

# RECONSTRUCTION OF SEVEN BRIDGES ON THE BELT PARKWAY



New York City  
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NEW YORK CITY



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The New York City Department of Transportation (NYCDOT) has begun reconstruction of seven bridges and their approaches on the Belt Parkway. They are the Fresh Creek Basin, Rockaway Parkway, Paerdegat Basin, Gerritsen Inlet, Mill Basin, Nostrand Avenue and the Bay Ridge Avenue Bridges. All are original structures originally built starting in 1939. The reconstruction of seven bridges will be accomplished by individual bridge construction contracts. The first contract, which began in October 2009, includes the Belt Parkway over Fresh Creek Basin, Rockaway Parkway, and Paerdegat Basin, as well as the connecting highways between the bridges. Additionally, in order to mitigate wetland impacts, an offsite project at Floyd Bennett Field within the Gateway National Recreational Area (GNRA) was started in March 2011.

Reconstruction of these bridges and their approach roadways is necessary to eliminate substandard conditions and bring them into compliance with current state and federal standards. These standards require wider lanes, safety shoulders, median barriers, super-elevation of the roadway around curves and realignment of the roadways in order to improve sight distances. NYCDOT anticipates that these improvements will reduce the current accident rate on this section of the Belt Parkway and improve highway drainage.

**In order to maintain access during construction, the following has been implemented.**

- Pedestrians and Bicyclists: Four of the seven bridges, Gerritsen Inlet, Mill Basin, Paerdegat Basin, and Fresh Creek Basin, have pedestrian and bicycle paths which will be maintained at all times during construction.
- Motorists: Three lanes are being maintained in both directions during rush hours. Lane closures are being limited to off-peak and late night/early morning hours. There are also specified lane closures permitted during weekends.

The Fresh Creek, Rockaway Parkway, Gerritsen Inlet, Nostrand Avenue, and Bay Ridge Avenue Bridges will be rebuilt on-line. This entails staged reconstruction with lane closures to accommodate construction activity. Because of the proximity of the bridges to one another, NYCDOT has coordinated the traffic patterns to avoid conflicts. New York City Police Department Traffic Enforcement Agents will also be available to monitor and aid traffic flow on local streets. Belt Parkway traffic will not be routed onto local streets.

The Mill Basin and Paerdegat Basin bridges will be constructed off-line. This means that new structures will be built adjacent to the existing bridges and that traffic will remain on the existing bridges until the new structures are complete. Minimal impacts will occur when the approach roadways are configured to move traffic to the new bridges.

#### **Construction Mitigation Measures**

- Tow Truck service will ensure quick removal of disabled vehicles.
- An acceleration clause may be use when it is in the best interest of NYCDOT.
- Local communities receive regular updates of project status.
- Notices are issued in advance of each change in project staging.
- Variable Message Sign (VMS) systems provide motorists with updated traffic conditions.
- NYPD Traffic Agents are available to monitor traffic on local streets.
- Program management office and staff, including a full time community liason, are on site.



**Existing Fresh Creek Basin Bridge**

*The existing Fresh Creek Basin Bridge consists of five steel spans over Fresh Creek Basin with a 21-foot clearance over mean high water. There are four support piers in the channel. This structure will be replaced with a new three span structure*

### **Proposed Fresh Creek Basin Bridge**

*The new structure will consist of three spans of approximately 100 feet each and will require only two support piers, resulting in a wider channel. The proposed construction will result in improved landscaping on the bridge approaches. The bridge deck and the approaches will be widened to three 12-foot lanes in each direction, 12 foot wide shoulders and a 12 foot wide bike path. The pedestrian and bicycle pathway will be maintained at all times during construction.*





**Existing Rockaway Parkway Bridge under construction**

*The existing Belt Parkway Bridge over Rockaway Parkway was built circa 1940. It is a four span steel superstructure with Rockaway Parkway traffic under the two center spans. The new bridge and the approach roadways will be constructed in five stages, while maintaining three traffic lanes in each direction during peak hours during construction.*

### **Proposed Rockaway Parkway Bridge**

*The existing structure will be replaced with a single span structure with improved visibility along Rockaway Parkway. The width of the new structure will exceed that of the existing bridge in order to provide wider lanes and a safety shoulder. In addition to reconstruction of the bridge, four access ramps will also be reconstructed as will the reconstruction of Rockaway Parkway in the vicinity of the Belt Parkway.*





**New Eastbound Paerdegat Basin Bridge under construction**

*The existing bridge consists of 12 cast-in-place concrete column bents. At the navigation channel which passes under the bridge, one concrete column has been damaged. Because of this damage and other structural concerns, the Paerdegat Basin Bridge has been under continuous monitoring since September of 2004.*

*The existing 13 span bridge and approach roadways will be completely demolished and replaced by two new bridges and new approach roadways on split alignments. The southern structure will carry eastbound traffic while the northern structure will accommodate westbound traffic. Both the horizontal and vertical alignments will change, resulting in improved sight distances on the bridges and roadways. The bridge carrying eastbound traffic will also have a dedicated pedestrian/bicycle path along the south side, separated from traffic lanes by a concrete barrier on the bridge and by a steel-backed timber guide rail on the approaches.*

**Paerdegat Basin Inlet**



**Jamaica Bay**

*Rendering of new east- and westbound bridges.*

*The longer eastbound bridge will include a dedicated bicycle/pedestrian path.*

## Environmental Impacts

All the bridges, with the exception of the Bay Ridge Avenue Bridge and Nostrand Avenue Bridge are located within, or adjacent to, the Gateway National Recreation Area (GNRA), a division of the National Park Service. This bridge and highway program is in compliance with New York City Department of Environmental Protection (NYCDEP) requirements for the initiation of a long-term plan that will increase wetlands and decrease pollution into Jamaica Bay.

During construction, measures are in place to prevent soil and sediment from entering Jamaica Bay and to protect the water quality in the bay and basins adjacent to Jamaica Bay. As a long-term program to reduce the flow and increase the quality of runoff into Jamaica Bay, a Best Management Practices (BMP) Program is included in the current construction contract. BMP sites are located at both the Rockaway Parkway and Paerdegat Basin. These sites contain modified drainage structures along with native plants and trees such as spartina grasses that will decrease the quantity and improve the quality of roadway runoff from the parkway.

NYCDOT also works with the New York City Department of Parks and Recreation (NYCDPR), New York State Department of Environmental Conservation (NYSDEC), GNRA, the US Coast Guard (USCG), and the US Army Corps of Engineers, (USACE) to ensure compliance with all environmental requirements. In addition to mitigating environmental impacts along the Belt Parkway corridor, an off-site Wetland Mitigation Plan has been implemented to compensate for wetland losses and increase and improve the quality of habitats. An approximately 2.3 acre site at Floyd Bennett Field has been cleared of rubbish and debris and converted to wetland.

This significant bridge reconstruction program is adjacent to Jamaica Bay and the Rockaway inlet, which connects Jamaica Bay with Lower New York Bay. These waterways are among the largest coastal wetland systems in New York State and also one of the most significant natural resources in the city's marine waters, inlets, bays and estuaries. The bridges are also adjacent to the Gateway National Recreation Area (GNRA), a national park that encompasses 26,200 acres of coastal areas. Mill Basin, Paerdegat Basin, and Fresh Creek Basin are also waterways of New York state designated Jamaica Bay significant coastal fish and Wildlife habitat.

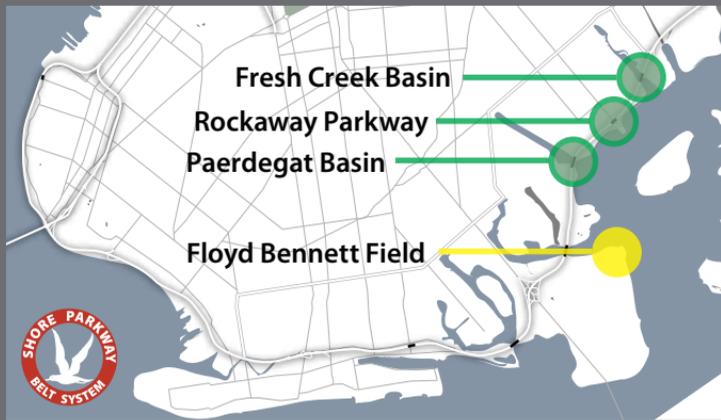
The New York State Department of Environmental Conservation (NYSDEC) has mandated that the program include off-site mitigation to compensate for environmental impacts. Mitigation goals and objectives are included to restore and preserve wetland functions and expand aquatic and terrestrial wildlife habitats. A separate contract which started in March 2011 provides for the removal of debris and fill materials from the existing shoreline, re-grading of the shoreline to pre-existing contours, planting of beneficial marsh plants, such as spartina, which will stabilize the shoreline and eliminate the potential of high erosion in the wetland areas. These mitigation measures will allow for natural re-vegetation to occur.

Long term monitoring will be implemented to ensure the continued viability of the mitigation wetlands. A five-year minimum monitoring period was established with NYSDEC Freshwater Wetlands Enforcement Guidance.





*View of a typical section of the Belt Parkway. Uniform design elements, including light poles, center median barriers, and timber guide rails will be consistent along the corridor. Uniform landscape treatments will complement the design elements.*



At the end of each construction contract, a separate landscaping contract managed by New York City Department of Parks and Recreation will start. The landscape contracts are designed to preserve and enhance the park-like character of the Belt Parkway, incorporating selected trees and planting species.

### Looking to the future

With reconstruction of the Paerdegat Basin, Rockaway Parkway and Fresh Creek Basin Bridges and their connecting highways well under way, the NYCDOT looks ahead to the reconstruction of other bridges vital to the historic Belt Parkway.

### Award-winning design

All seven bridges in the program are not only part of the Belt's important network of connecting structures, they also help to convey its historic and unique character. In recognition of that fact the new bridges will not only incorporate improvements such as improved sight distances and increased lane widths, the design (winner of an NYC Art Commission award) incorporates elements that maintain a consistent historical character.



**Existing Gerritsen Inlet**

Situated within the Gerritsen Beach community, the Gerritsen Inlet Bridge was built circa 1940. It is a nine span structure over Gerritsen Inlet, with a clearance of 35-feet above mean high water. Because the Gerritsen Inlet Bridge is located within the Gateway National Park Recreation Area, NYCDOT is working with the National Park Service, United States Coast Guard, the NYC Department of Environmental Protection, and the NYC Department of Parks and Recreation to ensure all construction methods comply with environmental protection laws.

### **Proposed Gerritsen Inlet Bridge**

The new structure will consist of three spans over Gerritsen Inlet. The 35-foot mean high water clearance and the navigable channel width will remain unchanged. As part of community outreach activities the NYCDOT will be in contact with local boating groups in order to mitigate any impacts to recreational boaters during construction. The pedestrian and bicycle pathways will be maintained at all times during construction. The completed structure will include uniform design elements such as railings, lighting, and parapets consistent with the historic character of the original Belt Parkway construction. These features will be implemented on each of the seven bridges in the program resulting in a unified theme along the corridor.





**Existing Mill Basin Bridge**

Opened on June 29, 1940, the Mill Basin Bridge is adjacent to the Jamaica Bay Wildlife Refuge and the Gateway National Recreation Area. The Mill Basin Drawbridge is the only movable bridge on the Belt Parkway. The current clearance over Mean High Water is 35-feet. Construction will take place in an off-line configuration reducing the need for lane closures and resultant traffic delays.

**Proposed Mill Basin Bridge**

The new bridge will be a fixed structure with a 60-foot clearance over Mean High Water, eliminating the need for opening and closing the structure to accommodate tall vessels. The new design results in increased sight distances, an increase in lane width from 11-feet 4-inches to 12-feet, and the inclusion of safety shoulders in both directions. The channel will remain navigable during construction, and the clear channel width will remain the same after the new structure is in place. A new fender system will be installed to protect the bridge substructure from marine traffic.



The Belt Parkway Bridge over Bay Ridge Avenue is situated within the residential Bay Ridge neighborhood. There is pedestrian access under the bridge to both the American Veterans Memorial Pier as well as to the Shore Parkway Seawall pedestrian and bicycle paths. Safe access to the pier and the bicycle and pedestrian paths will be maintained at all times during construction. Additionally, access will be maintained to the NYCDEP Owl's Head Pollution Control Plant at all times.

The existing bridge will be reconstructed using pre-cast concrete deck sections. The clearance will be increased to 14-feet 6-inches, which removes the need for clearance signs currently posted for a substandard condition. Also the new deck will eliminate the need for under deck wood shielding.



American Veterans Memorial Pier



Existing Substandard Condition of Bay Ridge Avenue Bridge

### Proposed Bay Ridge Avenue Bridge

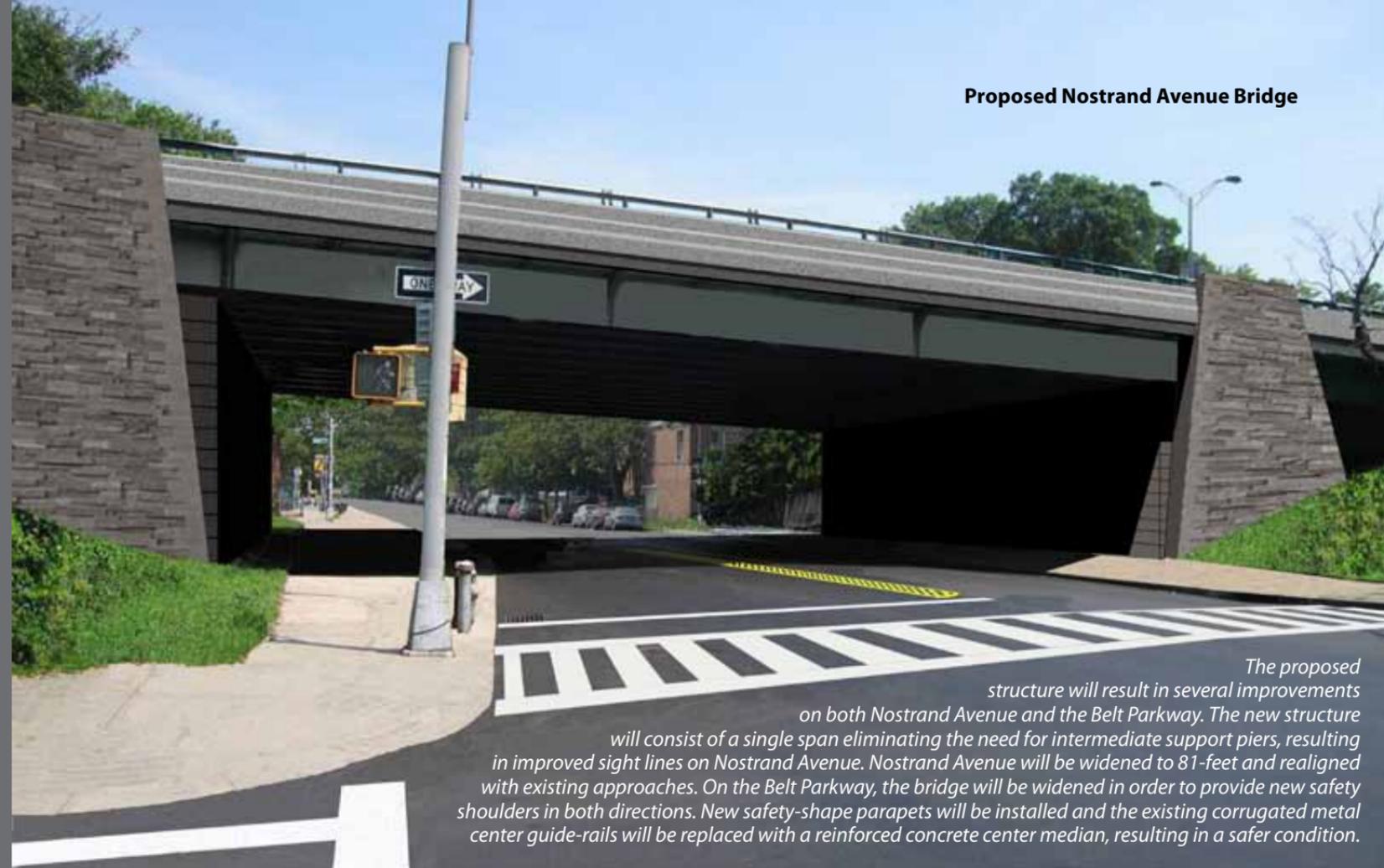
Rendering of the Bay Ridge Avenue Bridge and adjacent pier. The design includes specific styles of street lights, stone work on the bridge abutments and relief details on the parapet to evoke the historical character of the bridge.





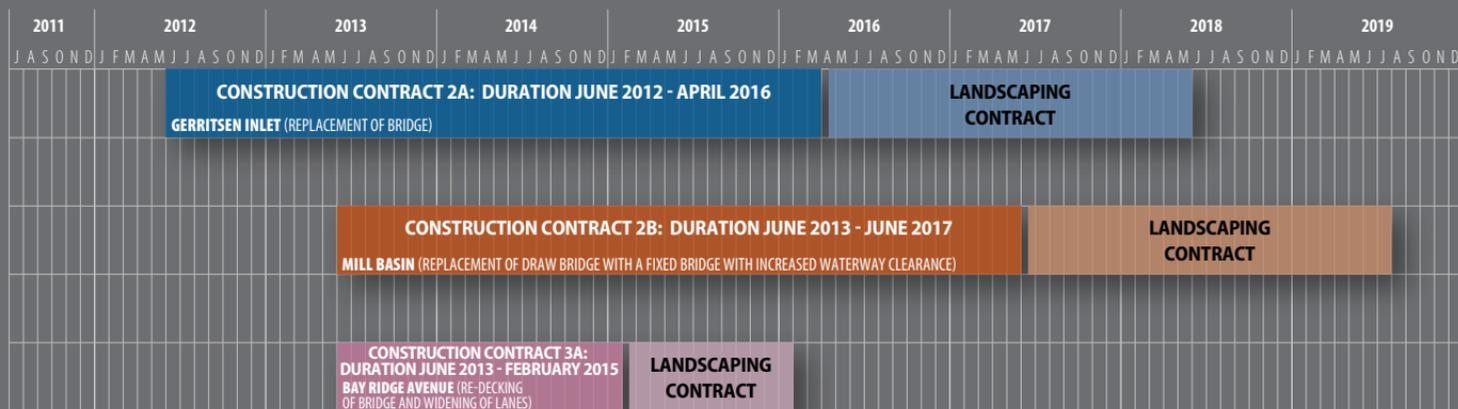
**Existing Nostrand Avenue Bridge**

*Situated within the Sheepshead Bay community, the Nostrand Avenue Bridge was built in 1940. It is a three span structure with vehicular traffic under the center span. There are support piers on both sides of the roadway. Sidewalks cross under the structure on both sides. The Nostrand Avenue approaches under the bridge are not aligned with the rest of the roadway. Nostrand Avenue will be realigned to alleviate this condition.*



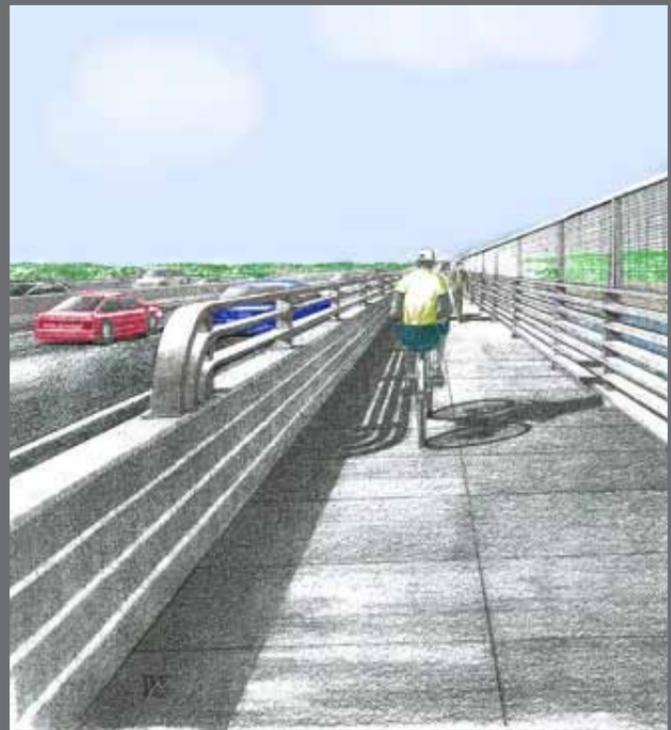
**Proposed Nostrand Avenue Bridge**

*The proposed structure will result in several improvements on both Nostrand Avenue and the Belt Parkway. The new structure will consist of a single span eliminating the need for intermediate support piers, resulting in improved sight lines on Nostrand Avenue. Nostrand Avenue will be widened to 81-feet and realigned with existing approaches. On the Belt Parkway, the bridge will be widened in order to provide new safety shoulders in both directions. New safety-shape parapets will be installed and the existing corrugated metal center guide-rails will be replaced with a reinforced concrete center median, resulting in a safer condition.*



NYCDOT conducted research to obtain recommendations and design guidelines for the treatment of the parkway corridor. The goals of the analysis were threefold: first, to propose improvements to the parkway to satisfy safety and accessibility standards; second, to preserve and re-establish the historic character of the parkway; third, to retain and improve public access for all parkway users. The recommendations also included complementary designs of the seven bridges.

The research provided detailed recommendations on how common elements should be incorporated to achieve a consistent and historical character to the corridor. The research considered items such as trees and vegetation, lighting fixtures, railings and fences, pavement treatments, and stonework detailing on bridge abutments and relief detailing on bridge fascias. In 2006, the New York City Art Commission presented an award to the team that designed the common elements incorporated into the final plans.



Pedestrian path / Bikeway on waterway bridges

As a part of this program, landscaping design recommendations were made, intended to preserve and enhance the park-like character of the Belt Parkway. This included assessing the suitability of tree and plantings species. At the completion of this project the Belt Parkway corridor will exhibit a coordinated landscape theme.



Section view of proposed Belt Parkway corridor landscape design.

### Community Outreach

The NYCDOT knows that the Belt's unique character is shaped not only via design and landscaping but also through the hundreds of thousands of people that live and work alongside it. Along the Belt Parkway corridor there are schools, hospitals, stores and countless homes and business. To serve the communities that live in the shadow of this great roadway during the construction, the NYCDOT has appointed a community liaison as the point person for any questions, concerns, and inquires the community may have.

#### In order to keep you informed, we will provide the following regular updates:

- Project overview brochures
- Notice in advance of each change in project stage
- Quarterly newsletter
- Information cards

#### As notification to the motoring public, we will provide:

- Variable Message Signs
- Media outreach
- Local radio and newspapers announcements



## For more information:

- Call the Belt Parkway Community Liaison at 347-702-6430
- Email us at: [SevenBeltBridgesOutreach@gmail.com](mailto:SevenBeltBridgesOutreach@gmail.com)
- Visit our website at: [www.nyc.gov/dot](http://www.nyc.gov/dot)

## Project Team

### *Owner*

New York City Department of Transportation, Division of Bridges

### *Designers*

New York City Department of Transportation Division of Bridges In-House Design,  
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### *Program Management*

GPI/CTE - Joint Venture

### *Resident Engineering*

GPI/CTE - Joint Venture, Weidlinger Associates

### *Community Outreach*

Sam Schwartz, PLLC



Community Liaison



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