

## Obstacles to the Interborough Express: The Threshold Issue

By John B. Pegram<sup>1</sup>

The threshold issue for the MTA’s proposed use of Light Rail Vehicles (LRVs) on the Interborough Express (IBX) line is whether running RVs in Metropolitan Avenue is viable. I pointed out some problems in my article “Street-Running LRVs on the Interborough Express Line is a Bad Idea.”<sup>2</sup> [ <https://bqrail.substack.com/p/street-running-lrvs-on-the-interborough> ] Now, I realize that the situation there would be worse than I had expected.

The MTA’s Interim and PEL Reports<sup>3</sup> said only, “operation in the street may affect streetscape conditions, which will be studied in future project phases.” I had hoped and expected to find some sort of traffic study in the reports’ appendices.<sup>4</sup> But those appendices say nothing on this subject. So, I decided to conduct my own, basic study of street-running at Metropolitan Avenue, which is summarized here.

The problems identified here and in my previous article cast serious doubt on the viability of using LRVs on the IBX line. A thorough study of the potential problems should be conducted at the beginning of the recently-started IBX line Environmental Impact Statement study, before other, potentially unnecessary planning for Light Rail takes place.

### The MTA’s Street-Running Plan

The MTA’s principal excuse for selecting a Light Rail mode for the IBX transit line is that a tunnel at Metropolitan Avenue, extending approximately 500 feet under the Northern part of All Faiths Cemetery, is too narrow for separate transit and freight tracks.<sup>5</sup> The MTA’s new tunnel

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<sup>2</sup> Available at <https://bqrail.substack.com/p/street-running-lrvs-on-the-interborough>.

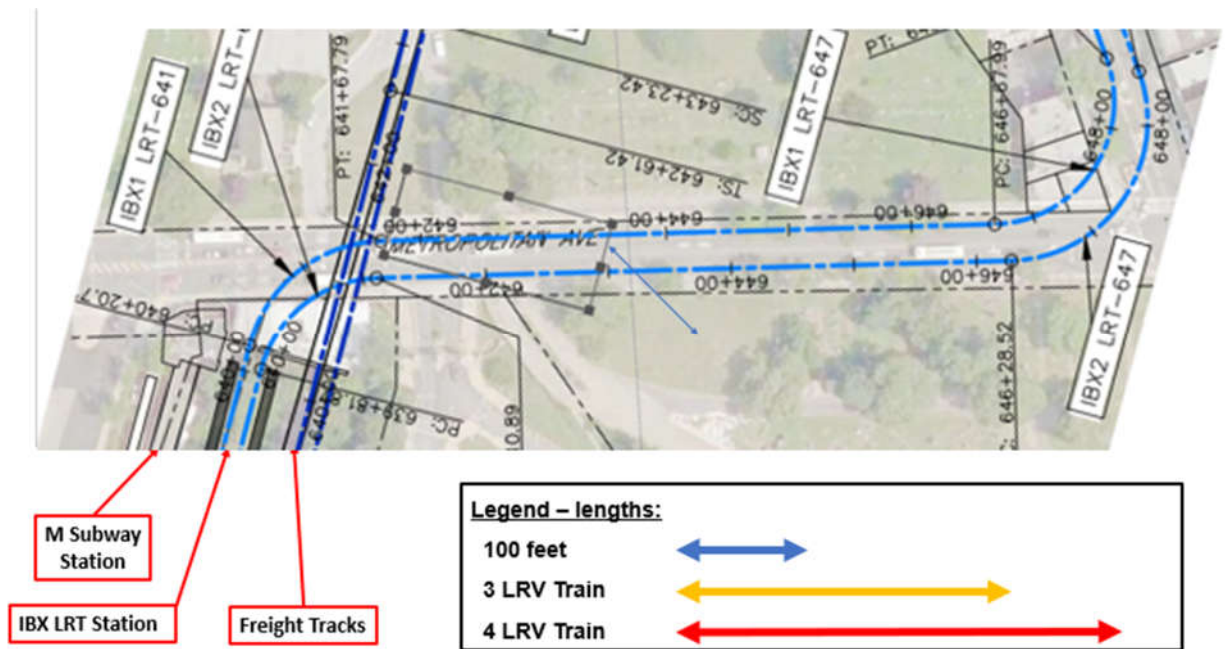
<sup>3</sup> *Interborough Express: Feasibility Study and Alternatives Analysis—Interim Report* (Interim Report) (Jan. 2022), available at <https://new.mta.info/document/72081>; *The Interborough Express: Planning & Environmental Linkages Study* (PEL Report) (Jan. 2023), available at <https://new.mta.info/document/103686>.

<sup>4</sup> I requested those appendices from the MTA in my Freedom of Information Law (FOIL) requests. I have posted Volume 1 of the Interim Report Technical Appendices [here](#). The MTA has posted most of the PEL Report Appendices at <https://new.mta.info/document/114891>.

<sup>5</sup> See, e.g., PEL Report, pp. 3, 17-18, 22-23, 29-30.

concept, which could be used by subway-type railcars, was very expensive.<sup>6</sup> The MTA’s proposed solution is to use Light Rail Vehicles (LRVs) which would “leave the cut of the freight rail corridor and travel along the street for approximately two-thirds of a mile along Metropolitan Avenue, 69 Street, and 69 Place before returning to the corridor after Juniper Boulevard South.”<sup>7</sup>

The biggest problem with this plan is its use of a section of Metropolitan Avenue, shown below in part of an MTA drawing,<sup>8</sup> which I have rotated so North is at the top:



The drawing shows Metropolitan Avenue from the NYC subway “M” line station to its intersection with 69<sup>th</sup> Street. The MTA has indicated its proposed LRV route by light blue dashed lines, turning right onto that street from an IBX station and running along Metropolitan Avenue about 650 feet to a left turn onto 69<sup>th</sup> Street, or *vice versa*. The comparative lengths of 3 LRV and 4 LRV trains is indicated in the Legend, which I have added.

### LRV Train Lengths

<sup>6</sup> See, e.g., PEL Report, p. 24.

<sup>7</sup> *Id.* at p. 18.

<sup>8</sup> LRT Track Plan and Profile, Sheet 24 of 28, PEL Report Appendix, available at <https://new.mta.info/document/114891> (1015/1077) (attached).

I had previously assumed, from the MTA’s published Interim and PEL Reports, that the MTA planned to use trains consisting of two, articulated LRVs, each 90-95 feet long.<sup>9</sup> However, the Interim Report Appendices, recently provided to me, reveal that the MTA has planned to use trains of three such LRVs since at least as early as February 2021.<sup>10</sup> At that time, it predicted weekday ridership of 87,800.<sup>11</sup> Now, however, the MTA predicts a 35% greater daily ridership of 118,700.<sup>12</sup> Presumably, that would require proportionally larger capacity trains, if run at the same frequency. That would indicate a need for four-car LRV trains. (And that would create other problems with the MTA’s plan, because the proposed stations are only long enough for three-car LRV trains).<sup>13</sup>

## **Traffic**

The MTA has proposed running LRVs on the IBX line every five minutes in each direction, a total of 12 trains per hour, at the peak periods of 7-10 am and 4-7 pm.<sup>14</sup> That means—on average—a train would enter Metropolitan Avenue every 2-1/2 minutes, at the times when automobile and bus traffic is busiest.

The New York Department of Transportation (DOT) *Traffic Data Viewer*<sup>15</sup> has reported a combined total average weekday traffic of 21,734 vehicles on this Metropolitan Avenue segment. Average weekday hourly traffic was over 1,000 vehicles from 6 am to 8 pm. For rough comparative purposes, each 3 LRV train is about the length of 14 automobiles (bumper to bumper), and each 4 LRV train is about the length of 19 automobiles. Therefore, with 12 trains

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<sup>9</sup> PEL Report, p. 3 (“Combined with trains that can fit up to 360 people, Light Rail can fully meet demand”).

<sup>10</sup> Interim Report, Appendix 1.8, p. 4; Appendix 1.16, p. 13 (“The LRT alternative was originally envisioned as two-car trainsets. However, after strong ridership projections indicated robust demand, the consist length was increased to three cars.”).

<sup>11</sup> Interim Report, p. 16 (Jan. 2022).

<sup>12</sup> MTA, *20-Year Needs Assessment Appendix*, pp. 208, 220 (Oct. 2023).

<sup>13</sup> See, e.g., PEL Report, Appendix 1.3 Prototypical Station Layouts, pp. 5-6.

<sup>14</sup> PEL Report, Appendix 1.13, p. 6.

<sup>15</sup> <https://gisportalny.dot.ny.gov/portalny/apps/webappviewer/index.html?id=28537cbc8b5941e19cf8e959b16797b4>

per hour in each direction at peak periods, street-running IBX LRVs would add the equivalent of at least 336 to 456 cars per hour to traffic on Metropolitan Avenue.

### **LRV Train Speed**

The MTA reports and their appendices indicate that their point of reference for the Light Rail mode has been NJ Transit's Hudson-Bergen Light Rail line (HBLR).<sup>16</sup> So, I visited and rode on HBLR, and have studied YouTube videos of its operations.

HBLR has only one section of street-running. One track shares a lane of Essex Street with automobile traffic for about four blocks. It is a quiet, straight, one way street, in no way comparable with the wider and busier Metropolitan Avenue, which is a designated local truck route.<sup>17</sup>

I have observed several sharp turns on the HBLR line, both in person and on video. All of them are on the HBLR's private right-of-way and are not shared with automobiles. One of them adjoins the Essex Street station, requiring the LRVs to decelerate or accelerate on the curve when entering or leaving the station, respectively.

Average speeds I have observed at sharp turns on the HBLR were in the range of 5-10 miles per hour. Turning speeds at Metropolitan Avenue probably would be slower, limited by the speed of other vehicles. According to the New York City *Truck Smart Guide*, "A safe left turn is 5 MPH."<sup>18</sup> For those reasons, and because I am informed that Metropolitan Avenue is already congested at peak periods, I have used 5 and 10 mph in my calculations.

### **LRV Time in Metropolitan Avenue**

To consider what percentage of the time the presence of LRVs would affect traffic on Metropolitan Avenue, I first estimated the length of time any part of each such train would be in that street, based on train lengths and the street segment length of approximately 650 feet. The

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<sup>16</sup> See, e.g., PEL Report, Appendix 1.2, p. 15/33 (194/1150).

<sup>17</sup> See 2022 New York City Truck Route Map, available at <https://www.nyc.gov/html/dot/downloads/pdf/map-2022-truck-map.pdf>

<sup>18</sup> New York City Department of Transportation, *Truck Smart Guide: What to Know Before You Go*, p. 11, available at <https://www.nyc.gov/html/dot/downloads/pdf/truck-smart-guide.pdf>.

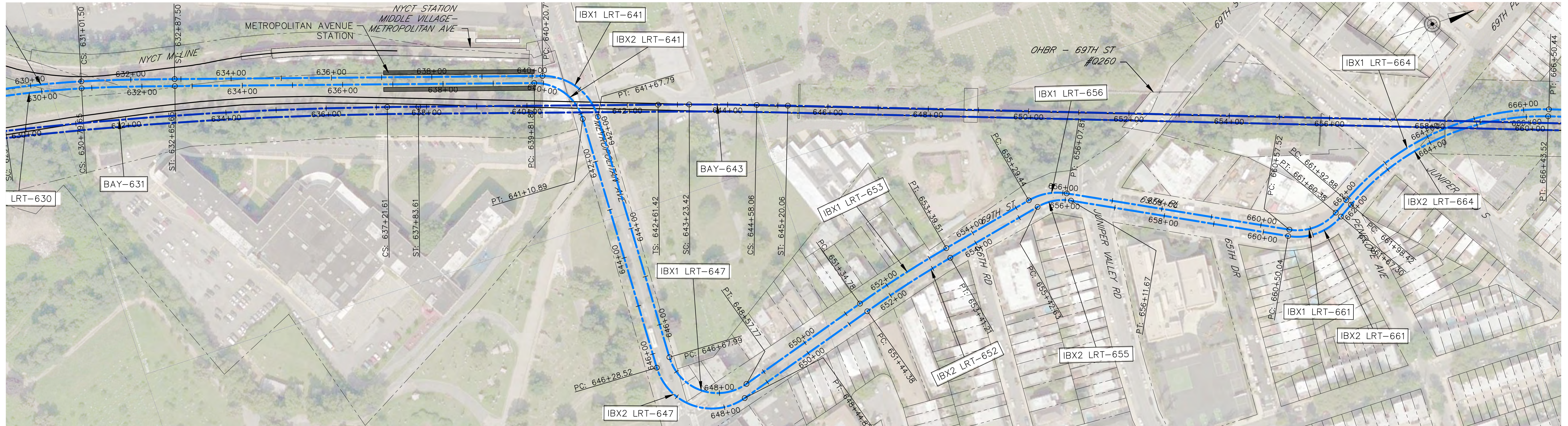
results were between one and 2-1/3 minutes. Given that a train would arrive in Metropolitan Avenue every 2-1/2 minutes (every 5 minutes in each direction), I found that an LRV could be present in that street as often as 88% of the peak periods. See table below:

LRVs in Train	Train Length	Distance to Pass thru Metro. Ave.	Seconds to Pass thru Metro. Ave. @ 10 mph (14.7 fps)	Seconds to Pass thru Metro. Ave. @ 5 mph (7.4 fps)
3	285	935	63.8	127.5
4	380	1,030	70.3	140.5

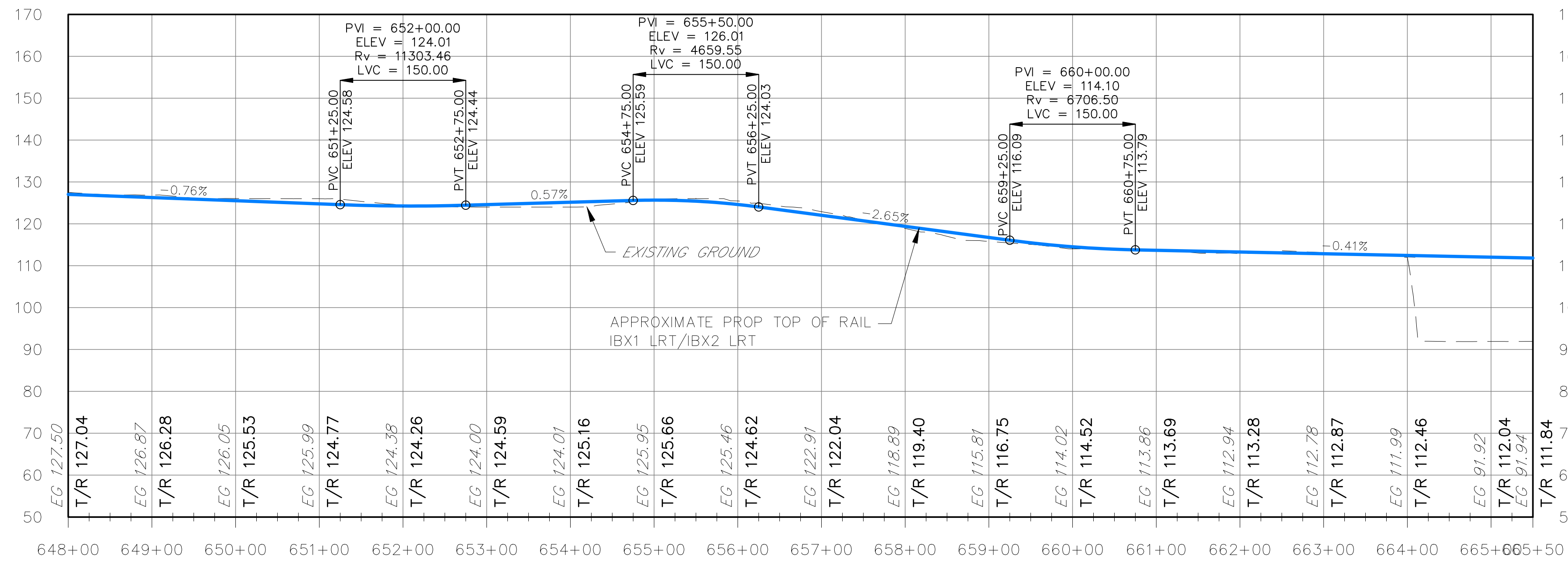
LRVs would have the greatest obstructive effects when making a right turn into Metropolitan Avenue (blocking two lanes) and especially when turning left off of that street (obstructing three lanes). As indicated in the table below, at 5 mph, each such turn would take from 41 to 56 seconds. That is long, especially when compared with a typical 30-second left turn signal period and when considering that other vehicles will also need a time period in which to make a left turn from Metropolitan Avenue onto 69<sup>th</sup> Street.

Cars in Train	Turn (number of lanes obstructed)	Distance (feet)	Seconds obstructing intersection @ 5 mph (7.4 fps)
3	Right (2)	305	41.4
3	Left (3)	320	43.6
4	Right (2)	400	54.4
4	Left (3)	415	56.4

Additional obstructions and delays are likely to be caused by school and MTA buses, school and cemetery traffic, pedestrians and unpredictable acts of vehicle operators, as discussed in my earlier article, identified above.



PROFILE BELOW SHOWS HORIZONTAL ALIGNMENT LIMIT FROM STATION 648+00 TO 665+00



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-641	114.00	35			
IBX1 LRT-647	100.00	35			
IBX1 LRT-653	2,264.00	35			
IBX1 LRT-656	114.00	35			
IBX1 LRT-661	100.00	35			
IBX1 LRT-664	514.00	35			
IBX2 LRT-641	100.00	35			
IBX2 LRT-647	114.00	35			
IBX2 LRT-652	2,250.00	35			
IBX2 LRT-656	100.00	35			
IBX2 LRT-661	114.00	35			
IBX2 LRT-664	500.00	35			
BAY-631	7,640.00	45	62	1.00	0.31
BAY-643	6,251.00	45	62	1.00	0.30

**LEGEND:**

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- - - - - POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION	DESIGNED BY:
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS	JJM
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS	JJM
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS	JJM
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS	JJM
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES	JJM
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY	WVN
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY	WVN

DESIGNED BY: JJM  
 DRAWN BY: JJM  
 CHECKED BY: WVN  
 DATE: NOVEMBER 2022



MTA INTERBOROUGH EXPRESS

LRT  
 TRACK PLAN AND PROFILE

PROJECT NO:  
 DRAWING NO:  
 SCALE: 1" = 100' (H)  
 1" = 20' (V)  
 SHEET NO: **24** OF **28**