

City of Glen Cove

Downtown Parking Connections Feasibility Study

Preliminary Report

October 2021 (Revised January 2022)





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1 EXECUTIVE SUMMARY

The City of Glen Cove is evaluating the feasibility of providing vehicular access to the Brewster Street Garage Building, which the City owns, from School Street. The City is also evaluating the feasibility of providing American with Disabilities Act (ADA) access to the garage building and enhancing the existing pedestrian access from School Street's west sidewalk. This report presents a feasibility study of these objectives at three potential connection points shown in Figure 1 on page 6. The report identifies ten categories of evaluation and summarizes the minimum standard criteria to meet these objectives. The methodology is expressed in the Alternative Analysis Section with a description of each category and the corresponding criteria. Detailed evaluation of the alternatives is presented in sections 2.1 through 2.4.

This Feasibility Report provides preliminary construction cost estimates and a benefit analysis for the alternatives, summarized below. Appendix B provides the proposed plans for each alternative.

Alternative 1: South Connection (\$949,546)

This alternative evaluates vehicular access through an existing pedestrian plaza into Level 1 on the south wing of the garage building while maintaining and enhancing the pedestrian access already available at that end.

Alternative 2: Center Connection (\$1,971,920)

This alternative evaluates vehicular access through the center pedestrian plaza while maintaining as much of the pedestrian access as possible at the central location.

Alternative 3: North Connection (\$995,339 - \$1,959,419)

This alternative evaluates vehicular access through an existing driveway at the north connection point while enhancing the pedestrian access available at all thee access points from School Street. This alternative requires the replacement of the existing pedestrian bridge to allow for sufficient vertical clearance above the access ramp.

Alternative 4: Enhanced Pedestrian Connection (\$655,613 – \$1,619,693)

This alternative proposes all possible pedestrian enhancements that can be implemented as an interim solution or an independent solution in the event that none of the vehicle access alternatives are deemed economical or feasible in the short term.

Alternatives 1 to 3 meet the objectives of the project by providing vehicular access to the Brewster Street Garage from School Street. Even though the three alternatives are geometrically and structurally feasible, Alternatives 1 and 2 are found to be impractical from a traffic perspective, require the most modifications to utilities, and have the greatest impacts on existing pedestrian-friendly spaces in the heart of the downtown shopping district. Alternative 3 makes use of an existing driveway, which results in minimal impacts. In addition, while all alternatives require some sort of agreement with property owners,



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Alternative 3 has the least impact on physical property, and provides the most benefits to the owners. Alternative 3 results in a refurbished driveway, improved sidewalk, enhanced landscaped area adjacent to the driveway, designated dumpster area, and better access to parking.

As the construction cost estimates indicate, Alternative 3 is the most costly. However, it is the most practical alternative with the least impacts and maximum benefits. Most of the pedestrian access improvements proposed in Alternative 4 can be combined with Alternative 3 or done as an interim improvement.

Important Note:

The City of Glen Cove is undergoing a separate comprehensive structural assessment of the garage building. The findings of the building assessment will be coordinated with the selected feasible alternative of this study.





1 PROJECT DESCRIPTION

The project limits extend from Glen Street to Highland Road on School Street and includes the Brewster Street Parking Garage in downtown Glen Cove. The objective of the project is to evaluate the feasibility of providing additional vehicle access and improved pedestrian access to downtown parking at the Brewster Street Garage from School Street.

The Brewster Street Parking Garage is a municipal parking facility that serves businesses, residents, and community organizations in downtown Glen Cove. Currently, vehicles can only access the garage from Brewster Street, an arterial road that bypasses downtown with limited visibility of downtown businesses. The existing pedestrian plazas between School Street and the Brewster Street Parking Garage have insufficient pointers to the current pedestrian access to the Brewster Street Parking Garage. The Feasibility Study includes evaluations of three areas, which are shown in Figure 1: Map of Potential Connection Areas, on the next page. Each access location is treated as one alternative. Each of the three alternatives evaluates vehicular and pedestrian access combined. In addition, pedestrian access enhancement measures are established in an added alternative as a minimum course of action or an interim improvement measure until a vehicle access alternative is implemented.

The Existing Plan is provided in Appendix A for reference. It is drawn based on true dimensions from existing plans and field observations. It depicts the current condition and existing utilities and serves as a baseline for the evaluation of each alternative.

This Feasibility Study Report includes schematic layouts for the examined alternatives (Appendix B), thorough investigation of impacts, preliminary construction cost estimates, and a right-of-way (ROW) review for each of the three Potential Connection Areas shown on Figure 1. Structural evaluations for the necessary modifications to the garage at each of the three alternative locations is also included. All presented alternatives comply with the Americans with Disabilities Act (ADA).







Figure 1: Map of Potential Connection Areas for the Feasibility Study



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2 ALTERNATIVES ANALYSIS

Three alternatives were evaluated for combined vehicular and pedestrian access and are presented in sections 2.1 through 2.3. An additional alternative is included for pedestrian access enhancement only, no vehicular access, and is presented in section 2.4. Schematic layouts of each of the alternatives are provided in Appendix B.

All alternatives were examined within the same categories. The first methodology of evaluation was to ensure that an alternative is feasible geometrically and structurally, before all the other categories were applied. All evaluation categories are listed below with a brief description of their relevance and the potential impacts.

Evaluation Categories:

1. Geometric and Structural Feasibility

The potential vehicular access ("ramp" hereon) to the garage would be a minor commercial driveway. Where no specific design standards are available for such designation, the provisions for a low-speed ramp were used. The following standards were used as guidelines for this evaluation:

- New York State Department of Transportation (NYSDOT) Highway Design Manual (HDM), Chapter 2: Design Criteria, April 2021.
- 2010 ADA Standards for Accessible Design, Department of Justice, 2010.
- NYSDOT Standard Sheets, Series 608: Sidewalks, Driveways and Bicycle Paths, various issue dates.
- Recommended Parking Ramp Design Guidelines, December 2016, prepared for Rochester's Destination Medical Center (DMC) Transportation and Infrastructure Program.

The criteria used for a vehicular ramp to fit geometrically are 10' minimum width, 12' preferable width. The Brewster Street Garage's posted vertical clearance is 7', which was used as the criteria for vertical clearance in place of the DOT standard 14'. Generally, a 5% to 7% slope is acceptable on ramps where parking is permitted on the ramp and up to 12% on non-parking ramps. Per HDM, the maximum grade is 10% at 15mph.

Structurally, the vertical and horizontal clearances mentioned above must fit between primary structural elements in order to not compromise the structure or incur significant structural modifications. Primary structural elements are the columns and beams forming the framework of the structure.





It is important to note that the Brewster Street Garage structure is in an aged condition. Structural and cosmetic deficiencies observed throughout the garage indicate the condition has worsened since the 2015 inspection. While the structure is currently being repaired, it is highly recommended that structural deficiencies be prioritized and addressed ahead of implementing any alternative-related modifications. The alternatives presented are based on the assumption that the structure is repaired and can withstand the proposed modifications.

2. Safety

The necessary safety measures for each of the alternatives were incorporated in the schematic layout, such as pedestrian fences to prevent accidental falling into the ramp at elevation drop locations. All existing ramps and crossings were evaluated for each alternative's proposed schematic. In the schematic layouts, ramps were relocated when necessary. Opportunities for new pedestrian access into the Brewster Parking Garage were reviewed from a safety perspective. In addition, impacts to the existing access for emergency vehicles were taken into consideration.

3. ADA Compliance

Pedestrian access and new ramps presented in each of the alternatives comply with the following ADA requirements at a minimum:

- ✓ Maximum pedestrian ramp slope of 7.5%.
- ✓ The rise for any ramp run shall be 30 inches maximum.
- ✓ Landing's clear length is 60 inches long minimum.
- ✓ Turning space minimum dimensions of $4'-0'' \times 4'-0''$ unless the turning space is constrained at the back of the pathway, in which case the minimum dimensions are $4'-0'' \times 5'-0''$.
- ✓ The clear width of a ramp run and, where handrails are provided, the clear width between handrails shall be 36 inches minimum.

4. Non-Structural Impacts on Brewster Street Parking Garage

All alternatives are meant to increase Brewster Street Parking Garage utilization. This category investigates any necessary modifications to the garage in order for the alternative to be feasible. This includes items such as direction of traffic flow, curb modifications, number of parking spots eliminated or added, drainage within the garage building, etc.

5. Traffic impact, Roadway Operations and MPT

This evaluation category looked into the effects each alternative would have on roadway operations in the final condition, and the required Maintenance and Protection of Traffic (MPT) during construction operations.





6. Impact on Utilities

Existing utilities within the work area are depicted on the Existing Plan in Appendix A based on record documents and field observations. Utility impacts were identified for each of the alternatives and the necessary utility relocations are proposed on the conceptual drawings.

7. Impact on Trees

This category identified where the proposed vehicular access would require tree removals. Pedestrian access will not have any impacts on the existing trees.

8. Pedestrian Flow and Accommodations

This category evaluated the impact on the overall pedestrian flow within the project limits, including between 1 and 3 School Street and the flow into the garage and out to School Street. Impacts on pedestrian accommodations, such as benches and bike racks, were also evaluated.

9. Private Owners & ROW

The City's ROW within the vicinity of the project was reviewed. A visual summary of the ROW is presented in Appendix A for reference. ROW considerations are discussed in this category section of the evaluation for each alternative.

Considerations for the private owners within the project limits, especially at 1 and 3 School Street and the AMC building, were taken into account. This included garbage receptacle locations, access to the buildings during and after construction, etc.

10. Cost

The main items were identified for construction cost estimating and the most recent applicable bid unit costs were used in generating the estimate. Where necessary, quotes were solicited from fabricators. A 4% mobilization cost was assumed, a contingency of 20% was applied and an inflation rate of 2% per year for each subsequent year reported.

Common utility relocation items, such as lighting or drainage, were included in the unit cost and a quantity was applied based on the alternative. Where major utility relocation would be necessary, such as electric vault among other items, and no unit cost can be applied, an estimated allowance of \$75,000 to \$100,000 was used to adjust the cost appropriately.





2.1 ALTERNATIVE 1: SOUTH CONNECTION

2.1.1 DESCRIPTION

Alternative 1 evaluates vehicular access through the south pedestrian plaza while maintaining and enhancing the pedestrian access already available at that end. Currently, stairs and a ramp provide access into the building, however, the stairs are unequal in height and in poor condition, and the ramp does not comply with current ADA standards. A non-functioning elevator bank is adjacent to the existing garage stairs located at the south end of the building, which is accessible from the south plaza. See Figures 2 and 3.

The south plaza coincides with a curb extension on School Street, commonly referred to as "bump-out", which accommodates a bike rack, garbage receptacle, lighting, and a young tree. The plaza includes two planting beds with young trees, decorative vegetation, and benches.



Figure 2: General View of South Pedestrian Plaza (left) and Existing Pedestrian Access (right)







Figure 3: South Pedestrian Access to Brewster Street Garage; Stairs (left), Ramp (center), and Elevator Bank (right)

Drawing 1 of 6 in Appendix B shows the proposed schematic for Alternative 1 – South Access. Section 2.1.2 provides a comprehensive evaluation.

2.1.2 EVALUATION

1. Geometric and Structural Feasibility

The south pedestrian plaza is wide enough to accommodate a 12' vehicular ramp sufficiently curved to enter the garage between two columns. A 5' minimum pedestrian walkway could be maintained on the south side of the ramp, allowing access to the existing and enhanced pedestrian connection to the garage building.

The elevation difference between the existing plaza and the garage grade is approximately 3', which translates into a ramp slope of less than 4% over the 82'+/- length.

Short retaining walls would be required on the sides of the ramp to support the earth and sidewalk loads. Use of a segmental block wall would be an efficient and effective way to accomplish the retaining objective while maintaining aesthetic uniformity in the City of Glen Cove. Figure 4 below shows photos of the segmental wall used for the ferry terminal parking on the Garvies Point Road project as an example.







Figure 4: Example of Segmental Retaining Wall for Use on the Sides of the Ramp

2. Safety

The main safety concern that Alternative 1 creates is reduced emergency service accessibility to the siamese connection, formally known as Fire Department Connection or FDC, located at the southwest corner of the building at 1 School Street. See photo below. The siamese connection can potentially be relocated, which would be intensive and costly.



Figure 5: Siamese Connection Access compromised

A fence on the retaining wall is proposed to prevent pedestrians from accidentally falling into the ramp, which would be at a lower elevation. Figure 4 shows an example of an aesthetically pleasing fence that can be used for pedestrian protection. In addition, a crosswalk is proposed to safely





connect the sidewalk on the two sides of the new ramp at School Street.

General improvements such as increased lighting inside the garage, addressing tripping hazards, and adding signage to better inform pedestrians of access points into the garage can be implemented to enhance safety.

3. ADA Compliance

The existing ADA ramp entry to the Brewster Garage Building at the south pedestrian plaza is located behind the stairwell/elevator bank, which makes it not visible from any point on the sidewalk or the plaza. No signs indicating the direction to the ramp are currently present. In addition, the end of the ADA ramp inside the garage has an edge that does not meet current ADA standards.

The stairs providing access from the plaza into the garage cannot be converted to an ADA-compliant ramp due to the limited distance to accommodate the appropriate ramp slope per code. Alternative 1 makes use of the current ramp by adding signage to alert pedestrians to the location of the ramp. Additional signs could be included closer to the sidewalk where they would be more visible. Under Alternative 1, the ramp portion inside of the garage would be fully reconstructed with the appropriate dimensions, slope, and edge height. An ADA parking stall is proposed adjacent to the ramp. Currently, this parking stall is non-ADA compliant.

Alternative 1 also proposes the installation of a new elevator in the current elevator bank. This may require repairs and retrofitting to the elevator bank prior to new elevator installation. The elevator would provide ADA access to all levels of the building.

4. Non-Structural Impacts on Brewster Street Parking Garage

Alternative 1 would not affect the traffic flow direction within the garage building. Aside from local modifications at the point of ramp connection, there are no anticipated impacts on the Brewster Street Garage operation.

Drainage within the garage would be impacted due to the increased runoff into Level 1 from the ramp. This could be addressed by placing a drain at the bottom of the ramp and connecting it to the existing storm sewer system.

5. Traffic Impact, Roadway Operations and MPT

The proposed access ramp would function as a one-way entrance to the parking garage. Both left and right turns would be allowed onto the proposed access ramp, facilitating northbound and southbound traffic from School Street, respectively. This alternative poses traffic operational and safety concerns due to the close proximity of the proposed access ramp to the Glen Street intersection at School Street. Northbound vehicles, approaching from the south on School Street or





from the east via Glen Street, immediately after passing the intersection, would stop to make a left turn onto the proposed access ramp through gaps in the opposing traffic. This would result in vehicular blockage and queuing back to the intersection. The stop and left turn would be abrupt, particularly for the vehicles turning right on School Street from Glen Street, posing operational and safety concerns. Provision of directional signs to properly guide these motorists to the parking garage access would be limited due to the close proximity of the intersection. Any southbound vehicular queuing on School Street due to the traffic signal at Glen Street would also block the proposed access ramp, impeding traffic flow.

The conceptual layout and curved alignment of the proposed access ramp, which is set based on geometric constraints, raise traffic safety and operational concerns such as impacts on sight lines, incident management, and snow removal and storage.

The area to be occupied by the proposed access ramp currently functions as an open space, provides unobstructed pedestrian circulation and access to the surrounding facilities, and connects to a passage between the parking garage and buildings. The proposed access ramp and parapet walls would divide the area, obstructing pedestrian circulation.

Provision of traffic control devices, including stop signs and pavement markings, would be required to streamline the conflicting traffic flow movements at the proposed ramp entrance in the parking garage.

The proposed one-way access ramp would create an intersection along School Street. As such, the left- and right-turning vehicles from School Street onto the proposed access ramp would conflict with the pedestrian flow along the sidewalk on the west side. A high visibility crosswalk with ADA ramps would be provided at the proposed access ramp adjacent to School Street in order to maintain the sidewalk connectivity and to facilitate pedestrian and vehicular operations and safety.

MPT would be required for the duration of construction. Lane closure would be anticipated to allow for contractor's equipment.

6. Impact on Utilities

For Alternative 1 to be feasible, the following utilities would have to be relocated:

- 1. Existing lighting (3 poles).
- 2. Electrical vault, see Figure 6.
- 3. Telephone manhole, see Figure 6.





Utilities that would be impacted but would not necessarily require relocation include:

- 1. Gas meter behind 1 School Street building: access reduced.
- 2. Siamese connection behind 1 School Street building: access reduced.



Figure 6: Alternative 1 Impact on Utilities

7. Impact on Trees

Nine young trees would have to be removed in order for Alternative 1 to be feasible.

8. Pedestrian Flow and Accommodations

The new ramp would divide the sidewalk and south plaza into two parts. Even though a crosswalk is proposed, the pedestrian traffic would now be restricted to that point of crossing. In addition, the ramp would prevent outside access for pedestrians to the back of the 1 School Street building, and access from the back alleyway parallel to School Street to the south plaza, sidewalk, and south ADA access to the garage.

With respect to pedestrian accommodations, Alternative 1 would eliminate four benches and a bike rack.

9. Private Owners and ROW

The south plaza falls in the ROW belonging to 1 School Street (Lot 26). This property has multiple owners because it contains office condominiums governed by boards. ROW coordination can be done through the building property managers at the phase of stakeholder outreach. Currently, there is a reciprocal easement agreement with the City for the parking garage walkway. The work proposed under Alternative 1 involves either land acquisition or a temporary or permanent easement.





10. Cost

The estimated construction cost for Alternative 1 is summarized in the table below. The itemized cost analysis is provided in Appendix C.

ALTERNATIVE 1: SOUTH CONNECTION		Cost					
		2022		2023		2024	
SUBTOTAL	\$	760,854	\$	783,679	\$	807,190	
MOBILIZATION (4%)	\$	30,434	\$	31,347	\$	32,288	
CONTINGENCY (20%)	\$1	L58,257.59	\$	163,005	\$	167,895	
TOTAL	\$	949,546	\$	978,032	\$:	1,007,373	





2.2 ALTERNATIVE 2: CENTER CONNECTION

2.2.1 DESCRIPTION

Alternative 2 evaluates vehicular access through the center pedestrian plaza, which would require modifications to the current pedestrian access. Currently, stairs and a ramp provide access into the garage building from the center plaza. The stairs provide access to the south side of the building while the ramp provides ADA-compliant access to the north side. There is no ADA-compliant path of travel between the north and south wings of the garage, which have different elevations at corresponding levels. No elevator banks exist at the center plaza. A back alleyway parallel to School Street connects the center plaza to the south plaza and provides access to back entrances of the buildings at 1 and 3 School Street.

The center plaza coincides with a curb extension (bump-out) on School Street, which accommodates a mailbox, information booth, garbage receptacle, lighting, and a few mature trees. The plaza includes a large planting bed with trees, decorative vegetation, and benches. A new crosswalk with ADA-compliant ramps was recently installed on School Street at the center plaza.



Figure 7: General View of Center Pedestrian Plaza (left) and Entry to Garage Building (right)







Figure 8: Pedestrian Ramp at Center Access of the Garage Building

Drawing 2 of 6 in Appendix B shows the proposed schematic for Alternative 2 – Center Access. Section 2.2.2 provides a comprehensive evaluation of the alternative.

2.2.2 EVALUATION

1. Geometric and Structural Feasibility

The center pedestrian plaza has plenty of space to accommodate a 12' vehicular ramp. The challenge lies in having an entry point to the garage building that fits the geometric requirements but minimally affects the structure. A ramp entering the garage at level grade is ideal. Multiple iterations to accomplish this were studied. However, due to structural limitations, the only feasible location for a ramp connection from School Street occurs at the inclined vehicle ramp connecting Level 1 South to Level 1 North of the garage building, as shown on Alternative 2 Plan on Drawing 2 of Appendix B.

As a result, while access to the garage building through the center plaza may be geometrically and structurally feasible, it is deemed impractical from an operational standpoint due to the conflicting grades on the ramp. Nonetheless, for a thorough evaluation and to allow the City to weigh the alternative's pros and cons, the remaining criteria 2 through 10 were examined.

2. Safety

A crosswalk is proposed to safely connect the two sides of the new ramp at School Street. The existing 2" concrete edge at the building entry near the center stairs would be reconstructed into a ramp in accordance with current ADA standards.

General improvements such as increased lighting inside the garage, addressing tripping hazards, and adding signage to better inform pedestrians of access points into the garage can be implemented to enhance safety.



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3. ADA Compliance

For Alternative 2 to be feasible, the existing pedestrian ramp would have to be removed. Relocation of this ramp is infeasible due to slope requirements and space limitations.

ADA access could be provided by means of an elevator installed just south of the existing stairs. This would require the construction of an elevator bank inside or adjacent, but connected to the building. A less ideal option that was evaluated for ADA access at the center location is a vertical platform lift, such as the example shown in Figure 9 below. This option would only provide access between Level 1 south and the plaza and is not appropriate for commercial use, despite advertisements' claims. It is also not an ideal option for this application because it does not offer an emergency call feature to summon help in case of a malfunction, as standardly offered with an elevator. A possible alternative to the elevator at the center pedestrian plaza is a pedestrian ADA-compliant ramp just north of the proposed vehicular ramp between the first two columns. This would require the elimination of at least one parking stall and does not solve the issue of ADA-compliant connection between the north and south sides of the Brewster Garage Building.



Figure 9: Vertical Lift Platform Examples

4. Non-Structural Impacts on Brewster Street Parking Garage

Alternative 2 requires the reversal of vehicular traffic flow inside of the Brewster Street Garage. The flow reversal applies to all levels of the building and translates into partial curb removals, re-marking of parking stalls, and changing all the relevant signage.

Drainage within the garage would be impacted due to the increased runoff into Level 1 from the ramp. This could be addressed by placing a drain at the bottom of the ramp and connecting it to the existing storm sewer system.





5. Traffic Impact, Roadway Operations and MPT

The proposed access ramp would function as a one-way entrance to the parking garage. Both left and right turns would be allowed onto the proposed access ramp, facilitating northbound and southbound traffic from School Street, respectively. The ramp would connect to an existing ramp in the parking garage, which is perpendicular and inclined. The multiple grades meeting at the intersection of the ramps make for an impractical design that struggles to ensure a smooth transition and safe operation for the vehicles traversing via the proposed ramp, as well as those on the existing ramp.

Alternative 2 requires the reversal of the traffic flow within the garage. It is feasible to reverse flow because of the two-way entry/exit points, however, the reversal would apply to the whole parking garage and all parking spaces would need to be angled in the opposite direction through markings and curb modifications. The traffic flow reversal would eliminate the parking Level 1 south/south entrance connection to upper levels/north exit of the parking garage.

The proposed one-way access ramp would create an intersection along School Street. As such, the left- and right-turning vehicles from School Street onto the proposed access ramp would conflict with the pedestrian flow along the sidewalk on the west side. A high visibility crosswalk with ADA ramps would be provided at the proposed access ramp to maintain the sidewalk connectivity and to facilitate pedestrian and vehicular operations and safety.

The horizontal alignment of the proposed access ramp, as depicted on the layout plan, is curved due to geometric constraints and structural elements in the garage. These features entail geometric design elements such as grade and sight distance, and would be in accordance with applicable design standards, ensuring vehicular and pedestrian traffic safety and operation.

The turning vehicles, particularly the northbound left-turn vehicles onto the proposed access ramp, would result in vehicular queuing on School Street. While the anticipation of significant vehicular queuing under the low prevailing traffic volumes is low, it would increase with the growth in traffic in the future. Removal of the curb extension is intended to allow space for turning vehicles to move out of the traffic lane to alleviate potential congestion, even though it cannot be designated as a turning lane due to its substandard width. Even if the curb extension were not removed, considering the distance to the existing intersections along School Street, this location provides substantially greater queuing storage as compared to the location for Alternate 1.

MPT would be required for the duration of construction. Lane closure would be anticipated to allow for contractor's equipment.



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6. Impact on Utilities

One light pole and one manhole would need to be relocated if the curb extension (bump-out) were to be removed to allow for a turning lane as shown on Drawing 2 of Appendix B. If the turning lane were not provided, no utilities would be impacted by Alternative 2.

7. Impact on Trees

Two mature trees would need to be removed for Alternative 2 to be feasible. An additional tree would need to be removed if the curb extension (bump-out) were removed to allow for a turning lane as shown on Drawing 2 of Appendix B.

8. Pedestrian Flow and Accommodations

The proposed ramp at this location divides the center plaza into two sections. A crosswalk is proposed to connect the two sides of the ramp at School Street, and a minimum 5' walkway is proposed to allow for better pedestrian flow and turning space.

9. Private Owners and ROW

The center plaza falls in the ROW belonging to 3 School Street (Lot 28). This property has multiple owners because it contains office condominiums governed by boards. ROW coordination can be done through the building property managers at the phase of stakeholder outreach.

The work proposed in Alternative 2 involves either land acquisition or a permanent easement agreement.

10. Cost

The estimated construction cost for Alternative 2 is summarized in the table below. The itemized cost analysis is provided in Appendix C.

ALTERNATIVE 2: CENTER CONNECTION		Cost					
		2022		2023		2024	
SUBTOTAL	\$	1,580,064	\$	1,627,466	\$ 2	1,676,290	
MOBILIZATION (4%)	\$	63,203	\$	65,099	\$	67,052	
CONTINGENCY (20%)	\$	328,653	\$	338,513	\$	348,668	
TOTAL	\$	1,971,920	\$	2,031,078	\$2	2,092,010	





2.3 ALTERNATIVE 3: NORTH CONNECTION

2.3.1 DESCRIPTION

Alternative 3 evaluates vehicular access through an existing driveway at the north connection point while enhancing the pedestrian access available. Currently, stairs and a ramp provide access into the garage building from the north end. The stairs provide access to all levels on the north side of the garage building while the ramp provides ADA-compliant access from the sidewalk at the AMC Theatre to Level 2 of the north wing of the garage. This access is provided by means of a pedestrian bridge that is aged but is still structurally sound. No ADA access is provided to any other level of the garage building at the north end. A non-functioning elevator bank exists at the north end adjacent to the stairs.

The driveway at the north end leads to the stairs accessing the garage building, the back alleyway parallel to School Street, and stairs accessing the back of the building at 3 School Street. It does not seem to serve a purpose other than accessing the dumpster located at the bottom of the driveway, which belongs to 3 School Street. A sidewalk exists on the side of the driveway but it ends abruptly, and is not ADA-compliant. Photos of the current conditions are provided in Figures 10 and 11 below.

The driveway coincides with a curb extension (bump-out), which accommodates lighting, a mature tree, and a new crosswalk with ADA-compliant ramps.



Figure 10: General Views of Driveway at North End







Figure 11: Current Access to Brewster Street Garage Building at the North End



Figure 12: Pedestrian Bridge Exhibiting Deterioration and Section Loss

Alternative 3 proposes using the existing driveway for vehicular access into the Brewster Street Garage, and replacing the existing pedestrian bridge with a prefabricated structure at a higher level to allow for sufficient vertical clearance. While the current pedestrian bridge appears to be structurally sound and complies with the ADA requirements, it is aged, unlit, and uninviting.

Drawings 3 to 5 of 6 in Appendix B show the proposed schematic plan and elevation for Alternative 3 – North Access. Section 2.3.2 provides a comprehensive evaluation of the alternative.



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2.3.2 EVALUATION

1. Geometric and Structural Feasibility

The existing north driveway could be extended to create a ramp into the Brewster Street Garage Building at a matching grade. The existing pedestrian bridge, which connects Level 2 of the garage to the sidewalk near the AMC Theatre, would need to be relocated to allow for the necessary vertical clearance. Drawing 3 of Appendix B proposes removing the pedestrian bridge, which is aged, and replacing it with a prefabricated pedestrian bridge at Level 3. The bridge would be attached to the building structure the same way the current bridge is connected, and be supported on newly installed columns on the opposite end. A ramp descending from the bridge with a switchback would provide a pedestrian connection to the sidewalk. Various options exist for the pedestrian bridge and ramps, which allow for customization to fit the current and future capacity demands, maintenance preferences, and aesthetic consistency. Information is provided below to demonstrate feasibility at a conceptual level. Additional products and manufacturers can be investigated in future stages of design.

Prefabricated Pedestrian Bridge:

Fabricators that manufacture pedestrian bridges in-shop and deliver them ready to erect include: ACROW Bridge; Art Thureson Inc. for Anderson Bridges; Big R Bridge; Bridge Brothers Inc.; Cameron Bridge Works, LLC; Contech Engineered Solutions, LLC; Excel Fabricators; GatorDock & GatorBridge; and Wood Research and Development. Available options for bridge type and materials are:

- Steel Truss (weathering or painted):
 - Economically comparable to aluminum (short run¹)
 - Heaviest dead load
 - Provides unconditional best clearance
 - Potential higher maintenance than other options, depending on finish selection (ex. paint every 2-10 years)
- o Aluminum Truss
 - Most economical (short run¹)
 - Lightest dead load
 - Can provide best clearance but with additional cost and design considerations
 - Lowest maintenance (especially with aluminum deck option)
- FRP Reinforced Timber Truss
 - Most expensive (short run¹)

¹ Long run costs are dependent on a combination of parameters such as finishes, deck type, maintenance requirements, warranty, etc.





- Longest claimed lifespan (100 years)
- Provides good clearance
- Maintenance can be further explored
- May require on-site pre-assembly (minimum 16'-wide staging area, two weeks to pre-assemble plus one week to erect). Can provide shop-assembly but cost may be affected.
- Deck Options:
 - Concrete CIP, only design of deck is by fabricator.
 - Concrete with stay-in-place forms.
 - Concrete precast.
 - Treated timber.
 - Steel grating.
 - Aluminum slip-resistant deck (best option, lowest maintenance).
 - FRP grating.
 - Industrial aluminum grating.
 - IPE hardwood.
 - Composite wood.

The cost varies based on the selected options. Below is an estimated value (\$/LF delivered):

Steel

- \$858 Steel, prep for 4" thick concrete deck (CIP)
- \$1,182 Weathering steel with SIP forms (CIP)
- \$1,507 Self-weathering steel with pine deck
- \$2,102 Painted steel with concrete deck design (CIP), cost includes construction

Aluminum

- \$1,076 Aluminum, prep for 4" thick concrete deck (CIP)
- \$1,127 Aluminum with aluminum slip-resistant deck

FRP Timber

\$2,203 Truss timber with high strength fiber tension elements, includes erection (onsite assembly)

Timeframe for prefabricated bridges depends on the manufacturer. Below are pre-pandemic timeframes for design and fabrication. Coordination with the manufacturer would be necessary in advanced stages of design.

• Design time: minimum 1 week, average = 3 weeks, maximum 6 weeks.





- Fabrication and delivery time: minimum 6 weeks, average = 8 weeks, maximum 14 weeks.
- Total anticipated time (*including 2-4 weeks for City's review and approval of design drawings*): minimum 9 weeks, average = 14 weeks, maximum 24 weeks.



Figure 13: Example of Different Prefabricated Bridges

Figure 13 shows some examples for prefabricated bridges. Details on types, materials, and finishes are provided in Appendix D of this Report.





Prefabricated ADA Ramps:

Prefabricated ramps can be customized for a configuration suitable for the space as long as the appropriate slope and landings are provided for ADA compliance. For a 15' height, and to meet ADA requirements, 180' of ramp is required. The Schematic Drawings in Appendix B assume one switchback is desired. Fortunately, the sidewalk is wide enough to accommodate that, with the higher part of the ramp overhanging the landscaped area beneath adjacent to the driveway. Figure 14 below shows an example of prefabricated ramps.



Figure 14: Example for a Prefabricated ADA-compliant Ramp

In terms of vehicular access, an entry point to the garage building at the first bay of Level 1, between the first and second north columns, would be ideal. Dimensions on the garage design drawings show this is feasible, however, field measurements indicate the geometric criteria would not fit through the first bay. Alternative 3 on Drawing 3 in Appendix B is based on the information currently available to ensure feasibility. Advanced design stages would rely on a project-specific survey.



Figure 15: View from Inside the Garage of the First Two Bays





2. Safety

Alternative 3 does not affect the current safety conditions. Implemented safety measures include a vertical-faced protective barrier to separate pedestrians from vehicular traffic at the entry point of the garage near the stairs.

3. ADA Compliance

The existing 2" concrete edge at the building entry near the center stairs would be reconstructed into a ramp in accordance with current ADA standards. New ADA parking slots would be added to Levels 1 and 2 near the elevators and the new pedestrian bridge location. The new pedestrian bridge and accompanying ramps would be sloped appropriately for ADA compliance, and no steps would be introduced.

Even though the ADA access provided by the bridge would no longer be on the street entry/grade level of Brewster Street, the benefit of having vehicular access to the Brewster Garage Building from School Street would increase the usability of the structure and expand the ADA ramp usage to non-locals.

4. Non-Structural Impacts on Brewster Street Parking Garage

Alternative 3 would not require a reversal of traffic flow direction by virtue of making the ramp end right-turn-only. No curb modifications would be necessary, though they would be highly recommended to address the curb spalls (concrete fragments broken off) throughout the garage.

The drainage system of the structure would not be affected since the driveway already has a catch basin at the lower end.

5. Traffic Impact, Roadway Operations and MPT

The proposed access ramp would function as a one-way vehicular entrance to the parking garage. Both left and right turns would be allowed onto the proposed access ramp, facilitating northbound and southbound traffic from School Street, respectively.

The structural elements and geometric constraints, along with the curved alignment of the proposed access ramp, as depicted on the layout plan, entail geometric design elements such as sight distance and grade, requiring a design in accordance with applicable standards that ensures adequate vehicular and pedestrian traffic operation.

While this alternative would utilize an existing driveway, the volume of left- and right-turning vehicles from School Street, conflicting with the pedestrian flow along the sidewalk on the west side, would increase due to the additional vehicles heading to the parking garage. A high visibility crosswalk with ADA ramps would be provided at the proposed access ramp to maintain the sidewalk connectivity and to facilitate pedestrian and vehicular operations and safety. An existing crosswalk





on School Street would be maintained for pedestrian circulation.

MPT would be required for a minimal time duration to complete the curb work at the street level. Lane closure would not be required for the duration of construction as there is enough space for the Contractor's equipment.

6. Impact on Utilities

One light post would need to be relocated to accommodate Alternative 3. The transformer vault at the lower end of the driveway would not be affected.

7. Impact on Trees

One mature tree adjacent to the stairs would be removed. New landscaping is proposed on the north side of the driveway in the existing planter.

8. Pedestrian Flow and Accommodations

Pedestrian flow at the north driveway would not be affected by the new ramp. There are no benches, bike racks, or other pedestrian accommodations that would be affected by the alternative.

9. Private Owners & ROW

The north connection point falls in the ROW belonging to 3 School Street (Lot 28) and the AMC Building at 5 School Street (Lot 30). As discussed previously, 3 School Street has multiple owners because it contains office condominiums governed by boards. ROW coordination for 3 School Street can be done through the building property managers at the phase of stakeholder outreach. 5 School Street has a Payments in Lieu of Taxes (PILOT) Agreement with the Glen Cove Industrial Development Agency (IDA). ROW coordination for 5 School Street can be done with the owner.

The work proposed in Alternative 3 involves a permanent easement agreement.

Alternative 3 takes into consideration the garbage dumpster currently located behind the 3 School Street building, which it belongs to and which is accessed by the existing driveway. The proposed alternative would relocate the dumpster while maintaining access to it, and would improve the condition of the driveway and the pedestrian walkway ending abruptly in that vicinity.

10. Cost

The estimated construction cost for Alternative 3 is summarized in the table below. The itemized cost analysis is provided in Appendix C. Below are notes on the construction cost estimate for this Alternative. These notes lead to the cost presented herein; the estimate can significantly vary with different assumptions.



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- 1. The cost of prefabricated structures is based on the type of structure, material, and finishes. The cost used in the estimate is based on a 30' long 12' wide steel bridge, painted, with standard finishes for deck and railing.
- 2. The cost of a prefabricated ADA pedestrian ramp varies based on specifications and manufacturer. A project-specific quote was obtained and used.
- 3. Elevator costs vary based on specifications and manufacturer. Two quotes were received, the higher used to be conservative with an estimated increase to account for installation costs based on experience.

ALTERNATIVE 3: NORTH CONNECTION WITH A NEW ELEVATOR AT THE CENTER PLAZA		Cost					
		2022		2023		2024	
SUBTOTAL	\$	1,570,047	\$	1,617,149	\$ 2	L,665,663	
MOBILIZATION (4%)	\$	62,802	\$	64,686	\$	66,627	
CONTINGENCY (20%)	\$	326,570	\$	336,367	\$	346,458	
TOTAL	\$	1,959,419	\$	2,018,202	\$2	2,078,748	

ALTERNATIVE 3: NORTH CONNECTION	Cost					
WITHOUT A NEW ELEVATOR AT THE CENTER PLAZA	2022		2023		2024	
SUBTOTAL	\$	797,547	\$	821,474	\$	846,118
MOBILIZATION (4%)	\$	31,902	\$	32,859	\$	33,845
CONTINGENCY (20%)	\$	165,890	\$	170,867	\$	175,993
TOTAL	\$	995,339	\$	1,025,199	\$:	1,055,955





2.4 ALTERNATIVE 4: ENHANCED PEDESTRIAN CONNECTIONS

2.4.1 DESCRIPTION

This alternative evaluates all possible pedestrian enhancements that can be implemented as an interim solution or an independent solution in the event that none of the alternatives for vehicular access is deemed economical or feasible in the short term. Alternative 4 schematic plan is provided on Drawing 6 of 6 in Appendix B. A thorough evaluation is provided in section 2.4.2 below.

2.4.2 EVALUATION

1. Geometric and Structural Feasibility

The geometric and structural feasibility for Alternative 4 is only applicable at the center plaza where an elevator is proposed. There are two potential locations for the elevator as shown on Drawing 6 of Appendix B. Both potential locations are geometrically feasible as there is ample space to accommodate an elevator bank. Structurally, the location inside of the building is less preferable as it requires cutting through the floors and connecting to an already deteriorated structure. A new elevator bank, outside of but adjacent to the building, is more preferable from a structural standpoint. The independent structure can be attached to the garage building and joints will be placed to allow for the appropriate minimal movement due to expansion.

2. Safety

Alternative 4 is anticipated to only enhance the safety conditions and provide better ADA accessibility in the Brewster Street Garage. The following proposed items shown on Drawing 6 of Appendix B contribute to the safety enhancement:

- 1. Replace or enhance lighting in the garage building to increase visibility.
- 2. Include additional signage inside and outside the garage to clarify directions and indicate locations of vital amenities.
- 3. Enhance lighting at the center plaza.
- 4. Replace tall bushy trees with smaller vegetation that does not obstruct pedestrian view.

3. ADA Compliance

Alternative 4 proposes the replacement of both non-functional elevators at the north and south ends of the garage, as well as the installation of a new elevator at the center of the parking garage. It also proposes the replacement of all non-ADA-compliant ramps within the garage with ADA-compliant ramps, and the addition of ADA parking stalls near those ramps.





The replacement of the existing stairs at the south pedestrian plaza with an ADA-compliant ramp was evaluated and deemed impractical. The elevation difference of two ends of the ramp would be approximately 3', and the slope requirement for ADA-compliant ramps is 7.5% maximum. This results in a 40' long ramp, which would take up most of the plaza and require retaining walls and fencing. The extensive work would have minimal benefits since the new ramp would affect the pedestrian flow and also due to the close proximity of the existing ADA ramp recently constructed on the west side of the Brewster Garage Building.

4. Non-Structural Impacts on Brewster Street Parking Garage

No impacts anticipated.

5. Traffic Impact, Roadway Operations and MPT

Alternative 4 is not anticipated to have any impacts on traffic. It is, however, anticipated to improve the pedestrian experience and provide a safer and more readily identifiable ADA access to the garage building at Brewster Street from School Street.

MPT would not be required. Lane closure is not required either.

6. Impact on Utilities

No impact on utilities is anticipated, except where new lighting would need to be powered by the existing electrical facilities.

7. Impact on Trees

Tree replacement and updated landscaping is proposed at the center plaza to improve visibility.

8. Pedestrian Flow and Accommodations

Pedestrian flow is not affected. Improvements proposed by Alternative 4 will improve the pedestrian experience within the vicinity of the project.

9. Private Owners & ROW

Alternative 4 requires temporary easements for construction in some locations. At the center plaza, a permanent easement agreement would need to be established with 3 School Street if an elevator is to be installed on their property abutting the garage building.

10. Cost

The estimated construction cost for Alternative 4 is summarized in the table below. The itemized cost analysis is provided in Appendix C.



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Alternative 4 consists of many different components that vary in cost, which can affect the financial feasibility of the alternative. Independent combinations of the different parts of Alternative 4 are proposed per location. A multilevel numbering system is used where the first number indicates the alternative in reference (Alternative 4), the second number indicates the location (south, center, and north alleyways), and the third number is the alternative combination or sub-alternative. Each sub-alternative is an upgrade on the preceding one.

Alternative 4.1: South Alleyway Pedestrian Improvements

4.1.1: Improve existing ADA ramp, add signage, and convert parking spots to ADA accessible. 4.1.2: Improve existing ADA ramp, add signage, convert parking spots to ADA accessible, and install new elevator in existing elevator bank.

Alternative 4.2: Center Alleyway Pedestrian Improvements

4.2.1: Improve existing ADA ramp, add signage, convert parking spots to ADA accessible, and clear vegetation at existing ADA ramp.

4.2.2: Improve existing ADA ramp, add signage, convert parking spots to ADA accessible, clear vegetation at existing ADA ramp, replace dense vegetation with smaller plants, and add lighting.

4.2.3: Improve existing ADA ramp, add signage, convert parking spots to ADA accessible, clear vegetation at existing ADA ramp, replace dense vegetation with smaller plants, add lighting, and construct an elevator bank and install a new elevator

Alternative 4.3: North Alleyway Pedestrian Improvements

4.3.1: Improve existing ADA ramp.

4.3.2: Improve existing ADA ramp, and install new elevator in existing elevator bank.

The cost of the individual combinations was calculated and provided in Appendix C. An overall pedestrian enhancement scope for the project site can be determined by combining one subalternative from each location based on available budget and item priority. Below are some recommendations:





		2022		2023	2024
A118A218A21	SUBTOTAL	\$ 8,270	\$	8,518	\$ 8,774
Pasis Improvements No	MOBILIZATION (4%)	\$ 331	\$	341	\$ 351
	CONTINGENCY (20%)	\$ 1,720	\$	1,772	\$ 1,825
Elevators	TOTAL	\$ 10,321	\$	10,630	\$ 10,949
41184228431	SUBTOTAL	\$ 13,034	\$	13,425	\$ 13,827
Moderate Improvements - No	MOBILIZATION (4%)	\$ 521	\$	537	\$ 553
	CONTINGENCY (20%)	\$ 2,711	\$	2,792	\$ 2,876
Elevators	TOTAL	\$ 16,266	\$	16,754	\$ 17,257
A 1 7 8 A 7 7 8 A 3 7	SUBTOTAL	\$ 528,034	\$	543,875	\$ 560,191
4.1.2 & 4.2.2 & 4.3.2	MOBILIZATION (4%)	\$ 21,121	\$	21,755	\$ 22,408
Floweters Only at Evisting Banks	CONTINGENCY (20%)	\$ 109,831	\$	113,126	\$ 116,519.70
Elevators Only at Existing Banks	TOTAL	\$ 658,986	\$	678,756	\$ 699,118
41184738431	SUBTOTAL	\$ 785,534	\$	809,100	\$ 833,373
Modorato Improvoments	MOBILIZATION (4%)	\$ 31,421	\$	32,364	\$ 33,335
Elevator Only at Center Plaza	CONTINGENCY (20%)	\$ 163,391	\$	168,293	\$ 173,341.50
Elevator Only at Center Plaza	TOTAL	\$ 980,346	\$	1,009,756	\$ 1,040,049
			_		
41284238432	SUBTOTAL	\$ 1,300,534	\$	1,339,550	\$ 1,379,736
Highest Improvements -	MOBILIZATION (4%)	\$ 52,021	\$	53,582	\$ 55,189
Elevators at Three Locations	CONTINGENCY (20%)	\$ 270,511	\$	278,626	\$ 286,985.11
	TOTAL	\$ 1,623,066	\$	1,671,758	\$ 1,721,911





3 BENEFIT ANALYSIS

The objective of this section is to compare the alternatives and discuss the overall benefits and drawbacks that were not applicable to the specific criteria evaluation presented in the previous sections. Alternative 4 is an added alternative that is intended to enhance the pedestrian access. Most of the items in Alternative 4 are implemented in the other alternatives, therefore it may not appear in direct comparisons in this section.

Alternatives 1 to 3 meet the objectives of the project by providing vehicular access to the Brewster Street Garage from School Street. Even though the three alternatives are geometrically and structurally feasible, Alternatives 1 and 2 are found to be impractical from a traffic perspective, require the most modifications to utilities, and have the greatest impacts. Alternative 3 makes use of an existing driveway, which results in minimal impacts. In addition, while all alternatives require some sort of agreement with property owners, Alternative 3 has the least impact on physical property, and provides the most benefits to the owners. Alternative 3 translates into a refurbished driveway, improved sidewalk, landscaped area adjacent to the driveway, designated dumpster area, and better access to parking.

Alternatives 1 and 2 require extended lane closures and maintenance and protection of traffic during construction operations. Alternative 3 requires minimal, if any, lane closure to complete the work on the curb. The majority of the work would be conducted away from School Street in the underutilized driveway. The prefabricated structures can arrive assembled, and would take a short period of time to attach in place.

All alternatives provide improved ADA access, however, Alternative 2 disconnects ADA access on the two sides of the garage building. New elevators are called for at the existing banks for all alternatives. The option of constructing a third elevator in the center is evaluated against adding a vertical lift. A new elevator at the center plaza is accounted for in the cost estimate.

From a construction cost perspective, Alternative 3 is the most costly (see summary table below). However, it is the most practical alternative with the least impacts and maximum benefits. It encompasses most of the pedestrian improvements discussed in Alternative 4.

Different parts of Alternative 4 can be implemented in the short term to enhance the pedestrian experience. Five different combinations of the items proposed in Alternative 4 are presented in the summary table below for reference and comparison.





ALTERNATIVE	ESTIMATED COST (2022)
ALTERNATIVE 1: SOUTH CONNECTION	\$ 949,546
ALTERNATIVE 2: CENTER CONNECTION WITH A NEW ELEVATOR AT THE CENTER PLAZA (NECESSARY)	\$ 1,971,920
ALTERNATIVE 3: NORTH CONNECTION WITH A NEW ELEVATOR AT THE CENTER PLAZA	\$ 1,959,419
ALTERNATIVE 3: NORTH CONNECTION WITHOUT A NEW ELEVATOR AT THE CENTER PLAZA	\$ 995,339
ALTERNATIVE 4: ENHANCED PEDESTRIAN CONNECTIONS	\$ 1,619,693
4.1.1 & 4.2.1 & 4.3.1 BASIC IMPROVEMENTS - NO ELEVATORS	\$ 10,321
4.1.1 & 4.2.2 & 4.3.1 MODERATE IMPROVEMENTS - NO ELEVATORS	\$ 16,266
4.1.2 & 4.2.2 & 4.3.2 MODERATE IMPROVEMENTS - ELEVATORS ONLY AT EXISTING BANKS	\$ 658,986
4.1.1 & 4.2.3 & 4.3.1 MODERATE IMPROVEMENTS - ELEVATOR ONLY AT CENTER PLAZA	\$ 980,346
4.1.2 & 4.2.3 & 4.3.2 HIGHEST IMPROVEMENTS - ELEVATORS AT THREE LOCATIONS	\$ 1,623,066





APPENDIX A – EXISTING PLAN OF SCHOOL STREET AND ROW PLAN





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DRAFTED BY:	JS	SCALE:	NOT TO SCALE
DESIGNED BY:	AG	DATE:	OCTOBER 2021
CHECKED BY:	PS		
PROJECT NUMBER:			
NUMBER:			



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APPENDIX B – ALTERNATIVES' PLANS OF SCHOOL STREET





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U:\Projects\2021\21-134-0078 City Of Glen Cove Downtown Parking Connections\1 Drawings\Sheets\Garage Project\GarageDetailsandElevations.dwg(Center Connection Plan) Last Modified: Nov 30, 2021 Plotted by Stancoj

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PROJECT NUMBER:		DRAWIN	G NO.: 2 of 6

R.O.W LINE

PROPOSED ADA STALL STRIPING SYMBOL



3

PROPOSED ADA RAMP



PROPOSED CROSSWALK STRIPING

EXISTING TRAFFIC FLOW DIRECTION

PROPOSED TRAFFIC FLOW DIRECTION

PROPOSED CURB

LEGEND





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PROJECT NUMBER:		DRAWIN	G NO.: 3 of 6



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PROJECT NUMBER:		DRAWIN	G NO.: 5 of 6



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APPENDIX C – CONSTRUCTION COST ESTIMATE BACKUP CALCULATIONS





ALTERNATIVE 1: SOUTH CONNECTION												
	0				Cost							
Item	Quantity	Unit		Unit Price		2022	2023			2024		
Retaining Wall	162	SF	\$	16.50	\$	2,753	\$	2,836	\$	2,921		
Excavation & Disposal	300	CY	\$	50.00	\$	15,450	\$	15,914	\$	16,391		
Excavation Protection	800	SF	\$	7.00	\$	5,768	\$	5,941	\$	6,119		
Asphalt Top	30	TONS	\$	140.00	\$	4,326	\$	4,456	\$	4,589		
Base Course	30	TONS	\$	190.00	\$	5,871	\$	6,047	\$	6,229		
Granular Fill	70	CY	\$	40.00	\$	2,884	\$	2,971	\$	3,060		
New Concrete Curb, including removal	125	LF	\$	32.00	\$	4,120	\$	4,244	\$	4,371		
Tree Removal	9	EA	\$	875.00	\$	8,111	\$	8,355	\$	8,605		
Relocating Light Fixtures	3	EA	\$	1,200.00	\$	3,708	\$	3,819	\$	3,934		
ADA Warning Strips	16	SF	\$	45.00	\$	742	\$	764	\$	787		
Concrete Driveway and Aprons	200	SF	\$	35.00	\$	7,210	\$	7,426	\$	7,649		
Sidewalk	625	SF	\$	12.00	\$	7,725	\$	7,957	\$	8,195		
Pavement Markings	400	LF	\$	5.00	\$	2,060	\$	2,122	\$	2,185		
Pavement Markings - Hand Work	100	LF	\$	20.00	\$	2,060	\$	2,122	\$	2,185		
Signs	10	EA	\$	75.00	\$	773	\$	796	\$	820		
Handicap Parking Signs	5	EA	\$	75.00	\$	386	\$	398	\$	410		
Work Zone Traffic Control	20	DAY	\$	600.00	\$	12,360	\$	12,731	\$	13,113		
Clearing and Grubbing	1	LS	\$	500.00	\$	515	\$	530	\$	546		
Pedestrian Fence	160	LF	\$	340.00	\$	56,032	\$	57,713	\$	59,444		
Elevator	2	EA	\$	250,000.00	\$	515,000	\$	530,450	\$	546,364		
Major Utility Relocation - Allowance	1.00	LS	\$	100,000.00	\$	103,000	\$	106,090	\$	109,273		
	\$	760,854	\$	783,679	\$	807,190						
		M	DBIL	LIZATION (4%)	\$	30,434	\$	31,347	\$	32,288		
		CON	ITIN	IGENCY (20%)	\$	158,257.59	\$	163,005	\$	167,895		
	\$	949,546	\$	978,032	\$	1,007,373						





ALTERNATIVE 2: CENTER CONNECTION												
								Cost				
Item	Quantity	Unit	Unit Price		2022		2023		2024			
Retaining Wall	162.00	SF	\$	16.50	\$	2,753	\$	2,836	\$	2,921		
Excavation & Disposal	300.00	СҮ	\$	50.00	\$	15,450	\$	15,914	\$	16,391		
Excavation Protection	1000.00	SF	\$	7.00	\$	7,210	\$	7,426	\$	7,649		
Asphalt Top	30.00	TONS	\$	140.00	\$	4,326	\$	4,456	\$	4,589		
Base Course	30.00	TONS	\$	190.00	\$	5,871	\$	6,047	\$	6,229		
Granular Fill	80.00	СҮ	\$	40.00	\$	3,296	\$	3,395	\$	3,497		
New Concrete Curb, including removal	100.00	LF	\$	32.00	\$	3,296	\$	3,395	\$	3,497		
Tree Removal	3.00	EA	\$	875.00	\$	2,704	\$	2,785	\$	2,868		
Relocating Light Fixtures	1.00	EA	\$	1,200.00	\$	1,236	\$	1,273	\$	1,311		
ADA Warning Strips	16.00	SF	\$	45.00	\$	742	\$	764	\$	787		
Concrete Driveway and Aprons	200.00	SF	\$	35.00	\$	7,210	\$	7,426	\$	7,649		
Sidewalk	500.00	SF	\$	12.00	\$	6,180	\$	6,365	\$	6,556		
Pavement Markings	8500.00	LF	\$	5.00	\$	43,775	\$	45,088	\$	46,441		
Pavement Markings - Hand Work	1600.00	LF	\$	20.00	\$	32,960	\$	33,949	\$	34,967		
Signs	10.00	EA	\$	75.00	\$	773	\$	796	\$	820		
Handicap Parking Signs	5.00	EA	\$	75.00	\$	386	\$	398	\$	410		
Work Zone Traffic Control	30.00	DAY	\$	600.00	\$	18,540	\$	19,096	\$	19,669		
Clearing and Grubbing	1.00	LS	\$	2,500.00	\$	2,575	\$	2,652	\$	2,732		
Pedestrian Fence	160.00	LF	\$	340.00	\$	56,032	\$	57,713	\$	59,444		
Elevator	2.00	EA	\$	250,000.00	\$	515,000	\$	530,450	\$	546,364		
Elevator with new bank	1.00	EA	\$	750,000.00	\$	772,500	\$	795,675	\$	819,545		
Major Utility Relocation - Allowance	1.00	LS	\$	75,000.00	\$	77,250	\$	79,568	\$	81,955		
	\$	1,580,064	\$	1,627,466	\$	1,676,290						
		M	DBI	LIZATION (4%)	\$	63,203	\$	65,099	\$	67,052		
		CON	ITI	NGENCY (20%)	\$	328,653.37	\$	338,513	\$	348,668		
	\$	1,971,920	\$	2,031,078	\$	2,092,010						





ALTERNATIVE 3: NORTH CONNECTION													
					Cost								
type or elements of item	Quantity	<u>Unit</u>		Unit Price	2022		2023			2024			
Excavation & Disposal	115.00	CY	\$	50.00	\$	5,923	\$	6,100	\$	6,283			
Removal of Superstructure (Pedestrian													
Bridge)	330.00	SF	\$	300.00	\$	101,970	\$	105,029	\$	108,180			
Asphalt Top	30.00	TONS	\$	140.00	\$	4,326	\$	4,456	\$	4,589			
Base Course	30.00	TONS	\$	190.00	\$	5,871	\$	6,047	\$	6,229			
Granular Fill	70.00	CY	\$	40.00	\$	2,884	\$	2,971	\$	3,060			
New Concrete Curb, including removal	125.00	LF	\$	32.00	\$	4,120	\$	4,244	\$	4,371			
Tree Removal	1.00	EA	\$	875.00	\$	901	\$	928	\$	956			
Relocating Light Fixtures	1.00	EA	\$	1,200.00	\$	1,236	\$	1,273	\$	1,311			
ADA Warning Strips	16.00	SF	\$	45.00	\$	742	\$	764	\$	787			
Concrete Driveway and Aprons	200.00	SF	\$	35.00	\$	7,210	\$	7,426	\$	7,649			
Prefabricated Bridge - Steel (painted)	30.00	LF	\$	2,101.76	\$	64,945	\$	66,893	\$	68,900			
Prefabricated Ramp with support - Steel	1	LS	\$	71,500.00	\$	73,645	\$	75,854	\$	78,130			
Sidewalk	185.00	SF	\$	12.00	\$	2,287	\$	2,355	\$	2,426			
Pavement Markings	200.00	LF	\$	5.00	\$	1,030	\$	1,061	\$	1,093			
Pavement Markings - Hand Work	100.00	LF	\$	20.00	\$	2,060	\$	2,122	\$	2,185			
Signs	10.00	EA	\$	75.00	\$	773	\$	796	\$	820			
Handicap Parking Signs	10.00	EA	\$	75.00	\$	773	\$	796	\$	820			
Work Zone Traffic Control	3.00	DAY	\$	600.00	\$	1,854	\$	1,910	\$	1,967			
Elevator	2.00	EA	\$	250,000.00	\$	515,000	\$	530,450	\$	546,364			
Elevator with new bank	1.00	EA	\$	750,000.00	\$	772,500	\$	795,675	\$	819,545			
	SUBTOTAL		\$	1,570,047	\$	1,617,149	\$	1,665,663					
WITH a New Elevator at the Center	MOBILIZATION (4%)		Ş	62,802	Ş	64,686	Ş	66,627					
Plaza	CONTINGENCY (20%)				Ş	326,569.87	Ş	336,367	Ş	346,458			
L	Ş	1,333,419	Ş	2,010,202	Ş	2,0/0,/48							
				SUBTOTAL	\$	797,547	\$	821,474	\$	846,118			
WITHOUT a New Elevator at the		м	DBI	LIZATION (4%)	\$	31,902	\$, 32,859	\$	33,845			
Center Plaza	CONTINGENCY (20%)					165,889.87	\$	170,867	\$1	L75,992.56			

TOTAL \$



995,339 \$ 1,025,199 \$ 1,055,955



City of Glen Cove Downtown Parking Connections Feasibility Report NOVEMBER 2021

				ALT	ERNATIVE 4	1: ENH	IANCED F	EDESTRIAN CO	ONNECTIONS					
							20	22		2023		2024		
		Type or elements of item	Quantity	Unit	Unit Price			Sub-Alternative		Sub-Alternative		Sub-Alternative		
						itei	m Cost	Cost	Item Cost	Cost	item Cost	Cost		
Alterna	ive 4.1: South Alleyway Pedestrian Improvements													
	Improve existing ADA ramp	Sidewalk	34.00) SF	\$ 12.00	\$	420		\$ 433		\$ 446			
	Add signago	Handicap Parking Signs	2.00	EA	\$ 75.00	\$	155		\$ 159		\$ 164			
411		Signs	4.00	EA	\$ 75.00	\$	309	\$ 2,500	\$ 318	¢ 2605	\$ 328	¢ 2712		
4.1.1		ADA Warning Strips	12.00) SF	\$ 45.00	\$	556	\$ 3,500	\$ 573	\$ 3,005	\$ 590	\$ 3,713		
	Convert parking spots to ADA accessible	Pavement Markings	100.00) LF	\$ 5.00	\$	515		\$ 530		\$ 546	ļ		
		Pavement Markings - Hand Work	75.00) LF	\$ 20.00	\$	1,545		\$ 1,591		\$ 1,639			
	Improve existing ADA ramp	Sidewalk	34.00) SF	\$ 12.00	\$	420		\$ 433		\$ 446	-		
	Add signage	Handicap Parking Signs	2.00) EA	\$ 75.00	\$	155		\$ 159		\$ 164			
		Signs	4.00	EA	\$ 75.00	Ş	309		\$ 318		\$ 328			
4.1.2		ADA Warning Strips	12.00) SF	\$ 45.00	Ş	556	\$ 261,000	Ş 573	\$ 268,830	\$ 590	\$ 276,895		
	Convert parking spots to ADA accessible	Pavement Markings	100.00) LF	\$ 5.00	Ş	515		\$ 530	-	\$ 546	ł		
		Pavement Markings - Hand Work	/5.00		\$ 20.00	Ş	1,545		\$ 1,591	-	\$ 1,639	+		
A 14	Install new elevator in existing elevator bank	Elevator	1.00	EA	\$250,000.00	Ş	257,500		\$ 265,225		\$ 2/3,182			
Alterna	ive 4.2: Center Alleyway Pedestrian Improvement	S	24.00	Jer	á 43.00	Ċ.	420		á (22	1	à 110	1		
	Improve existing ADA ramp	Sidewalk	34.00) SF	\$ 12.00	Ş	420		\$ 433	4	\$ 446	-		
	Add signage	Handicap Parking Signs	2.00		\$ 75.00	Ş	155		\$ 159	4	\$ 164	ł		
		Signs	3.00		\$ 75.00	Ş	232	ć 1.041	\$ 239	\$ 239	¢ 1103	\$ 246	¢ 4.207	
4.2.1	Convert parking spots to ADA accessible	ADA Warning Strips	100.00		\$ 45.00	Ş	550		\$ 5/3 ¢ 520	\$ 4,162	\$ 590	Ş 4,287		
		Pavement Markings - Hand Work	75.00		\$ 5.00	ç ç	1 545		\$ 350 \$ 1.501	1	\$ 540 \$ 1,620	ł		
	Clearvegetation	Pavement Markings - Hand Work	1.00		\$ 600.00	ç	618					\$ 637	1	\$ 656
		Sidowalk	24.00	5	\$ 12.00	¢	420)		¢ /22		\$ 116		
		Handican Parking Signs	2.00) FA	\$ 75.00	ç ç	420	\$ 8,804	\$ 8,804	\$ 159	1	\$ 164		
	Add signage	Signs	3.00	FA	\$ 75.00	Ś	232				\$ 239	1	\$ 246	+
	Convert parking spots to ADA accessible	ADA Warning Strips	12.00	SF	\$ 45.00	Ś	556				\$ 573	1	\$ 590	t
		Pavement Markings	100.00) F	\$ 5.00	Ś	515				\$ 530		\$ 546	ł
4.2.2		Pavement Markings - Hand Work	75.00) LF	\$ 20.00	Ś	1.545			\$ 1.591	\$ 9,069	\$ 1.639	\$ 9,341	
	Clear vegetation		1.00	LS	\$ 600.00	Ś	618		\$ 637	1	\$ 656	t		
		Tree Removal	3.00) EA	\$ 875.00	Ś	2,704				\$ 2,785	1	\$ 2.868	t
	Replace dense vegetation with smaller plants	New Landscaping (Allowance)	1.00	LS	\$ 2,000.00	\$	2,060		\$ 2,122	1	\$ 2,185	İ		
	Add lighting	Maintenance Contracts	0.00) -	\$ -	\$	-			\$ -		\$ -	Ī	
	Improve existing ADA ramp	Sidewalk	34.00) SF	\$ 12.00	\$	420		\$ 433		\$ 446			
	Add signage	Handicap Parking Signs	2.00	EA (\$ 75.00	\$	155	·	\$ 159]	\$ 164	I		
	Add signage	Signs	3.00	EA	\$ 75.00	\$	232		\$ 239]	\$ 246	I		
		ADA Warning Strips	12.00) SF	\$ 45.00	\$	556	\$ 781,304	\$ 573		\$ 590			
	Convert parking spots to ADA accessible	Pavement Markings	100.00	LF	\$ 5.00	\$	515			\$ 530		\$ 546		
4.2.3		Pavement Markings - Hand Work	75.00) LF	\$ 20.00	\$	1,545		\$ 1,591	\$ 804,744	\$ 1,639	\$ 828,886		
	Clear vegetation		1.00) LS	\$ 600.00	\$	618		\$ 637		\$ 656			
	Replace dense vegetation with smaller plants	Tree Removal	3.00	EA	\$ 875.00	\$	2,704		\$ 2,785	I	\$ 2,868			
	hepate dense regetation man smaller plants	New Landscaping (Allowance)	1.00	LS	\$ 2,000.00	\$	2,060		\$ 2,122	I	\$ 2,185			
	Add lighting	Maintenance Contracts	0.00) -	\$-	\$	-		\$-		\$-			
	Construct elevator bank and install new elevator	Elevator with new bank	1.00	EA	\$750,000.00	\$	772,500		\$ 795,675		\$819,545			
Alterna	ive 4.3: North Alleyway Pedestrian Improvements										_			
		Sidewalk	34.00) SF	\$ 12.00	\$	420		\$ 433		\$ 446			
4.3.1	Improve existing ADA ramp	Handicap Parking Signs	1.00	EA	\$ 75.00	\$	77	\$ 729	\$80	\$ 751	\$ 82	\$ 774		
		Signs	3.00) EA	\$ 75.00	\$	232		\$ 239	L	\$ 246			
		Sidewalk	34.00	SF	\$ 12.00	\$	420		\$ 433	4	\$ 446	ł		
4.3.2	Improve existing ADA ramp	Handicap Parking Signs	1.00	EA	\$ 75.00	\$	77	\$ 258,229	\$ 80	\$ 265,976	\$ 82	\$ 273,955		
		Signs	3.00) ÉA	\$ 75.00	Ş	232		\$ 239	-	\$ 246	-		
	Install new elevator in existing elevator bank	Elevator	1.00	ΕA	\$250,000.00	Ş	257,500		\$ 265,225		Ş 273,182			



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City of Glen Cove Downtown Parking Connections Feasibility Report NOVEMBER 2021

		_	2022	 2023	 2024
	SUBTOTAL	\$	8,270	\$ 8,518	\$ 8,774
4.1.1 & 4.2.1 & 4.3.1	MOBILIZATION (4%)	\$	331	\$ 341	\$ 351
Basic Improvements - No Elevators	CONTINGENCY (20%)	\$	1,720	\$ 1,772	\$ 1,825
	TOTAL	\$	10,321	\$ 10,630	\$ 10,949
A 1 1 8 A 2 2 8 A 2 1	SUBTOTAL	\$	13,034	\$ 13,425	\$ 13,827
Moderate Improvements - No Elevators	MOBILIZATION (4%)	\$	521	\$ 537	\$ 553
	CONTINGENCY (20%)	\$	2,711	\$ 2,792	\$ 2,876
	TOTAL	\$	16,266	\$ 16,754	\$ 17,257
		-			
A 1 7 8 A 7 7 8 A 3 7	SUBTOTAL	\$	528,034	\$ 543,875	\$ 560,191
Moderate Improvements Elevators	MOBILIZATION (4%)	\$	21,121	\$ 21,755	\$ 22,408
Only at Existing Banks	CONTINGENCY (20%)	\$	109,831	\$ 113,126	\$ 116,519.70
Only at Existing Banks	TOTAL	\$	658,986	\$ 678,756	\$ 699,118
1118 1228 121	SUBTOTAL	\$	785,534	\$ 809,100	\$ 833,373
4.1.1 & 4.2.3 & 4.3.1 Moderate Improvements Elevator	MOBILIZATION (4%)	\$	31,421	\$ 32,364	\$ 33,335
Only at Contar Diase	CONTINGENCY (20%)	\$	163,391	\$ 168,293	\$ 173,341.50
Only at Center Plaza	TOTAL	\$	980,346	\$ 1,009,756	\$ 1,040,049
	·				
11281228122	SUBTOTAL	\$	1,300,534	\$ 1,339,550	\$ 1,379,736
Highest Improvements Elevators at	MOBILIZATION (4%)	\$	52,021	\$ 53,582	\$ 55,189
Three Locations	CONTINGENCY (20%)	\$	270,511	\$ 278,626	\$ 286,985.11
Inree Locations	TOTAL	\$	1,623,066	\$ 1,671,758	\$ 1,721,911





PPENDIX D – PREFABRICATED PEDESTRIAN BRIDGE MATERIALS AND FINISHES



Prefabricated Bridge Types – Underhung Floor Beam





Prefabricated Bridge Types – Underhung Floor Beam (Cont.)







Prefabricated Bridge Types – Bowstring



Prefabricated Bridge Types – Modified Bowstring



Prefabricated Bridge Types – Box



TOP CHORD STRUT

Prefabricated Bridge Types – Box



Prefabricated Bridge Types – Arch



Materials and Finishes – Steel – Weathering, Painted, Hot-Dip Galvanized, or Metalized



Materials and Finishes – Aluminum



Materials and Finishes – FRP Reinforced Timber









Materials and Finishes – Deck - Concrete





Materials and Finishes – Deck – Softwood or Hardwood



Materials and Finishes – Deck – Composite



Materials and Finishes – Deck – Fiber Reinforced Panels



Materials and Finishes – Deck – Aluminum (Slip Resistant)





Materials and Finishes - Railing









