specific Design Guidelines

Conserving the character of state byways and reinforcing their distinction from other roads in the region should be an important goal of the State Scenic Byway Program. Preparing a comprehensive set of guidelines and policies concerning physical changes along designated scenic byways in the state would seem a logical outcome of the state’s “Thinking Beyond the Pavement” initiative. A few states have prepared models that could serve as a starting point for discussions between MD SHA, the Alliance, and other local byway organizations. Byway-specific

standards could address a range of issues beyond those addressed under the “Thinking Beyond the Pavement” initiative. Vermont, for instance, has adopted different, more sensitive standards for guiderails and other features for its scenic roads. Connecticut tries to use gentler maintenance practices for mowing and tree trimming along its designated scenic roads.

Byway-specific standards and policies could address a range of design issues, several of which are explored below.

Roadside Maintenance

Maintenance and landscaping practices have a strong influence on the visual character of a scenic road. Mowing, tree trimming, road rehabilitation and resurfacing practices all contribute to the visual experience. Roadside drainage measures also impact erosion and have a visual effect.

Directional & Regulatory Signs

As described earlier in the Plan, a large number of directional and regulatory signs are required to help visitors find their way along the Byway and to interesting sites along the route. The proliferation of these signs can detract from the roadside character if placement is not carefully considered and the numbers are not kept to the absolute minimum.

Beyond just the numbers, travelers heading in the opposite direction are subject to the high level of visual contrast produced by sign backs and posts. Not only is this contrast visually unattractive, it competes with the necessary driver information. By painting the posts and backs of all regulatory and directional signs brown the contrast can be reduced and necessary driver information can be made more visible.



Guiderails

Replacing standard galvanized guiderails with ones that blend in better with their setting, perhaps color galvanized or Kor-ten Steel, will also serve to reduce visual contrast and improve the overall appearance of the road. Another option is to use steel-backed wood guiderails in areas with slower speeds. To ensure the continuity, this report recommends that one or two types be selected and used along all state-designated byways.

Bridge Rails

One of the important features of the Byway is its proximity to the Bay and its major tributaries, and the Plan includes numerous recommendations regarding physical and visual access to the water. Unfortunately, many of the existing bridge rails and barriers at bridge approaches block views to the water. As bridges are rebuilt, efforts should be made to include bridge and approach rails that allow water views. Several alternatives should be explored. For example, MD SHA used galvanized rails for the new bridge east of Stevensville, thus permitting views to Cox Creek. The Cox Creek bridge provides a good example for application along the Byway, as do the horizontal tube rails used by the National Park Service along Federal parkways and park roads.

Steel-backed timber guiderails along MD Route 445 at the entrance to Eastern Neck Island.

Calming Traffic

Research into driver behavior shows that people travel at speeds at which they feel most comfortable, regardless of posted limits. Wide travel lanes and shoulders, infrequent intersections and driveways, and design features such as large radius vertical and horizontal curves—common along rural and suburban stretches of MD 213—contribute to a driver’s sense of safety and comfort. While appropriate along rural stretches of the route, these same design features in settled areas contribute to a false sense of security.

Travel speeds of between 45 and 55 miles per hour are permitted along most of the rural segments of the Scenic Byway. When approaching towns and settled areas, speed limits drop quickly, transitioning from 45 or 55 to 35 miles per hour, then in some cases dropping to 25 or 30 miles per hour. The change in speed limits reflects a change in the driving environment. At a typical town entry the number and frequency of road intersections and driveways increases, vertical and horizontal curves become tighter, traffic is heavier, and pedestrians and cyclists are present. These changing conditions make the road less safe to navigate at high speeds.

Despite the changing use characteristics and reduced speed limits, the design cross-section of the road remains the same in these areas as in rural areas. Consequently, drivers may not realize the need to change speeds until they have to stop at a traffic control device or approach a fixed obstacle in the road such as a turning vehicle. While enforcement is one way to slow travel speeds, this is not the only effective method.

Develop Calming Plans for Byway Towns & Villages

A variety of traffic calming strategies can be used to encourage drivers to reduce speeds and increase levels of concentration, as they transition from rural to more settled stretches of the Byway. A number of physical changes and visual cues can be implemented to help slow traffic speeds. Appropriate strategies for the Byway are explored below.

Narrowing Road Widths

Along most approaches to towns along the Byway, the road is wider than is necessary to safely accommodate traffic at posted speed limits. Besides a speed limit sign signaling the slower permitted speed, there is nothing to help the driver realize the rules have changed. Making the road look narrower, through modest physical changes in paving and landscaping, helps drivers make the transition from higher operating speeds of the open road to lower operating speeds at town edges and entries.

In more intensely developed areas, changes aimed at slowing traffic could include the installation of curb bump-outs or other means to channelize traffic, speed tables—short segments (6-12 feet) of slightly raised sections of pavement to encourage compliance with posted speed limits—or changes in pavement material at crosswalks or on-street parking areas. Regardless of approach, designs should not preclude the movement of farm equipment.

Controlling Access

Roadside businesses should also be encouraged to break up the continuous paved surfaces between the travel lanes, shoulders, and parking lots with landscaped areas. This helps mark entries and consolidates the access

and egress points of businesses making them look more attractive.

Improving Landscaping

Landscape improvements can also help drivers realize they are entering a settled place.

Decorative planting at entries, around the base of welcome signs, and at major intersections help signal to travelers that they are entering a special place. Street trees planted continuously along the approach to a community reinforce the experience of moving from agricultural landscapes to a town, village, or crossroads.

Preparing standards or design guidelines for traffic calming improvements along this and other byways in the state is recommended. MD SHA, working in partnership with byway organizations and localities, should prepare standards addressing the following:

- Use of planting beds, roundabouts or other design features to manage traffic at high-volume, unsignalized intersections.
- Use of alternative pavement material for shoulders to narrow perceived width of the road.
- Use of alternative paving material for crosswalks, parking areas, and high-pedestrian use areas.
- Tree planting in the right-of-way at gateways and along town entries to emphasize to drivers that they should proceed with care.
- Additional right-of-way improvements—tree planting, sidewalk and streetscape improvements—to build on local character and create visual interest for drivers.
- Use of on-street parking to serve local businesses and contribute to slower travel speeds.
- Use of landscaped medians or pavement changes (only if designed to permit the safe movement of farm equipment) to narrow road widths.

Serving All Users

Maintaining the Byway's safety is an important goal of the Alliance. The safety analysis conducted for the Plan reinforced reports from workshop participants that the Byway is generally safe, and that only two areas—along Route 18 in Stevensville and Route 213 in Centreville—were worthy of closer study. Nonetheless, workshop participants did share their concern about several issues. For example the effects of truck traffic on the driving experience, the accessibility of farm stands and sites for special events, and the speed of travel in settled areas were raised as concerns.

While the Byway's function as a local and regional travel route will not be affected by its recognition as a National Scenic Byway, the designation could result in modest increases in travel volumes and change the mix of vehicles on the route. If not properly managed, these changes could effect the Byway's principal function as the region's Main Street.

Better Accommodate Cyclists along the Byway

As bicycle touring along the Byway and throughout the region becomes more popular, the need for well maintained, interconnected systems of bicycle lanes and signed routes has increased. The Alliance recommends the development of shared bicycle lanes along the entire Byway as well as a system of signed routes that provide alternatives for bicycle travel along the route.

There is adequate paved width along the Byway to accommodate a shared lane for cyclists (shared lanes occupy the shoulder area of the paved travel way) for most of its length with two important exceptions: the

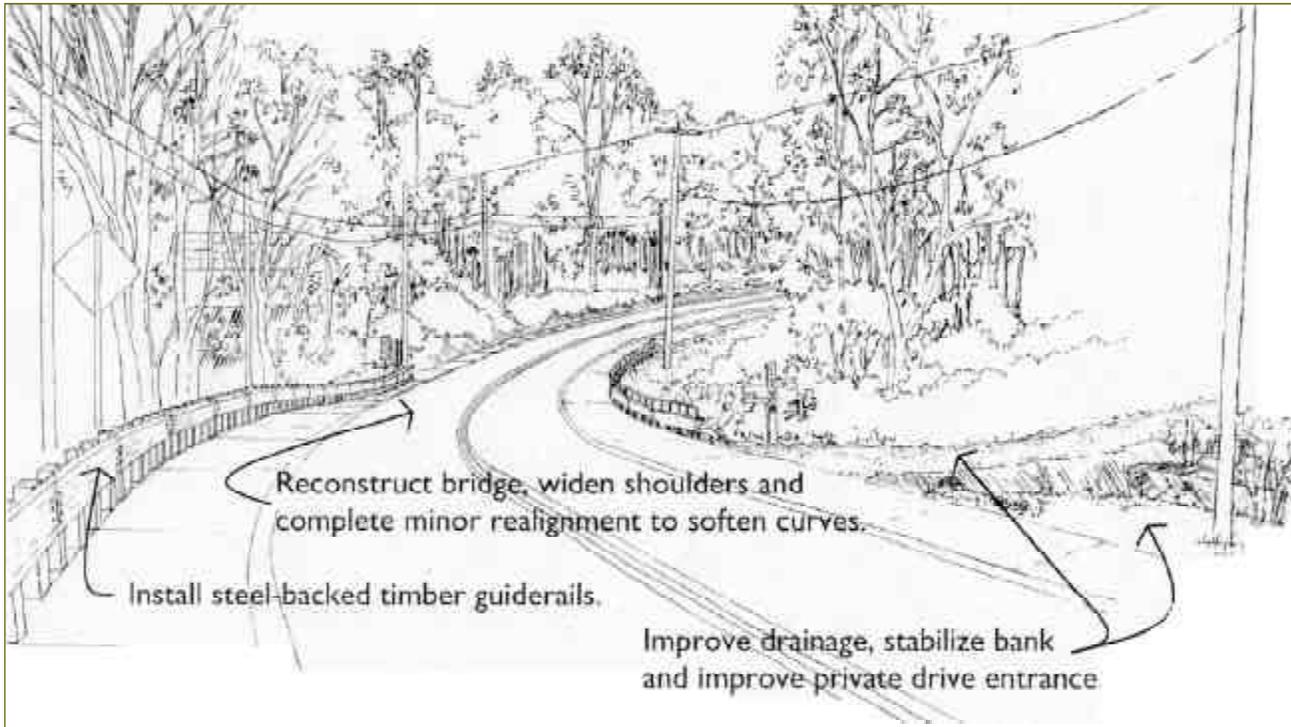


Illustration of geometric and shoulder improvements along MD Route 18 north of Queenstown.

segments along MD Route 445 from Rock Hall to Eastern Neck Island and along MD Route 18 between MD Route 213 and US 301. According to accepted sources (the Manual of Uniform Traffic Control Devices) bringing these sections up to standards would require the construction of four to five foot wide shoulders with appropriate markings and striping. For all segments, lane markings, route identification signs, and warning signs should also be required, consistent with state and federal regulations.

Most of the bridges along the Byway have been rebuilt and are able to accommodate bicycle use. Some of the older bridges, however, do not provide enough width to accommodate bicycles. In these cases, appropriate “Share the Road” warning signs should be installed

In general, bicycling conditions can be improved by the following techniques:

“Share the Road” Signs. North Carolina has been placing small rectangular “Share the Road” signs under the standard diamond shaped bicycle signs.

Shoulder Maintenance. Bicycling along existing shoulders may be possible by ensuring that existing shoulders are kept free of encroaching brush and any accumulations of debris. The pavement edge of the shoulder should be maintained to eliminate places where pavement is cracked or broken apart. On low volume roads, lane widths might be narrowed slightly.

Drainage Grates. Grates over drainage inlets should be oriented with the longer

dimension of the slots perpendicular to the road or a grate with smaller openings used so that a bicycle wheel will not get stuck in the slot.

Promoting Safe Behavior. In addition to signs, “Share-the-Road” information, geared towards organizers of tours, should be provided. Print material with information on travel routes, parking facilities, potential congestion/conflict areas and bicycle-friendly destinations should be prepared.

Alternative Routes. The Alliance should promote the identification and designation of alternative bicycle routes on roads with minimal traffic.

Support Improvements to Better Accommodate Farm Equipment

Concern about the movement of farm equipment was expressed often in planning workshops. Farmers along the byway depend on the road to move equipment from field to field, and this movement often results in traffic back-ups and contributes to risk-taking behavior among impatient motorists. The Alliance offers the following recommendations to address these concerns:

- Educate visitors and seasonal travelers about the presence of farm equipment through brochures and information at visitor centers, marinas, and lodgings.
- Erect warning signs to advise drivers to share the road and watch for farm equipment.
- Construct safety pull-offs along rural segments to accommodate farm equipment and other slow moving or oversized vehicles such as boat trailers and recreational vehicles.
- Construct paved shoulders along MD Route 18 between MD Route 213 and US 301 to better accommodate farm equipment and vehicles.

Managing Truck Traffic

As one of the region’s primary travel routes, the Byway carries its share of heavy truck traffic. Trucks bound for local destinations, as well as those using segments of the Byway for regional travel, influence driving conditions along the Byway, especially in the northern section of the route. To minimize the volume of truck traffic, its impact on the Byway’s safety, and the use of adjacent property, the Alliance recommends the following:

- Restrictions on travel speeds for trucks should be strictly enforced, especially in town centers and along town entries.
- Restrictions on the use of engine brakes in town centers should be adopted and enforced.
- MD SHA should study regional patterns of truck traffic and devise a program to limit the Byway’s use for non-local traffic.
- MD SHA should explore the feasibility of using paving material to reduce wheel noise and vibration for stretches of the Byway passing near historic properties.

Managing Special Event Traffic

During the warmer months, local fairs, festivals, special events and farm stands attract travelers to sites along the Byway.

Existing improvements along the Cross Island Trail.





Design improvements along the Byway must be designed to accommodate the movements of farm equipment.

Many of these events have limited capacity to accommodate large numbers of visitors. Often, travelers bound for these events are unfamiliar with the route and unsure of their destinations.

To guide visitors to special events and seasonal uses such as farm stands, the Alliance recommends the development of standards for the placement of temporary signs in the right of way and a program to ensure strict compliance. Signs developed and placed under this program would provide information warning drivers of areas of congestion and guiding motorists to specific sites and parking areas. Such temporary signs could be designed as part of the overall sign-family for the Byway and distributed by MD SHA or the counties for

Truck traffic through Church Hill.



use by event sponsors and farm stand operators.

Traffic & Safety

Support Sensitive Traffic Management

A preliminary planning level traffic operations analysis of the Byway resulted in the identification of segments where increased congestion is anticipated to occur over the next 10-20 years. The roadway segments include:

- MD 213: All segments in Cecil County
- MD Route 213: MD Route 297 to John Powell Road
- MD Route 213: MD Route 304 to MD Route 18
- MD Route 20: MD Route 213 to MD Route 446

The Alliance encourages the counties and MD SHA to conduct detailed roadway and intersection traffic operation analyses of these segments to clarify the need and identify appropriate management and improvement strategies. Roadway improvement proposals should incorporate the elements, specified in the preceding sections, to enhance safety, traffic flow, bicycle and pedestrian friendliness, and landscaping features.

Support On-Going Efforts to Ensure Safety

The travel safety assessment resulted in the definition of six roadway segments of potential safety concern.

- MD Route 18: Love Point Road to Castle Marina Road
- MD Route 18: Castle Marina Road to beginning of divided Highway (US 50)

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- MD Route 18: Beginning of divided Highway (US 50) to ending of divided Highway (US 50)
 - MD Route 213: Junction MD Route 18 to ending of divided Highway
 - MD Route 213: Ending of divided Highway to out of Centerville corporate limits
 - MD Route 213: Main Street (MD Route 19A) to Main Street (MD Route 19)

Additional research and detailed accident analyses of the above segments should be further investigated to define the necessary improvement(s) needed to reduce accidents and pedestrian-vehicular conflicts. Should additional study support the need, safety improvements should be concentrated along these segments of roadway to ensure a safer scenic byway. Safety improvement measures may include implementing an access management program, left and right-turn lane channelization, adding and/or widening shoulders.