

CONTEXT-SENSITIVE DESIGN CASE STUDY NO. 2

LOCATION:

Merritt Parkway – Greenwich, Connecticut

PROJECT DESCRIPTION AND HISTORY:

Much has been written and reported about the safety improvements and landscape restoration of the Merritt Parkway which started in the 1990s in Greenwich, Connecticut.¹ The project will be undertaken in seven sections and this case study focuses on the first phase, the gateway, for which design started in 1992 and construction was completed in 1997. It is fitting to include this project in a community-based study because the unique community of Greenwich shaped the approach that was ultimately taken to improve this roadway. The community's influence started long before any formal design process was undertaken, and was instrumental in motivating the context sensitive design approach (although not called such at the time).

The history of the Merritt Parkway is long and very significant to the conduct of this restoration project. In 1923, the plan to build a route parallel to the very busy U.S. Route 1 along the north shore of Long Island Sound, in Connecticut outside of New York City, was first conceived (See Figure 1). The 38 mile Merritt Parkway (US Route 15) which runs from the New York State line to just west of New Haven, Connecticut was completely opened in 1940. It was one of the first parkways in the country and the first limited access highway in Connecticut. The divided four-lane facility is approximately 5 miles north of the Sound paralleling the coast. The original conception was for a somewhat open formal garden way that offered vistas of the adjacent and mostly rural farmland. The roadway was designed to include extensive landscaping which was reduced in the 1970s to save costs.

The most notable aesthetic features of the parkway are the bridges representing Art Moderne, Art Deco, Classical, Gothic and Renaissance architecture. These bridges are undoubtedly the most treasured aspect of the facility for the community and travelers alike (See Figure 2). Each bridge, both over and under the parkway, is unique and very few had been replaced or altered significantly for maintenance or



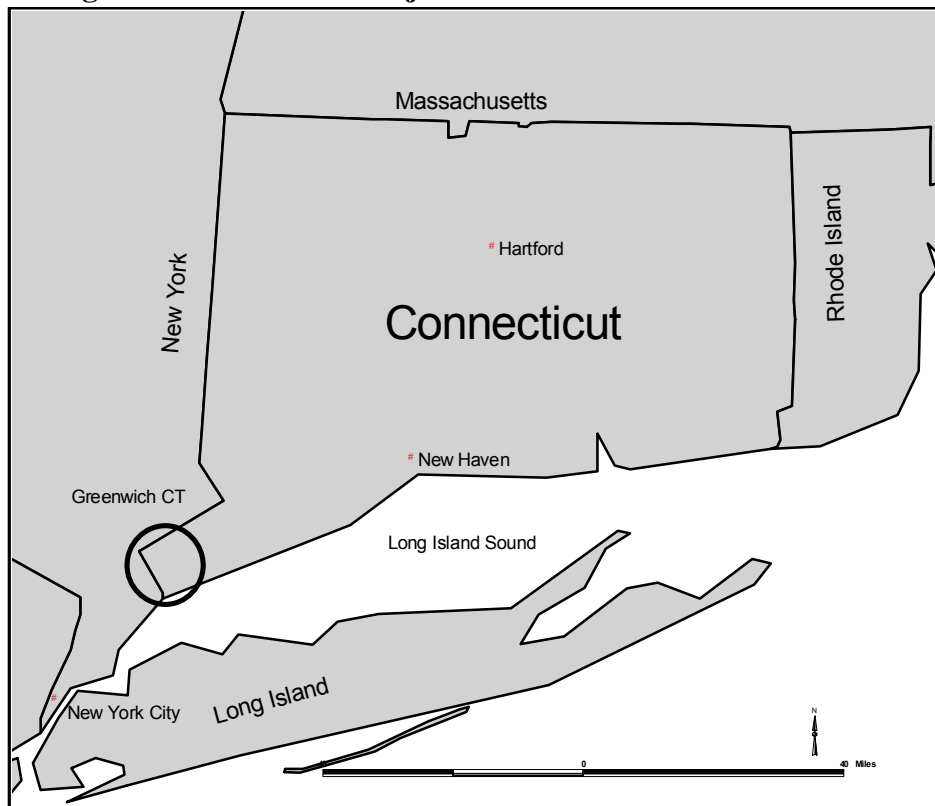
¹ The Merritt Parkway Working Group (1994) *Merritt Parkway Guidelines for General Maintenance and Transportation Improvement*.

Milone and McBroom, Johnson Johnson and Roy Inc., Johnson Landscape Design and Fitzgerald & Halliday Inc. (1994) *A Landscape Master Plan for the Merritt Parkway*.

Merritt Parkway Gateway – Greenwich (November 2000) *Thinking Beyond the Pavement: Context Sensitive Design in Connecticut, Project History and Design Information Booklet*.

repair. A less unique, but certainly charming, architectural element to the parkway is the frequent service areas which consist of miniature stone “old fashioned” gas stations (Figure 3).

Figure 1: Location of Project



Over time, the rural farmland surrounding the parkway was transformed into more developed suburban land use. The parkway itself remained buffered from the development owing to the very wide highway right of way. The wide right of way was originally intended to contain a second parallel roadway. Certainly in the 1980s, as traffic congestion on the parallel Interstate 95 became very significant, there were those that may have looked to expansion of the Merritt Parkway as a corridor traffic management solution. The existence of the large right of way made this possibility seem very real to many community members who wished to preserve the parkway.

Over the years, the gardens were transformed to rather dense and overgrown forests, that while different from originally conceived, still provide a peaceful park-like setting (See Figure 4). However, despite the park-like setting, some members of the public indicated during this case study, that they still feel somewhat unsafe on the narrow road that lacks shoulders. Vehicles tend to drive freeway level speeds on this road which lacks interstate level geometric standards. When the redesign process for the parkway began in 1992, the ADT was nearly 40,000 vehicles (no trucks or buses are allowed on the parkway) and the 85% percentile speed was approaching 70 mph.²

² The Merritt Parkway Working Group (1994) *Merritt Parkway Guidelines for General Maintenance and Transportation Improvement*.

Figure 2: A Selection of Bridges on the Merritt Parkway



Figure 3: Merritt Parkway Service Center



Figure 4: Character and Setting



This case study focuses on the initial context sensitive design process which preceded the first improvements to the highway and revitalization of the setting. This first section runs from the New York State Line in the Town of Greenwich in the southwest corner of Connecticut. The project runs for 2.5 miles. The general location is shown in Figure 1, while the first phase section, known as the Gateway, is shown in Figure 5. The second phase of work is about to start in 2002 and the third phase is in design. These subsequent phases are proceeding based on the documented guidelines and landscape plan that was developed during the multi-year multi-group effort preceding the gateway project.

THE COMMUNITY OF GREENWICH

The community of Greenwich, which might reasonably be termed a suburb of New York City, is somewhat unusual in that the median household income in Greenwich is \$99,100 a year. This is almost double the state median of \$53,900 (US Census, Profile of Selected Economic Characteristics). Furthermore, the cohesive community has a history of activism and community-based service especially in “green” issues. The powerful, active and well-informed community was identified during interviews for this case study as part of the impetus for handling this road improvement project “differently”.

In the early 1980s modern interchanges were built at three locations along the parkway and this precipitated community movement for preserving the parkway and its character. In 1991, the Parkway was listed in the National Historic Register and shortly after it was named both a national and state Scenic By-way. These designations were community driven and further motivated the need for a balanced and well thought out design. Due to the nature of the community, the DOT would not have considered tackling this project without a design process that included all stakeholders. Interviewees for this case study indicated that the DOT was aware of the level of community interest and therefore never considered moving without community input.

DOT ACTION

By 1992, traffic volumes and speeds along the Merritt Parkway had continued to increase and the safety concerns required attention. In response the Commissioner of the Connecticut Department of Transportation established the Merritt Parkway Working

Figure 5: Gateway Section of Merritt Parkway (Source: CSD in Connecticut November 2000)



Group. This internal group was faced with balancing the safe transport of heavy traffic volumes, with not only the compromised geometric standards of the road, but also while ensuring the character and beauty of the roadway was maintained (or even enhanced to its original level). The commitment of the highest DOT management to the context sensitive design process (although not called such at the time) was essential to starting this process and ultimately responsible for its success. In the fall of 1993 the working group presented its findings to the public and in mid 1994 the “Merritt Parkway Guidelines for General Maintenance and Transportation Improvements” and the “Landscape Master Plan for the Merritt Parkway” were finalized. The group prepared the guidelines while the landscape plan was contracted to a group of consulting firms with various types of expertise. The landscape master plan was completed with the entire 38-mile length of the route in mind. This effort was the first time the DOT had employed landscape architects in a design process. The experience was a positive one with groups including the DOT realizing that different people hold important different knowledge.

When it came time to present the guidelines to the public, the DOT wisely sought the assistance of local groups and leaders to help set up meetings and to contact local stakeholders. Construction did not begin until the fall of 1996 as the interim years were used for public consultation as well as for specific design and research including the testing of features such as special design guardrails.

OTHER GROUP INVOLVEMENT

Several groups in addition to individual community members were involved in the project from the beginning stages including the following:

- Town of Greenwich
- County of Fairfield
- District Department of Highway Offices
- Elected state and federal representatives
- Greenwich Green and Clean
- Connecticut Chapter of American Society of Landscape Architects
- Connecticut Trust for Historic Preservation
- National Park Service
- Metro Pool
- Merritt Parkway Trail Alliance

COMMUNITY INVOLVEMENT

The community and neighbors of the Merritt Parkway had varying concerns that in the early 1990s brought them to the forefront of the discussion on the future of the parkway. People with property abutting the parkway were concerned that plans to clear the forest of vines and invasive species would leave them more exposed to noise and the visual impacts of the transportation facility. Furthermore, they were concerned that the access needed for construction would unnecessarily result in the removal of some of the forest. Community members were also concerned that if roadway capacity was increased, traffic volumes would also increase, resulting in a return to traffic congestion within a few years. The community did not necessarily wish to house on the parkway significant traffic that was passing through from other towns. The vast majority of community members were concerned to preserve the scenic beauty and history of the roadway. The commitment of the community is evident still today as the Merritt Parkway Conservatory was recently formed. This group was created in recognition that with DOT

budgets shrinking local money needed to be raised for landscaping. These community concerns stretch beyond simply the parkway as another local group, Greenwich Green and Clean, has undertaken an interchange beautification project on I-95. They have claimed great success not only for the landscaping but also for the project's impact on litter reduction.

CONTEXT-SENSITIVE FACTORS

Scenery and Aesthetics

Concerns related to scenery and aesthetics were of interest to all stakeholders. Of particular interest in this case was the development of a rigid barrier system that fit with the scenery of the parkway but also provided protection to drivers along the median and shoulders of the road. The very small median and the presence of trees in the median were of concern. Along the shoulder and clear zone, both rocks and trees were of concern. After reviewing existing systems, the DOT designed and tested its own steel-back timber barrier system (Figure 6). Several iterations were needed with crash testing before a final acceptable design was selected.

Careful consideration was given to which rocks and trees could be removed in order to balance safety improvements with scenic objectives. This involved review of crash histories and also careful engineering evaluation.

Guidelines for signage were also established for the Merritt Parkway. There was a concern to provide safe functional signs but also to minimize signage and establish a distinctive style that fit with the scenery.

Figure 6: Merritt Parkway Steel Back Timber Barrier



Historic

This project is somewhat unique in highway design and construction work in that the historic assets were not along the property to be obtained, but consisted of the roadway and bridges themselves. This created challenges for the working groups, particularly for those that sought to improve safety. Ultimately, compromises had to be made to preserve the historic character. A contrasting case study might be made by considering the parkway on the other side of the Connecticut - New York border to the west. In this case, the curves and geometric standards were addressed in the traditional way through widening and curve lengthening. However, the atmosphere and character of the roadway have been completely compromised.

The guidelines for the Merritt Parkway also include provisions that ensure restoration of the bridges will proceed in a manner that protects their unique character. This includes the eventuality where a complete bridge might need replacing. In that event, the original design will be replicated. Any new bridge over the Merritt Parkway must also be in line with the prevailing

character and not of the plain concrete style of the newer interchange bridges.

Environmental Concerns

The environmental concerns along the Merritt Parkway might be considered minor compared to projects involving wetlands or water, however the proper course of action was not necessarily easy to define. Forest management, invasive species removal in particular, was undertaken as opposed to continuing to let the area overgrow naturally.

Multimodalism

Some members of the community have requested pedestrian access, perhaps along a shared-use trail, within the large park-like forest along-side the parkway. This issue has not been resolved due to safety concerns and a failure to reach consensus on how access could be provided.

Safety

In addition to the guardrails and removal of rocks and trees already discussed, several other efforts to improve safety were undertaken. Due to the lack of shoulders, grass pull off areas are to be maintained and provided where possible. Park curbing was to be utilized in order to provide adequate drainage especially during heavy rain events. Consensus was reached to provide standard pavement markings and roadside delineators.

Other Community Needs

The management of the construction in the forest-like residential environmental was challenging. Obtaining access to the areas where work such as rock removal was required was difficult. In some cases prior agreements had to be broken in order to practically accomplish the work with the machinery involved. There was a constant need to inform and explain the nature of the construction tasks to the public but especially the neighbors.

Public Education and Involvement

The community-led nature of this project resulted in excellent attendance at public meetings and information sessions both during the development of the master plans and during later planning. The project involved one of the first uses of computer rendered images in Connecticut and this tool was deemed very useful and important for facilitating the communication and exchange of ideas. The DOT central office personnel often traveled the distance to Greenwich to hold meetings but also to have one-on-one meetings with neighbors. However, it should be noted that the well-informed and active community made the effort to obtain public input on this project easier than might be the case in other areas or for other projects.

PROJECT OUTCOME AND ACCOMPLISHMENTS

The final project can be considered a successful compromise. The parkway remains a beautiful roadway with spectacular bridges. However, traffic congestion in the overall southwest corridor of Connecticut is still significant. Although guard rails and other improvements should show success in improving crash or fatality rates on the Merritt Parkway, speeds remain high and the facility lacks what might be considered less than the highest levels of safe engineering design. The wood guardrail has been hailed as a great success. Groups are working together to improve

plantings and landscaping further.

The lessons learned on this project include the need to involve maintenance personnel in early design discussions. Maintenance has been challenging in some areas requiring more manual labor than is ideal. The need for better communication during the construction phase was also identified. Another missing piece was the provision of turn arounds for emergency vehicles. Finally, although the preparation of formal written documents is an excellent tool, especially given the number of years it will take to construct improvements along the entire length of this parkway, some problems with consistency between the “master plan” and the “guidelines” were encountered. One single document may have served the groups better.

Overall this project can be considered an excellent example of how a road represents so much more to a community than simply a transportation conduit. The future of this roadway was community driven and while the DOT provided the leadership and expertise to accomplish the improvements, their use of other professionals, such as landscape architects and historians, improved the final result.