



Location of Lift Span Assembly Yard

Assessment and Recommendation

The Walk Bridge Program is a large-scale project in Norwalk, CT funded by the State of Connecticut, the Federal Railroad Administration and the Federal Transit Administration. The major project in the Program is the replacement of the existing swing railroad bridge (Walk Bridge) over the Norwalk River. The new bridge is comprised of two, side-by-side, vertical lift span bridges installed in two phases, south span in phase 1 and north span in phase 2, to maintain railroad operations on a minimum of two tracks at all times. Each lift span will be fully assembled, including the installation of the track and overhead catenary systems, and the completed span will be transported to the project location via a barge. Once the barge is floated into place, the new span will be lifted into its final position. The Program favors offsite assembly compared to in-place assembly because of the marine vessel impacts associated with river construction; constructability difficulties when working on the water; and noise implications from the steel assembly's proximity to SONO. The Program identified an assembly location near the project site that would be cost effective; created limited impacts to the area's environmental resources, river navigation and river-users; and would optimize the coordination, logistics and risks associated with the lift span assembly.

When the Program first began researching potential local properties to be used as an assembly area and barge transfer location, the construction manager (CM) suggested renting space at the abandoned NRG power plant (i.e. Manresa Island). The CM noted that the property had enough space for a staging yard, and by utilizing the existing bulkhead and slip, an assembly barge could be docked adjacent to the property - removing the need to transfer the assembly from land to barge.

The Program also identified a set of properties along the west bank of the Norwalk River, south of the Stroffolino bridge, as a potential assembly yard location and proceeded with a feasibility analysis of using these properties. The analysis indicated the following: a significant bulkhead would need to be constructed along the waterfront; the river bottom adjacent to the properties would need to be dredged to increase the draft needed for the loaded barge next to the bulkhead; and the barge would encroach on the river navigational channel in the approach leading to the Stroffolino bridge. In addition, the properties' proximity to SONO would create additional environmental impacts and impacts to river navigation and river-users. The Program concluded that the use of these sites as an assembly yard would require significant additional costs compared to other locations.

Subsequently, the Program entered discussions with NRG to use the property, bulkhead and slip at the abandoned power plant site (Manresa Island) as an assembly yard. The Program advanced the concept of using Manresa Island for an offsite assembly yard and brought the proposal to a public meeting.

While the Program had previously discussed utilizing non-local assembly yards, local yards were preferred by the Program. As a result of concerns raised during the public meeting, foremost being the noise pollution and additional traffic, the Program and CM revisited the concept of utilizing non-local locations for an assembly yard and proceeded with traffic and noise studies at the Norwalk sites. Several assembly yards and transfer sites along the East Coast (U.S.) and Gulf of Mexico, as well as the Hudson River, were identified and information was gathered on the transportation costs, assembly and barge transfer costs, quality control complications, and associated risk with open water transportation of the assembled spans.

The preliminary review of the information indicates the estimated cost for material transportation, offsite assembly and marine transport of the lift spans were similar to the estimated cost for using Manresa Island – which can be seen in Figure 1. However, what is not captured in the cost comparison are the risks associated with the marine transportation, as well as the increased complexities to inspection and construction logistics that would add costs to the Program due to the use of a non-local assembly location. In addition, the non-local sites are subject to future availability considerations and prioritization of work, while a local location can be permitted and provided to the contractor.

Assembling the lift spans near Norwalk removes the risk of transporting the structure on ABS (ocean-going) barges. Transporting material in open water increases the risk of damage to the structure during transport, or even the complete loss of material. In recent years, the number of tropical storms and hurricanes has increased substantially



with appearances as early as May and as late as November. While additional insurance would be added to the Program to cover said damage/loss, these policies will only cover the cost for materials, not the labor to repair/replace the structure. Any damage/loss would also impact the schedule of the Program and would result in a delay to the completion of the project. In addition to schedule delays caused by damage/loss, severe storms could delay the shipping date of the structure, once again impacting the Program schedule. Normally, to mitigate the potential schedule delay, the structure would be shipped a month or two in advance of the “required-by” date. However, there is limited docking space in Norwalk for a shipment this large; therefore, the ABS barge would need to be docked at a location that has the capacity for such a large barge/structure (e.g. Bridgeport or New Haven), adding additional risk of damage/loss and additional cost for docking. By using Manresa Island as the assembly yard, the lift span structure is better protected from severe storms because it is docked in the existing slip that was used for the loading/offloading of ABS barges when the power plant was operational.

In addition, by moving the assembly to a non-local location, the field inspection staff onsite who are involved with the day-to-day construction of the Walk Bridge are not as involved with the inspection staff of the lift span assembly. While these activities can work independently of one another, the communication between the two entities is reduced drastically when they are not in the same general area. This lack of communication means that when conflicts arise in the field, they are not always relayed to the assembly team. If the assembly yard is close to the Walk Bridge, when issues, questions, and conflicts arise as the work progresses, the Walk Bridge field team can easily visit the lift span assembly team and resolve any open items quickly and face-to-face. An offsite assembly team would require communication be mainly carried out through emails, photographs/videos, and phone calls with sporadic site visits. This can result in information not being completely understood and may allow issues/conflicts to be overlooked. This additional staffing need, solely hired to inspect the lift span assembly, would add approximately \$0.8 million to \$1 million in additional inspection costs to the non-local yards seen in Figure 1.

These added risks and complexities make the initially similar cost estimate for assembly/delivery not as easily comparable to one another. While risk is not a “concrete” cost to the Program, it is very critical in the decision-making process. Since the costs are relatively similar, these added complexities result in the Department favoring an assembly yard near Norwalk. When comparing Manresa Island and the North Water Street parcels, the Manresa Island site is preferred as it eliminates the impacts to the river navigational channel. In addition, the Program completed a noise study at the prospective local properties and have concluded that having the assembly yard at Manresa Island will have less of a noise impact to the general public than if it located at the North Water Street parcels. Furthermore, based on the study, the noise impacts from assembly operations at Manresa Island will have minimal-to-negligible impacts to the surrounding neighborhoods (see the “Manresa Island Construction Noise Study” for additional information).

Based upon the evaluation of all the options, the Department has selected Manresa Island as the assembly yard for the Walk Bridge lift spans.



Appendix

Location	Property and Site Cost ¹	Lift Span Assembly & Transportation Cost	Additional Construction Inspection Cost	Total Cost	Difference from Manresa Island
Manresa Island - Norwalk, CT	\$1,475,000	\$25,298,801	-	\$26,698,976	-
MNO / 90 Water St - Norwalk, CT	\$13,090,000 ²	\$25,833,412	-	\$37,145,412	\$10,446,436
Cianbro Marine Yard - Baltimore, MD	\$1,209,650	\$26,131,468	\$1,000,000	\$28,341,118	\$1,642,142
Port of Coeymans - Albany, NY (near)	\$1,628,240	\$25,750,664	\$800,000	\$28,178,904	\$1,479,928
Steel Fabricator Full Offsite Assembly - Iuka, MS	-	\$24,897,694	\$1,000,000	\$25,897,694	-\$801,282

Notes: ¹ Includes parcel acquisition/rental costs, site prep costs, and site restoration costs.

²While the parcel cost is a negative value due to the resale of the property once the Walk Bridge Program is complete, this option requires a bulkhead be constructed in order to use as an assembly yard (approx.. \$12.5 million).

Figure 1: Lift Span Assembly Cost Comparison