Memorandum

To: **Mark Mandelbaum, President**
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Theodore Ward, Chief of Staff
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From: **Hatch**

Cc: **Lolita Parsalidis, On-call Contract Manager**
Almond Tree Enterprise, Inc.

Date: **December 22, 2021**

Subject: **Historic Transit Project Cost Assessment**

1. Introduction

This memo outlines the Historic Transit Project Cost Assessment (the "Assessment") conducted by Hatch for Almond Tree Enterprise, Inc., LanTree Developments, and Mana Group.

The Assessment includes a high-level review of historic transit project construction costs in order to develop a series of cost metrics associated with those projects and, subsequently, provide unit costs for major transit station and platform elements such as civil, structural, architectural, electrical systems, communication systems, structures, and vertical transportation systems.

This memo addresses the following:

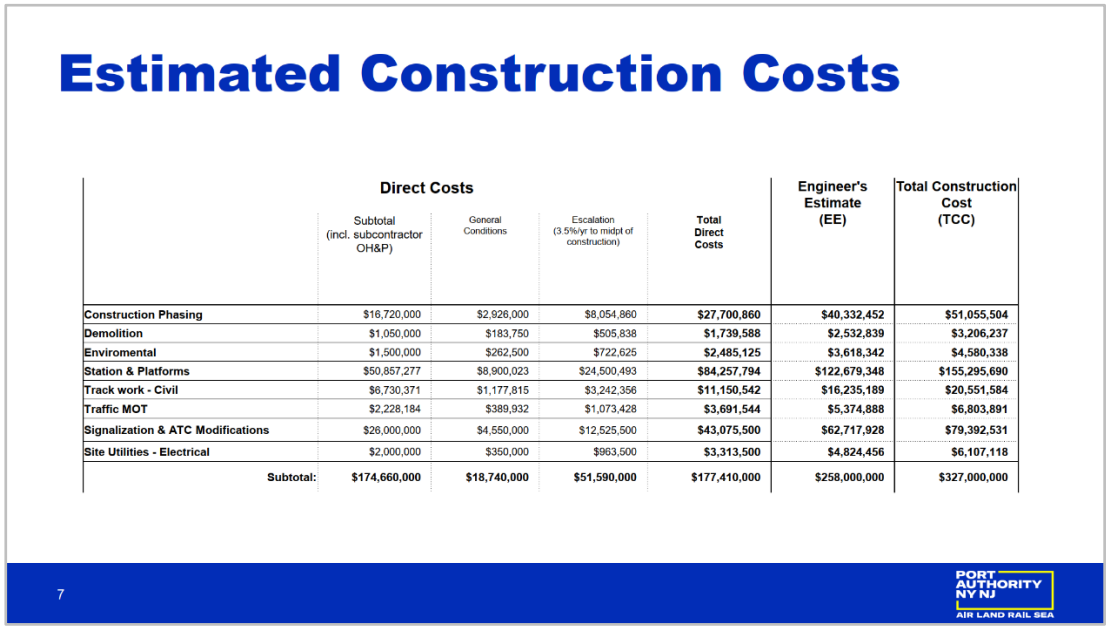
1. Introduction;
2. Methodology; and
3. Findings.

1.1 Context

On October 28, 2020, the Port Authority of New York & New Jersey ("PANYNJ") presented Almond Tree, LanTree Developments, Mana Group, and representatives from the Jersey City City Planning

Department a cost estimate for the construction of a new PATH station in the Marion Neighborhood of Jersey City, New Jersey. The proposed station location is adjacent to and above Wallis Avenue.

PANYNJ's overall "total construction cost" estimate for the proposed station is $327 million. This estimate is substantial and indicates that construction of the proposed station in the Wallis Avenue location may not be economically viable. Figure 1, below, shows an excerpt from the October 2020 presentation which outlines PANYNJ's cost estimate.



Estimated Construction Costs

	Direct Costs				Engineer's Estimate (EE)	Total Construction Cost (TCC)
	Subtotal (incl. subcontractor OH&P)	General Conditions	Escalation (3.5%/yr to midpt of construction)	Total Direct Costs		
Construction Phasing	$16,720,000	$2,926,000	$8,054,860	$27,700,860	$40,332,452	$51,055,504
Demolition	$1,050,000	$183,750	$505,838	$1,739,588	$2,532,839	$3,206,237
Enviromental	$1,500,000	$262,500	$722,625	$2,485,125	$3,618,342	$4,580,338
Station & Platforms	$50,857,277	$8,900,023	$24,500,493	$84,257,794	$122,679,348	$155,295,690
Track work - Civil	$6,730,371	$1,177,815	$3,242,356	$11,150,542	$16,235,189	$20,551,584
Traffic MOT	$2,228,184	$389,932	$1,073,428	$3,691,544	$5,374,888	$6,803,891
Signalization & ATC Modifications	$26,000,000	$4,550,000	$12,525,500	$43,075,500	$62,717,928	$79,392,531
Site Utilities - Electrical	$2,000,000	$350,000	$963,500	$3,313,500	$4,824,456	$6,107,118
Subtotal:	$174,660,000	$18,740,000	$51,590,000	$177,410,000	$258,000,000	$327,000,000

Figure 1. Estimated Construction Costs for PANYNJ Proposed Wallis Ave PATH Station in the Marion Neighborhood of Jersey City, NJ (Source: Port Authority of New York & New Jersey)

Upon review of the PANYNJ estimate, Hatch found that some elements, notably the *Station & Platforms* line item, appear outside the typically expected cost brackets.

Almond Tree, LanTree Developments, and Mana Group have tasked Hatch with performing a high level analysis of this cost element in order to better understand the PANYNJ estimate. Given that design works for the proposed Martion PATH Station have not been advanced, a detailed project specific estimation is not feasible at this time. However, Almond Tree, LanTree, and Mana Group have requested that Hatch undertake an historic cost assessment of similar "station and platform projects" as a means to quantify typical construction costs for an indicative project.

Hatch's work under this Task Order is limited to the physical infrastructure related to the *Station & Platforms* line item only. It does not account for the other line items in the PANYNJ estimate such as *Construction Phasing*, *Demolition*, *Environmental*, *Track Work – Civil*, *Traffic MOT*, *Signalization & ATC Modifications*, and *Site Utilities – Electrical*.

1.2 Projects Reviewed in the Assessment

Hatch has provided design, procurement, and construction support services on many projects that are similar to the proposed Marion PATH Station. We have selected four recent station platform projects to use for the basis of the Assessment.

The selected projects are part of Metrolinx's GO Expansion program to improve and enhance commuter rail service throughout the metropolitan area of Toronto, Canada. In some cases, this includes the construction of new rail platforms across the existing commuter rail network. During 2021, Hatch was involved in four (4) such platform projects wherein designs were finalized and 95% (or further advanced) cost estimates obtained.

These stations platform projects feature foundational elements that are similar to the proposed Marion PATH Station, including:

- New construction of at-grade platforms within an active mixed use passenger/freight railroad corridor;
- Concurrent or future track and signal/systems upgrades to allow station operations;
- Approximation 16,000 square feet of paved platform surfaces;
- Platform architecture features and site furniture consisting of shelters, benches, waste receptacles, etc.;
- Electrical services including integrated station panelboards / conduit / cables, platform lighting, and platform grounding; and
- Communications services including CCTV, public address, and Wi-Fi systems.

Each of the projects incorporated into the Assessment include project-specific elements which may or may not be related to proposed Marion PATH Station, but nonetheless add a level of robustness and confidence that the indicative costs reached in the Assessment are representative of a variety of applications. Station specific features include:

Station 1

- New vertical access by means of elevators; and
- Complicated project staging as access and station operations are impacted by an ongoing adjacent development.

Station 2

- Significant environmental considerations as the platform is located within a protected wetland.

Station 3

- New vertical access; and
- Multi-staged approach with the construction of temporary offset parking lot to facilitate the construction footprint.

Station 4

- Platform to be constructed across a bridge.

The estimates of construction costs for physical infrastructure of Station & Platform elements will be drawn from these projects and form the basis of the Assessment.

2. Methodology

The Assessment examined costs for each of the four platform projects noted above. Summarized element costs for each project have been categorized as follows:

a) Civil / Structural: including platform grading, asphalt, curb units and any retaining walls required to support them.

b) Architectural / Site Furniture: including passenger shelters, benches, waste bins, etc.

c) Electrical: including panel boards, conduit and cables, lighting, and grounding.

d) Communications: including CCTV, PA, Wi-Fi, conduit and cables

Additionally given the unique circumstances for each project, some costs categories are only represented in a partial number of projects, including:

a) Elevators.

b) Platform canopy.

Finally, the upfront costs for contractor mobilization/demobilization have been provided.

3. Findings

Assessment findings are summarized in Table 1 below and presented on a project-by-project basis in Attachment A.

Table 1. Summary Assessment of Indicative Station & Platform Project Costs

Element	Indicative Cost (USD)
Civil / Structural	$2,568,000
Architecture / Site Furniture	$1,452,000
Electrical	$2,592,000
Communications	$1,731,000
Elevators (assume 4)	$2,936,000
Canopy	$2,305,000
Subtotal	$13,584,000
Mobilization (10%)	$1,358,400
TOTAL	**$14,942,400**

The costs noted above are expressed in US dollars, converted from Canadian dollars with an exchange rate of 0.79 , and rounded to the nearest thousand dollars.

Although the prices within each category are generally consistent with the category average, several outliers can be observed, representing the particulars of project / location specific scenarios. Given that the purpose of this memo is to provide a level of confidence of the historic costs associated with constructing a platform, Hatch has utilized the maximum costs from each category when summarizing the indicative platform total cost. Accordingly, the proposed total costs are higher than any of the individual platforms examined.

3.1 Of Note

The costs represented above should not be considered full and complete costs for the proposed Marion PATH Station. In particular, it is important to note that these costs represent only the physical infrastructure related to station and platform work. The purpose of the Assessment is to provide

background as a means to better understand the PANYNJ costs for the *Station & Platform* line item as outlined in Figure 1.

Review of the other elements within the PANYNJ estimate have not been undertaken as part of this assessment. Hatch suggests that appropriate due diligence for each of those elements be undertaken, noting that highly location dependent items, such as track/signals/system, may require advancement of design before meaningful costs estimates can be produced.

In the absence of other cost estimate development, Hatch suggests utilizing the indicative cost for station and platform elements highlighted in the Assessment with geography conversion factors applied along with PANYNJ's estimate for the other line items as a means to formulate a final cost.

As an academic exercise, for example, were the $84+ million total direct cost for the* Station & Platform *line item in the PANYNJ estimate to be replaced with the $15 million number from Table 1 and escalated with the same methodology used in the PANYNJ estimate, the total estimated construction cost would sum to approximately $200 million in contrast to PANYNJ's $327 million.

Additionally, were the proposed Marion PATH Station to be constructed without impacting the Wallis Avenue bridge, a further reduction in the total estimated construction cost would be anticipated.

4. Disclaimer

This memo was prepared by Hatch Associates Consultants, Inc. ("Hatch") for the sole and exclusive benefit of Almond Tree Enterprise, Inc. and Mana Group (collectively, the "Client") for the sole purpose of assisting the Client to understand historic transit project costs for projects performed by Hatch that generally similar to the Client's proposed Marion PATH Station, and must not be provided to, relied upon or used by any other party. The use of this memo by the Client is subject to the terms of the relevant contract dated September 29, 2020 between Hatch and Client.

This memo is meant to be read as a whole, and sections should not be read or relied upon out of context. The memo includes information provided by the Client and by certain other parties on behalf of the Client. Unless specifically stated otherwise, Hatch has not verified such information and does not accept any responsibility or liability in connection with such information.

This memo contains the expression of the opinion of Hatch using its professional judgment and reasonable care, based upon information available at the time of preparation. The quality of the information, conclusions and estimates contained in this memo is consistent with the intended level of accuracy as set out in this memo, as well as the circumstances and constraints under which this memo was prepared.

As this memo is an assessment, all estimates and projections contained in this memo are based on limited and incomplete data. Accordingly, while the work, results, estimates and projections in this memo may be considered to be generally indicative of the nature and quality of the Project, they are

not definitive. No representations or predictions are intended as to become the results of future work, and Hatch does not promise that the estimates and projections in this memo will be sustained in future work.

Attachment A: Similar Project Costs

Element	Station 1	Station 2	Station 3	Station 4	Average	Min	Max	Proposed Cost
Civil / Structural	$1,874,000	$1,571,000	$1,675,000	$2,568,000	$1,922,000	$1,571,000	$2,568,000	$2,568,000
Architecture / Site Furniture	$1,053,000	$1,452,000	$902,000	$886,000	$1,073,000	$886,000	$1,452,000	$1,452,000
Electrical	$2,592,000	$2,472,000	$1,484,000	$1,205,000	$1,938,000	$1,205,000	$2,592,000	$2,592,000
Communications	$1,627,000	$567,000	$1,731,000	$758,000	$1,171,000	$567,000	$1,731,000	$1,731,000
Elevator (per unit)	$734,000	n/a	$734,000	n/a	$734,000	$734,000	$734,000	$734,000
Canopy	n/a	n/a	n/a	$2,305,000	$2,305,000	$2,305,000	$2,305,000	$2,305,000
Mob/Demob	10%	4%	8%	3%	6%	3%	10%	10%

The costs noted above are expressed in US dollars, converted from Canadian dollars with an exchange rate of 0.79, and rounded to the nearest thousand dollars.