

September 16, 2013

Page 1 of 5

Preliminary Report HIGHTSTOWN BOROUGH HALL & POLICE BUILDING Hightstown, New Jersey

Introduction:

Over the past month, we have met on several occasions with representatives of the Borough to assess the functional requirements for the various municipal departments that need to be accommodated in the Municipal Complex¹. Using that information, we developed a Building Program. From that, we developed several Design Scenarios. Each of these respects the locations and sizes of the existing Fire House and Historical Society buildings to either side of the site.²

We concluded that there were four reasonable strategies for accommodating the Building Program:³

1. **Renovate Borough Hall and construct a new separate two-story building for the Police Department:** Under this scenario, the Police Building could be located anywhere on the site which is beyond the limits of the flood plain, as defined in the most recent flood maps.
2. **Renovate Borough Hall and construct a two-story Addition to house the Police Department:** Under this scenario, the layout of the Addition could be similar to that in Scenario #1 (above), but joining the two structures would yield several benefits, such as the ability to create a single public entrance and to share at least one set of fire stairs. Also, because all of the Police functions would be located in the Addition, it would be easier to satisfy the seismic-resistance requirements which pertain to such functions than if those functions spilled over into Borough Hall.
3. **Renovate Borough Hall, construct a two-story Addition, and maximize the functionality of its occupancy:** From a functional perspective, the major problem with Scenario #2 (above) is that it leaves the Council Room/Courtroom in its current size and configuration, which does not satisfy the Building Program and is in violation of the applicable requirements of the Administrative Office of the Courts and the Americans with Disabilities Act. Given the structural constraints of the existing building, there is no place in it that is large enough to accommodate a Council Room/Courtroom which meets those requirements. However, if the combination of Borough Hall and the Addition is treated as a single building, in the sense that programmatic elements that had been located in Borough Hall prior to the flood can be housed in the proposed Addition, then there is no reason why the Council Room/Courtroom cannot be located in the Addition. In terms of satisfying the Building

¹ For the purposes of this Report, the term "Municipal Complex" will refer to the building or buildings that will house those departments that had occupied Borough Hall (including its rear extension), prior to Hurricane Irene, which the Borough has decided should remain on this site.

² For guidance in positioning the addition(s) to or replacement of Borough Hall, we consulted the new Survey prepared by the Borough Engineer.

³ Under all of these design scenarios, we propose to demolish the rear portion of Borough Hall, since the Borough's insurance carrier considers it a total loss, and since the costs of bringing it into compliance with today's strict requirements for law enforcement facilities would be prohibitive.

September 16, 2013

Page 2 of 5

Program, this scenario is far superior to Scenario #1 or #2. However, it brings with it greatly complexity and cost to comply with the applicable seismic requirements, since the Police Department will spill over into the original Borough Hall.

4. **Demolish Borough Hall and construct a new 2-story building serving as both Borough Hall and Police HQ:**

This approach has several distinct advantages over the three other scenarios described above. It enables much more efficient interior layouts than those possible within the constraints of the idiosyncratic Borough Hall. It yields a building with less surface area than any of the other scenarios, which will help reduce heating and cooling costs. It yields a building with less total width than any of the other scenarios, which will help keep from crowding the existing buildings to either side of it. Because the existing Borough Hall will be gone, the new building can be positioned optimally on the site, rather than being constrained, as any Additions would be, by the position of the existing Borough Hall. This approach also avoids the need for mold remediation in Borough Hall. The entire building would satisfy the seismic requirements for Police facilities, enabling those functions to be located or relocated without constraint. The entire building would satisfy the ADA. Finally, the building envelope and operating systems would meet and could exceed today's stringent energy-efficiency requirements, reducing operating costs for the life of the building.

Assessment of the existing Borough Hall:

The existing Borough Hall was completed approximately 50 years ago. In the ensuing years, it was modified in several ways, most significantly when an elevator was added in its northwest corner.

- **Thermal Envelope:** Like many buildings from its era (a time when energy was cheap), Borough Hall has almost no insulation in its exterior walls or roofs. In fact, we estimate that the average thermal resistance of its building envelope is less than 20% of what is required under current codes. In addition, whereas current practice is for window glass to be double- or triple-glazed, the windows in Borough Hall are single-glazed.
- **HVAC Systems:** Its heating, ventilating, and air-conditioning systems are beyond their useful lives. They therefore should be replaced. Although the replacement equipment would be more energy-efficient than the original equipment, the thermal performance of the building ought to be upgraded, so that the heating and cooling capacity (and therefore the initial and operating costs) of the new equipment can be minimized. Upgrading the thermal performance of the building envelope will be costly, but will ultimately pay for itself in reduced operating costs.
- **Accessibility:** Various aspects of the existing Borough Hall do not meet the requirements of the Americans with Disabilities Act ("ADA"). These include the toilet rooms, much of the door hardware, and several of the interior doors. Wheelchair access will also have to be provided to the Judge's Bench.
- **Rehabilitation Subcode Requirements:** Under the Rehabilitation Subcode of New Jersey's Uniform Construction Code, the reconstruction of the existing building will trigger various lifesafety upgrades, including, but not necessarily limited to, enclosure of one or both of the existing stairways and modifications to the plumbing systems.

September 16, 2013

Page 3 of 5

- **Mold & Asbestos Remediation:** The Borough's Environmental Consultant just issued a report describing the extent of mold and asbestos remediation required in Borough Hall if it is to be reoccupied (as assumed in Scenarios 1, 2, and 3). If Scenario 4 is selected, Borough Hall would be demolished, in which case mold remediation would not be required, and its cost would therefore be avoided. Since the existing Police Wing will be demolished under every scenario, any asbestos within it will have to be remediated prior to demolition.
- **Architectural Aspects:** In our development of plans for reusing Borough Hall (Schemes 1, 2, and 3), we endeavored to minimize the reconfiguration of existing walls. In every one of those schemes, however, some interior modifications will still be required. For example, in order to bring the public toilet rooms into compliance with the ADA, reconfiguration of the existing toilet rooms is required. Similarly, to maximize the functionality of the spaces, some openings must be created in existing interior bearing walls. All of these changes have costs associated with them. (Those costs will be estimated as part of Phase 2 of our Services, if the Borough decides to pursue Schemes 1, 2, or 3.)
- **Structural Aspects:** Our Structural Engineer inspected Borough Hall several weeks ago, and summarized his preliminary findings as follows:

Borough Hall is a two story straight gable framed building with load bearing CMU exterior and interior load bearing walls. The second floor of this building is a 5" slab over "steel-tex". The slab bears on the CMU (i.e., concrete block) exterior and interior CMU walls, as well as loose wide-flange steel beams. The roof is composed of wood rafters at wide spacings and Tectum Deck. The building has been altered with additions. If you include the Police infill section, it appears that there have been 5 additions and alterations. The elevator addition was independently framed and supported with structural steel. This was threaded through the building by cutting a hole in the second floor framing and supporting the slab on the elevator framing. The front gable end wall of Borough Hall has several large cracks in its CMU walls. There are indications that settlement cracks were patched over the years. The present horizontal and vertical cracks are due to a combination of causes:

1. Additional settlement of the foundation due to floods.
2. Latent stresses being released in the form of creep.
3. Seismic and wind events.

The existing Borough Hall should not be considered as a candidate for additions and alterations. Even without the requirements imposed as a future "Essential Public Use Building", the structure is a difficult building to bring into code compliance. The additions as contemplated will require the building to comply with the requirements of "Essential Public Use." The necessary seismic upgrades for this building would be as follows:

1. Reinforce the CMU by adding additional vertical rebar and filling those cells solid.
2. Assuming that sufficient horizontal joint reinforcement exists within the existing masonry walls, add vertical structural steel as strong-backs for the walls.
3. Provide positive connections for the second floor by adding spandrel steel beams with anchors into the interior and exterior CMU bearing walls.
4. Provide positive connections for the wood rafters by adding bond beams to the tops of the existing exterior walls.

September 16, 2013

Page 4 of 5

5. Provide controls joints, isolation joints, and expansion joints between the various elements and additions (including the elevator).
6. Provide independent seismic supports for electrical, mechanical, plumbing, and fire systems.
7. Provide anchorage of all of the CMU to the foundation walls.

This high mass building has a second floor diaphragm that is poorly connected to the supporting walls. This is compounded by widely spaced wood-framed gable roof with equally poor connections. What little shear capacity there is, as an unreinforced CMU building, is completely negated by the large continuous window openings (similar to ribbon glass). A moderate seismic event would result in the collapse of this building. The second floor would move through the block wall collapsing the wall and allowing the roof and second floor to fall.

Overall Assessment of existing Borough Hall:

A building can be thought of in many different ways, For example, it can be considered a collection of rooms or spaces, or as an assembly of building materials. For the purpose of this discussion, we encourage you to think of the existing Borough Hall as a set of building systems.

Due to their age, or their condition, or to the requirements of the applicable codes, many of those systems must be replaced in their entirety, while others need to be replaced in part. The most costly aspects of a building are typically its structural system, its exterior envelope, and its mechanical and electrical systems.

- Due to the age of the building, our Mechanical/Electrical Consultants recommend that the building's mechanical (i.e., plumbing, HVAC, and fire protection) and electrical systems be completely replaced. These represent approximately $\frac{1}{3}$ of the overall value of the building.
- Due to the seismic requirements that apply to essential public facilities, such as police facilities, any design scenario which involves placing police facilities next to or within Borough Hall (i.e., Schemes 2 or 3) will require substantial modifications to its structural system. The changes described by our Structural Engineer in the foregoing section of this Report, plus the reconfigurations needed to satisfy the Building Program, we assume will represent another $\frac{1}{6}$ of the overall value of the building.
- Upgrading the thermal performance of the building envelope (exterior walls and roofs), replacing all of the materials removed as part of the mold and asbestos remediation work, and bringing the building into compliance with the ADA we believe will represent another $\frac{1}{6}$ of the overall value of the building.

Taking all of the above into consideration means that the difference in cost between any of the Scenarios involving reuse of existing Borough Hall (Schemes 1, 2, or 3) and the Scenario involving a new building (Scheme 4) will be $\frac{1}{3}$ of the value of 5,000 square feet of new municipal office space. New municipal office space will cost approximately \$300/sq. ft. to build. Therefore, 5,000 square of new municipal office space will cost approximately \$1.5 Million to build. One third of that value will be \$500,000. In other words, replacing Borough Hall can be expected to cost *no more than* \$500,000 more than reusing Borough Hall.

September 16, 2013

Page 5 of 5

However, the above only accounts for raw construction costs. In terms of overall project costs, the following additional aspects must be considered:

1. **Longer Construction Time:** Reuse of Borough Hall will result in a longer construction period than replacing it, which will result in higher costs for the Contractor's General Conditions.
2. **Larger Professional Fees:** As shown in our Professional Services Proposal, all else being equal, our Fees are greater for reusing Borough Hall than for replacing it.
3. **Larger Contingencies:** The risks associated with renovating a 50-year old building are higher than those associated with building from scratch. As a result, larger contingencies must be carried in the budgets for Schemes 1, 2, or 3 than for Scheme 4.
4. **Suboptimal Functionality:** Because they must accommodate the constraints of the existing building, the plans in Schemes 1, 2, and 3 are not as efficient or as functional as the plans for Scheme 4.

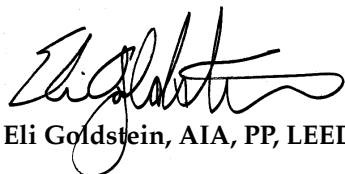
Accounting for the small size of Borough Hall, the relatively small savings associated with its reuse, and the longer construction time, larger professional fees, larger contingencies, and suboptimal functionality associated with Schemes 1, 2, and 3 compared to Scheme #4, we recommend that Scheme #4 be selected, and that Borough Hall therefore be demolished and replaced. While it is true that Scenario 4 will incur demolition costs that would not be incurred under the other Scenarios, it will enable efficiencies in the planning of building systems that would otherwise not be possible. In a small building, these efficiencies will have a disproportionate impact on the cost of the project.

In essence, what we are saying is that, based both on the specifics of this project and on our experience on recent similar projects, the savings that might result from reusing Borough Hall are likely to be relatively minor in the context of the overall cost of the project, and that replacing Borough Hall will be a far better long-term investment for the Borough. The existing building could have been expected to have a useful life of 30 to 50 years. It cannot be expected to serve its purposes for another 30 to 50 years.

The above recommendations are independent of the magnitude of the settlement the Borough ultimately receives from its insurance carrier and of the funds the Borough ultimately receives from FEMA.

Based on the information we and our engineering consultants have gathered to date, we anticipate that the cost of site improvements, technology systems (voice/data, electronic access control, radio systems, 911 systems, audiovisual systems, etc.), moving costs, and furniture, fixtures, and equipment, will be similar, regardless of which Design Scheme is ultimately selected. The same applies to asbestos remediation costs, since they will have to be performed whether or not Borough Hall is to be demolished. Mold remediation costs, however, will be avoided in the portions of the existing building that are to be demolished.

Prepared by:



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