



March 23, 2020

Allen Kratz
1245 Bloomfield Street
Hoboken, New Jersey 07030

Re: NJ Transit's Records Building, Hoboken

Dear Mr. Kratz:

You have engaged me to (1) assess whether the recommended alternatives for the Records Building are appropriate for the existing damage, (2) whether there are practical alternatives to the proposed demolition of the building, and (3) whether natural flooding of the building can be addressed with wet flood-proofing.

The primary consideration is safety for all people nearby (including workers at the train yard, workers at nearby utilities, and the general public). The question of whether or not it is feasible to save the building follows the question of safety.

The following is a summary of my review of documents regarding the condition of the Records Building. The documents include:

- a report of investigation by Andrew Marino of New Jersey Transit, dated July 31, 2019 (the Marino report),
- a letter from Steve Zane of the Hoboken Historic Preservation Commission to Kevin Corbett of New Jersey Transit, dated August 9, 2019 (the Zane letter),
- a letter from Richard Schaefer of New Jersey Transit to Mr. Zane, dated August 12, 2019 (Schaefer letter 1),
- a letter from Katherine Marcopul of the State Historic Preservation Office to Daniel Moser of the Federal Transit Administration, dated October 2, 2019 (Marcopul letter 1),
- a report of an October 16, 2019 site investigation by John Pavel and Andrew Suozzi of STV Inc., marked as a draft and dated October 30, 2019 (the STV report),
- a letter from Ravi Bhalla, Mayor of Hoboken to Ms. Marcopul, dated October 24, 2019 (Bhalla letter 1),
- a letter from Mr. Schaefer to Mr. Bhalla, dated November 8, 2019 (Schaefer letter 2),
- a letter from Donald Burns of the Federal transit Administration to Ms. Marcopul, with a subject "Section 106 Initiation" and dated November 8, 2019 (Burns letter 1),
- a letter from Mr. Burns to Ms. Marcopul, with a subject line "FTA response to NJSHPO Letter" and dated November 8, 2019 (Burns letter 2),
- a letter from Ms. Marcopul to Mr. Bhalla dated November 12, 2019 (Marcopul letter 2),

- a letter from Dara Callender of New Jersey transit to Ms. Marcopul, dated November 19, 2019 (Callender letter 1),
- a letter from Ms. Marcopul to Mr. Burns, dated December 6, 2019 (Marcopul letter 3),
- a Notice of Unsafe Structure by Joseph Chiusano, a New Jersey Subcode Official, dated January 3, 2020 (the Notice),
- an inspection report by Donald Firestine of the State Buildings Unit, dated January 3, 2020 (the Firestine report),
- a letter from Ms. Callender to Melissa Abernathy of the Hoboken Quality of Life Coalition, dated January 7, 2020 (Callender letter 2),
- a letter from Ms. Marcopul to Ms. Callender, dated January 9, 2020 (Marcopul letter 4),
- a letter from Mr. Bhalla to Paul Wyckoff of New Jersey Transit, dated January 16, 2020 (Bhalla letter 2)
- a memo from Ms. Callender to several people, including Mr. Bhalla, Ms. Marcopul, Mr. Burns, and Mr. Schaefer, dated January 21, 2020 (Callender letter 3),
- a letter from Ms. Marcopul to Ms. Callender, dated January 29, 2020 (Marcopul letter 5),
- a letter from Fredric Pocon of the North Hudson Sewerage Authority to Thomas Malavasi, the County Engineer for Hudson County, dated February 4, 2020 (Pocon Letter),
- a letter from Ms. Marcopul to Ms. Callender, dated February 14, 2020 (Marcopul letter 6),
- a memo from Ms. Callender to several people, including Mr. Bhalla, Ms. Marcopul, Ms. Abernathy, Mr. Burns, and Mr. Schaefer, dated February 25, 2020 (Callender letter 4),
- a letter from Ms. Marcopul to Ms. Callender, dated March 4, 2020 (Marcopul letter 7),
- the “Lackawanna Records Building Project - Draft Alternatives Analysis” by STV and dated March 3, 2020, (the Draft Alternatives Report).

Because I have not had the opportunity to investigate the building myself, I am taking statements in those documents about physical conditions at face value: for example, if Mr. Marino says he observed cracks, I assume that cracks are present as he describes.

ON-SITE CONDITIONS DESCRIBED AND ANALYSIS

The Records Building was constructed in 1904 and is three stories high and roughly 24 by 96 feet in plan area, with a gable roof. It has been vacant since at least 1983, and likely received little maintenance during the last decades of its ownership by the Erie-Lackawanna Railroad and Conrail, 1960 to 1983. There is evidence of some exterior maintenance, such as the pointing at the upper portion of the west wall visible on page 2 of the Marino report.

The basic structure of the building consists of the exterior brick bearing walls (described as 16 inches thick), steel floor beams, and concrete slab floors. The “Undated Interior Photo” on page 7 of the Draft Alternatives Report shows an interior cast iron column supporting floor beams; the direction of the beams suggests that the column is at the midpoint of the building width. (In similar industrial and warehouse buildings of this era, we have found a common structural layout is columns at the mid-width in line with the exterior brick piers, which are spaced at roughly 16 feet in center on the long walls.) There is a ridge beam at the roof (bottom photo on page 8 of Draft Alternatives Report) supporting steel rafters sloping down to the eave.

The exterior walls, in addition to the projecting piers, have a sloped rough-brick veneer at the first floor, a projecting brick cornice below the parapet, and projecting brick ornamental turrets at the four corners of the building, corbelled from the corner piers and adjacent parapets. The parapets are low, apparently less than two feet in height, and portions have been removed (see page 4 of the Marino report). The close-up photos of the wall show running bond, with no headers. This is, again, a common detail from the era of construction, when a decorative brick (in this case, hard-burned) was used for veneer. The known ties between the veneer and back-up in such cases consist of the stone lintels and sills; there may also be blind headers (cut or diagonal headers projecting from the back-up wythes into the veneer wythe) but that detail is relatively rare. The lower picture on page 10 of the Draft Alternatives Report shows the veneer and back-up wythes where a section of cornice has been removed.

Various forms of damage of varying severity are described in the documents reviewed. Sticking to the primary documents, written by people who observed conditions themselves, the list is:

1. “[L]arge separation at the lower north end of the [west] wall which contained a wide crack near grade” from Marino report, page 2.
 - 1.1. Unfortunately, there is no photograph of this condition, as the accompanying photo shows the wall overall and the north end is obscured by a fence. Separation observed from the exterior (as the Marino report is based on a solely exterior investigation, see item 12) between the north and west walls is separation in the veneer. See item 4.
 - 1.2. Recommended stabilization work: Unknown, as the condition is not defined.
2. Loss of mortar in joints, from Marino report, page 2.
 - 2.1. The report states that it will be difficult to point the joints properly as they are narrow and deep. Such pointing is common in restoration work, typically using mortar mixes and tools that are somewhat different than those used for ordinary repair.
 - 2.2. Recommended stabilization work: pointing.
3. Parapets failing, specifically outward tilt, from the Marino report, pages 3 to 6.

- 3.1. The STV report also describes loose capstones on the parapets, and mentions the areas demolished by New Jersey Transit as “missing.”
 - 3.2. Recommended stabilization work: Where the parapets are more than one inch out of plumb, remove them, provide temporary waterproofing at the eaves, and later rebuild. Otherwise, repoint, locally rebuild small loose areas, remove the capstones, and provide temporary waterproofing over the parapet top.
4. A pair of diagonal cracks between the second and third floor windows at the far west end of the south wall, from Marino report, page 4.
 - 4.1. The STV report discusses diagonal cracks but does not provide specific locations. Photograph 3 (page 4) shows the same damage as noted in the Marino report. The report attributes this damage to water infiltration and freeze-thaw cycles “making the grout lines wider.” (The STV report uses “grout” when referring to the mortar.) Unless this is meant to refer to veneer separation (see item 4.2), it is incorrect, as there is no reason that the mechanism described would follow a diagonal pattern.
 - 4.2. The crossing diagonal cracks at this location appear to be the result of the veneer wythe separating from the remaining back-up wythes of the brick. Given the need for pointing (item 2), rainwater is getting further into the wall thickness than intended, and weakening the collar joint between the veneer and back-up at an accelerated rate. Since there is limited mechanical tying of the veneer to the back-up, the veneer can move outward when the mortar fails.
 - 4.3. Recommended stabilization work: pointing all joints and pinning the veneer to the back-up using flexible metal ties. Note that this repair is recommended anywhere there is evidence of veneer movement and can be used preventatively across all areas. Note that pinning without pointing can be performed by pinning (using helical ties) treated-wood cleats (2×4s or 2×6s) to the back-up through the veneer. The cleats prevent the veneer from pulling away by transferring any outward pull to the body of the wall.
5. An outward bulge of the north wall at the second and third floors, near the east end, from Marino report, page 6; see STV report page 1, item 1.
 - 5.1. It is not clear from the pictures provided whether the entire wall is bowing or whether only the outer veneer is bowing. Note that this question can be easily answered by observation from the interior (see item 12): if the entire wall is moving, then there will be a gap between the second and/or third floor slabs and the inside face of the wall.
 - 5.2. Recommended stabilization work: If the bowing is confined to the veneer, see item 4.3. If the bowing encompasses the entire wall, providing temporary ties between the wall and the interior second and third floor

structure, by installing beams across the piers between window openings and ties from those beams back to the steel floor beams.

6. A lack of expansion joints in the exterior walls, from the STV report, page 1, item 1.
 - 6.1. This is incorrect. This is a bearing wall building and, as such, relies partly on continuity of the walls to transfer lateral wind load. Not only is the lack of expansion joints not causing damage, it is an integral part of the building's structural system.
 - 6.2. Recommended stabilization work: none.
7. Debris at the roof edges, from the STV report, page 2, item 3 and visible in photo 2 on page 4.
 - 7.1. The building does not have a dedicated gutter, but rather uses the valley between the parapet and the roof as a gutter. Soil and other air-borne matter has collected in these gutters, and is serving as a growth medium for plants.
 - 7.2. Recommended stabilization work: Remove the debris. See also item 11.
8. The turrets (referred to as "cornices") are tilting outwards between ½ and 2 inches, from the STV report, page 2, item 4.
 - 8.1. The STV report attributes the tilt to freeze-thaw cycles in the mortar joints. However, the turrets are significantly corbelled outward from the plane of the adjacent walls (see photos 2 and 4 on page 4 of the STV report) and were originally tied into the adjacent parapets. Therefore the deterioration of the mortar (item 2), the deterioration of the parapets (item 3), and specifically the partial demolition of parapets have all reduced the strength of the all-masonry corbels.
 - 8.2. Recommended stabilization work: Document and temporarily remove the turrets. Provide temporary waterproofing for the exposed top to the parapets as part of item 3.2. (The turrets would be reconstructed during a future restoration phase.)
9. Interior-face wall damage, from the Notice.
 - 9.1. The text of the Notice includes the statement "Also an interior inspection revealed major roof and wall leaks along with numerous areas of brick pulling away from walls." There is nothing further - see item 12.3.
 - 9.2. Recommended stabilization work: Unknown, as the condition is not defined. Probably included in items 4 and 5.
10. Roof structure stability, from the Draft Alternatives Report, page 13, "Configuration Constraints"
 - 10.1. The report states "Unlike buildings of more typical modern configuration, wherein the roof parapet is not a structural element, the gable roof

of the Records Building has no structural triangulation (characteristically used to provide structural stability) and is tied directly to, and held in place by, the parapet and masonry walls. Accordingly, the entire or even partial collapse of the parapet would result in loss of support and would compromise the integrity of a section of the roof system. While there is a ridge beam supported by interim walls and columns, the columns do not extend the full height of the building, and a partial roof collapse would likely result, in turn, in a partial collapse or destabilization of the exterior wall(s).” There is no evidence that the parapet is serving a structural function. Rather the ridge beams support the rafters, so that there is no outward thrust, and the ridge beams are in turn supported by structure below. This is a building constructed by a railroad with a full-time and competent engineering staff, and the conclusion in the paragraph quoted above is based on an assumption that the building has never had a functioning load path for its roof.

10.2. Recommended stabilization work: None.

11. Roofing and leaks

11.1. The STV report (item 3, page 2) states that roof deterioration is visible from above. The remainder of this item discusses exterior wall damage and concludes that “further damage to the concrete roof can be expected to only further deteriorate.” Photos 1, 2, 4 and 5 on page 4 show worn and badly weathered roofing material (probably asphaltic roll roofing).

11.2. The Draft Alternatives Report has a 2014 photograph of the roof underside (the lower photo on page 8), which shows the effects of water leakage but no obvious failures of the roof structure.

11.3. Recommended stabilization work: None required for immediate safety, but if the stabilization phase will last more than one year before full restoration begins, a temporary roof should be installed by adhering new roll roofing over the existing roofing.

12. All investigations were conducted solely from the exterior except possibly for the that resulting in the Notice.

12.1. Page 4 of the Marino report: “I did not enter the building due to its unsafe condition...”

12.2. Page 1 of the STV report: “Due to concerns about the structural stability of the Records Building, and the safety of the inspection team, NJ Transit did not STV to access the interior of the building...”

12.3. The text of the Notice includes the statement “Also an interior inspection revealed major roof and wall leaks along with numerous areas of brick pulling away from walls.” The entire description in the Notice is very similar to the Firestine report of the same date, which states “This

inspector confirms STV report issued on 10/18/19. Also numerous concerns re interior water leakage & brick pulling away from bldg. Verbally STV stated today that an interior inspection could not be conducted due to an unsafe structure.” The Notice appears to be an inaccurate copy of the Firestine report, which would mean that no interior inspection was performed on January 3, 2020, but I do not know that to be true: it is possible that Mr. Chiusano performed an interior inspection then, which would be the only such inspection recorded since the summer of 2019, and one that was not otherwise documented.

- 12.4. In short, all of the discussion of structural safety appears to have taken place without information on the condition of the interior and with information about the exterior that could be provided by inspection of the interior (such as whether the item 5 bulge is veneer or the whole wall. It is not clear where the idea that it is unsafe to enter the building originated, as Mr. Marino thought that to be true in July 2019, and then this was repeated in many of the documents reviewed.

ANALYSIS, CODE COMPLIANCE, AND COST

13. Entry into the building is not physically impossible. Inspections, repairs, demolition, and environmental remediation are regularly performed in buildings that are known to be structural unsafe. Such entry requires more stringent than normal safety procedures but can be performed safely.
 - 13.1. Schaefer letter 1 states that “The engineer’s conclusions also specifically precluded entry into the building for safety reasons. Without safe access into the building, stabilization of the structure is no longer an option available to us.” If this is meant as a reference to the Marino report, it is inaccurate, as that report does not say the building cannot be entered, but rather than it was not entered because Mr. Marino already believed the building to be unsafe.
 - 13.2. The STV report (page 3, item 5) states that “These repair items will require access to into the building, it is unknown if they can be performed as the building was deemed not safe for entry.” No explanation is given.
14. Any stabilization effort will obviously have a cost, as will eventual restoration. However this cost should not be measured against the cost of doing nothing, as doing nothing is not an available option. The cost of stabilization should be compared to the cost of demolition; the cost of the restoration against the value of a restored building.
 - 14.1. On page 7 of the Marino report, there is a statement that “The best long term solution would be to demolish the building as restoration of this structure to assure its future integrity would most likely require an environmental remediation and would require rebuilding much of the build-

ing in sections while shoring all of the interior floors for temporary support.” First, if there are environmental hazards on site (lead paint is the most likely, but asbestos, oils, and other chemicals are also possibly present) they would need to be remediated during demolition. This is therefore a fixed cost regardless of the decision to demolish or repair. Second, since the building is adjacent to a public street and an active train yard, the only safe means of demolition would be disassembly, which will require much the same shoring as suggested is needed for repair. (Note that it is not yet certain that extensive shoring is required for repair, because the type of wall damage in items 4 and 5 is not certain.)

15. Any building must be maintained. I do not know the history of maintenance here, but as the building was owned by a railroad on the edge of bankruptcy (1960-1976) and then one focused on bare services (1976-1983), and unused since at least 1983 and probably longer, it is fair to say that the maintenance has been less than ideal for more than half the building's 116-year life to date.
 - 15.1. The STV report (page 3, item 5) states that “if these repairs could be fully implemented, there is no guarantee that additional wall cracks will not appear due to the age and state of the existing brick mortar and additional water infiltration.” This is literally the reason that building maintenance exists: to prevent minor problems from becoming emergencies.
16. Repair is always an alternative to demolition. The building is currently standing, which means is capable of supporting its own weight against gravity and ordinary (less than code-required) wind loads. That is not sufficient for safety, but it is a starting point.
 - 16.1. The pre-printed language of the Notice gives two options: “Demolish the above structure by [date], or correct the above noted unsafe conditions by no later than [date].” June 31, 2020 [sic] was written in as the demolition option date, but no date was provided for the correction option. It is not clear why, particularly since the Notice refers to confirming the STV report and that report states that repair is possible.
 - 16.2. Seven alternate strategies for addressing the building are described in the Draft Alternatives Report, pages 17 through 24. These strategies fairly cover the range of options that exist. My comments follow in items 16.2.1 through 16.2.7.
 - 16.2.1. Alternative 1 - No Build Alternative assumes that there will be no stabilization whatsoever, but only scaffolding and other protection of the public. As stated in the report, this is technically feasible but undesirable because of the continuing damage to the building and the continuing long-term safety concern. This option should not be pursued.

- 16.2.2. Alternative 2 - Stabilization Without Rehabilitation Alternative assumes that (a) the walls are structurally unsound and (b) all work must be performed from outside. Both of these assumptions are faulty, and increase both the interference with neighboring portions of the train yard and street and the cost. A more practical approach to this alternative would be to pin the veneer, remove the parapets and turrets and provide temporary waterproofing at those locations, and (if an interior investigation shows overall wall bulging rather than only veneer separation) using structural ties as described in item 5.2. This would address all of the known dangerous conditions. A sidewalk bridge should still be erected for general safety concerns but is not explicitly meant for any of the known unsafe conditions and is therefore not the primary safety structure.
- 16.2.3. Alternative 3 - Rehabilitation/Stabilization in Place Alternative repeats the repairs from the STV report, which are neither appropriate for a historic building nor necessarily indicated by the existing conditions. In the long run, if the building is to be reused, the underlying conditions stabilized in item 16.2.2 must be repaired.
- 16.2.4. Alternative 4 - Adaptive Reuse Alternative is, from the structural perspective, much the same as item 16.2.3. Once the building is known to be stable, alterations required for reuse can be performed in the usual manner.
- 16.2.5. Alternative 5 - Relocation/Reconstruction Alternative begins with the assumption that it is not possible to move the building in one or two pieces. That is not necessarily true: if the temporary stabilization in item 16.2.2 is performed first, it would be feasible to install the interior temporary bracing and lifting beams required for movement. This is preferable from the preservation standpoint and less expensive than disassembly and reassembly.
- 16.2.6. Alternative 6 - Demolition With Salvage and Storage of Historic Materials Alternative and Alternative 7 - Demolition Without Salvage of Historic Materials Alternative were not reviewed in depth, as the purpose of this review was to avoid demolition.

ALTERATIONS AND FLOOD

Once the building is stabilized, it is feasible to alter it for reuse. This can include changes to doors and windows, installation of modern mechanical/electrical/plumbing systems, installation of elevators and stairs, etc. Any changes that affect the appearance or character-defining features are subject to State Historic Preservation Office review.

Given the ground elevation at the building and the lack of a basement or cellar, one option to address flooding, as we have discussed, is to use wet flood-proofing, where the lowest level is allowed to flood so as to reduce hydraulic pressure on the building. The provisions of *44 CFR § 60.3 - Flood plain management criteria for flood-prone areas*, paragraph(c)(5), require two openings with an open area of 1 square inch per one square foot of enclosed area, with the bottom of the openings within one foot of grade. The interior area of the building is approximately 22 feet by 94 feet (the plan dimensions less the thickness of the walls) or 2068 square feet. A window with an area of 3 feet by 6 feet has an opening of 2592 square inches and is therefore large enough. It would appear that the flood requirement can therefore be met by cutting at least two of the existing first-floor windows down to within one foot of grade and installing a louver or other floor-amenable enclosure. It may also be possible to adapt existing doors to this purpose.

CONCLUSIONS

The specific forms of damage noted in the various inspections are all typical for buildings of this age and type when they do not receive ordinary maintenance. While the location adjacent to the train yard is a cause for concern, it is not inherently worse for public safety than any building fronting on a public street: the damage must be addressed to see that people are not injured or killed. The work described in items 2.2, 3.2, 4.3, 5.2, 7.2, 8.2, and 11.3 appears to be what is necessary to stabilize the building until a full restoration could begin, but note that a full survey of existing conditions inside and out is necessary for anyone to make a determination without making assumptions. There may be planning or use reasons why stabilization and restoration are not possible, but there are no structural or technical feasibility reasons.

If you have any questions or we can be of further assistance, please contact me.

Sincerely,



Donald Friedman, PE

NJ PE: #GE037734