



Lorain County | TRANSPORTATION PASSENGER STATION

PHASE I - PLANNING STUDY



December 1, 2014



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Lorain County | TRANSPORTATION PASSENGER STATION

EXECUTIVE SUMMARY / EXISTING CONDITIONS / OPTION 1 / OPTION 2 / PROBABLE COST

EXECUTIVE SUMMARY

Over the past several years, the Lorain County Board of Commissioners has been working with Amtrak, The Norfolk Southern Railroad (NS), the Ohio Department of Transportation (ODOT) and the Federal Transit Administration (FTA) on the concept of bringing Amtrak rail services to the historic Lorain County Transportation and Community Center Facility at 40 East Avenue in Elyria, Ohio.

In April, 2014, the Commissioners entered into an agreement with the design & engineering Team of Richard L. Bowen + Associates Inc. to examine the existing conditions and to make recommendations on how best to construct a new Amtrak station at this location. The Bowen Team is made up of a number of specialists in various fields, all bringing their own unique set of design skills to the project. The Team is comprised of the following firms:

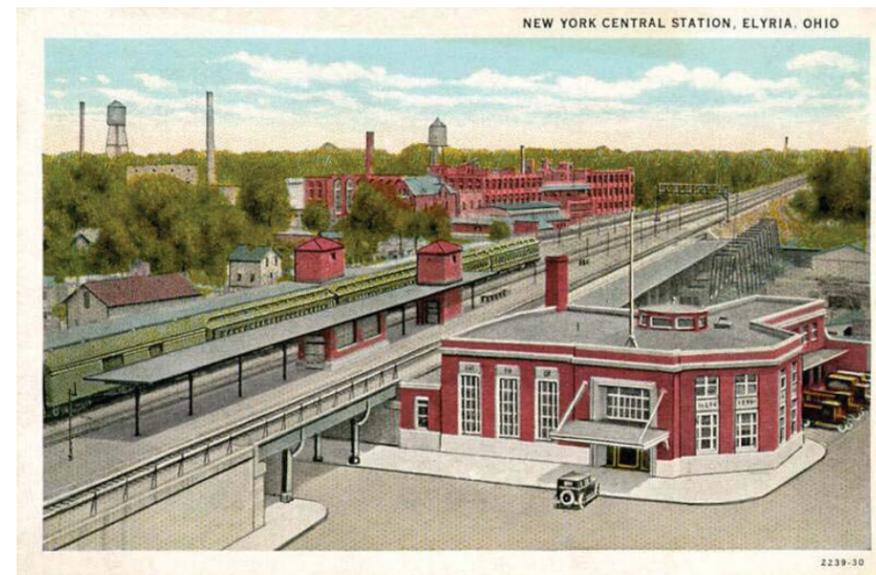
- Richard L. Bowen + Associates Inc. – Architects, Electrical Engineers, HVAC Engineers, Project Managers and Cost Estimators
- Hatch Mott MacDonald, LLC – Tunnel Engineers
- KS Associates Inc. – Site Surveyors, Civil Engineers and Pedestrian Bridge Engineers
- Urban Engineers, Inc. – Structural Engineers
- McKnight Associates, Inc. – Landscape Architects
- Lawhon Associates, Inc. – Environmental and Historic Consultants
- Solar Testing, Inc. – Geotechnical Engineers
- TEK System Designs – Technology Engineers

Currently, passengers gain access to Amtrak rail service at a small station-type facility in an industrial area approximately 1,800 feet to the east of the Transportation and Community Center. This existing station's at-grade crossing configuration (meaning passengers have to walk directly across the tracks) does not meet current design and safety standards for both Amtrak and NS. It requires passengers to cross over the NS mainline tracks to board the Amtrak trains. These mainline tracks carry over 120 trains per day, with some of them traveling over 75mph.

The proposed new location at the Lorain County Transportation and Community Center would provide a safer and more secure environment for Amtrak passengers. The only question is how best to gain direct access to both eastbound and westbound platforms at the elevated track level without having an at-grade crossing? Herein lies the purpose of this study and final report.

BACKGROUND INFORMATION

Elyria's New York Central Railroad Station was officially opened on April 6, 1925, when thousands gathered for a gala open house. Designed by Steward Wagner and Alfred Fellehimer of New York City, the \$250,000 station was considered the finest structure on the Lake Shore Line between Cleveland and Chicago. Key features of the facility included: A two-story octagonal waiting room (70'x80') with marble wainscoting and an ornamental plastered ceiling, a terrazzo floor patterned with strips of brass, a ticket office, a secured baggage area and a news stand and soda fountain at the south end of the lobby. Also built into the design was a 23'x96' passenger tunnel that provided safe and direct access to both of the train platforms. Also included was a smaller, secured freight tunnel with elevators, used by the porters to transport passenger luggage from the terminal up to the trains.



In its zenith, there were 14 westbound trains and 10 eastbound trains traveling through Elyria on a daily basis. The station was an important gateway to the City for the 60,000 passengers using it each year. The heavy usage of railroads continued until the 1950's, when the combination of extensive roadway construction, the convenience of owning an automobile and the emergence of air travel all contributed to the decline of rail transportation. The New York Central Train Depot experienced waning patronage and was ultimately closed in 1955.

The facility was acquired by the County in July of 2000 on behalf of the Lorain County Transit Authority. The intended purpose was to renovate the property to be used as a County Transportation Center. The project was expanded in 2002 with the purchase of the parking lot directly to the east of the building.

By 2010 the facility renovations were completed, and is currently used mostly as a Community Center, with numerous rooms and spaces, including the original grand waiting room, available to rent out for functions. The building also accommodates the offices of the Children and Family Council. The two existing tunnels have been walled off, and are used for County storage. The tunnels do have some water infiltration issues as well. The site is used as a Lorain County Transit and Greyhound Bus transfer point, and the parking is available for use by the building tenants.



PROJECT DESCRIPTION

The specific purpose of this study was to develop two design options for the County, both of which that would allow Amtrak passenger access to the proposed eastbound and westbound platforms without having to cross the two NS mainline tracks at grade. Both options would have to be ADA compliant.

The first option would be to utilize the existing tunnels in some capacity to gain both stair and elevator access to the proposed platforms. This will be referred to as the 'Tunnel Option'.

The second option would be to construct a pedestrian bridge/stair/elevator system that will provide access over the two NS mainline tracks and down to the two proposed platforms. This will be referred to as the 'Bridge Option'.

Both options would share a common design element, which is the proposed passenger platforms for both eastbound and westbound trains. For the purposes of this study, it was agreed upon by all of the stakeholders that the platform elevation would be set at 8" above the top-of-rail. ADA access to the trains would be accommodated by means of a portable lift. Both options have both pros and cons, which will be delineated within the body of this report.

In order to develop these design options, it was critical for the Bowen Team to fully understand the existing conditions of the building and site. To do this a two-day, on-site work session was held (May 6/7, 2014) where the Team performed a comprehensive review and examination of the facility. Thousands of photographs were taken, detailed measurements were done and a careful analysis of the tunnels was performed. At the end of the work session, the Bowen Team met with Karen Davis from the County to discuss its initial findings and thoughts. The Team brainstormed with Ms. Davis on a multitude of potential ideas, and from that meeting developed 5 initial concepts (3 tunnel concepts and 2 bridge concepts). These five concepts were shared with the entire Stakeholder Group, and a WebEx group conference call was held on June 3, 2014. At the conclusion of this meeting, the group had selected one tunnel concept and one bridge concept for the Bowen Team to move forward with and develop further.



Throughout the summer the Bowen Team continued to refine and develop these two options, and in August, 2014 issued plans and diagrams of them both to the Stakeholders for review. On September 11, 2014, a final WebEx group conference call took place. During the course of this meeting, final comments and edits were made to the two options, with the understanding that these comments would be incorporated into this final report.

ACKNOWLEDGEMENTS

This report, and the final conclusion for the two options presented, could not have been completed without the efforts of the following agencies and groups:

- Lorain County Board of Commissioners
- Lorain County Administrator's Office
- Amtrak
- The Norfolk Southern Railroad
- Federal Transportation Administration
- U.S. Department of Transportation
- Ohio Department of Transportation
- The Richard L. Bowen + Associates Inc. Team

DESIGN GUIDELINES AND CODES:

- Ohio Building Code (OBC)
- National Electric Code (NEC)
- Ohio Mechanical Code (OMC)
- Ohio Plumbing Code (OPC)
- National Fire Protection Association (NFPA) 130
- Amtrak – Station Program and Planning Guidelines
- Norfolk Southern Design Criteria

Lorain County | TRANSPORTATION PASSENGER STATION

EXECUTIVE SUMMARY / **EXISTING CONDITIONS** / OPTION 1 / OPTION 2 / PROBABLE COST

EXISTING CONDITIONS

The Lorain County Transportation Center currently has three tracks, two main-line tracks and a siding located on the north. New passenger platforms will be constructed on both the north and south sides of the existing NS mainline rails to provide access to Amtrak for passenger railroad service. Access to these platforms will be either through the existing tunnels within the Transportation and Community Center or through a standalone building with elevator to a pedestrian bridge. Passengers currently gain access to passenger rail service at an at-grade station in an industrial area around 1800 feet to the east of the proposed location. The at-grade station does not meet current standards for Amtrak or NS. It requires passengers to cross over the mainline NS tracks which carry over 120 trains per day with some traveling at speeds of 79 mph. The proposed location provides a more secure environment for passengers along with safer grade separate passenger access.

The existing side by side station tunnels are approximately 76 feet long and 14 and 21 feet wide, for the freight and passenger tunnels, respectively. The tunnel construction consists of concrete gravity walls, a common concrete center support pier, a concrete slab on grade floor, and a steel roof. The existing Station Building construction record plans include limited details of the tunnel construction. All information on the tunnel structures has been taken from the existing Station Building drawings, a Lidar scan survey by KS Associates and field measurements by Hatch Mott MacDonald engineers.

The roof of the tunnels consists of structural steel beams with a steel deck plate spanning between a common center wall that separates the tunnels, and gravity retaining walls on the each side of the tunnels.

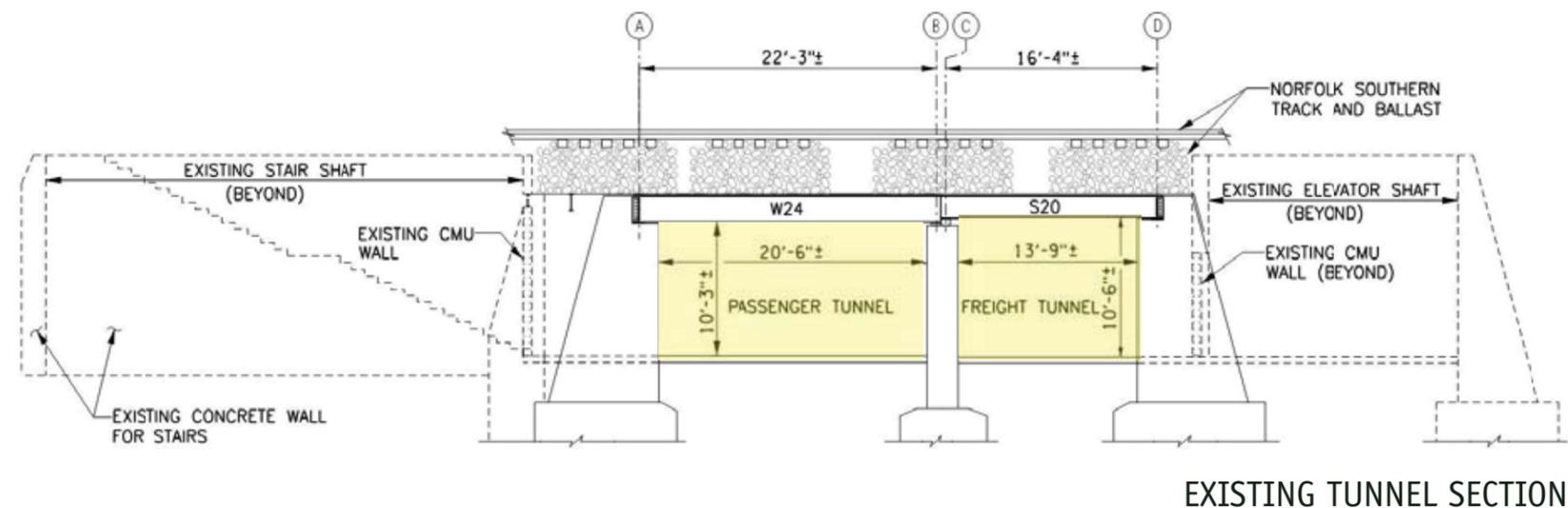
The roof is composed of closely spaced steel beams, also known as stringers, spanning in an east west direction between the concrete walls. The stringers support a steel deck plate which is secured to the stringer top flanges with riveted clip plates. The stringers vary in size (15, 20 or 24 inches in height) and spacing (15 to 33 inch spacing) with the heavier stringers located below the tracks and the lighter stringers located below the platform areas. There are riveted built up steel cross girders that support the ends of the stringers at the tunnel shaft connections. Based on the typical construction details of the era, it is expected that the steel roof deck is protected with an asphalt impregnated built up waterproofing membrane with a brick protection layer.

The pedestrian tunnel has two stair shafts, one for each of the two platforms. The freight tunnel has two elevator shafts, one for each of the two platforms. The stairways and elevator shafts are presumed to be made up of gravity retaining walls around their perimeter.

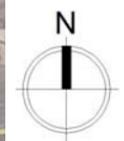
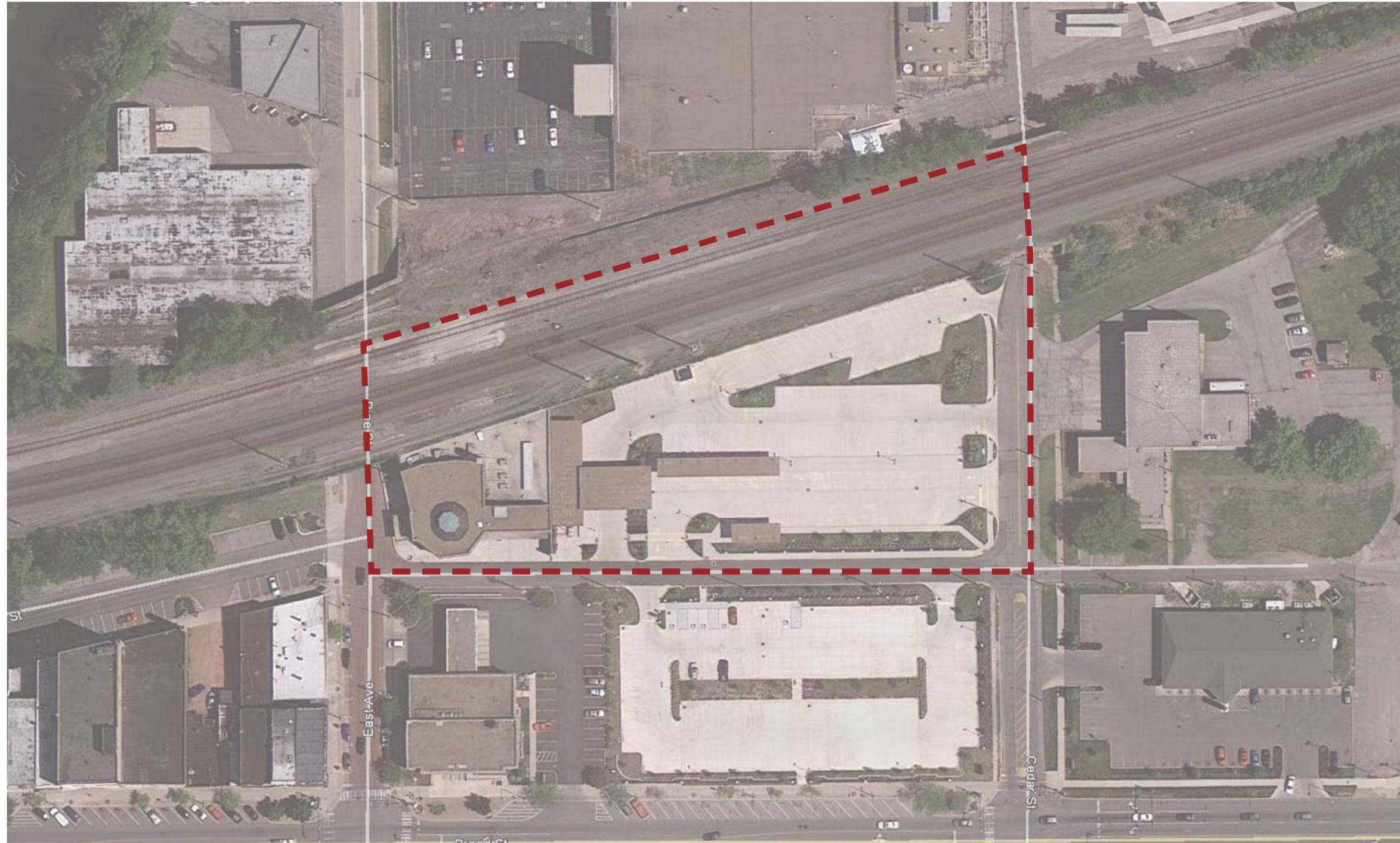
The tunnels carry two active tracks with about 3.5 feet of cover between the top of the roof deck and the bottom of the ties. The tracks are skewed slightly to the tunnel centerline, with skews between about one to one and a half degrees. This skew has caused the track centerline to be slightly offset from the center of some of the stringer groups below the tracks. The track spacing at the tunnel varies between 13'-2" and 13'-4" from the east wall of the tunnel to the west wall. The tracks appear to be in a spiral curve (to the right when facing west) with rail superelevation of approximately 0.10 foot.

The two tunnels are moderately humid, with water and silt infiltrating into them, which has collected on the floor in places. This infiltration appears to be through the interface between the steel ballast deck and the top of the concrete walls. The infiltration appears to be more prominent in the freight tunnel, but was encountered in the passenger tunnel as well (see Figure 2 below).

The general humidity has resulted in minor surface rust on the steel deck plates. The steel stringers generally had areas with both intact paint and light rusting, except at one location with severe corrosion that is discussed separately. Section losses to the steel members were generally negligible, except at the ends of the stringers adjacent to the bearings where corrosion losses of about 5% on vertical surfaces, and perhaps up to 10% on horizontal surfaces, are estimated. The north platform in the passenger tunnel includes a penetration for a vent in its original framing opening down into the tunnel. When this platform was abandoned, the penetration was not sealed effectively. There is considerable water intrusion here, and the surrounding steel members are severely corroded. The concrete walls appeared to be in good condition with only minor staining and spalling observed.



SITE AERIAL



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In the Tunnel option, masonry infill at the openings to the existing elevator shafts in the freight tunnel will be removed to accommodate stairs to the new platforms.



Excessive corrosion of existing beams at the north end of the passenger tunnel will require some framing to be replaced.



The concrete slab and trench drain at the south end of the freight tunnel will be removed and replaced with a ramped surface to accommodate the change in floor elevation between tunnel and lobby corridor.



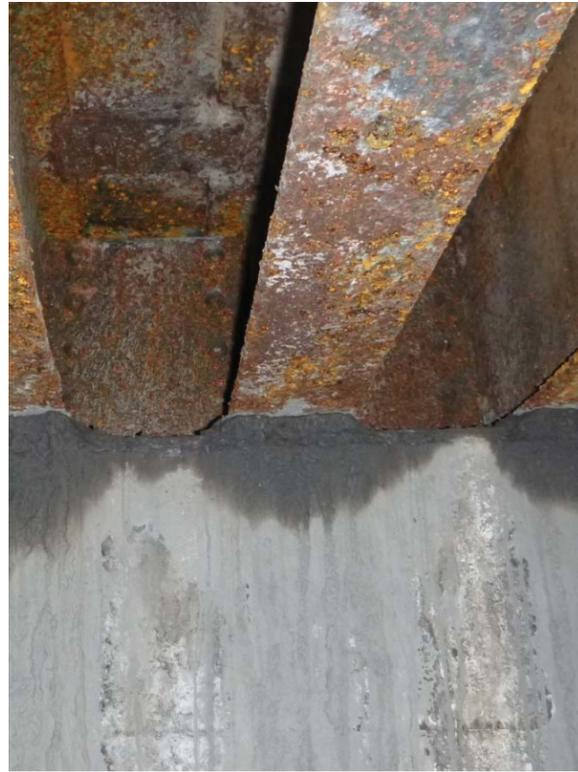
Little work is anticipated in the existing lobby area.



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Water and silt infiltration occurring at the top of the concrete walls in both the passenger and freight tunnels.



In the Tunnel option, the existing NE Transportation Center entrance will serve as the main entrance to the train platforms. In the Bridge option, an extension of the existing canopy would provide a covered connection from the Transportation Center to the new bridge entrance at the vertical circulation tower.



Design options need to account for a possible future NS track South of the existing main line.



Design of the new canopies on the train platforms will mimic the existing bus canopies on site.



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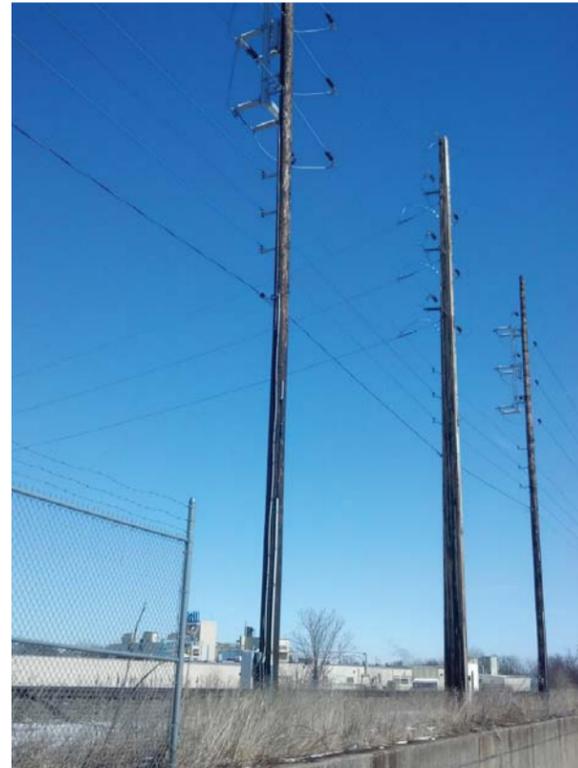
The tracks curve just to the West of the Transportation Center preventing expansion of the proposed platforms in that direction.



In both options, a new secure stair will need to be constructed near the Cedar Rd. overpass to provide a second means of egress at the East end of the platforms.



The lower communication and power distribution lines along the South side of the tracks will need to be relocated underground to allow for construction of a new pedestrian bridge. The poles and upper transmission lines will remain.



Portions of foundation walls from the original platforms are visible alongside the tracks. New platforms will be constructed in the same general location.



Lorain County | TRANSPORTATION PASSENGER STATION

EXECUTIVE SUMMARY / EXISTING CONDITIONS / **OPTION 1** / OPTION 2 / PROBABLE COST



TUNNEL OPTION :

The final tunnel option selected consists of the following items:

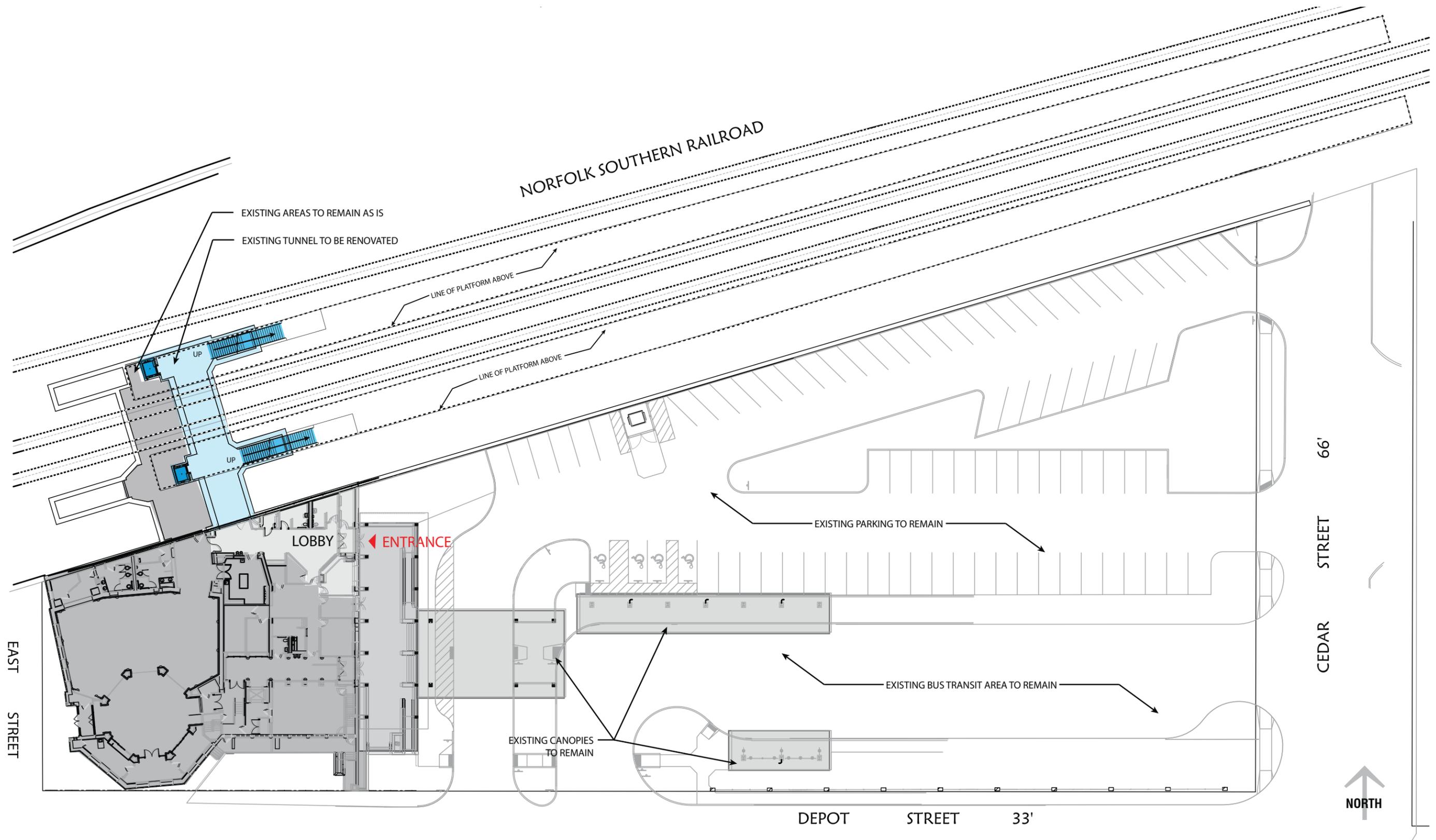
- The rehabilitation of the existing freight tunnel for use as a new passenger tunnel.
- Rehabilitation of the adjacent existing passenger tunnel.
- Construction of new elevator shafts in the existing passenger tunnel
- The conversion of the existing elevator shaft to a stair shaft.

The rehabilitation of the existing tunnels consists of the following work items:

- Existing structural steel will be cleaned and painted.
- Replacement of the structure steel beams and roof deck in the areas at the north end of the passenger tunnel that exhibit severe corrosion.
- The existing center wall will have openings cut for the future elevators.

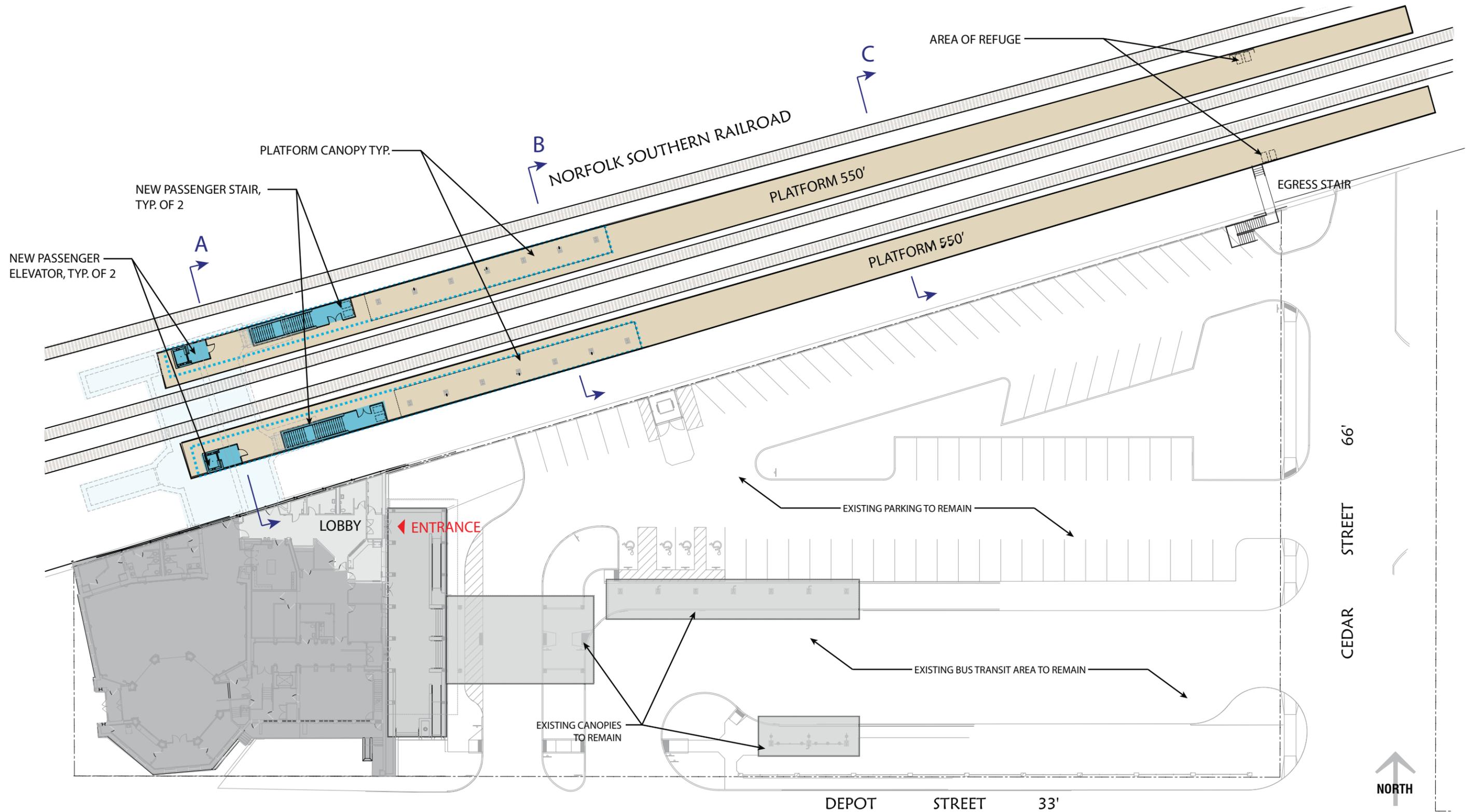
This is expected require new stringer supports and the addition of micropiles to support the adjacent foundation .

- The existing freight elevator shafts will be modified and extended to provide for new stairways.
- The existing waterproofing will be replaced below the platform areas and repaired using chemical grouts in areas below the below the trackbeds.
- An underdrainage system will be added behind the abutment backwalls below the trackbeds in order to eliminate water pressure at the deck to abutment joint.



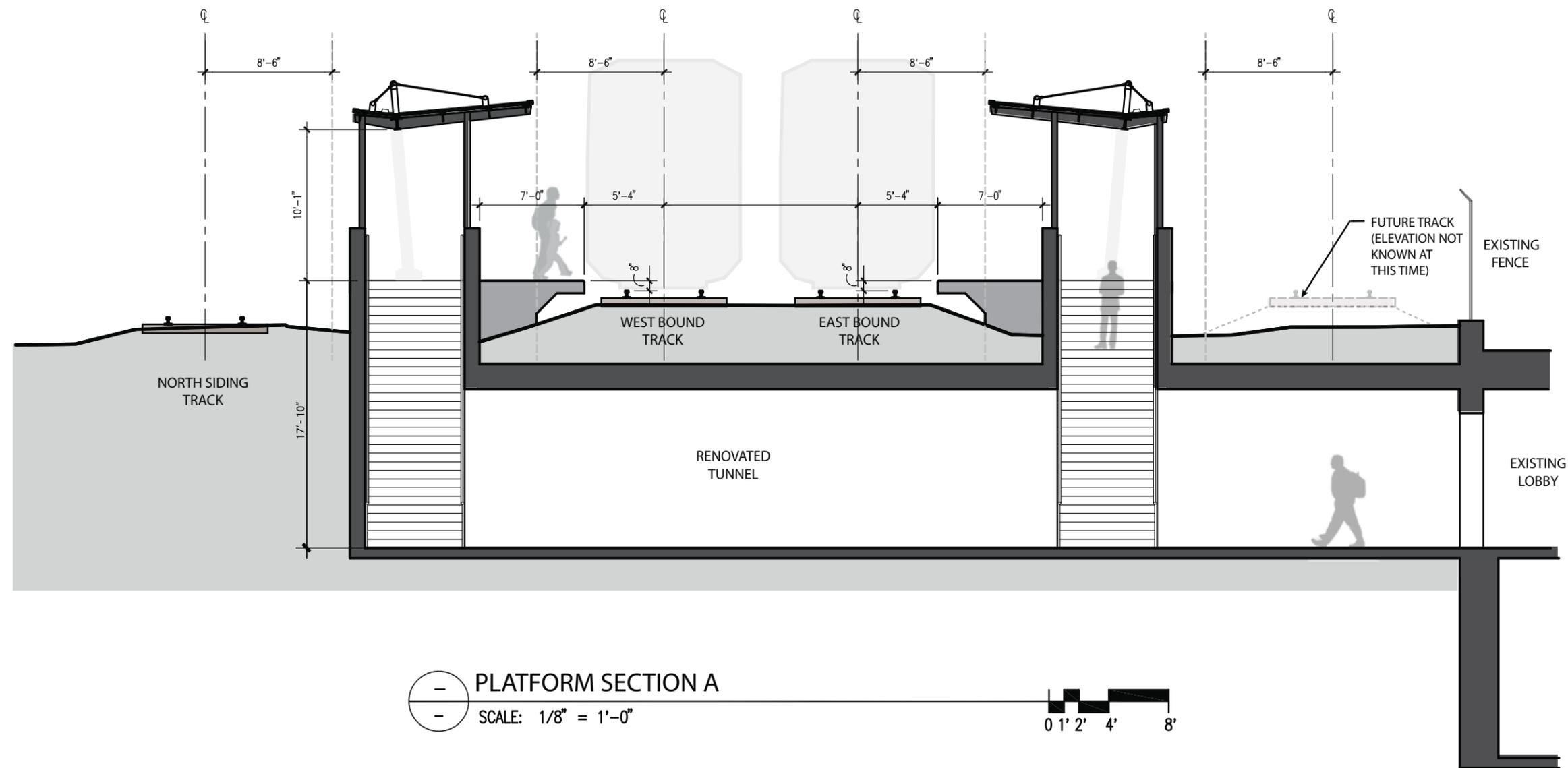
Lorain County | TRANSPORTATION PASSENGER STATION





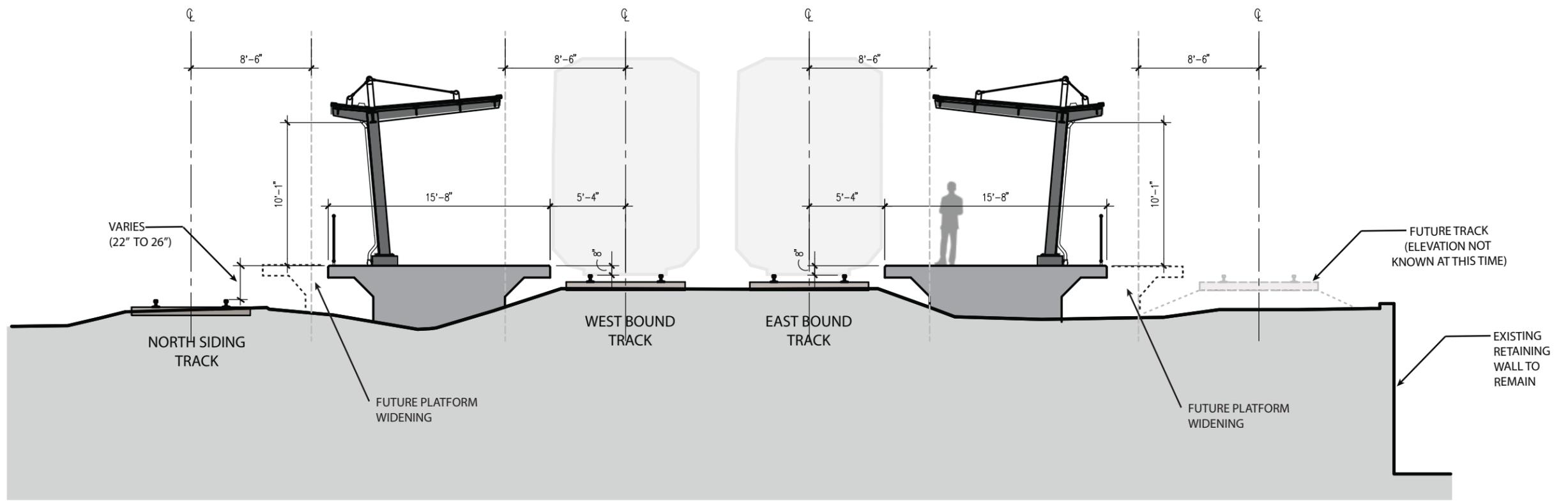
Lorain County | TRANSPORTATION PASSENGER STATION

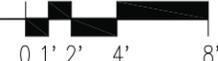


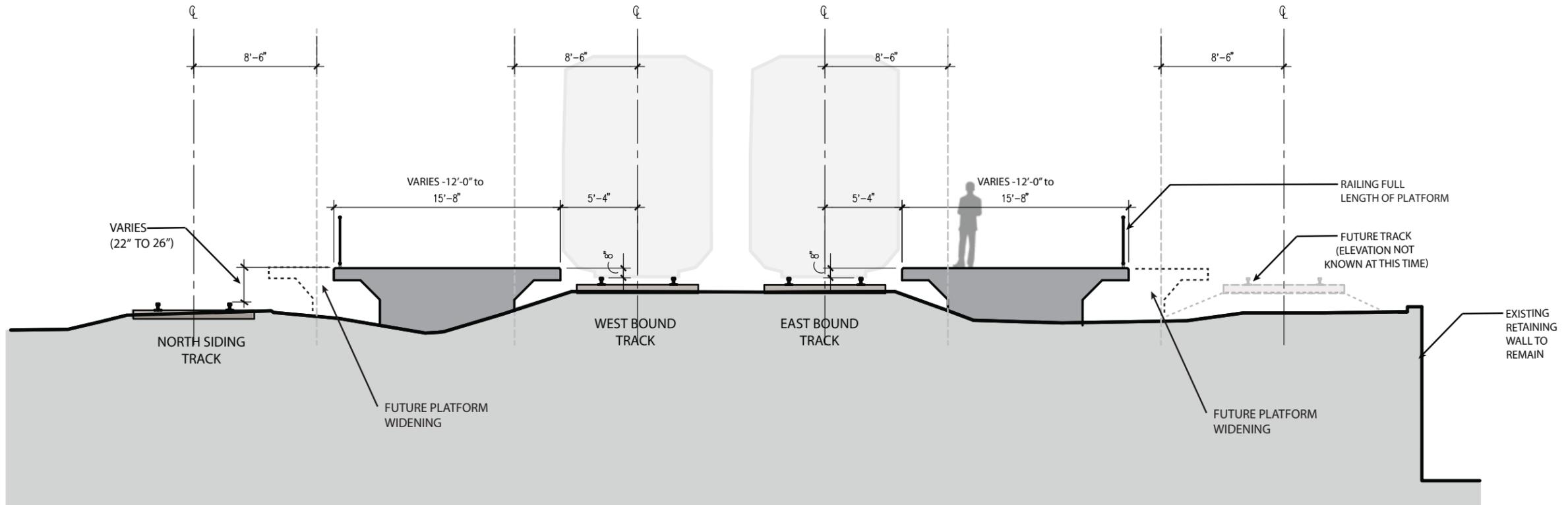


Lorain County | TRANSPORTATION PASSENGER STATION





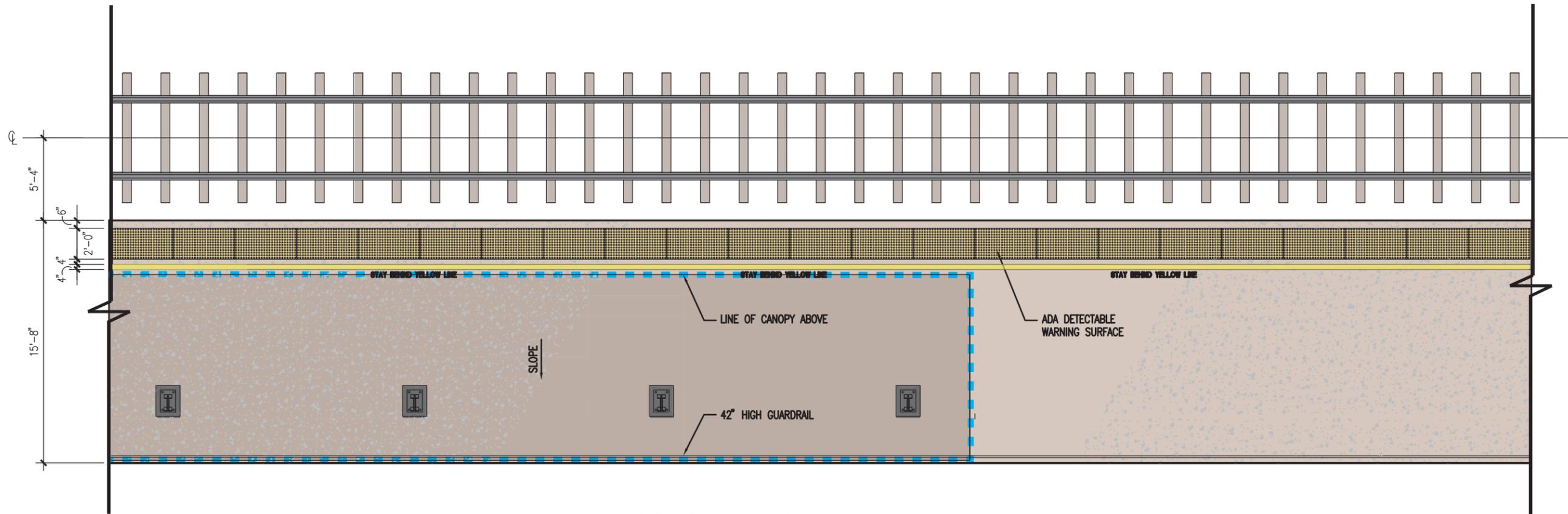

PLATFORM SECTION B
 SCALE: 1/8" = 1'-0"




PLATFORM SECTION C
 SCALE: 1/8" = 1'-0"
 0 1' 2' 4' 8'

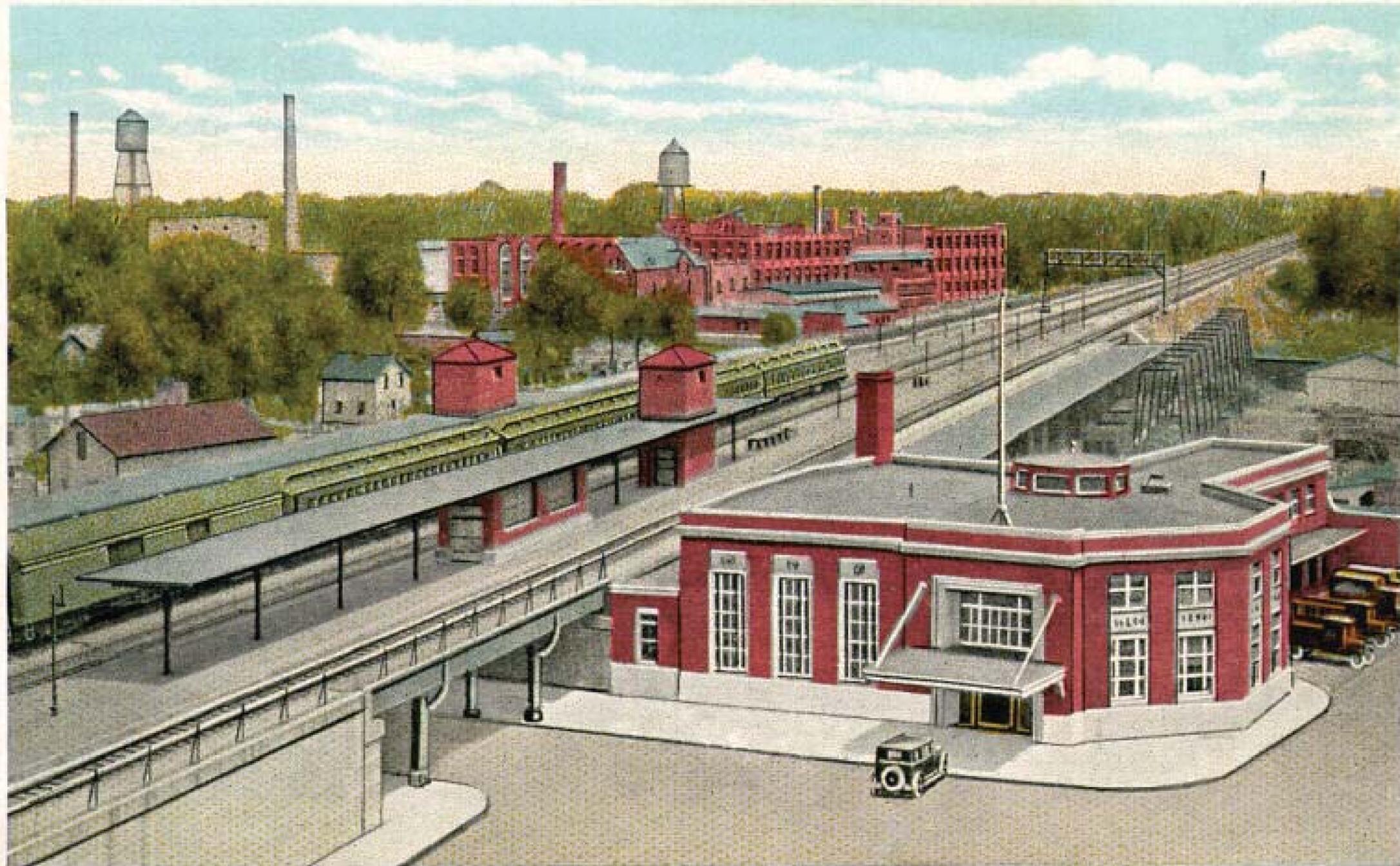
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○ PARTIAL PLATFORM PLAN
 - SCALE: 1/8" = 1'-0"

NEW YORK CENTRAL STATION, ELYRIA, OHIO



2239-30

Lorain County | TRANSPORTATION PASSENGER STATION



VINTAGE POSTCARD OF TRANSPORTATION CENTER



Lorain County | TRANSPORTATION PASSENGER STATION





Lorain County | TRANSPORTATION PASSENGER STATION





Lorain County | TRANSPORTATION PASSENGER STATION





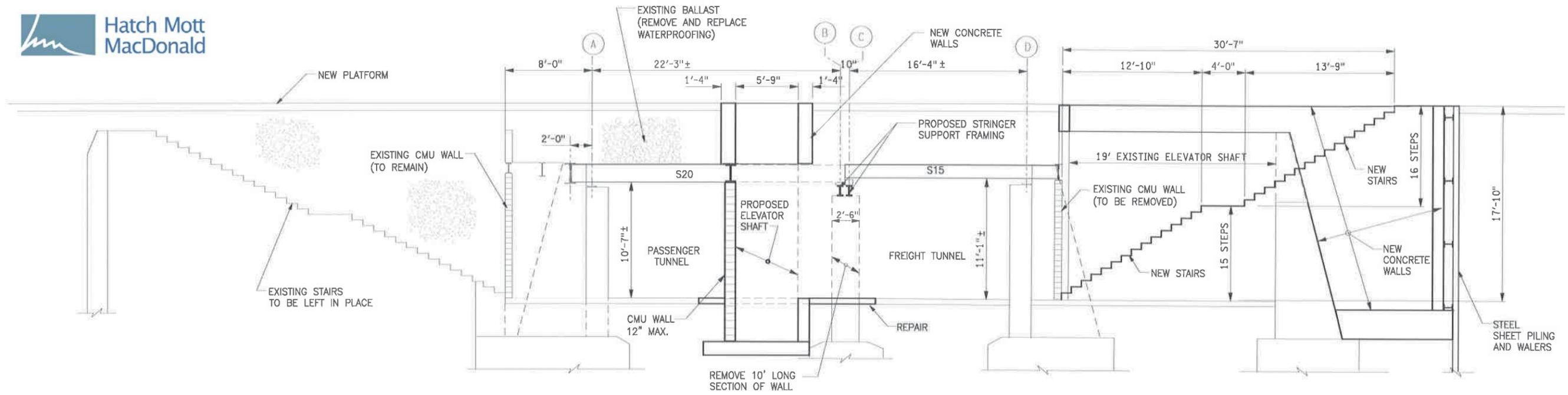
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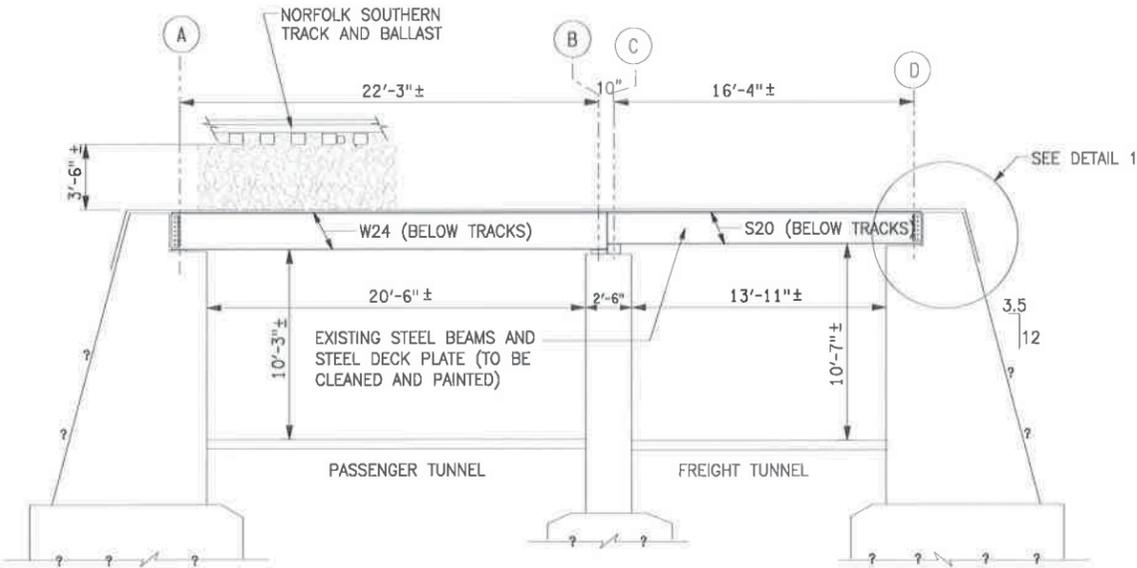


Lorain County | TRANSPORTATION PASSENGER STATION

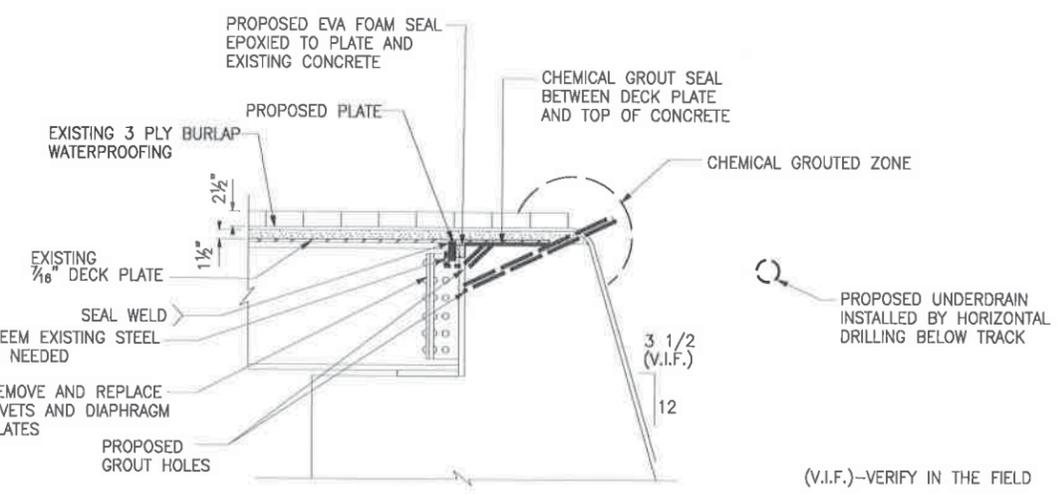




1 PROPOSED TUNNEL SCHEME B-TRANSVERSE SECTION
SCALE: 1"=10'-0" (AT SOUTH PLATFORM - LOOKING NORTH)



TRANSVERSE SECTION
SCALE: 1"=10'-0" (LOOKING NORTH)



DETAIL 1
PROPOSED BACKWALL WATERPROOFING
SCALE: N.T.S.

NOTES:
1. DETAILS OF EXISTING WATERPROOFING ARE ASSUMED AND WILL BE CONFIRMED DURING CONSTRUCTION WITH EXCAVATIONS IN THE PLATFORM AREA.

Lorain County | TRANSPORTATION PASSENGER STATION

EXECUTIVE SUMMARY / EXISTING CONDITIONS / OPTION 1 / **OPTION 2** / PROBABLE COST



BRIDGE OPTION :

Considerations:

Safety – Passengers can wait for their train on the pedestrian bridge, physically separated from the freight trains. Once the passenger train has arrived and stopped, passengers can then proceed to the platform.

Reassurance- Departing passengers will be able to see if other people are on the bridge before they leave their cars, and arriving passengers will be able to see if their vehicle or transportation is in the parking lot prior to leaving the facility. Additionally, Amtrak Personnel and Elyria Safety Forces can easily observe the walkway and or parking lot from either location. This is an important feature since the arrival and departure times for Amtrak at this station vary between 1 am and 5 am.

Independent Utility- The pedestrian bridge option can allow Amtrak to operate the facility independently of the Transportation and Community Center if desired in the future.

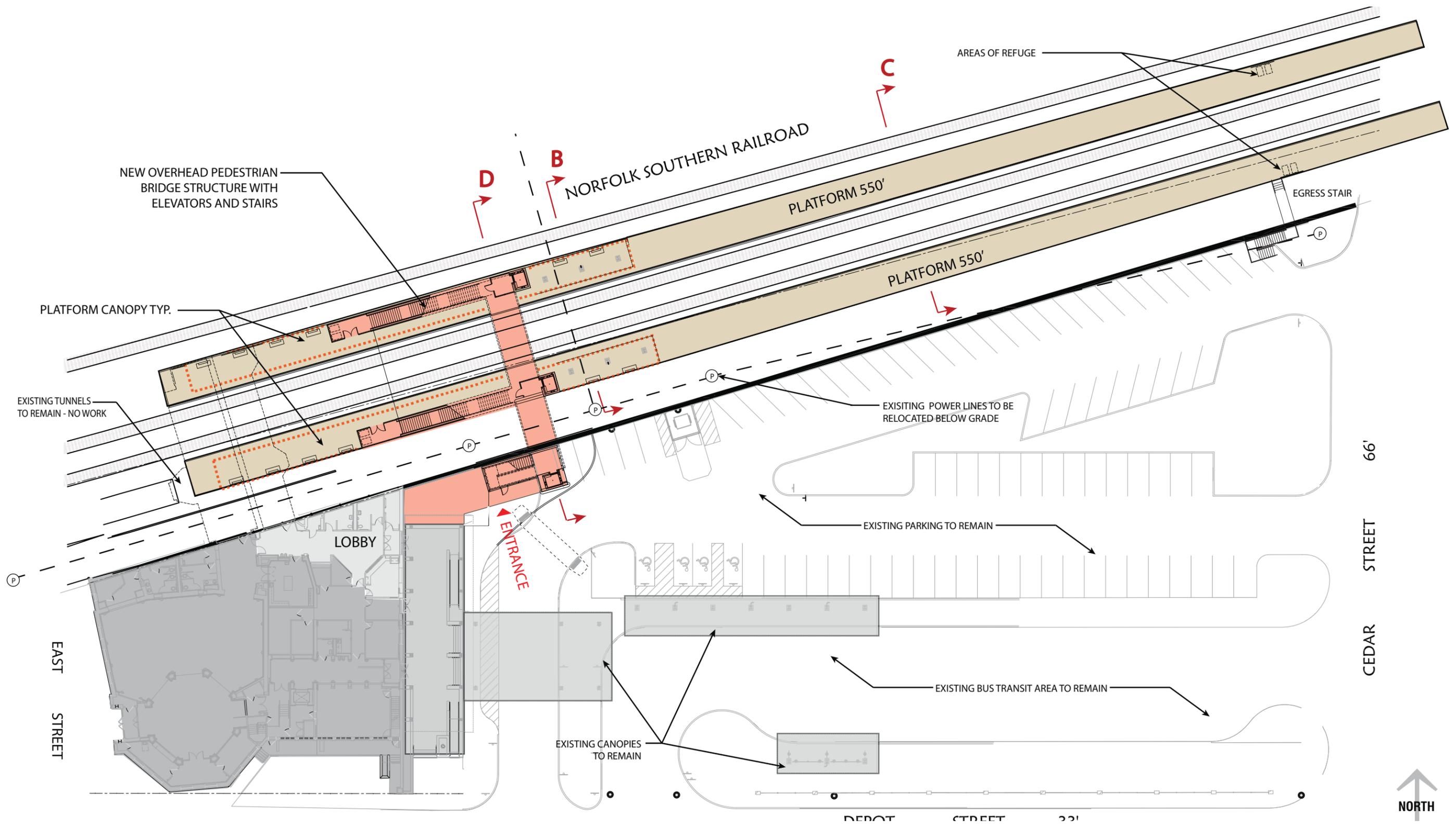
Visibility- The pedestrian bridge option provides a visible sign of new infrastructure to the public announcing that the station is open and accessible to business.

Disruption to NS mainline – Less excavation work adjacent to the NS mainline track. The preferred alternative only requires excavation adjacent to south mainline track, and can be constructed without disruption to NS service.

Drainage- Since the structure is above ground, the existing drainage system can accommodate the drainage without modification to the existing system.

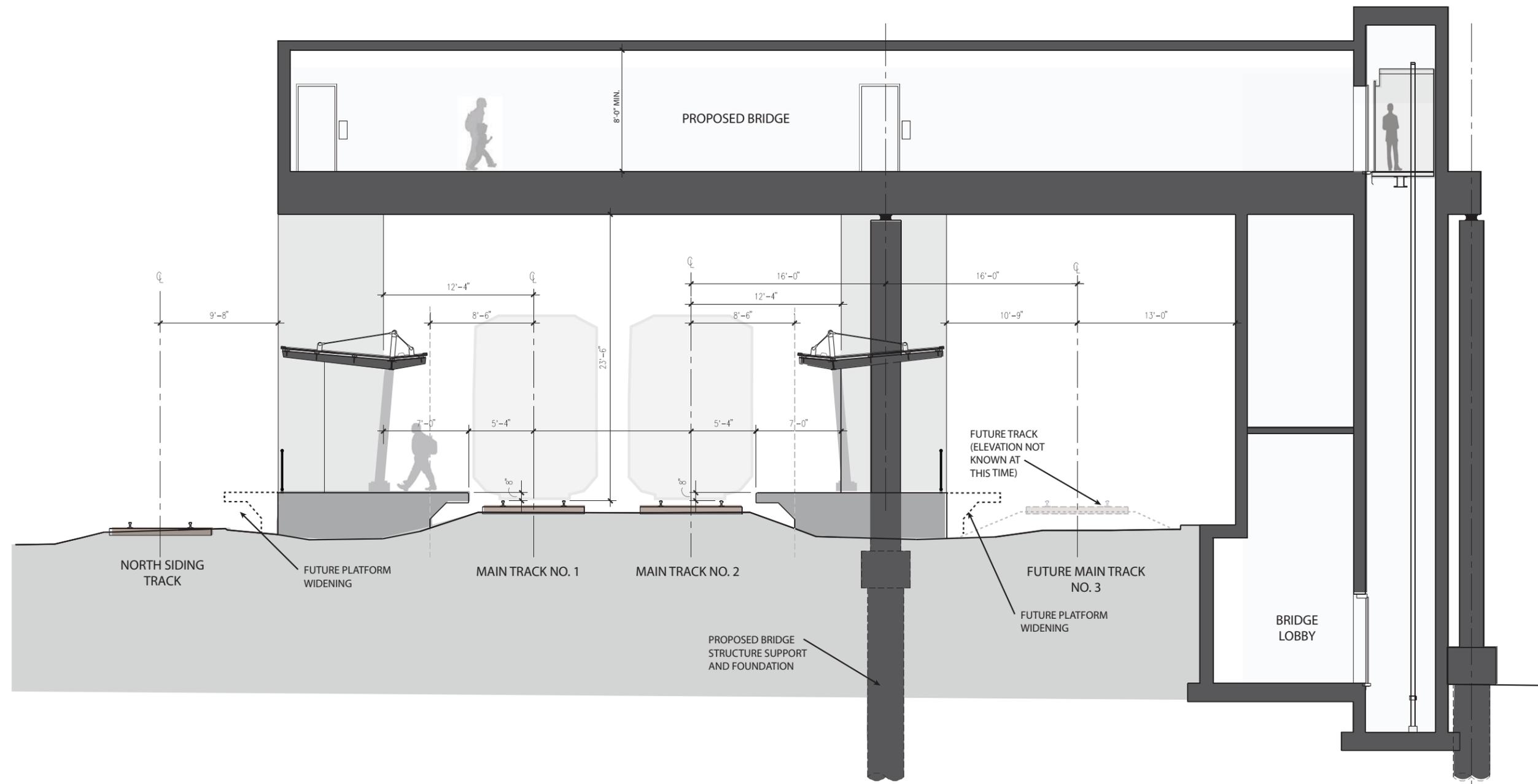
Utilities – There are multiple electric transmission lines and distribution lines the pedestrian bridge will have to avoid during construction. Three to four distribution lines will have to be relocated. There are multiple telecommunication lines that will have to be avoided and one line in particular will have to be supported during construction of the bridge pier.

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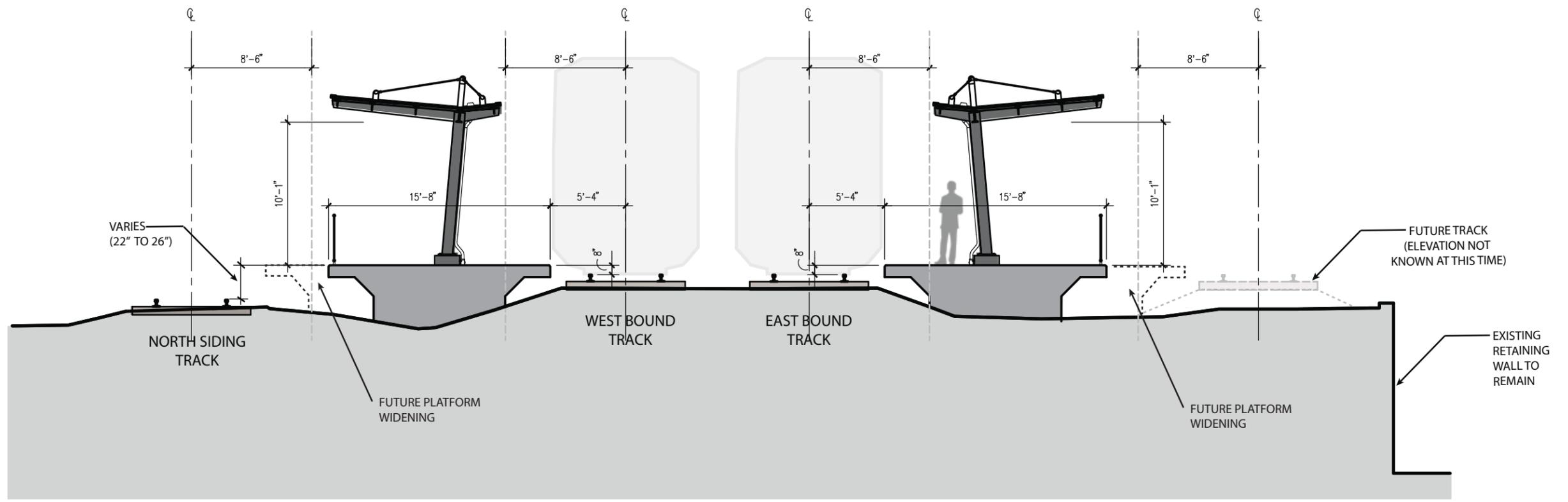
Lorain County | TRANSPORTATION PASSENGER STATION



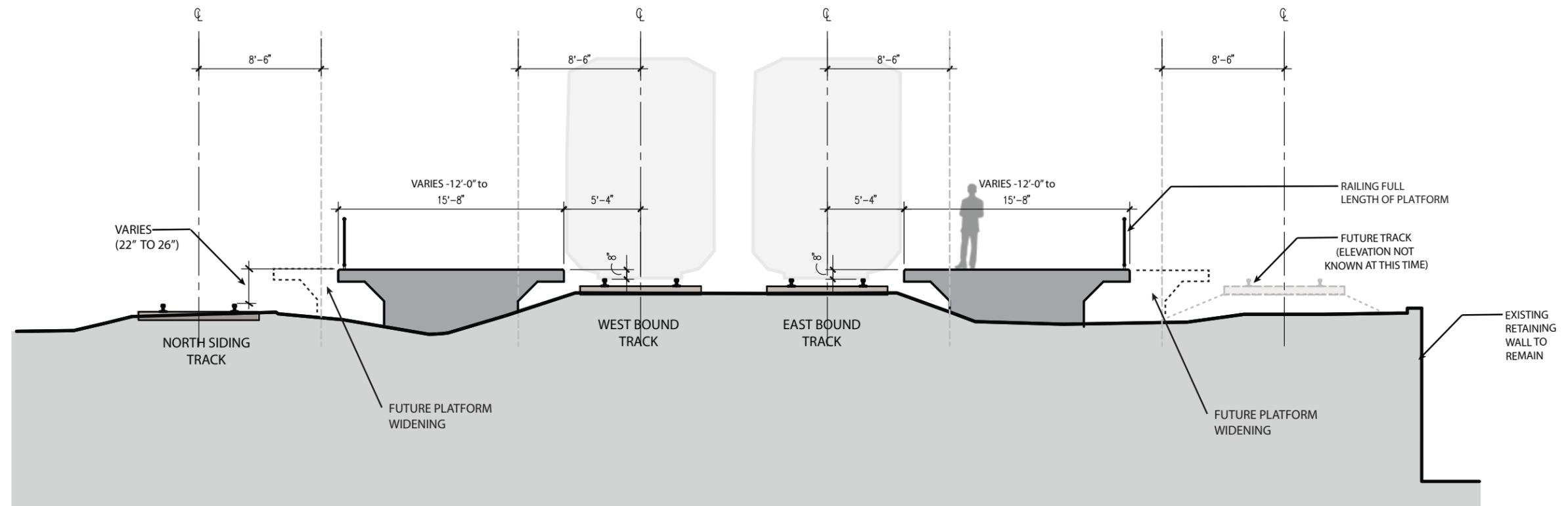


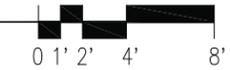
— PLATFORM SECTION D
 — SCALE: 1/8" = 1'-0"

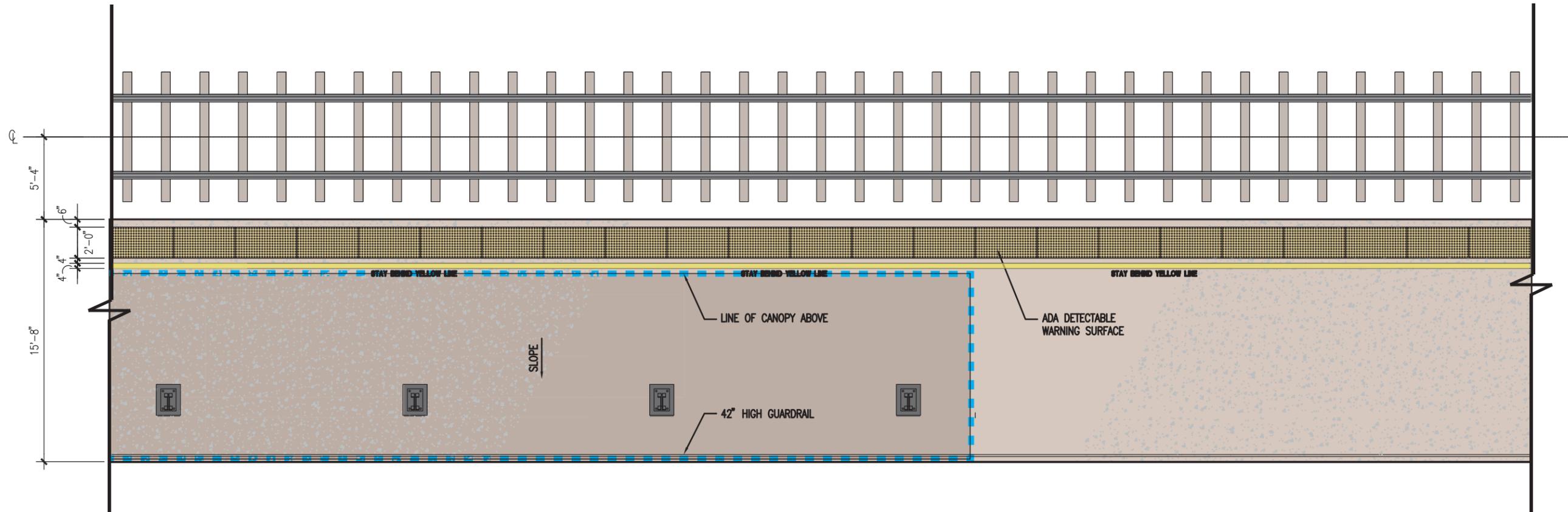




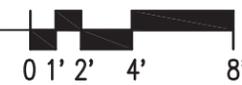
PLATFORM SECTION B
 SCALE: 1/8" = 1'-0"



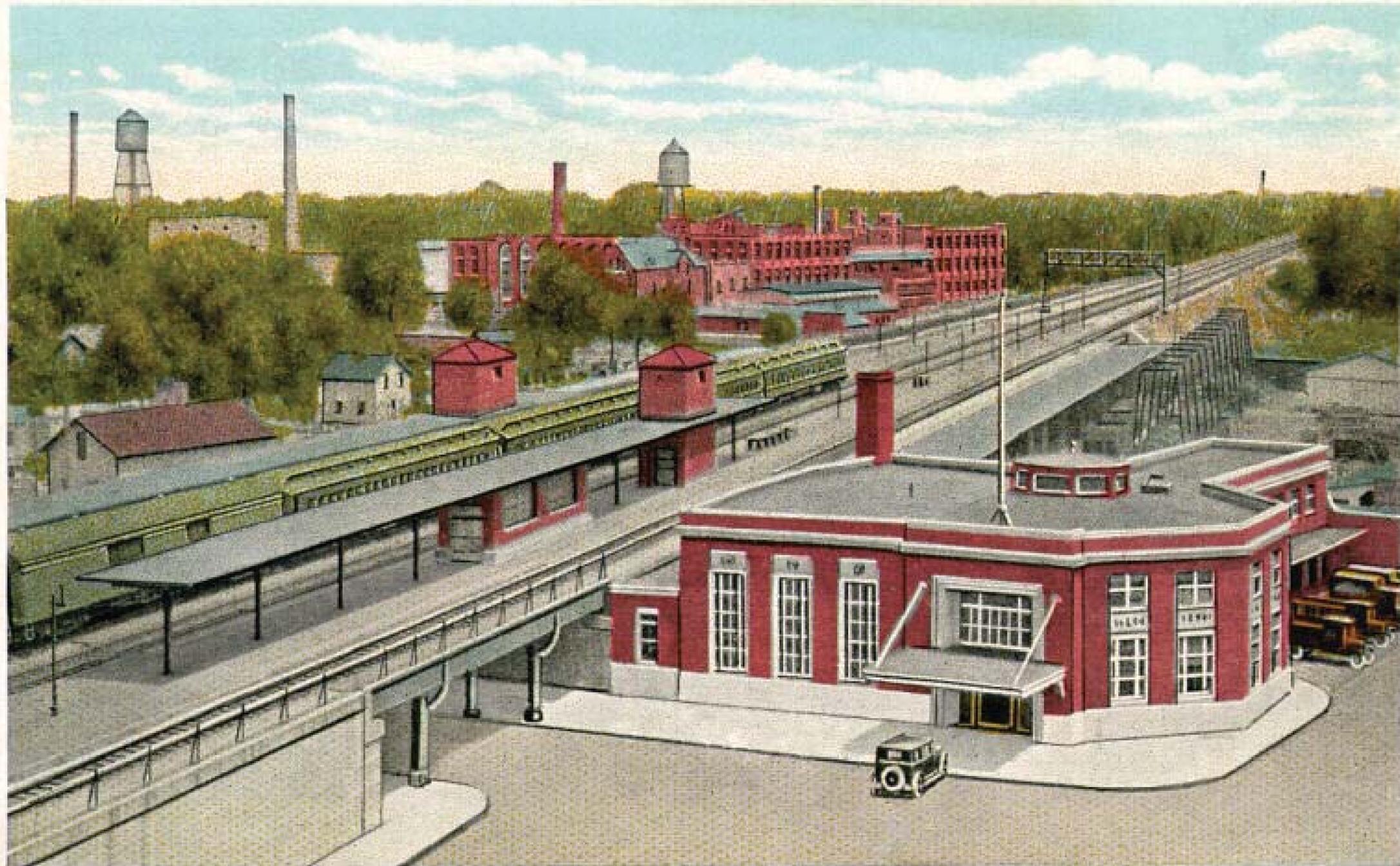

PLATFORM SECTION C
 SCALE: 1/8" = 1'-0"




○ PARTIAL PLATFORM PLAN
 ○ SCALE: 1/8" = 1'-0"



NEW YORK CENTRAL STATION, ELYRIA, OHIO



2239-30

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VINTAGE POSTCARD OF TRANSPORTAION CENTER



Lorain County | TRANSPORTATION PASSENGER STATION





Lorain County | TRANSPORTATION PASSENGER STATION





Lorain County | TRANSPORTATION PASSENGER STATION





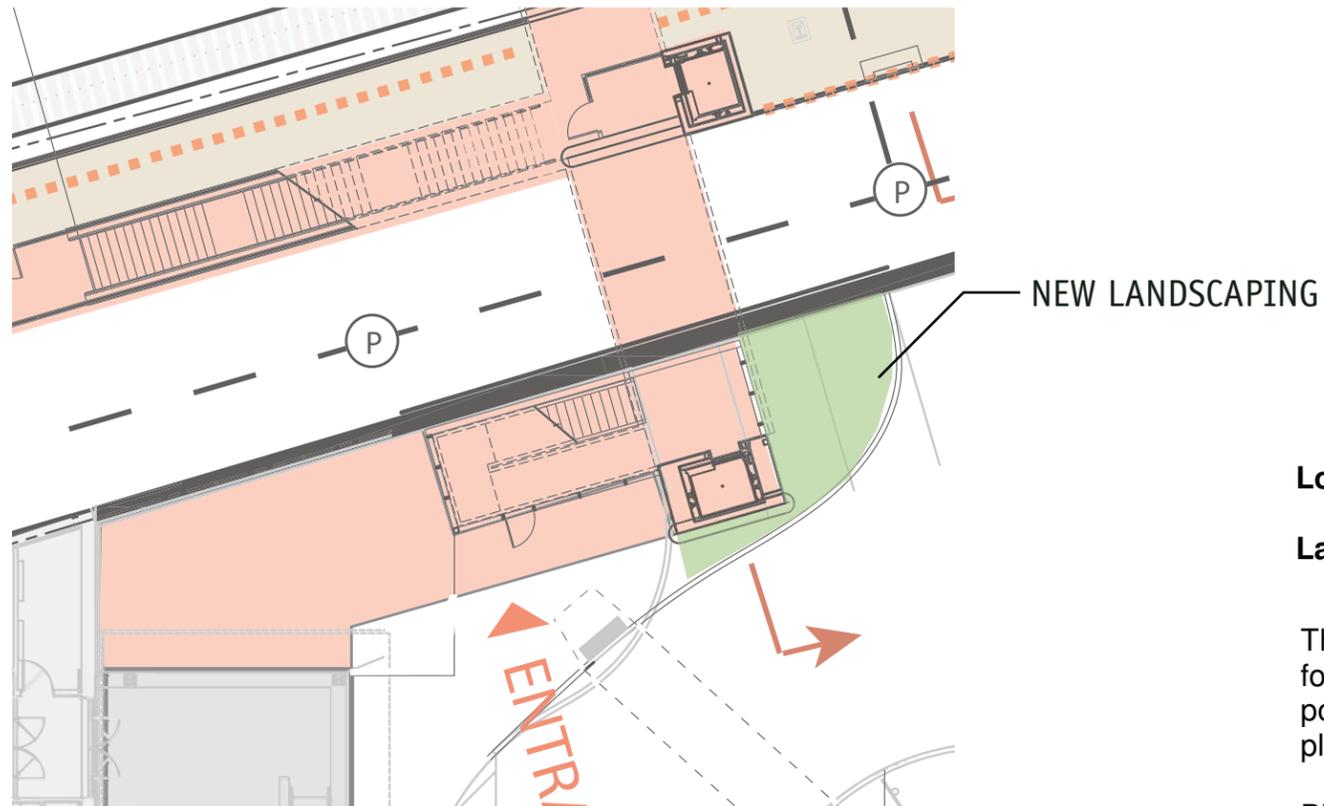
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Lorain County | TRANSPORTATION PASSENGER STATION





Lorain County Transportation Passenger Station

Landscape Character

The recent renovation of the Elyria Station and Depot and Center Street Parking area formulates a landscape character featuring naturalized plantings found in the north central portion of Ohio. The enhancements to the entrance to the station will be compatible with the plant palette already in place.

Plantings will be selected to respond to the architecture of the entry addition, provide accents while allowing good visibility and year round interest. Selections will be hardy and drought tolerant. Below find a sampling of the plantings for consideration:



Lorain County | TRANSPORTATION PASSENGER STATION

EXECUTIVE SUMMARY / EXISTING CONDITIONS / OPTION 1 / OPTION 2 / **PROBABLE COST**



Div	Construction	Unit	Qty	Unit Cost	Probable Cost	Comments
3	Concrete				\$ 2,853,989	
	<i>Platform</i>					
	Precast concrete footers	SF	2,113	\$ 557.00	\$ 1,176,941	Past transportation project ref data
	Precast concrete fnd. Columns	LF	208	\$ 468.00	\$ 97,344	Past transportation project ref data
	Precast slab	SF	15,400	\$ 87.52	\$ 1,347,808	Past transportation project ref data
	Platform Storm Drainage System	LF	1,000	\$ 50.00	\$ 50,000	
	Precast footers for elevator shafts	SF	180	\$ 162.00	\$ 29,160	Past transportation project ref data
	Precast walls for elevator shafts	SF	2,064	\$ 74.00	\$ 152,736	Past transportation project ref data
4	Masonry				\$ 63,744	
	Elevator shaft above grade	SF	808	\$ 32.00	\$ 25,856	Past ref data
	Stair enclosure	SF	1,184	\$ 32.00	\$ 37,888	Past ref data
5	Metals				\$ 155,172	
	<i>Emergency Egress Stairs</i>					
	Metal pan stairs with handrail	RISERS	23	\$ 622.00	\$ 14,306	Past ref data
	Landings	EA	3	\$ 622.00	\$ 1,866	Past ref data
	Fencing and Gate	EA	1	\$ 3,000.00	\$ 3,000	Estimate
	<i>Other</i>					
	Handrail at tunnel stairs	LS	1	\$ 8,000.00	\$ 8,000	
	Guardrail at Platforms	LF	475	\$ 200.00	\$ 95,000	
	Detectable Warning Tiles at Platforms	LF	550	\$ 60.00	\$ 33,000	
5,7,26	Canopy				\$ 241,609	
	<i>Canopy over Stairs/Elev Lobby</i>					
	Structural package-beams, columns, purlins, fabrication and erection	LS	1	\$ 109,337.00	\$ 109,337	Past transportation project ref data
	Prefinished insulated metal roof panels and sheet metal coping	LS	1	\$ 115,145.00	\$ 115,145	Past transportation project ref data
	Ceiling mounted lighting, conduit, wire, devices	LS	1	\$ 17,127.00	\$ 17,127	Past transportation project ref data
5,7,26	Canopy				\$ 288,123	
	<i>Canopy at Platforms</i>					
	Structural package-beams, columns, purlins, fabrication and erection	LS	1	\$ 130,386.00	\$ 130,386	Past transportation project ref data
	Prefinished insulated metal roof panels and sheet metal coping	LS	1	\$ 137,312.00	\$ 137,312	Past transportation project ref data
	Ceiling mounted lighting, conduit, wire, devices	LS	1	\$ 20,425.00	\$ 20,425	Past transportation project ref data

8	Openings				\$ 99,200	
	Stair enclosure glass walls	SF	1,008	\$ 50.00	\$ 50,400	Past ref data
	Elevator lobby enclosure	SF	440	\$ 60.00	\$ 26,400	Estimate
	Aluminum doors/glass/operators	PR	4	\$ 5,600.00	\$ 22,400	Past ref data
9	Finishes				\$ 100,000	
	Inside the Tunnels-Terrazzo,Paint,Stucco	LS	1	\$ 80,000.00	\$ 80,000	Estimate
	Minor rework to inside of existing lobby	SF	400	\$ 50.00	\$ 20,000	

Div	Construction	Unit	Qty	Unit Cost	Probable Cost	Comments
10,12	Signs, Site Furnishings				\$ 80,700	
	Signs	EA	20	\$ 2,035.00	\$ 40,700	Past transportation project ref data
	Furnishings-Benches, Trash Receptacles	EA	20	\$ 2,000.00	\$ 40,000	Past transportation project ref data
14	Conveying Equipment				\$ 210,000	
	Hydraulic elevator, cab, controls, electric items	EA	2	\$ 105,000.00	\$ 210,000	Past transportation project ref data
27	Communications				\$ 20,000	
	Area of Rescue call box	EA	2	\$ 10,000.00	\$ 20,000	Past ref data/estimate
31	Earthwork /Trackwork				\$ 128,700	
	Excavation for platforms/remove spoils	CY	407	\$ 30.00	\$ 12,210	
	Backfill	CY	297	\$ 30.00	\$ 8,910	
	Excavation for elevator shaft/stair	CY	1,946	\$ 15.00	\$ 29,190	Past ref data
	Backfill-Granular fill	CY	1,413	\$ 30.00	\$ 42,390	Past ref data
	Resurfacing of Main Line Tracks	LF	1,200	\$ 30.00	\$ 36,000	
	Repair and Waterproofing Existing Tunnels	LS	1	\$ 1,311,960	\$ 1,311,960	Per numbers by HMM

Pricing Totals		
Sub-Total of Construction Cost		\$ 5,553,197
Contractor Crew Downtime Due to Operations		\$ 96,000
General Conditions - 9%		\$ 508,428
Overhead and Profit - 7%		\$ 431,034
Owner Construction Contingency - 10%		\$ 658,866
Design Contingency - 20%		\$ 1,317,732
Total Opinion of Probable Cost		\$ 8,565,256



Div	Construction	Unit	Qty	Unit Cost	Probable Cost	Comments
3	Concrete				\$ 2,955,593	
	<i>Platform</i>					
	Precast concrete footers	SF	2,113	\$ 557.00	\$ 1,176,941	Past transportation project ref data
	Precast concrete fnd. Columns	LF	208	\$ 468.00	\$ 97,344	Past transportation project ref data
	Precast slab	SF	15,400	\$ 87.52	\$ 1,347,808	Past transportation project ref data
	Platform Storm Drainage System	LF	1,000	\$ 50.00	\$ 50,000	
	Precast footers for elevator shafts	SF	270	\$ 162.00	\$ 43,740	Past transportation project ref data
	Precast walls for elevator shafts	SF	3,240	\$ 74.00	\$ 239,760	Past transportation project ref data
4	Masonry				\$ 122,240	
	Elevator shafts (3)	SF	3820	\$ 32.00	\$ 122,240	Past ref data
5,7,26	Canopy				\$ 135,663	
	<i>Canopy Area 1 Platforms</i>					
	Structural package-beams, columns, purlins, fabrication and erection	LS	1	\$ 61,392.00	\$ 61,392	Past transportation project ref data
	Prefinished insulated metal roof panels and sheet metal coping	LS	1	\$ 64,654.00	\$ 64,654	Past transportation project ref data
	Ceiling mounted lighting, conduit, wire, devices	LS	1	\$ 9,617.00	\$ 9,617	Past transportation project ref data
5	Metals				\$ 247,936	
	<i>Stair grade to bridge (1)</i>					
	Metal pan stairs with handrail Landings	RISERS EA	70 4	\$ 622.00 \$ 622.00	\$ 43,540 \$ 2,488	Past ref data Past ref data
	<i>Stairs platform to bridge (2)</i>					
	Metal pan stairs with handrail Landings	RISERS EA	84 4	\$ 622.00 \$ 622.00	\$ 52,248 \$ 2,488	Past ref data Past ref data
	<i>Emergency egress stairs</i>					
	Metal pan stairs with handrail Landings	RISERS EA	23 3	\$ 622.00 \$ 622.00	\$ 14,306 \$ 1,866	Past ref data Past ref data
	Fencing and gate	LS	1	\$ 3,000.00	\$ 3,000	Estimate
	<i>Other</i>					
	Guardrail at Platforms	LF	475	\$ 200.00	\$ 95,000	
	Detectable Warning Tiles at Platforms	LF	550	\$ 60.00	\$ 33,000	
7	Thermal & Moisture Protection				\$ 188,640	
	<i>Canopy over stairs-platform to bridge</i>	SF	1,776	\$ 45.00	\$ 79,920	Past ref data
	Standing seam metal, snow rail, dens deck, SBS underlayment, struct support					
	<i>Enclosure over new bridge</i>	SF	1,008	\$ 45.00	\$ 45,360	Past ref data
	Standing seam metal, snow rail, dens deck, SBS underlayment, struct support					
	Enclosure vertical sides	SF	1,584	\$ 40.00	\$ 63,360	Estimate

Div	Construction	Unit	Qty	Unit Cost	Probable Cost	Comments
8	Openings				\$ 569,900	
	Enclosed stairs-grade to bridge	SF	4,000	\$ 55.00	\$ 220,000	Past ref data
	Enclosed stairs-platform to bridge	SF	4,500	\$ 55.00	\$ 247,500	Past ref data
	Enclosed stair lobby on platform	SF	1,000	\$ 50.00	\$ 50,000	Past ref data
	Elevator lobby enclosure	SF	500	\$ 60.00	\$ 30,000	Estimate
	Aluminum doors/glass/operators	PR	4	\$ 5,600.00	\$ 22,400	Past ref data
10,12	Signs, Site Furnishings				\$ 80,700	
	Signs	EA	20	\$ 2,035.00	\$ 40,700	Past transportation project ref data
	Furnishings-Benches, Trash Receptacles	EA	20	\$ 2,000.00	\$ 40,000	Past transportation project ref data
14	Conveying Equipment				\$ 315,000	
	Hydraulic elevator, cab, controls, electric items	EA	3	\$ 105,000.00	\$ 315,000	Past transportation project ref data
27	Communications				\$ 20,000	
	Area of Rescue call box	EA	2	\$ 10,000.00	\$ 20,000	Past ref data/estimate
31	Earthwork /Trackwork				\$ 77,445	
	Excavation for platforms/remove spoils	CY	407	\$ 30.00	\$ 12,210	Past ref data
	Backfill	CY	297	\$ 30.00	\$ 8,910	Past ref data
	Excavate for elevator pits	CY	131	\$ 15.00	\$ 1,965	Past ref data
	Backfill	CY	100	\$ 30.00	\$ 3,000	Past ref data
	Steel sheeting, wales, braces, spacers	SF	128	\$ 120.00	\$ 15,360	Estimate
	Resurfacing of Main Line Tracks	LF	1,200	\$ 30.00	\$ 36,000	
32	Exterior Improvements				\$ 16,500	
	Site concrete slab	SF	1,000	\$ 8.00	\$ 8,000	Past ref data
	Curb	LF	250	\$ 18.00	\$ 4,500	Past ref data
	Striping	LS	1	\$ 4,000.00	\$ 4,000	Estimate
	New Overhead Pedestrian Bridge Structure	LS	1	\$ 671,000	\$ 671,000	Per number provided by KS
	Burial of Existing Electrical Power Lines	LS	1	\$ 450,000	\$ 425,000	Estimate

Pricing Totals	
Sub-Total of Construction Cost	\$ 5,825,617
Contractor Crew Downtime due to Operations	\$ 96,000
General Conditions - 9%	\$ 532,946
Overhead and Profit - 7%	\$ 451,819
Owner Construction Contingency - 10%	\$ 690,638
Design Contingency - 20%	\$ 1,381,276
Total Opinion of Probable Cost	\$ 8,978,296



Lorain County | TRANSPORTATION PASSENGER STATION

A P P E N D I X A



13000 SHAKER BOULEVARD
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Job Name: Lorain County Rail Platforms
Project Number: 8258
Meeting ID: Lorain County Kick-off Meeting
Meeting Date: April 23, 2014
Location: Lorain County Administration Building
Minutes taken By: Ken Emling

ATTENDEES

<u>Name</u>	<u>Organization</u>	<u>E-mail</u>
Karen Davis (KD)	Lorain County	kdavis@loraincounty.us
Jim Cordes (JC)	Lorain County	jcordes@loraincounty.com
Jerry Innes (JI)	Lorain County	jerry.innes@lcprosecutor.org
Ken Emling (KE)	RLBA	kemling@rlba.com
Bill Lewis (BL)	RLBA	blewis@rlba.com

ITEMS DISCUSSED:

1. KD will create an e-mail distribution list for lines of communication – All Communication with the County will be run through RLBA.
2. All communication re: the project should stay within the project team (confidence with County Commissioners)
3. KE will remain as the prime contact for the Bowen Team and KD will remain as the prime contact for the County.
4. The County is in possession of existing drawings & photographs of the original structure and renovations. These will be made available to RLBA.
5. Lorain County has shared ownership of the structure. A preliminary engineering agreement exists with Norfolk Southern. County currently has a lease agreement with NS for the use of (1) tunnel for storage.
6. Lorain County will ask NS to be a partner in the preliminary design. Will allow NS fees to be matched with federal dollars.
7. The Bowen Team will be holding a 2-day work session at the Transportation building on 5/6 and 5/7. The purpose will be to examine the existing conditions and discuss design options. The county will arrange for meeting space within the existing building for the project team on 5/6 and 5/7. The facility has other events scheduled for those days to which the project team needs to be respectful and work around. KD may choose to attend a review meeting with the group on site on 5/7.

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8. Current funding stands at approximately \$7 million. Additional funds available via savings with City plan review process.
9. Amtrak should take possession of tunnels at end of construction via a tenant agreement with the County.
10. Design needs to isolate tunnel access from the main meeting room portion of the building.
11. Current water issues within the tunnels needs to be addressed if they are to be part of the final design.
12. The two (2) conceptual designs that will be the result of the Phase 1 effort should not be designed towards any specific budget, but should be cost conscious.
13. Once the two concepts, with estimates, are completed at the end of Phase 1, the County will work to finalize a consensus for the direction that the project will head in for Phase 2.

End of Meeting

All parties are requested to review these minutes. Any discrepancies should be brought to the attention of the author.

Respectfully Submitted,

Richard L. Bowen + Associates Inc.

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Lorain County | TRANSPORTATION PASSENGER STATION





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Job Name: Lorain County Rail Platforms
Project Number: 8258
Meeting ID: Lorain County Stakeholder WebEx
Meeting Date: June 3, 2014
Location: On-Line and via Conference Call
Minutes taken By: Ken Emling

ATTENDEES

<u>Name</u>	<u>Organization</u>	<u>E-mail</u>
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Jim Cordes (JC)	Lorain County	jcordes@loraincounty.us
Ken Emling (KE)	RLBA	kemling@rlba.com
Bill Lewis (BL)	RLBA	blewis@rlba.com
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Dave Steele (DS2)	Urban Engineers	dsteele@urbanengineers.com
Craig Fairclough (CF)	Hatch Mott MacDonald	craig.fairclough@hatchmott.com
Mike Malloy (MM)	KS Associates	malloym@ksassociates.com

ITEMS DISCUSSED:

1. Introductions were made.
2. KE confirmed that the surveyor has finally obtained the access from NS to survey the tracks and that the survey of the track area was ongoing this week.
3. It was confirmed that all parties are accepting of a platform length of 550'. The design options will continue using this length. Amtrak confirmed that the typical train length is 1100'. The trains that are run along this line are the Superliner (car height and level boarding heights are 18" and 15") and the Viewliner (car height and level boarding heights are 51" and 48").
4. The platform height off of the top-of-rail (TOR) was discussed. Discussed was the following:

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- For a platform that is 8" above TOR, the edge of the platform can be no closer 5'-4" from the centerline of the track (adjusting for curvature as needed).
 - For a platform that is 15" above the TOR, the edge of the platform can be no closer than 8'-6" from the edge of the platform (adjusting for curvature as needed).
 - It was agreed upon that the majority of the platform lengths will use the 8" height. However, there will be a section of each platform that will be at the 15" height. The length was discussed as 20' long for a single car door and 100' long for two car doors. The approach for level boarding will have to be defined for the FTA/FRA narrative.
 - It is understood by all parties that the tracks are existing and will not be realigned. The new platform widths will be dependent upon the track layouts.
5. With regard to ADA access to the trains, it was agreed upon that a portable lift and bridge plates would be utilized by the Amtrak caretaker to assist in providing access to and from the trains.
 6. Emergency (secondary) means of egress off of the platforms was discussed. It was confirmed that this is a code requirement, so any concept that is developed must make provisions. KE indicated that the most current schemes showed an option where walks and stairs would come from the end of the platform and egress down to street grade. The following was noted:
 - For the South track, this would cross over a future main track, but could work for the short term. However, NS does want the ability to add in this main track in the future, so a decision would need to be made for this egress.
 - For the North track, this would require an at-grade crossing along the existing north siding track. NS expressed concerns about the potential for a train to be sitting on that track during an emergency.
 - It was suggested that the egress off of the platform should first go parallel and between the tracks, then turn to the direction of egress.
 - There is concern about keeping people from entering the platform from these stairs. The design will need to account for some type of gate structure.
 7. KE noted that his Team has been working on some budget numbers for the 5 options, but was not ready to share that information yet with the entire group.
 8. KE then went through each of the 5 concept plans. The group discussed the pros and cons of each. Summary of each scheme:
 - Tunnel Option 'A': utilizes both existing tunnels and the old stair and elevator shafts. Stairs lead to far west end of platform.
 - Tunnel Option 'B': Only east tunnel used. New elevator shafts built and the old elevator shafts will be reworked for new stairs heading east up to platforms.
 - Tunnel Option 'C'. This concept used no stairs or elevators, but a long ramp to access the platform. This scheme will ultimately be too costly.
 - Bridge Option 'A': uses existing building for waiting and restrooms. New structure built with stair and elevator leading up to new pedestrian bridge. Bridge will lead to new elevators and stairs down to platforms. Amtrak advised to flip stair and elevator.
 - Bridge Option 'B': This option does not use the existing building at all, but shows a new structure built to the far east end of the property, with stairs and elevator up to new pedestrian bridge.
 9. After much discussion, the group all agreed that the Bowen Team should continue to develop 2 out of the 5 options further. They are:
 - Tunnel Option 'B'
 - Bridge Option 'A'

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10. The Bowen Team will take the comments and information gained from this meeting to continue these two concepts with more detail, especially related to clearances for building structures at the platforms. Cost estimates for these two schemes will also be developed further.
11. It was noted that Amtrak does not need much within the building. They will have just a caretaker on site when the trains come in. The existing waiting areas and restrooms of the existing building could be used. They do not do ticketing on site and will only require a small I.T. closet.
12. It was confirmed that the budget cannot impact the ADA access to the station and platform.
13. The next meeting is to be determined once the survey is completed and the Bowen Team can further develop the 2 options.
14. The meeting adjourned at approximately 3:45pm.

All parties are requested to review these minutes. Any discrepancies should be brought to the attention of the author in a timely manner. If no comments are made then it is assumed that all parties are in agreement with these minutes.

Respectfully Submitted,



Richard L. Bowen + Associates Inc.

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13000 SHAKER BOULEVARD
 CLEVELAND, OHIO
 PHONE 216.491.9300
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Job Name: Lorain County Rail Platforms
Project Number: 8258
Meeting ID: Lorain County Stakeholder WebEx
Meeting Date: September 11, 2014
Location: On-Line and via Conference Call
Minutes taken By: Ken Emling

ATTENDEES

<u>Name</u>	<u>Organization</u>	<u>E-mail</u>
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Craig Fairclough (CF)	Hatch Mott MacDonald	craig.fairclough@hatchmott.com

ITEMS DISCUSSED:

1. Roll call and introductions made.
2. KE reviewed status of project in general, and brief agenda for meeting.
3. KE presented the bridge option, following the PDF attachments distributed with the call invitation.
4. TO recommended extending the guard rail currently located only at the covered canopy areas the full length of the platform on the non-loading side. RLBA will update the drawings and estimates accordingly.
5. TO commented that the name 'Lorain Station' as noted on the renderings would not be the name of the facility. RLBA will consult with the County and revise the renderings for the final design package.

6. TO commented that the angles of the canopy columns on the platform are reversed in the renderings from what is shown on the sections. MW indicated it was a result of working through the design after the section views had been cut. RLBA will coordinate for the final design package.
7. GM noted the dollar amount added for track resurfacing was not accounted for in the final number of the estimate. RLBA will revise the estimate to ensure all line items are accounted for.
8. KE presented through the tunnel option, following the PDF attachments distributed with the call invitation.
9. JC asked if not having a plan for baggage handling at the station would be an issue. JB responded that a ticketing office, storage, and employee would be required for baggage service, none of which Amtrak currently anticipates for this station. He explained that a "baggage lite" service is being evaluated & may be a future option but should not affect the design plans.
10. KD questioned the method of waterproofing the existing tunnels. KE responded that the design team had evaluated a number of options and is proposing what they feel is most appropriate based upon design constraints and budget. He indicated the proposed system would continue to be evaluated throughout the design process to ensure the County receives a solution that best addresses the water infiltration issues in the tunnel structures.
11. JB at Amtrak questioned the ability to extend the platforms beyond the current 550' length. KE responded that the tracks begin to curve just to the west of East Street, and the north siding track tapers towards the main tracks to the East; both of which would cause design issues if the platform were to be extended.
12. TO questioned the location of the fence shown in Tunnel Section A. It was explained that this was an existing fence located on the wall at the transportation building to prevent persons on the track level from accessing the roof of the facility. RLBA indicated they would add a note to clarify.
13. The question was asked about how far the existing Amtrak stop was from this proposed station. After a quick look-up on google maps, TO indicated it was only about 1/3 mile away.
14. TO cautioned everyone that the tracks are very busy in this location and track time would be limited during construction.
15. JB indicated that the areas of refuge alone at the east end of the platform were not in compliance with NFPA 103 and would not be acceptable to Amtrak. The design team indicated they would look at options for getting passengers off the raised level track area safely.
16. KE noted that the Bowen Design Team will now prepare a final package for this Phase 1 conceptual design effort. The package would be completed in approximately 2-weeks and would first be issued to the County for its review and approval.
17. The meeting adjourned at approximately 3:00pm.

All parties are requested to review these minutes. Any discrepancies should be brought to the attention of the author in a timely manner. If no comments are made then it is assumed that all parties are in agreement with these minutes.

Respectfully Submitted,

Richard L. Bowen + Associates Inc.

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