

NYSMPO

Integrated Transportation Planning &
Community Design Processes



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“Working together (the City of Buffalo and the Delaware Park Steering Committee), we were able to keep the character of the park while making the necessary improvements to increase the safety of motorists.”

- Acting State

Transportation

Commissioner Joseph H.

Boardman

Delaware Avenue Improvements

NEW YORK STATE



Significant Achievements

- ◆ The NYSDOT’s successful coordination of the planning process with numerous federal, State, City, conservancy, and community groups resulted in a popular, consensus-based outcome.
- ◆ Recognizing the importance of the project to the community, NYSDOT established an extensive public involvement process at project initiation to evaluate community goals and priorities and identify key historical and cultural resources.
- ◆ The Study Steering Committee successfully worked with federal agencies to all variation from AASHTO roadway design standards in order to preserve historic and community resources.
- ◆ The Study Steering Committee reduced the total number of travel lanes to create room for bicyclists and pedestrians.

Overview

Delaware Park, designed by Frederick Law Olmsted and Calvert Vaux, is the signature park in the City of Buffalo park system. A key feature of Delaware Avenue is its distinctive “S” curves, designed by Olmsted and Vaux when they reconfigured a straight section of road to slow travelers. Outside of the park, Delaware Avenue is a state arterial serving central Buffalo. Because the road transitions from state arterial to an avenue through the park, motorists frequently entered the park and “S” curves at speeds higher than those for which the road was designed. Further, poor drainage frequently created wet or icy conditions on the roadway. The winding road, high travel speeds and slick road surfaces combined to create unsafe driving conditions and an unacceptably high rate of vehicle crashes. These conditions led the City of Buffalo to work with their local metropolitan planning organization (MPO) to get the project on the region’s transportation improvement program (TIP) and secure funds. Final plans for the \$7.5 million 1.64 kilometer reconstruction project were approved in 1997; work was completed in about three years.

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Delaware Park is the City of Buffalo’s signature park.

Delaware Avenue weaves through the park in a distinctive “S” configuration.





The Success Story

Delaware Park, designed by Olmsted and Vaux and opened to the public in 1876, is the signature park in the City of Buffalo’s park system. When they designed the Park, Olmsted and Vaux transformed Delaware Avenue from a straight dirt road into a winding picturesque boulevard, designed to slow the traveler. The distinctive “S” curves have become a “trademark” of the Park. The roadway also forms the Park boundary and separates it from another historic resource, the Forest Lawn Cemetery.

Delaware Avenue is also part of the state arterial system and provides important connections within urban Buffalo. As motorists transitioned from the state arterial segment to the park roadway, problems arose where the road design changed dramatically and required drivers to slow. Drivers, however, often did not slow down or did not slow down enough. Poor drainage on the roadway meant the surface was badly cracked, frequently wet in the spring and summer, and icy in the winter. Improper banking of the roadway created further hazards. As a result, vehicular crashes on Delaware Avenue were occurring at an unacceptably high rate. These crashes were both injuring motorists and damaging lights and trees in the median strip and the cemetery fence. Speeding vehicles and a lack of pedestrian facilities discouraged walking, making it difficult for people to walk through the park.

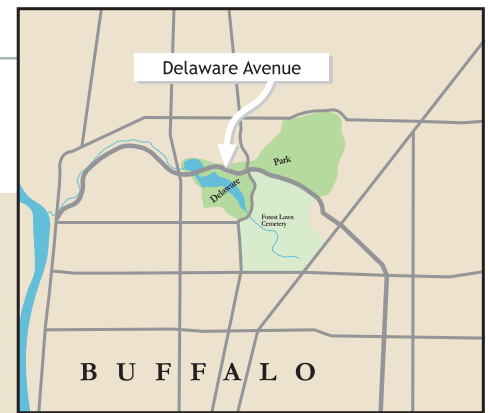
In 1994, the City of Buffalo began a project to upgrade Delaware Avenue. The New York State Department of Transportation (NYSDOT) acted as project manager responsible for administration and final design. Acknowledging the historic significance of the roadway and the importance of Delaware Park to the community, NYSDOT enlisted the Delaware Park Steering Committee as a partner in the process.

The Delaware Park Steering Committee is a community-based organization formed in 1970 to preserve, protect and enhance Delaware



The Forest Lawn Cemetery, separated from Delaware Park by Delaware Avenue, is also a historic resource.

Delaware Avenue Improvements



Park. It remains in existence today and works closely with the Buffalo Olmsted Park Conservancy. One of its first projects was to develop a master plan to prevent further encroachment on the Park. The Delaware Avenue Steering Committee includes representatives of the City, the community, the Park Conservancy and other key interest groups.

From its inception, the project to improve Delaware Avenue promised to be challenging. The roadway design was outdated, inappropriate from a modern traffic engineering perspective and a key factor in the frequency of automobile crashes. From a community perspective, however, the Delaware Avenue “S” curves were an important feature of the historic Delaware Park. Several members of the community believed the original design of the Park had already been compromised too much and strongly opposed further changes to any aspect of the Park, including straightening or flattening portions of the “S” curves.

There were also significant historic and cultural resources near or adjacent to the roadway. These included Delaware Park itself, the Forest Lawn Cemetery and a historic district located along the west side of Delaware Avenue adjacent to the Park. Another important resource was a large stone viaduct, originally designed as a carriage concourse, which spanned Delaware Avenue. The bridge was originally constructed in 1874 and rehabilitated by the Works Progress Administration (WPA) in 1935. The bridge had a low vertical clearance over Delaware Avenue that made it difficult for some vehicles to navigate.

NYSDOT’s strategy to balance community needs and engineering requirements was three-fold. First, NYSDOT carried out an extensive and detailed existing conditions analysis to fully understand the opportunities and challenges facing the roadway reconstruction project, including

The historic resources included a stone viaduct, originally designed as a carriage concourse. The reconstruction project lowered the roadway underneath the viaducts to increase clearance for trucks.



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highlighting roadway hazards. Second, NYSDOT formed and empowered an inclusive Study Steering Committee to guide the process. Third, NYSDOT embarked on an extensive public outreach campaign to include relevant interest groups and perspectives in the process. These steps ensured that recommendations made by the Study Steering Committee were grounded in a solid understanding of the roadway opportunities and challenges and reflected the community's wishes.

The Study Steering Committee included representatives of the New York State Office of Historic Preservation (NYSOHP), the City of Buffalo and the Delaware Park Steering Committee. The Delaware Park Steering Committee includes members of the Buffalo Olmsted Parks Conservancy, citizens and business and community leaders.

The need to balance requirements for a safe and efficient transportation system with desires of the community to preserve and enhance environmental and cultural resources challenged NYSDOT and the Study Steering Committee. The Delaware Park Steering Committee played an important role in this balancing act by not only acting as a steward of the Park but also extending the dialogue between NYSDOT and the community. The Delaware Park Steering Committee helped sponsor public work sessions, focus group discussions and business and community interviews to encourage additional public participation. In addition, NYSDOT, the Study Steering Committee and the Delaware Park Steering Committee worked together to conduct a widespread public outreach campaign that consisted of meetings held across the community in government offices, community centers and backyards.



Delaware Avenue is considerably safer since it has been improved. Reconstruction of Delaware Avenue included segregated pedestrian walkways and clearly marked bike paths, improving safety for non-motorized travel.

Delaware Avenue Improvements

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The Delaware Avenue project public outreach campaign was one of the first times that NYSDOT made extensive use of visual and graphic materials, including aerial photography and visual simulations to ensure that design alternatives were clearly communicated to the public. NYSDOT, with help from the Study Steering Committee, also conducted extensive research into the original roadway design envisioned by Olmsted and Vaux. Building on this research, NYSDOT updated roadside and median strip landscape designs to retain as many of the original Olmsted features as possible.

The Delaware Avenue improvement project also included pedestrian and bicycle facilities. Delaware Avenue was originally designed as a wide boulevard with three-lanes in each direction, which provided more than enough roadway capacity to serve existing and forecast traffic volumes but did not include adequate infrastructure for bicyclists or pedestrians. Working closely with the City and Study Steering Committee, NYSDOT created a design widening each of the traffic lanes to improve safety for motorized and non-motorized travelers by developing bike lanes on each side and sidewalks on one side. These facilities were designed to connect with other pathways in Delaware Park and nearby neighborhoods.



The final design included bike lanes on each side of the Avenue.

The key obstacles facing the NYSDOT design team revolved around ensuring roadway safety standards were addressed while minimizing impact to adjacent park lands and historic resources. AASHTO¹ standards for improving roads with tight curve radii and short tangent lengths, such as those found in the “S” curves, required straightening and flattening the curves. In this case, however, flattening curves would have encroached upon Park land, altered Park boundaries and potentially required relocating Park or Cemetery resources. Flattened

¹The American Association of State Highway and Transportation Officials (AASHTO), in cooperation with the U.S. Department of Transportation, is responsible for setting, among other standards, standards for road geometry, road widths, design speeds, and vehicle clearances.

curves may have also increased vehicular speed in the Park, eroding the safety and environment for pedestrians.

Given the community's strong feelings regarding preservation of historic and cultural attributes of the corridor, NYSDOT sought ways to address safety concerns while preserving these attributes. NYSDOT did this through improvements to surface conditions, including installation of a drainage system that would keep the road dry and ice-free. NYSDOT also incorporated a variety of smaller scale strategies such as widening travel lanes, improving roadway banks, and reducing posted speeds in an effort to tighten the curves and, to the extent possible, slow traffic through the "S" curves.

Another example of the Study Steering Committee and NYSDOT's strategy to employ smaller scale solutions as a technique to improve road safety is shown with treatment of the historic bridge over Delaware Avenue. The bridge, originally designed in the late 19th century, had a low vertical clearance over Delaware Avenue that was not considered adequate by modern engineering requirements. NYSDOT lowered the roadway under the bridge to improve the clearance but drainage concerns limited the ability of NYSDOT to achieve modern vertical clearance requirements. The roadway-lowering effort resulted in additional clearance and when combined with other minor safety improvements achieved a smoother, dryer surface that enabled project funders and reviewing agencies to deem the design acceptable.

Ultimately, NYSDOT and the study team identified a series of design improvements to Delaware Avenue that addressed safety issues without significantly

Pedestrian facilities included crosswalks and connections to other pedestrian paths and resources.



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The final design enables the road to work within the Park landscape, as originally designed by Olmsted and Vaux.

affecting Delaware Park or other important historic and cultural resources. They were successful in devising solutions that adequately addressed safety concerns and finding flexibility in the AASHTO standards. Non-standard features of the final road design approved by FHWA included lower vertical clearances under the historic WPA bridge; shorter than preferred horizontal site distances; and curve radii and tangent lengths below the typical minimum standards.

Results

The Delaware Avenue rehabilitation effort represents a project that effectively accommodated community and historic goals and created a safe and efficient transportation corridor. NYSDOT was able to address safety concerns by making significant improvements to roadway drainage systems and surface conditions. These improvements sufficiently convinced federal agencies that safety issues had been adequately addressed despite several atypical elements of the final design. Alternative solutions were accepted by participants involved in the planning process in exchange for protection of important historical and cultural resources.



Lessons Learned

- **Build on existing community and neighborhood organizations to make connections between transportation agencies and the public.**

The Delaware Avenue Steering Committee was a standing steering committee set up to protect and enhance the Delaware Avenue neighborhood; it had already earned community trust as a steward for the Park and community. When NYSDOT commenced the project, they got involved with and ultimately relied on the Delaware Avenue Steering Committee to help make connections with, and reach out to, the community. The Delaware Avenue Steering Committee proved to be a valuable resource to encourage participation, facilitate dialogue and build trust between official organizations and the public.

- **Seek appropriate flexibility in “rules” application to address community interests.**

While there are clear standards, performance objectives and guidelines regarding roadway and traffic engineering, it is possible to find flexibility in order to avoid unacceptable impacts on community, environmental and cultural resources. This is particularly true if project engineers can demonstrate that despite some atypical design elements, all safety issues were adequately addressed. For this project, NYSDOT worked closely with the community to understand their priorities and goals. NYSDOT then looked for design solutions that could balance safety issues with community preservation goals. NYSDOT worked closely with the Federal Highway Administration (FHWA) throughout the process to ensure



Historically-accurate roadway lighting enhances both the Park’s character and traveler safety.

Project Details

Delaware Avenue
Improvements Project
City of Buffalo
Buffalo, New York
NYSDOT Region 5

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NYS MPO

Integrated Transportation
Planning & Community Design
Processes

Delaware Avenue Improvements

Delaware Avenue improvements retained the roadway's historic characteristics as well as improved motorized and non-motorized operations.



their agreement with the final designs. These key steps helped build the case for more flexibly modern design standards in exchange for preservation of historic and cultural resources.

- **Foster wide community support with broad-based public involvement.**

The Delaware Avenue Improvement Project involved historical and cultural resources greatly valued by the community. When NYSDOT started working on this project, it embarked on an extensive and inclusive public involvement campaign where they met with people in a variety of formal and informal situations. NYSDOT also used sophisticated visual techniques as a tool to explain and illustrate potential impacts associated with each potential alternative.

- **Integrate community vision with transportation improvement projects through progressive planning and design.**

The Delaware Avenue Improvement Project involved significant planning, design and road work. NYSDOT and the community took advantage of the project to improve the area surrounding the roadway. For example, road improvements offered an ideal opportunity to incorporate bike lanes and sidewalks into the facility. NYSDOT also worked with the community to research original features of the Park such as landscaping, plantings, spacing, etc. To the extent feasible, NYSDOT updated Delaware Avenue to reflect Olmsted and Vaux's original landscape design. These improvements enhanced the Park and the adjoining community.