



Route 146

CORRIDOR MANAGEMENT PLAN



Route 146 Corridor Management Plan – Potential Strategies

This document provides more information on the potential strategies for the Route 146 Corridor Management Plan (CMP). The strategies are listed in simple themes which have specific strategies supporting them. There are seven potential strategy themes covering the 23 primary strategies proposed for the CMP.

Overall Goal of the Strategies

The strategies have been developed with the overall goal of preserving and protect the unique, intrinsic qualities of the Route 146 Corridor in Branford and Guilford. These include: the narrow roadway; the undulating and curving roadway; scenic vistas from the road of the Long Island Sound, coastal marshes, ponds, and rivers; historic architecture fronting the roadway; rural farmland and agricultural uses; geologic features including ledge and rock outcroppings; stone, rock, and other historical walls; and mature trees along the roadway that shade and present a wooded roadway corridor.

Route 146 CMP Goals

The goals of the Route 146 Corridor Management Plan are supported by the strategies outlined in this document. The goals provided in the Plan are:

- 1. Increase Safety**
- 2. Involve the Community**
- 3. Protect Natural and Cultural/Historic Resources**
- 4. Improve Bicycle and Pedestrian Access & Safety**
- 5. Climate and Sea Level Preparedness**
- 6. Preserve Intrinsic Qualities**
- 7. Maintain Infrastructure**
- 8. Establish Working Group***
- 9. Balance Needs and Requirements**

*A Corridor Working Group was established during the development of the Plan to support the planning process and review the final Corridor Management Plan document.

Potential Strategies Listing

As noted earlier, the strategies below are split into overarching themes that have specific strategies beneath them. There are seven strategy themes covering the 23 primary strategies proposed for the plan. There is a brief explanation under each of the strategy themes to orient the reader, followed by the primary strategies with additional explanations to describe each strategy in more detail.

The strategy themes are:

- A. Flooding & Sea Level Rise Management
- B. Bicycle/Pedestrian Access & Safety
- C. Speed Management
- D. Roadside Safety
- E. Intersection Safety
- F. Maintenance Enhancements
- G. Environmental and Historic Preservation

A. Flooding & Sea Level Rise Management

This section covers flooding, sea level rise, and drainage along Route 146. The strategies in this area support the project goals to **Increase Safety, Protect Natural and Cultural/Historic Resources, Maintain Infrastructure, and Climate and Sea Level Preparedness**. Flooding and drainage issues are frequent occurrences along the roadway, especially at low-lying areas under the railroad underpasses and near marshes and watercourses. Undersized culverts along the roadway are also known to have flooding issues. Flooding prevents people from getting to their homes, blocks evacuation routes, and isolates neighborhoods. With sea level rise expected to increase the water level by 20 inches in the next 30 years, and stronger storms as a result of climate change, impacts of flooding (from regular flooding occurrences and storm-related flooding) are expected to increase and affect more properties. Sea level rise may also impact the ecology of the coastal areas as well as community infrastructure, such as wells, housing, businesses, and travel along the coastline.

Railroad underpasses create special challenges due to their constrained horizontal and vertical clearance, and three of the four underpasses are known to flood regularly (the only one that does not appear to get much flooding is the one over the Totoket Road section of Route 146 near the Pine Orchard Golf Club). Combined with the long time horizon to make any modifications to the bridges, these bridges will continue to serve as pinch points along the corridor for many years.

Some issues around flooding may be treatable within the right-of-way (ROW), while other flooding may be a result of water entering the roadway from outside the ROW, so there must be coordination between CTDOT and the towns and property owners.

The following strategies A.1 – A.4 relate to flooding and sea level rise management.

A.1 Review flooding area locations for site-specific context to determine most appropriate flood mitigation improvements.

Flood mitigation improvements may include raising a road section, providing a pumping station, or other approach depending on the context. Consideration may also be given to retreating from or cutting off a road section to through traffic in certain areas where flooding is a continuous problem and expected to become worse. This would be a decision discussed with the community and emergency services, especially as it may affect specific properties and evacuation routes set up along Route 146.

A.2 Review evacuation route strategy to find ways to get around flooding, such as developing more north/south access to Route 1 or designating other existing roads to be evacuation routes.

This includes working with SCRCOG and CTDOT on evacuation route planning that is currently underway. Some areas along Route 146 may not have good options for going north to Route 1, and in places where routes are available but are not designated as evacuation routes may not be appropriate for this purpose in their current condition.

A.3 Identify issues at water bridges and culverts to understand local flooding and review need for raised bridges, larger culverts, etc.

This may include not just Route 146 overseen by CTDOT, but also culverts under driveways that are adjacent to the road.

A.4 Railroad underpass strategies that are unique to these bridges:

A.4.1 Evaluate the current state of the underpasses – how old the bridges are, are they in a state of good repair, when may they be replaced – to determine timeline for potential changes/improvements.

This is the first step to understanding when there may be opportunities to adjust the design of the bridges, as the best time to make changes is when the bridges are at the end of their useful life and need to be replaced.

A.4.2 Work with Amtrak on long-term solution to low clearance/narrow bridges and flood problems.

As the owner of the railroad and the bridges, any changes must be discussed with Amtrak. Early and ongoing communications will allow time for different possibilities and design discussions to take place in advance of any final decisions.

B. Bicycle and Pedestrian Access & Safety

The goals of this strategy area are safety and connectivity for people biking and walking. This strategy area supports the project goals to **Improve Bike and Pedestrian Access, Increase Safety, Involve the Community, and Balance Needs and Requirements**. Bicycle and pedestrian concerns have come up regularly with members of the public, the Corridor Working Group, stakeholders interviewed for the project, during a review of documents related to the corridor, and in field reviews. Route 146 was previously a state-designated bicycle route before CTDOT revised the way it looks at bicycling on state roadways during the development of the statewide CTDOT Active Transportation Plan. From field observations and discussions with stakeholders, people frequently bicycle on the road to experience the beauty of the roadway and enjoy the closeness to the coast.

Different parts of the corridor also have different demands for biking and walking traffic and will have different strategies for these areas. The town centers in particular cannot be looked at the same way in terms of needs compared to the more rural, lower-density areas in the middle of the Route 146 corridor. Identifying specific issues and contextual elements at these different locations, and the constraints they are under, is important to determine what approach should be taken. In addition, there is a desire to convert short trips (less than 5 miles for biking, less than 2 miles for walking) to alternate modes around the town centers of Guilford and Branford.

Speeding has been brought up as a major concern for people bicycling and walking in the corridor. High automobile traffic speeds discourage bicycling and walking because of the real and perceived concerns about traffic safety from high-speed traffic.

Finally, it is critical to note that CTDOT is now required to consider and include bicycle and pedestrian infrastructure in state road projects unless there is a strong reason for an exception. On August 21, 2023, CTDOT released the Complete Streets Controlling Design Criteria and Justification Process to improve safety and mobility for people walking, biking, and using public transportation. See <https://portal.ct.gov/DOT/CTDOT-Press-Releases/2023/CTDOT-Announces-New-Complete-Streets-Design-Criteria-to-Improve-Roadway-Safety-and-Enhance-Mobility>. The Complete Streets Controlling Design Criteria will be used for all future state roadway projects in a statewide effort to create bicycling and pedestrian facilities along state roadways, and state-funded projects.

The following strategies B.1 – B.5 relate to bicycle and pedestrian access and safety.

B.1 Review connectivity along the road for walking and biking to improve overall access for bicyclists and pedestrians.

Connectivity of pedestrian and bicycle facilities along the roadway includes developing and maintaining infrastructure to provide safe access for these modes of transportation. However, it may not be possible to provide this infrastructure in all parts of the corridor due to constraints from intrinsic features listed in the beginning, such as wetlands, narrow right-of-way, slopes, etc. This strategy is to review where infrastructure may be needed and if it can be accommodated in the context-specific locations.

B.2 Review alternative routes for bicyclists and pedestrians in the most constrained sections for access.

Where pedestrian and bicycle infrastructure to increase safety cannot be implemented, safer alternative routes should be considered, with wayfinding signage to direct users. It is understood that some parts of the Route 146 corridor do not have good or feasible options for providing alternative routes.

B.3 Reduce vehicle speeds to improve bike and pedestrian safety (covered mainly under Speed Management section).

If dedicated infrastructure cannot be implemented, reducing automobile and truck speeds is another strategy that can be considered to make it safer for people biking and walking. More detail about this is provided in the Speed Management strategy theme section.

B.4 Review pavement/shoulder space available along the road to provide space for biking and walking, especially in constrained areas.

Many parts of the corridor lack adequate shoulder space for people walking and biking including areas without sidewalks. This strategy focuses on areas of the corridor where steep slopes and tight curves create special hazards for people biking and walking in the roadway, and where creating paved shoulder would have safety benefits.

B.5 Evaluate railroad underpasses for bicycle/pedestrian improvements and access, such as modifying bridges during replacement, alternative pedestrian tunnel, or any short-term improvements (see also railroad underpass strategies under Flooding section)

Any major changes to the current state of the railroad bridges have a long time line, but when that happens bicyclists and pedestrians should be considered in a replacement. Short-term improvements, where possible, could be reviewed as part of conversations with Amtrak on the future of the bridges.

C. Speed Management

This strategy area supports the project goals to **Improve Bike and Pedestrian Access** and **Increase Safety**. Over the course of the public outreach early in the project development, speeding along Route 146 was brought up a number of times, including from the Police Departments of the Towns of Branford and Guilford. Traffic data collected by the Project Team supports concerns that drivers are speeding significantly over the speed limit in several areas of the corridor. In addition, as discussed in the Bicycle and Pedestrian Access & Safety section, speeding discourages bicycle and pedestrian activity, and in some locations speed management may be a more preferred option than installing dedicated bicycle and pedestrian infrastructure.

In terms of speed limits, the Office of the State Traffic Administration (OSTA) has authority over setting speed limits in the state. It is important to understand their process for setting speed limits in discussing speed management. In general, it follows these steps:

1. The Local Traffic Authority (LTA) – usually the local police department – requests revisions to the speed limit.
2. OSTA conducts an investigation and makes a recommendation on the speed limit.
3. The LTA can agree or disagree with the recommendation. OSTA produces a Traffic Investigation Report (TIR) that explains the process and the final recommendations.

It should be noted that the OSTA process is being updated to look at contextual and land use elements for setting a target speed for roads, along with other factors. Traffic calming devices such as raised crosswalks are also being tested on state roads.

New legislation at the state level allows automated speed enforcement in some instances. CTDOT is in the process of creating guidelines on automated speed enforcement zones where it can be applied, and which will require adoption by the individual municipality/LTA.

The following strategies C.1 – C.3 relate to speed management:

C.1 Work with the Local Traffic Authority (LTA) on speed limit revisions to submit to the Office of State Traffic Administration (OSTA).

As noted above, speed limit revisions needs to be supported by the LTA and submitted by them. Residents or Town officials who are concerned about speeding issues along Route 146 can start the review process by discussing it with their LTA.

C.2 Review applicability of traffic calming devices in areas of concern using the Federal Highway Administration (FHWA) traffic calming toolbox.

Traffic calming to slow vehicle speeds can be accomplished with many different engineering countermeasures. The FHWA Traffic Calming ePrimer provides examples of different countermeasures that could be considered. The ePrimer can be found at: <https://highways.dot.gov/safety/speed-management/traffic-calming-eprimer>.

C.3 Review applicability of recent legislation allowing for automated speed enforcement.

Automated speed enforcement, approved by legislation in mid-2023, could be used in certain areas of Route 146. It would require setting up speed zone areas where speed cameras would be set up. The LTAs of Branford and Guilford may review future guidance from CTDOT on implementing this on Route 146.

D. Roadside Safety

This strategy area supports the project goals to **Increase Safety, Maintain Infrastructure, Balance Needs and Requirements**, and **Preserve Intrinsic Qualities**. The traffic safety goal of this strategy area is to prevent vehicles from running off the roadway. This strategy discusses guiderail primarily but is not just about that. Much of the existing barrier protection along Route 146 does not meet current safety standards and would not stand up to a crash if a driver ran off the road into them. The wood post and wire guiderail along the road is an example of guiderail that is not up to standard.

The types of guiderail that can be used along Route 146 are limited by local weather conditions and the context of the road. As a coastal highway, there is a greater degree of salty and damp air that impacts guiderail materials, and they can degrade and weaken wooden materials more quickly. As a result, a type of guiderail such as the Merritt Parkway guiderail is not appropriate for Route 146 for this and other reasons, including the maintenance issues that come with the impacts of coastal weather on materials. In addition, the Merritt Parkway guiderail is made only for that specific roadway as described in the CTDOT Highway Design Manual. CTDOT can get federal reimbursement for guiderail installation if it meets certain requirements, and the Merritt Parkway guiderail has a special exception just for this guiderail on that road.

Other types of possible barrier protection must be approved by CTDOT. It increases liability to CTDOT if they do not use standard or approved barriers. Using approved barriers is meant to protect the public as they have been tested to meet specific standards of safety in collisions.

Although the different guiderail options are limited, there are still options beyond the standard CTDOT guiderail (W-beam barrier protection) that can be considered. It is understood that the standard CTDOT guiderail is not preferred as a roadside barrier product because it detracts from the scenic and historic nature of the road. The following strategies D.1 and D.2 address approaches to other types of roadside safety barriers that could be considered for Route 146.

D.1 Review alternatives to standard CTDOT guiderail (W-beam barrier protection) that can be considered. These include:

D.1.1 Box Beam Rail.

This type of barrier protection is used widely by New York State DOT, and CTDOT has done some recent installations along scenic roads in Connecticut. An example is around Lake Waramaug in western Connecticut. Box beam rail is more aesthetically pleasing than traditional beam rail and matches better with the character of a road like Route 146. However, it is constrained by site conditions and may not be appropriate at all locations along the corridor.

D.1.2 Cable guiderail with steel posts.

This type of guiderail is approved for usage by CTDOT and looks similar to the existing wood post and wire guiderail that currently is in place in some parts of the corridor. There is potential for it to be used on Route 146 if there is available right-of-way for the 12' deflection required to prevent a driver from running off the road. It is also more expensive to maintain than other kinds of guiderail.

D.1.3 Other alternative guiderail products as they become available in the future.

The types of guiderail in D.1.1 and D.1.2 are examples of current barrier protection products that meet state and federal safety standards and are preferable to the standard W-beam barrier protection. However, these may not be the only alternative options available in the future. There may be a barrier protection option that becomes available that matches more with the character of the roadway while providing the high safety standards required. As other options become available, they should be explored.

D.2 Consider development of a roadway-specific guiderail detail for Route 146.

It is possible that a roadway-specific guiderail detail that matches best with Route 146, as a New England coastal highway, could be created for use by the Towns of Branford and Guilford. Note that this barrier protection would still have to meet the same stringent safety standards of modern barrier protection to be approved for use. This is something that could be explored by the Towns in collaboration with CTDOT.

E. Intersection Safety

This strategy area supports the project goals to **Increase Safety, Involve the Community, and Improve Bike and Pedestrian Access**. During the public outreach process, several road intersections along Route 146 were noted as having safety issues that should be reviewed to improve safety for people walking, biking, and driving. To address these areas, CTDOT Traffic must be involved, as they have responsibility to review intersection safety issues on state roads. As part of looking at the intersections, a review will need to identify the context-specific details with each intersection, such as pedestrian and bike crossings, sightlines, speeding, wide turning radius, etc.

There is some crossover with Speed Management and Bicycle and Pedestrian Access & Safety in this strategy area.

The primary strategy under this strategy area is the following:

E.1 Review intersection sightlines, crossing distances, origins and destinations of bicycle/pedestrian travel at key intersections, and other operational or safety issues at intersections of concern.

Solutions may involve improvements to bike/ped access, traffic calming, widening for improvements, or narrowing intersections to slow traffic and make pedestrian crossings shorter. Again, these will be context-specific to the intersection and should be reviewed with the input of the community.

F. Maintenance Enhancements

This strategy area supports the project goals to **Increase Safety, Maintain Infrastructure, Protect Natural and Cultural/Historic Resources, Preserve Intrinsic Qualities, Improve Bike and Pedestrian Access, and Balance Needs and Requirements**. Maintenance of the corridor comes in many forms – not simply maintaining and roadway and right-of-way of the corridor. The aesthetic and scenic qualities of the road are also impacted by how well adjacent property owners maintain their properties. Addressing broad-based issues, such as invasive plant species that impact large parts of the Connecticut coast and have no regard for property lines, may require systemic approaches well beyond the confines of the Route 146 roadway corridor. Maintenance of scenic areas and vistas is a critical part of maintaining the corridor and is shared between CTDOT (the road owner) and the Towns and local property owners.

For the corridor itself, CTDOT Maintenance conducts mowing along the roadway twice a year. They are unable to conduct invasive plant management under their permit from the Department of Energy & Environmental Protection (DEEP) for general maintenance. It is also limited by the equipment that they have available to perform the work. Larger transportation projects could involve mitigation that involves invasive plant management or other special projects, given time to plan out the work that needs to be done to address the invasive plants.

Maintenance of the pavement width is important for keeping in line with the historic use of the road as a narrow coastal highway. However, this must be balanced with other needs, such as bicycle/pedestrian access, intersection safety, and flooding issues. In 2023 CTDOT resurfaced Route 146 in Guilford between Sachem's Head Road and Route 1. As part of this resurfacing some of the vegetation was cut back to expose more of the shoulder and the pavement markings were redone with 11-foot wide travel lanes. Keeping the road shoulder clear and demarcating as wide a shoulder as possible is an important part of ensuring there is space along the road for people biking and walking where no dedicated infrastructure exists. Narrowing lanes during resurfacing also helps to slow vehicle traffic and mark space to pull off in an emergency.

The following strategies F.1 – F.5 relate to maintenance of the corridor:

F.1 Confirm right-of-way boundary lines for the entire corridor to determine the extent of CTDOT property for maintenance and other potential projects.

Many parts of the Route 146 corridor are considered "unbounded" by CTDOT, meaning that right-of-way documentation is not available or is not clear in some areas to give a firm determination of the true extent of the corridor right-of-way. Confirming these right-of-way lines will help to determine where opportunities may exist for CTDOT to enhance maintenance or address invasive plants.

F.2 Review potential for maintenance enhancements for mowing, plant management, sweeping shoulders, and other mitigation that could be included in special projects.

An important element will be determining where there are certain areas that would benefit from some enhanced maintenance that could be targeted by maintenance crews. This would also help inform what sort of mitigation is necessary and what areas should be prioritized in the event that a potential project could be funded as a special maintenance project.

F.3 Review maintaining historical and unique environmental elements along the roadway, including stone walls, rock outcroppings, ledge, and other historic walls, consistent with scenic highway regulations.

As a State Scenic Road, Route 146 already has strong protections that limit the degree to which key historical and environmental features can be changed or impacted through roadway projects (See **Sec. 13b-31e-3** of the Regulations of Connecticut State Agencies and the Environmental and Historic Preservation strategy area). If potential changes are proposed for the roadway that may impact one of these features, strong justification must be made for impacting that feature.

F.4 Review maintaining mature trees along the roadway within the right-of-way to keep the wooded feel of the road.

Similar to F.3, there are already strong protections for mature trees through the scenic road legislation and local regulations. It will be important to understand that the presence of mature trees is part of the intrinsic quality of the corridor that also needs to be preserved.

F.5 Review potential for improved invasive plant management with DEEP.

This can be through special projects or other ways that DEEP can work with CTDOT and the communities to preserve and protect the corridor, including the scenic views and sensitive ecology of the coastal area.

G. Environmental and Historic Preservation

This strategy area supports the project goals to **Maintain Infrastructure, Protect Natural and Cultural/Historic Resources, Preserve Intrinsic Qualities, Involve the Community,** and **Balance Needs and Requirements.** Protection of natural resources, scenic vistas, and the historic nature of the corridor are critical as they make up much of the intrinsic quality of the roadway. The undulating roadway, mature trees, rock walls, scenic vistas, marshes, adjacent architecture, and other elements come together to create the scenic roadway that people treasure and want to protect. Protecting the Route 146 corridor and maintaining its unique and scenic qualities is a shared responsibility with the towns of Guilford and Branford, property and business owners, residents, and CTDOT, which owns the roadway.

As a State Scenic Road, Route 146 is granted additional protections through state regulations, including review of proposed changes or improvements to scenic roads by the state Scenic Road Advisory Committee and special improvement and maintenance standards for scenic roads (**Sec. 13b-31e-3** of the Regulations of Connecticut State Agencies). These regulations limit widening of the right-of-way; widening of the traveled portion of the road; changes to the road grade; straightening or removal of stone walls; removal of mature trees; and provide additional guidance on general maintenance activities.

Additionally, the Towns of Branford and Guilford have zoning regulations that seek to protect the historic character and qualities of the built environment and the environmental features that make the towns unique. There are also National Registered Historic Districts in both towns and a significant part of the Route 146 corridor in Branford and Guilford that seek to preserve the historic character in those areas. The Stony Creek Architectural Review Board and the Guilford Design Review Committee, among other agencies, provide important functions in reviewing changes or additions to the built environment to make sure they are consistent with the historic character of their districts. However, there is potential for greater protection of the Route 146 corridor and the areas outside the right-of-way through town regulatory mechanisms.

The following strategies G.1 and G.2 relate to environmental and historic preservation of the corridor:

G.1 Encourage the Towns of Branford and Guilford to consider enhancing zoning overlays or other land use regulations to further protect the Route 146 roadway from development that is out-of-character with the scenic road.

Because of Route 146's status as a State Scenic Road, it is granted certain protections through state regulation and processes that must be followed prior to making road changes. The National Registered Historic Districts provide additional justification for preserving the corridor and its intrinsic qualities. However, local land development regulations play an important role in preserving and protecting the corridor. Although both Towns have robust zoning regulations to ensure development matches the character and context of their communities, additional call-outs for the Route 146 National Registered Historic District as a key preservation corridor could enhance the already strong protections on the corridor.

G.2 Encourage revitalization of the local Scenic Roads Advisory Committee in Branford and Guilford.

The Scenic Roads Advisory Committee was established to advise on the implementation of the original Scenic Byways Corridor Management Plan for Route 77 and Route 146. The Committee still plays an important role at the local level by advocating for the preservation of Route 146. Encouraging its revitalization will keep local residents involved and

engaged with the new Corridor Management Plan for Route 146 and further implementation of the strategies of the plan.