Payne Avenue Bridge Study
Cleveland, Ohio

Technical Memorandum
November 11, 2023

Prepared for:
ODOT District 12
5500 Transportation Boulevard
Garfield Heights, Ohio 44125

Prepared By:
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Introduction

In December 2022, ODOT requested that Burgess & Niple (B&N) determine the feasibility of advancing construction of the proposed Payne Avenue bridge over I-90 ahead of completing the reconstruction of I-90 anticipated with the Innerbelt Trench (CCG5) contract. B&N completed an evaluation of a bridge configuration that placed bridge piers outside of both the existing I-90 lanes and the proposed I-90 lanes. B&N has confirmed that this is a feasible solution and that this alignment does not adversely affect adjacent proposed bridges along the I-90 corridor. A design exception will be required for vertical clearance of proposed Payne Avenue over existing I-90, in addition to other next steps identified at the end of this narrative.

Design Criteria

Using the alignments developed for the April 2010 submittal from the Cleveland Innerbelt Study (Innerbelt Study) as a starting point, B&N modified the proposed I-90 EB/WB alignments near Payne Avenue such that the proposed Payne Avenue bridge pier could be placed outside of the existing I-90 EB pavement. Within the study area (I-90 from Chester Avenue to Superior Avenue), the design speeds and typical sections for I-90 (including the 6-foot wide median barrier per ODOT SCD RM-4.4) and interchange ramps were maintained from the Innerbelt Study. The Payne Avenue design criteria were determined by matching existing as closely as possible, as the intent of the Payne Avenue work is primarily focused on reconstructing the bridge for pier placement and vertical clearance at I-90. The posted speed for Payne Avenue is 25 MPH and an assumed design speed of 30 MPH was used for the purposes of this study.

	Design Speed	**Lane Width**	**Minimum Shoulder Width**	**Sidewalk Width**	**Required Vertical Clearance #**
I-90 EB	60 MPH	12’ *	12’	N/A	15.5’ Min/ 16.0’ Preferred
I-90 WB	60 MPH	12’ *	12’	N/A	15.5’ Min/ 16.0’ Preferred
Interchange Ramps	Varies ##	16’ single-lane; 12’ multi-lane **	6’ RT/3’ LT single-lane; 12’ RT/4’ LT multi-lane **	N/A	15.5’ Min/ 16.0’ Preferred
Payne Avenue	30 MPH	11’	N/A; 6’ bike lane on either side	8’ walk on each side of bridge	N/A (no overhead bridges in study limits)

* *Per L&D Vol 1 Fig 301-4*
** *Per L&D Vol 1 Fig 303-1*
\# *Per Innerbelt Study IMS*
Per L&D Vol 1 Fig 503-1

Geometric Analysis

Horizontal Geometry – To place the Payne Avenue proposed bridge pier at a location that would both avoid existing I-90 pavement and be located within the median of proposed I-90, the proposed I-90 EB/WB alignments were shifted east by approximately 17 feet at Payne Avenue, beginning north of

Chester Avenue and meeting back to the April 2010 submittal alignments just south of Superior Avenue. Because the Payne Avenue overpass is not near any future proposed overhead guide signs or sight triangles shown in the Innerbelt Study proposed signing plan (developed in 2015/2016), the adjustment in I-90 EB/WB alignment is not anticipated to adversely affect the sign visibility of overhead wayfinding guide signs. See the appendix for exhibits depicting the alignment shift as part of this study.
This I-90 horizontal alignment shift required the following alignment adjustments:

- Ramp C2 (I-90 EB to Superior Avenue)
- Ramp C3 (I-90 EB to E 30th Street)
- Ramp C4 (Chester Avenue to I-90 EB)
- Ramp D3 (I-90 WB to Chester Avenue)
- Ramp D4 (I-90 WB to E 24th Street)

In the Innerbelt Study, Ramp C3's inside (right) shoulder was 7.5 feet from an existing building (1580 E 30th Street, Cleveland OH, 44114) at its nearest point; because the alignments shifted to the east to place the Payne Avenue pier outside existing pavement in this study, the ramp was moved 3 feet closer to the existing building, as circled in red in the image below:

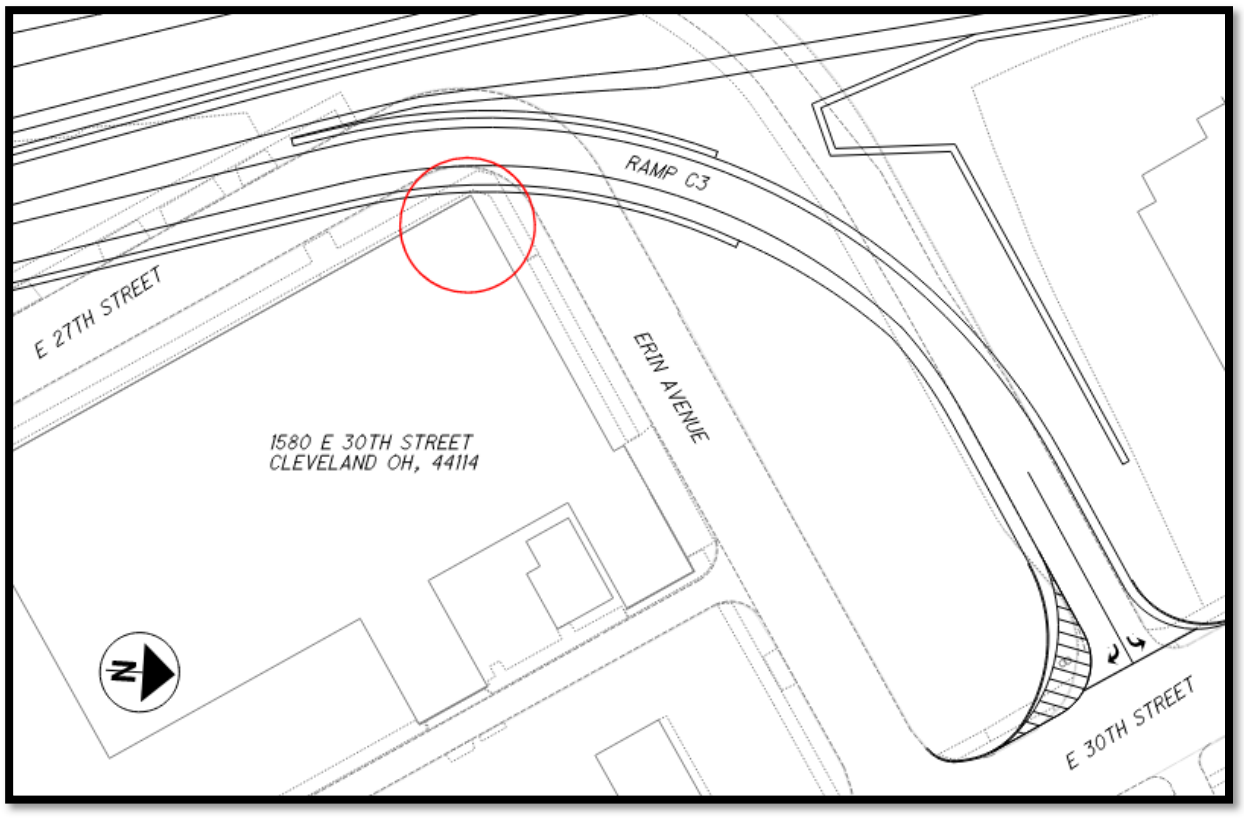

Figure 1: Ramp C3 Near Existing Building

These dimensions do not consider any proposed retaining wall or barrier, as well as any existing subsurface features of the building. Proposed Ramp C3 also severs access from E 27th Street to E 30th

Street. Practically, placing the ramp this close to the building may require some form of right-of-way (R/W) and/or property acquisition.

Payne Avenue Vertical Clearance – While the proposed vertical clearance between I-90 and Payne Avenue will meet the standard vertical clearance requirements after construction of I-90, the advancement of the construction of the Payne Avenue bridge replacement necessitates that the proposed structure have sufficient vertical clearance over existing I-90. Using the Payne Avenue profile and structure depth developed in the Innerbelt Study, B&N found that the vertical clearance between existing I-90 and proposed Payne Avenue was approximately 12.5 feet; the proposed Payne Avenue profile would need to be raised to achieve a sufficient vertical clearance.

Analyzing bridge inventory reports for existing bridges over I-90 within the Innerbelt Study area (*excluding all bridges south of Carnegie Avenue, as those are assumed to be replaced prior to when Payne Avenue construction would begin*), B&N observed several existing vertical clearances below standard 16.0 feet at critical bridges:

- I-90 Under CSX Railroad bridge: 15.0-foot vertical clearance
- I-90 Under NSC Railroad bridge: 15.1-foot vertical clearance
- I-90 Under SR-2 bridge: 15.0-foot vertical clearance
- I-90 Under existing Payne Avenue bridge: 15.0-foot vertical clearance

B&N believes that if a 15.1-foot vertical clearance could be achieved between existing I-90 and proposed Payne Avenue, this would not only be an improvement over the existing condition but also match similar clearances within the corridor. While this will require a design exception to be filed for vertical clearance, the justification would be that (1) further raising the profile is likely to extend the work limits and overall costs, (2) this would be an interim condition and vertical clearance would be increased to meet standards when I-90 is reconstructed, and (3) this interim vertical clearance is greater than the existing and there have not been any bridge hits observed from police reports analyzed from 2019 – 2022 as a result of deficient vertical clearance at this location.

Increasing the vertical clearance from 12.5 feet to 15.1 feet is accomplished in two parts: (1) by modifying the span configuration to reduce the structure depth and (2) by adjusting the proposed Payne Avenue profile. Adjusting the proposed I-90 horizontal alignment as previously discussed permits the proposed Payne Avenue bridge to be modified from the 2-span structure shown in the Innerbelt Study to a 3-span structure. Utilizing a 3-span structure decreases the structure depth by 1.5 feet. The profile of Payne Avenue was raised the remaining 1.1 feet. 30 MPH design standards were met with the revised profile for Payne Avenue for vertical Stopping Sight Distance *(L&D Vol 1 Section 201.2.2),* required vertical curve length *(L&D Vol 1 Section 203.3)* and roadway grade requirements *(L&D Vol 1 Section 203.2)*. No additional R/W acquisition is anticipated by raising the profile as shown in this study, as the Payne Avenue work limits did not increase beyond those shown in the Innerbelt Study.

While the scope of this study was to determine the feasibility of constructing the Payne Avenue bridge prior to construction of I-90, further geometric optimizations have been identified to the alignments shown in the exhibits in the appendices:

- Raise proposed I-90 EB/WB profiles (from that established during the CCG5 Innerbelt Study) to reduce the ultimate vertical clearance under Payne Avenue to a value closer to the required 16.0-foot preferred minimum
- Investigate further optimization of the Payne Avenue bridge structure by reducing the span lengths. This may be able to be accomplished by shifting Ramp D3 (I-90 WB to Chester Avenue) closer to I-90 WB under Payne Avenue and shifting Ramp C4 (Chester Avenue to I-90 EB) closer to I-90 EB under Payne Avenue

Structural Analysis

Three alternatives were investigated by B&N for the replacement of the Payne Avenue Bridge over I-90 EB/WB. These alternatives include multiple structure types and span arrangements. All alternatives have a bridge length of 348 feet due to the proposed alignment and proposed ramps. The existing buildings at 2675 and 2630 Payne Avenue would need to be acquired and demolished prior to construction for all alternatives. Piers would be cap and column type. Abutments for all alternatives would be in the same location and will be approximately the same size and shape. Side-by-side drilled shaft type abutments could be beneficial to significantly reduce the amount of shoring required to build abutments with traditional driven pile foundations and tall breastwalls. Based on experience from CCG3A, however, this benefit is likely to be overshadowed by the significantly higher cost of drilled shaft abutments compared to traditional abutments. Alternatives 1 and 2 meet the span to depth requirements of AASHTO. An alternative matching the existing superstructure depth could not be achieved. Raising of Payne Avenue would be necessary to replace the bridge before construction proposed I-90 EB/WB to maintain existing minimum vertical clearance.

Alternative 1 – Alternative 1 is a three-span (161 feet, 77 feet, 110 feet) bridge with eight steel plate girders. Rolled beams were also analyzed but did not provide adequate strength. Analysis of the girders resulted in total superstructure depths of 66” for all spans, but these are preliminary depths and could change in detailed design. The approximate steel weight is 1,530,000 pounds.

This span arrangement places Pier 1 at the proposed median of I-90, which is just east of existing I-90 EB, and places Pier 2 in the gore area between the east edge of proposed I-90 EB and the proposed E 27th Street and Superior Avenue ramps (Ramps C2 and C3). Since the existing and proposed piers both are cap and column type with individual footings for each column, it is anticipated that the proposed footings can be sized and positioned to avoid conflicts with the existing footings. If footing conflicts are unavoidable, the reuse of the existing foundations or piles would be investigated. Temporary shoring would be required at the eastern edge of existing I-90 EB to construct the proposed Pier 1. This shoring could potentially be soldier pile type if required to avoid conflicts with the existing pier foundations.

To accommodate the superstructure depth of the three-span arrangement, the Payne Avenue profile would need to be raised by approximately 13”. This raising is manageable since the proposed profile would tie into the existing profile prior to the E 25th Street and E 27th Street intersections. The bridge could be replaced prior to I-90 lowering and could potentially be constructed in phases to maintain vehicular, bicycle, and pedestrian traffic during construction.

If phased construction is required, significant temporary shoring along the centerline of Payne Avenue would be needed to retain the embankments during phase 1 removal and construction. This shoring

would likely be steel sheet pile with multiple rows of ground anchors and would have exposed heights up to 33 feet. Temporary MSE walls along Payne Avenue would then be required to retain the embankments behind the proposed abutments for phase 2 removal and construction. Temporary shoring needed for phase construction could be eliminated if Payne Avenue can be closed to traffic during its construction.

Alternative 2 – Alternative 2 is a two-span (161 feet, 187 feet) bridge with eight haunched steel plate girders. While constant web depth girders are also feasible, haunching provides a significant savings in steel weight. Both ten and eleven girder layouts were also analyzed but did not significantly lessen the total structure depth to warrant the additional steel weight. Analysis of the girders resulted in total superstructure depths of 59", 91", and 60" for Span 1, maximum haunch over the pier, and Span 2 respectively. The approximate steel weight is 1,600,000 pounds.

Much like Alternative 1, Pier 1 is located at the proposed median of I-90. The proposed pier footings would also be placed to avoid the existing if possible. Temporary shoring of the pier, assumed to be cantilever steel sheeting, is required on the west side and potentially the east side depending on MOT. This shoring could potentially be soldier pile type if required to avoid conflicts with the existing pier foundations.

To accommodate the haunched girder depth of the two-span arrangement, the Payne Avenue profile would need to be raised by approximately 37" near the pier. B&N determined that this profile raising is not feasible since it would affect the buildings to the west of I-90 and would require modification to E 25th Street and E 27th Street. Since profile raising is not feasible, this alternative would require I-90 to be lowered prior to replacement of the bridge. Another impact of this is that Payne Avenue would need to be closed to traffic during construction of the bridge and I-90.

Alternative 3 – Alternative 3 is a single span (348 feet) through type arch or truss. This alternative was not studied in detail as part B&N's scope of services. While this type of bridge is technically feasible for this application and for the needs of the site, it is less beneficial than the other studied alternatives. The major disadvantages of this alternative are its cost and complexity.

Pros

- The superstructure depth is likely similar to the other alternatives.
- No piers are required and the structure completely spans I-90 and its ramps, so potential substructure conflicts are greatly lessened.
- I-90 MOT is most flexible for this structure type since it doesn't have any piers.
- Accelerated construction of the superstructure is possible and would save substantial construction time and lane closure time.

Cons

- This structure type is very costly compared to other more common structure types.
- This structure type is uncommon in this span and width. Bidding may be difficult due to contractor unfamiliarity and complexity.

- This structure type is fracture critical and has more stringent inspection requirements than typical redundant bridge types, such as those in Alternatives 1 and 2.
- Phased construction may not be possible for a steel arch or truss. This would require closure of Payne Avenue to construct.
- If phased construction is not possible, a separate utility bridge would be needed to convey the utilities currently attached to the existing bridge.
- Maintaining this type of bridge is costlier than more conventional bridge types.

Utilities – Streetlights with overhead lines are attached to the pier caps and will need to be relocated or replaced with the proposed bridge. The underside of the deck is currently inaccessible due to timber decking between the beams. Existing survey information shows water lines attached to the crossframes in the northern and southern fascia beam bays. Survey data also shows gas lines and fiber optic lines attached to other interior bays. Utility coordination would be required during design to verify ownership and whether the existing utilities are still in service. If the utilities are found to be in service and need to be carried by the proposed bridge, phased construction may be necessary even if full closure of Payne would be permitted. Temporary relocations to accommodate phased removal and construction may be required for all attached utilities that need to remain in service during construction. For example, a utility attached to the bridge section designated as phase 1 removal would need to be temporarily relocated to the phase 2 removal section before it can be permanently switched back to the phase 1 construction section.

Cost Estimate – A preliminary cost estimate was completed for each alternative. The goal of the costs presented in this estimate is to determine the relative cost differences between the alternatives, not the total construction cost of each alternative. This data can also be used to determine the cost of phased construction vs full closure. Ultimately, these costs can be used to compare to the cost of re-decking the existing bridge and could potentially be helpful for budgetary and financial planning efforts of the stakeholders. Prices are all presented in 2023 dollars per current item pricing. Estimated costs do not include raising of Payne Avenue, modifications to E 25th Street and E 27th Street, lowering of I-90 EB/WB, or R/W acquisitions. The estimated costs are summarized in the **Bridge Alternative Cost Summary Table (below).**

Alternatives 1 and 2 were found to have very similar costs. It was assumed that the piers and abutments for each alternative would have similar sizes and shapes. The additional structural steel required for Alternatives 2 was offset by the cost an additional pier in Alternative 1. If phased construction of Payne Avenue is required, the additional cost is approximately $900,000.

Alternative 3 was estimated on a cost per square foot basis. Similar bridge cost data was used to determine a preliminary total superstructure cost. It was found that through arches and trusses of similar span and width are approximately $750/SF of deck. It should be noted that while not investigated, it is anticipated that the abutments for Alternative 3 would likely be more complex and larger than the other alternatives, resulting in a higher relative cost.

Bridge Alternative Cost Summary Table		
Alternative Name	**Estimated Cost**	**Commentary**
Alternative 1 (Phased Construction)	$6,400,000	Cost of phase shoring, pier 2, pier shoring, and girders
Alternative 1 (Full Closure)	$5,500,000	Cost of pier 2, pier shoring and girders
Alternative 2	$5,500,000	Cost of pier shoring and girders
Alternative 3	$20,000,000	Total cost of superstructure

Next Steps

Should ODOT decide to pursue this alternative further, several next steps should be considered:

- Perform similar studies for similar structures within the Cleveland Innerbelt corridor.
- Begin general utility coordination at Payne Avenue to determine which lines are still in service and would need to remain in service during construction.
- Optimize I-90 and ramp geometry as described above when CCG5 final design contract is advanced.
- Investigate further geometric optimizations to avoid the existing building (1580 E 30th Street, Cleveland OH, 44114) near the proposed I-90 EB exit ramp to E 30th Street ramp (Ramp C3) as well as any subsurface features to the building (foundations, basements, etc.) to determine the minimum horizontal clearance required to the building.
- Evaluate potential impacts and mitigation strategies for the building in the southwest quadrant of the bridge when the Payne Avenue roadway profile is modified.
- Begin the design exception process for vertical clearance of Payne Avenue over existing I-90.

BURGESS & NIPLE

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Appendix A – Roadway Exhibits

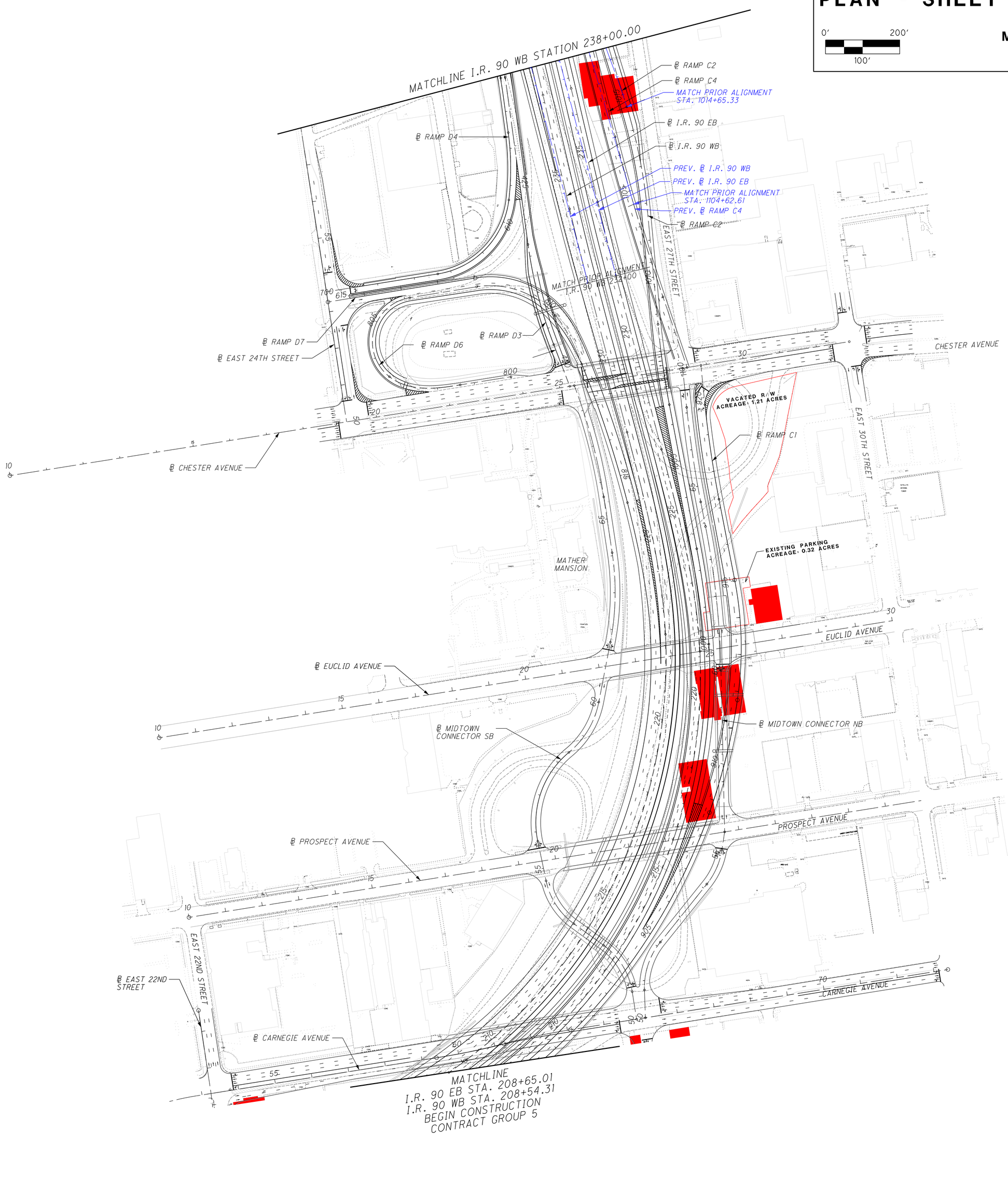
REVIEWER NOTE:
APRIL 2010 SUBMITTAL ALIGNMENTS SHOWN IN BLUE.

CLEVELAND INNERBELT PLAN
OHIO DEPARTMENT OF TRANSPORTATION

CONTRACT GROUP 5
PLAN - SHEET 1

0' 200'
100'

MARCH 2023
DRAFT



REVIEWER NOTE:
APRIL 2010 SUBMITTAL ALIGNMENTS SHOWN IN BLUE.

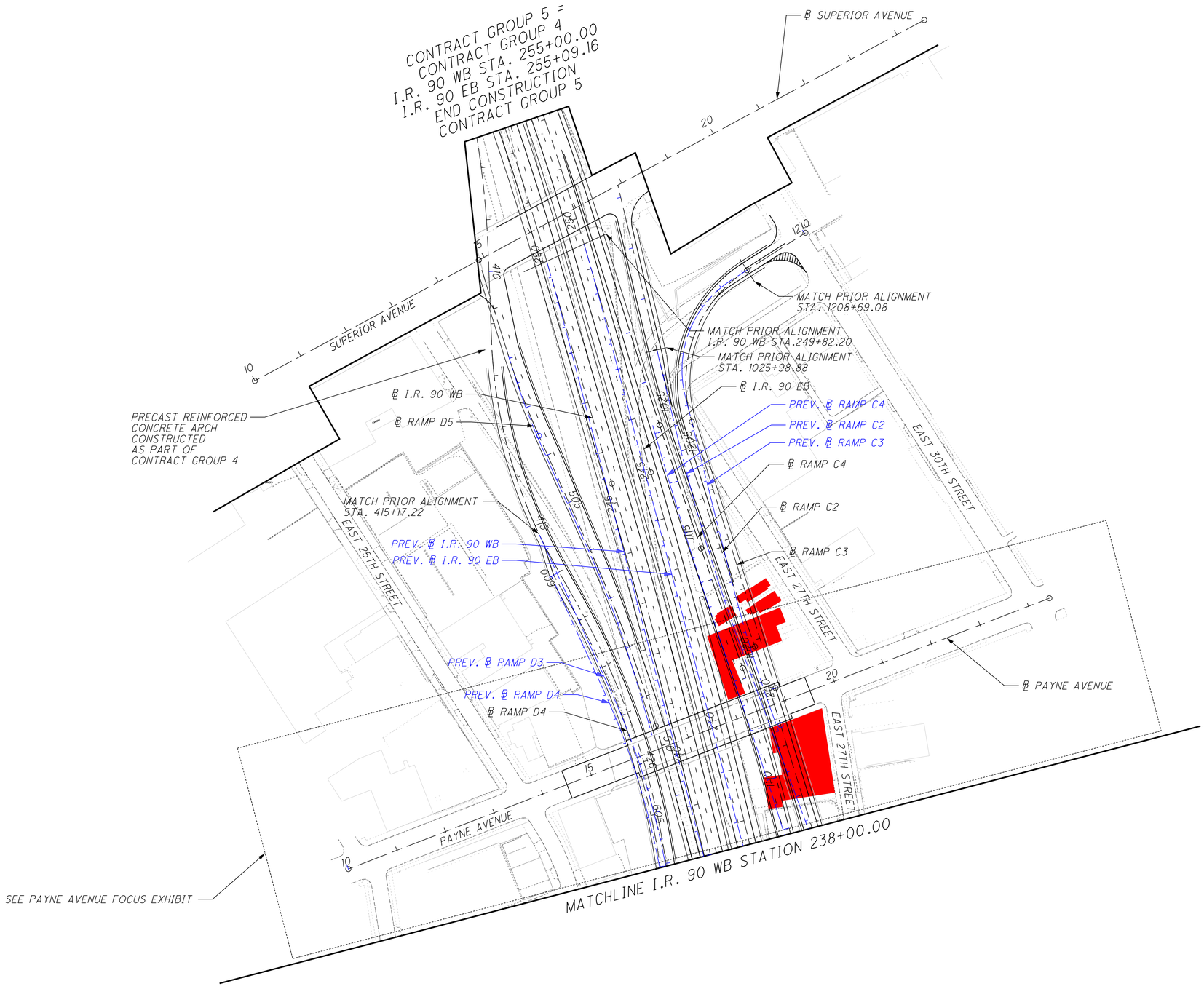
CLEVELAND INNERBELT PLAN
OHIO DEPARTMENT OF TRANSPORTATION

N

CONTRACT GROUP 5
PLAN - SHEET 2

0' 200'
100'

MARCH 2023
DRAFT



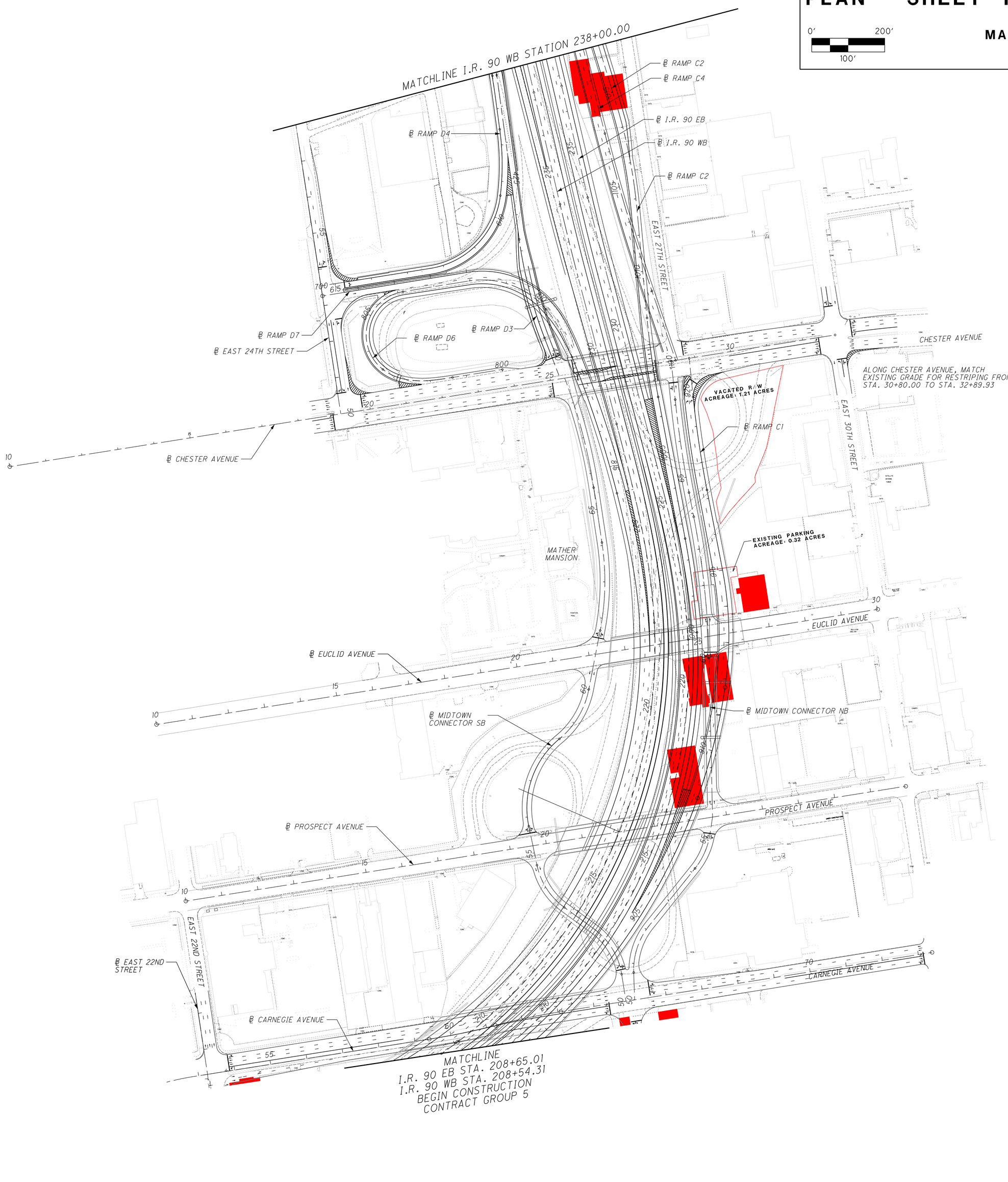
CLEVELAND INNERBELTPLAN
OHIO DEPARTMENT OF TRANSPORTATION

N

CONTRACT GROUP 5
PLAN - SHEET 1

0′ 200′
100′

MARCH 2023
DRAFT

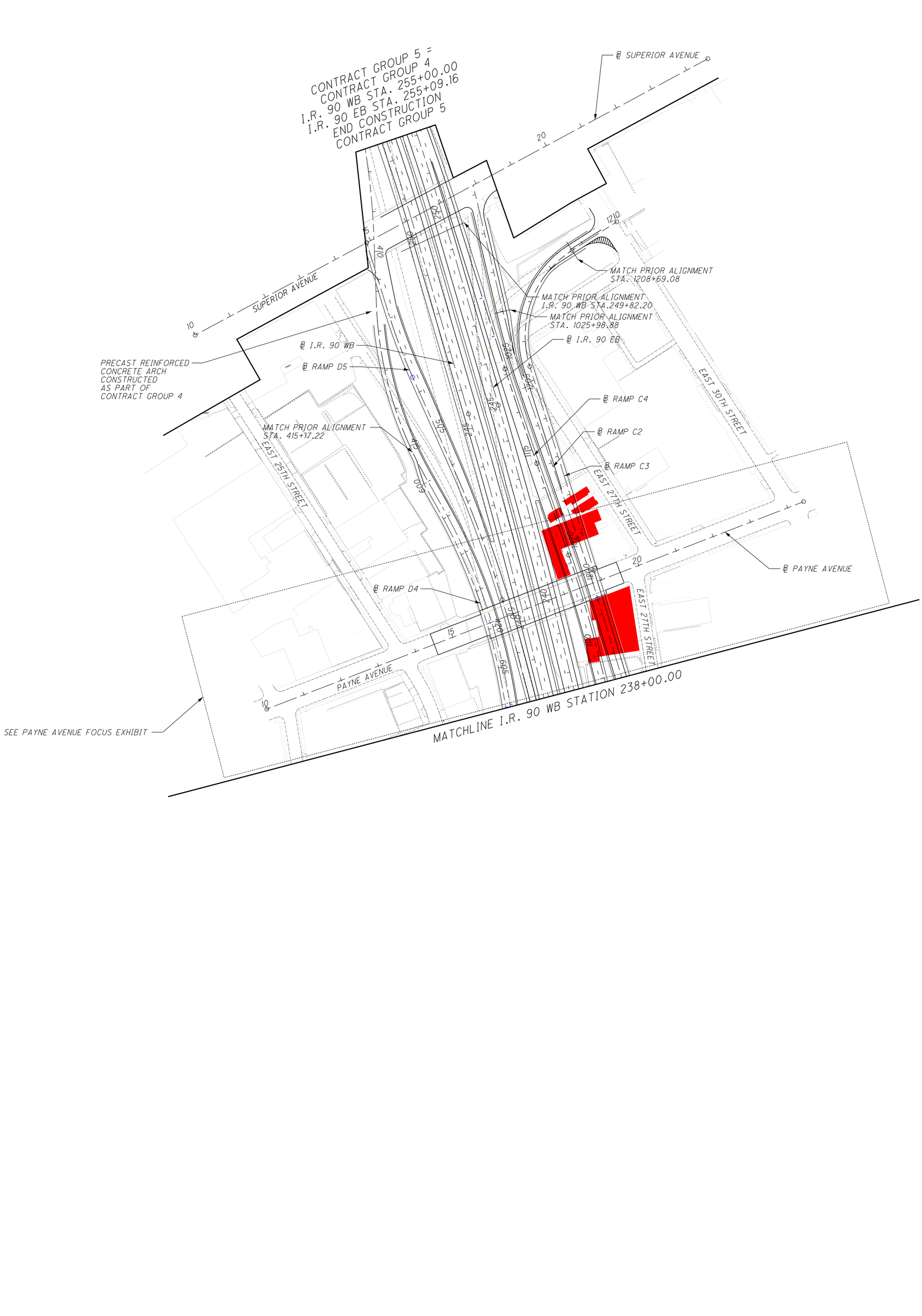


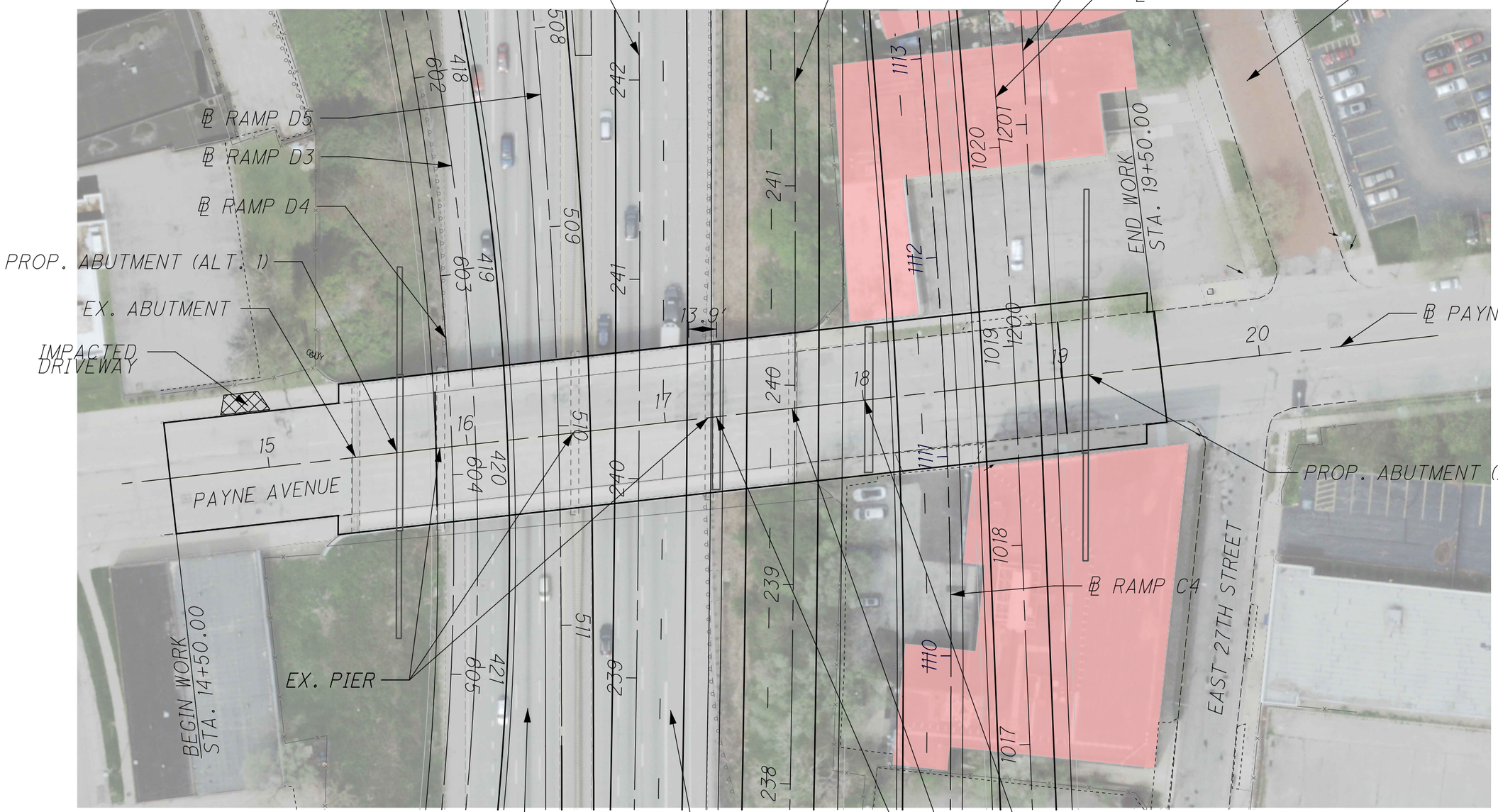
CLEVELAND INNERBELTPLAN
OHIO DEPARTMENT OF TRANSPORTATION

CONTRACT GROUP 5
PLAN - SHEET 2

0′ 200′
100′

MARCH 2023
DRAFT





CLEVELAND INNERBELT PLAN

CONTRACT GROUP 5
PAYNE AVENUE FOCUS EXHIBIT

MARCH 2023
DRAFT

0' 50' 100'

CALCULATED -
CHECKED -

PAYNE AVENUE

Horizontal Alignment Review Report

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Time: 12:48pm

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Last Revised: 3/14/2023 12:35:34

Note: All units in this report are in feet unless specified otherwise.

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Alignment Style: CL_P_Construction

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CS	( )	222+29.45 R1	669946.286	2196080.120
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Degree of Curvature (Arc):		4°15'00.0"		
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Tangent:		754.167		
Chord:		1316.359		
Middle Ordinate:		171.586		
External:		196.609		
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Radial Direction:		S 34°27'30.3" E		
Chord Direction:		N 26°19'05.9" E		
Radial Direction:		N 87°05'42.1" E		
Tangent Direction:		N 2°54'17.9" W		
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SPI	( )	224+15.20 R1	670131.797	2196070.706
ST	( )	227+84.45 R1	670490.486	2195976.614
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Exit Radius:		0.000		
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Angle:		11°47'37.5" Left		
Constant:		864.994		
Long Tangent:		370.825		
Short Tangent:		185.750		
Long Chord:		553.956		

	Xs:	552.653		
	Ys:	37.965		
	P:	9.506		
	K:	277.109		
	Tangent Direction:	N 2°54'17.9" W		
	Radial Direction:	N 87°05'42.1" E		
	Chord Direction:	N 10°46'08.0" W		
	Radial Direction:	N 75°18'04.6" E		
	Tangent Direction:	N 14°41'55.4" W		
Element: Linear				
ST	( )	227+84.45 R1	670490.486	2195976.614
PC	( )	232+00.65 R1	670893.063	2195871.010
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	Tangential Length:	416.198		
Element: Circular				
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PI	( )	233+03.14 R1	670992.197	2195845.005
CC	( )		672831.466	2203260.434
PT	( )	234+05.61 R1	671091.992	2195821.669
	Radius:	7639.437		
	Delta:	1°32'14.0" Right		
	Degree of Curvature (Arc):	0°45'00.0"		
	Length:	204.963		
	Tangent:	102.488		
	Chord:	204.957		
	Middle Ordinate:	0.687		
	External:	0.687		
	Tangent Direction:	N 14°41'55.4" W		
	Radial Direction:	N 75°18'04.6" E		
	Chord Direction:	N 13°55'48.4" W		
	Radial Direction:	N 76°50'18.6" E		
	Tangent Direction:	N 13°09'41.4" W		
Element: Linear				
PT	( )	234+05.61 R1	671091.992	2195821.669
PC	( )	237+20.07 R1	671398.191	2195750.068
	Tangential Direction:	N 13°09'41.4" W		
	Tangential Length:	314.459		
Element: Circular				
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PI	( )	241+28.80 R1	671796.180	2195657.002
CC	( )		667999.783	2181216.963
PT	( )	245+37.32 R1	672188.479	2195542.295
	Radius:	14925.157		
	Delta:	3°08'14.3" Left		

Degree of Curvature (Arc):		0°23'02.0"		
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Tangent:		408.725		
Chord:		817.144		
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External:		5.595		
Tangent Direction:		N 13°09'41.4" W		
Radial Direction:		N 76°50'18.6" E		
Chord Direction:		N 14°43'48.5" W		
Radial Direction:		N 73°42'04.3" E		
Tangent Direction:		N 16°17'55.7" W		

Element: Linear

PT	( )	245+37.32 R1	672188.479	2195542.295
PC	( )	250+01.30 R1	672633.818	2195412.079
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Tangential Length:		463.986		

Element: Circular

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Delta:		5°06'37.1" Left		
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Chord:		492.295		
Middle Ordinate:		5.489		
External:		5.495		
Tangent Direction:		N 16°17'55.7" W		
Radial Direction:		N 73°42'04.3" E		
Chord Direction:		N 18°51'14.2" W		
Radial Direction:		N 68°35'27.2" E		
Tangent Direction:		N 21°24'32.8" W		

Element: Circular

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Middle Ordinate:	30.955
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Tangent Direction:	N 12°26'11.8" W

Horizontal Alignment Review Report

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Time: 12:49pm

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Last Revised: 3/14/2023 12:35:34

Note: All units in this report are in feet unless specified otherwise.

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Alignment Description:
Alignment Style: CL_P_Construction

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Tangent:		751.443		
Chord:		1312.733		
Middle Ordinate:		170.573		
External:		195.281		
Tangent Direction:		N 55°21'54.4" E		
Radial Direction:		S 34°38'05.6" E		
Chord Direction:		N 26°13'48.2" E		
Radial Direction:		N 87°05'42.1" E		
Tangent Direction:		N 2°54'17.9" W		
Element: Clothoid				
CS	( )	221+14.69 R1	669900.413	2196172.792
SPI	( )	223+00.44 R1	670085.924	2196163.378
ST	( )	226+69.69 R1	670444.613	2196069.287
Entrance Radius:		1348.136		
Exit Radius:		0.000		
Length:		555.000		
Angle:		11°47'37.5" Left		
Constant:		864.994		
Long Tangent:		370.825		
Short Tangent:		185.750		
Long Chord:		553.956		

	Xs:	552.653		
	Ys:	37.965		
	P:	9.506		
	K:	277.109		
	Tangent Direction:	N 2°54'17.9" W		
	Radial Direction:	N 87°05'42.1" E		
	Chord Direction:	N 10°46'08.0" W		
	Radial Direction:	N 75°18'04.6" E		
	Tangent Direction:	N 14°41'55.4" W		
Element: Linear				
ST	( )	226+69.69 R1	670444.613	2196069.287
PC	( )	231+52.73 R1	670911.842	2195946.723
	Tangential Direction:	N 14°41'55.4" W		
	Tangential Length:	483.038		
Element: Circular				
PC	( )	231+52.73 R1	670911.842	2195946.723
PI	( )	232+55.22 R1	671010.977	2195920.717
CC	( )		672850.246	2203336.147
PT	( )	233+57.69 R1	671110.773	2195897.381
	Radius:	7639.437		
	Delta:	1°32'14.0" Right		
	Degree of Curvature (Arc):	0°45'00.0"		
	Length:	204.965		
	Tangent:	102.488		
	Chord:	204.959		
	Middle Ordinate:	0.687		
	External:	0.687		
	Tangent Direction:	N 14°41'55.4" W		
	Radial Direction:	N 75°18'04.6" E		
	Chord Direction:	N 13°55'48.4" W		
	Radial Direction:	N 76°50'18.6" E		
	Tangent Direction:	N 13°09'41.4" W		
Element: Linear				
PT	( )	233+57.69 R1	671110.773	2195897.381
PC	( )	236+71.18 R1	671416.031	2195826.000
	Tangential Direction:	N 13°09'41.4" W		
	Tangential Length:	313.493		
Element: Circular				
PC	( )	236+71.18 R1	671416.031	2195826.000
PI	( )	240+81.96 R1	671816.018	2195732.467
CC	( )		668000.585	2181220.017
PT	( )	244+92.53 R1	672210.287	2195617.184
	Radius:	15000.000		
	Delta:	3°08'14.4" Left		

Degree of Curvature (Arc):		0°22'55.1"		
Length:		821.350		
Tangent:		410.778		
Chord:		821.247		
Middle Ordinate:		5.621		
External:		5.624		
Tangent Direction:		N 13°09'41.4" W		
Radial Direction:		N 76°50'18.6" E		
Chord Direction:		N 14°43'48.5" W		
Radial Direction:		N 73°42'04.3" E		
Tangent Direction:		N 16°17'55.7" W		

Element: Linear

PT	( )	244+92.53 R1	672210.287	2195617.184
PC	( )	249+49.08 R1	672648.483	2195489.056
Tangential Direction:		N 16°17'55.7" W		
Tangential Length:		456.544		

Element: Circular

PC	( )	249+49.08 R1	672648.483	2195489.056
PI	( )	251+92.52 R1	672882.221	2195421.019
CC	( )		671047.145	2189987.802
PRC	( )	254+35.66 R1	673109.346	2195333.399
Radius:		5729.580		
Delta:		4°51'57.1" Left		
Degree of Curvature (Arc):		1°00'00.0"		
Length:		486.586		
Tangent:		243.439		
Chord:		486.440		
Middle Ordinate:		5.165		
External:		5.169		
Tangent Direction:		N 16°13'46.3" W		
Radial Direction:		N 73°46'13.7" E		
Chord Direction:		N 18°39'44.9" W		
Radial Direction:		N 68°54'16.6" E		
Tangent Direction:		N 21°05'43.4" W		

Element: Circular

PRC	( )	254+35.66 R1	673109.346	2195333.399
PI	( )	262+11.48 R1	673833.167	2195054.174
CC	( )		676858.716	2205052.697
PT	( )	269+84.43 R1	674590.364	2194885.244
Radius:		10417.414		
Delta:		8°31'05.5" Right		
Degree of Curvature (Arc):		0°33'00.0"		
Length:		1548.765		
Tangent:		775.812		
Chord:		1547.339		

Middle Ordinate:	28.769
External:	28.848
Tangent Direction:	N 21°05'41.6" W
Radial Direction:	N 68°54'18.4" E
Chord Direction:	N 16°50'08.8" W
Radial Direction:	N 77°25'23.9" E
Tangent Direction:	N 12°34'36.1" W

Horizontal Alignment Review Report

Report Created: 3/14/2023
Time: 12:50pm

Project: Design
Description:
File Name: P:\PR60054\CUY\77510\Design\Roadway\Basemaps\77510_BP001.dgn
Last Revised: 3/14/2023 12:49:42

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: TRE90SUP
Alignment Description:
Alignment Style: CL_P_Construction

		Station	Northing	Easting
Element: Circular				
PC	( )	1000+00.00 R1	669919.866	2196196.823
PI	( )	1001+29.71 R1	670049.311	2196188.568
CC	( )		669787.275	2194117.563
PT	( )	1002+59.08 R1	670176.732	2196164.323
Radius:		2083.483		
Delta:		7°07'28.9" Left		
Degree of Curvature (Arc):		2°45'00.0"		
Length:		259.080		
Tangent:		129.707		
Chord:		258.913		
Middle Ordinate:		4.026		
External:		4.034		
Tangent Direction:		N 3°38'55.4" W		
Radial Direction:		N 86°21'04.6" E		
Chord Direction:		N 7°12'39.9" W		
Radial Direction:		N 79°13'35.7" E		
Tangent Direction:		N 10°46'24.3" W		
Element: Linear				
PT	( )	1002+59.08 R1	670176.732	2196164.323
PC	( )	1006+54.02 R1	670564.708	2196090.499
Tangential Direction:		N 10°46'24.3" W		
Tangential Length:		394.937		
Element: Circular				
PC	( )	1006+54.02 R1	670564.708	2196090.499
PI	( )	1007+63.31 R1	670672.075	2196070.069
CC	( )		670993.110	2198341.934
PT	( )	1008+72.44 R1	670780.900	2196059.949
Radius:		2291.831		

Delta:		5°27'38.0" Right		
Degree of Curvature (Arc):		2°30'00.0"		
Length:		218.423		
Tangent:		109.294		
Chord:		218.340		
Middle Ordinate:		2.602		
External:		2.605		
Tangent Direction:		N 10°46'24.3" W		
Radial Direction:		N 79°13'35.7" E		
Chord Direction:		N 8°02'35.3" W		
Radial Direction:		N 84°41'13.7" E		
Tangent Direction:		N 5°18'46.3" W		

Element: Linear

PT	( )	1008+72.44 R1	670780.900	2196059.949
PC	( )	1011+73.93 R1	671081.097	2196032.032
Tangential Direction:		N 5°18'46.3" W		
Tangential Length:		301.492		

Element: Circular

PC	( )	1011+73.93 R1	671081.097	2196032.032
PI	( )	1013+20.14 R1	671226.673	2196018.495
CC	( )		670948.466	2194605.792
PT	( )	1014+65.33 R1	671366.512	2195975.825
Radius:		1432.394		
Delta:		11°39'21.4" Left		
Degree of Curvature (Arc):		4°00'00.0"		
Length:		291.399		
Tangent:		146.204		
Chord:		290.897		
Middle Ordinate:		7.404		
External:		7.442		
Tangent Direction:		N 5°18'46.3" W		
Radial Direction:		N 84°41'13.7" E		
Chord Direction:		N 11°08'27.0" W		
Radial Direction:		N 73°01'52.3" E		
Tangent Direction:		N 16°58'07.7" W		

Element: Linear

PT	( )	1014+65.33 R1	671366.512	2195975.825
PC	( )	1018+40.33 R1	671725.186	2195866.381
Tangential Direction:		N 16°58'07.7" W		
Tangential Length:		375.000		

Element: Circular

PC	( )	1018+40.33 R1	671725.186	2195866.381
PI	( )	1019+19.41 R1	671800.822	2195843.302
CC	( )		670571.956	2192086.978

PT	( )	1019+98.47 R1	671875.474	2195817.215
Radius:		3951.433		
Delta:		2°17'34.7" Left		
Degree of Curvature (Arc):		1°27'00.0"		
Length:		158.136		
Tangent:		79.079		
Chord:		158.126		
Middle Ordinate:		0.791		
External:		0.791		
Tangent Direction:		N 16°58'07.7" W		
Radial Direction:		N 73°01'52.3" E		
Chord Direction:		N 18°06'55.1" W		
Radial Direction:		N 70°44'17.6" E		
Tangent Direction:		N 19°15'42.4" W		

Element: Linear

PT	( )	1019+98.47 R1	671875.474	2195817.215
PC	( )	1024+01.24 R1	672255.696	2195684.347
Tangential Direction:		N 19°15'42.4" W		
Tangential Length:		402.769		

Element: Circular

PC	( )	1024+01.24 R1	672255.696	2195684.347
PI	( )	1025+00.15 R1	672349.076	2195651.716
CC	( )		672885.730	2197487.295
PT	( )	1025+98.89 R1	672445.327	2195628.907
Radius:		1909.859		
Delta:		5°55'46.9" Right		
Degree of Curvature (Arc):		3°00'00.0"		
Length:		197.657		
Tangent:		98.917		
Chord:		197.569		
Middle Ordinate:		2.556		
External:		2.560		
Tangent Direction:		N 19°15'42.4" W		
Radial Direction:		N 70°44'17.6" E		
Chord Direction:		N 16°17'49.0" W		
Radial Direction:		N 76°40'04.5" E		
Tangent Direction:		N 13°19'55.5" W		

Element: Linear

PT	( )	1025+98.89 R1	672445.327	2195628.907
POE	( )	1029+24.06 R1	672761.731	2195553.925
Tangential Direction:		N 13°19'55.5" W		
Tangential Length:		325.168		

Horizontal Alignment Review Report

Report Created: 3/14/2023
Time: 12:53pm

Project: Design
Description:
File Name: P:\PR60054\CUY\77510\Design\Roadway\Basemaps\77510_BP001.dgn
Last Revised: 3/14/2023 12:49:42

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: TRE90E30
Alignment Description:
Alignment Style: CL_P_Construction

		Station	Northing	Easting
Element: Linear				
POB	( )	1200+00.00 R1	671796.013	2195856.635
PC	( )	1205+36.02 R1	672307.417	2195696.075
Tangential Direction:		N 17°25'48.6" W		
Tangential Length:		536.016		
Element: Circular				
PC	( )	1205+36.02 R1	672307.417	2195696.075
PI	( )	1207+31.10 R1	672493.544	2195637.639
CC	( )		672383.800	2195939.367
PT	( )	1208+69.07 R1	672598.637	2195801.997
Radius:		255.000		
Delta:		74°50'04.7" Right		
Degree of Curvature (Arc):		22°28'08.2"		
Length:		333.058		
Tangent:		195.084		
Chord:		309.884		
Middle Ordinate:		52.471		
External:		66.065		
Tangent Direction:		N 17°25'48.6" W		
Radial Direction:		N 72°34'11.4" E		
Chord Direction:		N 19°59'13.8" E		
Radial Direction:		S 32°35'43.9" E		
Tangent Direction:		N 57°24'16.1" E		
Element: Linear				
PT	( )	1208+69.07 R1	672598.637	2195801.997
POE	( )	1210+02.03 R1	672670.262	2195914.014
Tangential Direction:		N 57°24'16.1" E		
Tangential Length:		132.959		

Horizontal Alignment Review Report

Report Created: 3/14/2023
Time: 12:50pm

Project: Design
Description:
File Name: P:\PR60054\CUY\77510\Design\Roadway\Basemaps\77510_BP001.dgn
Last Revised: 3/14/2023 12:49:42

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: pTRCHEE90
Alignment Description:
Alignment Style: CL_P_Construction

		Station	Northing	Easting
Element: Linear				
POB	( )	1100+00.00 R1	670664.640	2196138.348
PC	( )	1102+00.94 R1	670854.775	2196073.329
Tangential Direction:		N 18°52'43.0" W		
Tangential Length:		200.945		
Element: Circular				
PC	( )	1102+00.94 R1	670854.775	2196073.329
PI	( )	1104+26.06 R1	671067.781	2196000.490
CC	( )		672708.661	2201494.693
PT	( )	1106+50.94 R1	671285.845	2195944.587
Radius:		5729.579		
Delta:		4°30'00.0" Right		
Degree of Curvature (Arc):		1°00'00.0"		
Length:		450.000		
Tangent:		225.116		
Chord:		449.884		
Middle Ordinate:		4.417		
External:		4.421		
Tangent Direction:		N 18°52'43.0" W		
Radial Direction:		N 71°07'17.0" E		
Chord Direction:		N 16°37'43.0" W		
Radial Direction:		N 75°37'17.0" E		
Tangent Direction:		N 14°22'43.0" W		
Element: Linear				
PT	( )	1106+50.94 R1	671285.845	2195944.587
PC	( )	1109+79.56 R1	671604.164	2195862.984
Tangential Direction:		N 14°22'43.0" W		
Tangential Length:		328.613		
Element: Circular				

PC	( )	1109+79.56 R1	671604.164	2195862.984
PI	( )	1111+00.03 R1	671720.861	2195833.067
CC	( )		670892.756	2193087.931
PT	( )	1112+20.36 R1	671834.634	2195793.460
Radius:		2864.789		
Delta:		4°48'57.5" Left		
Degree of Curvature (Arc):		2°00'00.0"		
Length:		240.799		
Tangent:		120.470		
Chord:		240.728		
Middle Ordinate:		2.530		
External:		2.532		
Tangent Direction:		N 14°22'43.0" W		
Radial Direction:		N 75°37'17.0" E		
Chord Direction:		N 16°47'11.7" W		
Radial Direction:		N 70°48'19.5" E		
Tangent Direction:		N 19°11'40.5" W		

Element: Linear

PT	( )	1112+20.36 R1	671834.634	2195793.460
PC	( )	1114+63.41 R1	672064.179	2195713.548
Tangential Direction:		N 19°11'40.5" W		
Tangential Length:		243.058		

Element: Circular

PC	( )	1114+63.41 R1	672064.179	2195713.548
PI	( )	1115+88.42 R1	672182.235	2195672.449
CC	( )		675831.689	2206535.660
CS	( )	1117+13.41 R1	672301.159	2195633.935
Radius:		11459.156		
Delta:		1°15'00.0" Right		
Degree of Curvature (Arc):		0°30'00.0"		
Length:		250.000		
Tangent:		125.005		
Chord:		249.995		
Middle Ordinate:		0.682		
External:		0.682		
Tangent Direction:		N 19°11'40.5" W		
Radial Direction:		N 70°48'19.5" E		
Chord Direction:		N 18°34'10.5" W		
Radial Direction:		N 72°03'19.5" E		
Tangent Direction:		N 17°56'40.5" W		

Element: Clothoid

CS	( )	1117+13.41 R1	672301.159	2195633.935
SPI	( )	1117+80.08 R1	672364.583	2195613.395
ST	( )	1119+13.41 R1	672491.785	2195573.424
Entrance Radius:		11459.156		

Exit Radius:	0.000
Length:	200.000
Angle:	0°30'00.0" Right
Constant:	1513.880
Long Tangent:	133.334
Short Tangent:	66.667
Long Chord:	199.999
Xs:	199.998
Ys:	0.582
P:	0.145
K:	100.000
Tangent Direction:	N 17°56'40.5" W
Radial Direction:	N 72°03'19.5" E
Chord Direction:	N 17°36'40.5" W
Radial Direction:	N 72°33'19.5" E
Tangent Direction:	N 17°26'40.5" W

Horizontal Alignment Review Report

Report Created: 3/14/2023
Time: 12:47pm

Project: Design
Description:
File Name: P:\PR60054\CUY\77510\Design\Roadway\Basemaps\77510_BP001.dgn
Last Revised: 3/14/2023 12:35:34

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: TRW90CHE
Alignment Description:
Alignment Style: CL_P_Construction

		Station	Northing	Easting
Element: Circular				
PC	( )	399+90.15 R1	673568.660	2195058.411
PI	( )	401+90.45 R1	673378.698	2195121.935
CC	( )		676905.284	2205036.239
PRC	( )	403+90.70 R1	673191.292	2195192.643
Radius:		10520.937		
Delta:		2°10'52.9" Left		
Degree of Curvature (Arc):		0°32'40.5"		
Length:		400.555		
Tangent:		200.302		
Chord:		400.531		
Middle Ordinate:		1.906		
External:		1.907		
Tangent Direction:		S 18°29'24.5" E		
Radial Direction:		S 71°30'35.5" W		
Chord Direction:		S 19°34'51.0" E		
Radial Direction:		S 69°19'42.6" W		
Tangent Direction:		S 20°40'17.4" E		
Element: Circular				
PRC	( )	403+90.70 R1	673191.292	2195192.643
PI	( )	406+78.18 R1	672922.323	2195294.125
CC	( )		672568.955	2193543.195
PT	( )	409+60.64 R1	672635.049	2195304.903
Radius:		1762.947		
Delta:		18°31'22.6" Right		
Degree of Curvature (Arc):		3°15'00.0"		
Length:		569.936		
Tangent:		287.476		
Chord:		567.458		
Middle Ordinate:		22.981		

External:		23.285		
Tangent Direction:		S 20°40'17.4" E		
Radial Direction:		S 69°19'42.6" W		
Chord Direction:		S 11°24'36.2" E		
Radial Direction:		S 87°51'05.1" W		
Tangent Direction:		S 2°08'54.9" E		

Element: Linear

PT	( )	409+60.64 R1	672635.049	2195304.903
PC	( )	411+30.87 R1	672464.944	2195311.285
Tangential Direction:		S 2°08'54.9" E		
Tangential Length:		170.225		

Element: Circular

PC	( )	411+30.87 R1	672464.944	2195311.285
PI	( )	413+62.56 R1	672233.411	2195319.971
CC	( )		672500.745	2196265.543
PT	( )	415+85.47 R1	672031.604	2195433.799
Radius:		954.930		
Delta:		27°16'35.0" Left		
Degree of Curvature (Arc):		6°00'00.0"		
Length:		454.607		
Tangent:		231.696		
Chord:		450.326		
Middle Ordinate:		26.925		
External:		27.706		
Tangent Direction:		S 2°08'54.9" E		
Radial Direction:		S 87°51'05.1" W		
Chord Direction:		S 15°47'12.4" E		
Radial Direction:		S 60°34'30.1" W		
Tangent Direction:		S 29°25'29.9" E		

Element: Linear

PT	( )	415+85.47 R1	672031.604	2195433.799
PC	( )	416+72.84 R1	671955.511	2195476.719
Tangential Direction:		S 29°25'29.9" E		
Tangential Length:		87.363		

Element: Circular

PC	( )	416+72.84 R1	671955.511	2195476.719
PI	( )	419+46.67 R1	671717.000	2195611.250
CC	( )		671251.799	2194229.104
PT	( )	422+13.98 R1	671445.686	2195648.316
Radius:		1432.394		
Delta:		21°38'44.3" Right		
Degree of Curvature (Arc):		4°00'00.0"		
Length:		541.141		
Tangent:		273.835		

Chord:		537.928		
Middle Ordinate:		25.479		
External:		25.940		
Tangent Direction:		S 29°25'29.9" E		
Radial Direction:		S 60°34'30.1" W		
Chord Direction:		S 18°36'07.7" E		
Radial Direction:		S 82°13'14.4" W		
Tangent Direction:		S 7°46'45.6" E		

Element: Linear

PT	( )	422+13.98 R1	671445.686	2195648.316
PC	( )	426+67.70 R1	670996.140	2195709.731
Tangential Direction:		S 7°46'45.6" E		
Tangential Length:		453.721		

Element: Circular

PC	( )	426+67.70 R1	670996.140	2195709.731
PI	( )	428+07.95 R1	670857.181	2195728.715
CC	( )		671159.413	2196904.856
PT	( )	429+46.94 R1	670726.285	2195779.075
Radius:		1206.227		
Delta:		13°15'50.9" Left		
Degree of Curvature (Arc):		4°45'00.0"		
Length:		279.245		
Tangent:		140.250		
Chord:		278.622		
Middle Ordinate:		8.072		
External:		8.126		
Tangent Direction:		S 7°46'45.6" E		
Radial Direction:		S 82°13'14.4" W		
Chord Direction:		S 14°24'41.1" E		
Radial Direction:		S 68°57'23.5" W		
Tangent Direction:		S 21°02'36.5" E		

Element: Linear

PT	( )	429+46.94 R1	670726.285	2195779.075
POE	( )	430+67.03 R1	670614.204	2195822.196
Tangential Direction:		S 21°02'36.5" E		
Tangential Length:		120.090		

Horizontal Alignment Review Report

Report Created: 3/14/2023
Time: 12:48pm

Project: Design
Description:
File Name: P:\PR60054\CUY\77510\Design\Roadway\Basemaps\77510_BP001.dgn
Last Revised: 3/14/2023 12:35:34

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: TRW90E24
Alignment Description:
Alignment Style: CL_P_Construction

		Station	Northing	Easting
Element: Linear				
POB	( )	600+00.00 R1	672012.729	2195430.668
PC	( )	600+72.46 R1	671949.615	2195466.267
Tangential Direction:		S 29°25'29.9" E		
Tangential Length:		72.462		
Element: Circular				
PC	( )	600+72.46 R1	671949.615	2195466.267
PI	( )	603+44.00 R1	671713.105	2195599.670
CC	( )		671251.799	2194229.104
PT	( )	606+09.07 R1	671444.065	2195636.426
Radius:		1420.394		
Delta:		21°38'43.8" Right		
Degree of Curvature (Arc):		4°02'01.7"		
Length:		536.604		
Tangent:		271.539		
Chord:		533.419		
Middle Ordinate:		25.265		
External:		25.722		
Tangent Direction:		S 29°25'29.9" E		
Radial Direction:		S 60°34'30.1" W		
Chord Direction:		S 18°36'08.0" E		
Radial Direction:		S 82°13'13.9" W		
Tangent Direction:		S 7°46'46.1" E		
Element: Linear				
PT	( )	606+09.07 R1	671444.065	2195636.426
PC	( )	607+57.11 R1	671297.378	2195656.466
Tangential Direction:		S 7°46'46.1" E		
Tangential Length:		148.049		
Element: Circular				

PC	( )	607+57.11 R1	671297.378	2195656.466
PI	( )	608+48.60 R1	671206.735	2195668.849
CC	( )		671200.435	2194946.860
PCC	( )	609+39.10 R1	671115.890	2195658.049
Radius:		716.197		
Delta:		14°33'31.5" Right		
Degree of Curvature (Arc):		8°00'00.0"		
Length:		181.984		
Tangent:		91.485		
Chord:		181.495		
Middle Ordinate:		5.772		
External:		5.819		
Tangent Direction:		S 7°46'45.6" E		
Radial Direction:		S 82°13'14.4" W		
Chord Direction:		S 0°29'59.8" E		
Radial Direction:		N 83°13'14.1" W		
Tangent Direction:		S 6°46'45.9" W		

Element: Circular

PCC	( )	609+39.10 R1	671115.890	2195658.049
PI	( )	611+12.18 R1	670944.022	2195637.618
CC	( )		671142.944	2195430.469
PT	( )	612+35.58 R1	670916.646	2195466.719
Radius:		229.183		
Delta:		74°07'11.1" Right		
Degree of Curvature (Arc):		25°00'00.0"		
Length:		296.479		
Tangent:		173.078		
Chord:		276.234		
Middle Ordinate:		46.294		
External:		58.012		
Tangent Direction:		S 6°46'45.9" W		
Radial Direction:		N 83°13'14.1" W		
Chord Direction:		S 43°50'21.5" W		
Radial Direction:		N 9°06'03.0" W		
Tangent Direction:		S 80°53'57.0" W		

Element: Linear

PT	( )	612+35.58 R1	670916.646	2195466.719
POE	( )	615+39.22 R1	670868.618	2195166.900
Tangential Direction:		S 80°53'57.0" W		
Tangential Length:		303.642		

Horizontal Alignment Review Report

Report Created: 3/14/2023
Time: 12:52pm

Project: Design
Description:
File Name: P:\PR60054\CUY\77510\Design\Roadway\Basemaps\77510_BP001.dgn
Last Revised: 3/14/2023 12:49:42

Note: All units in this report are in feet unless specified otherwise.

Alignment Name: TRSUPW90
Alignment Description:
Alignment Style: CL_P_Construction

		Station	Northing	Easting
Element: Linear				
POB	( )	500+02.61 R1	672617.730	2195286.843
PC	( )	501+86.63 R1	672441.974	2195341.396
Tangential Direction:		S 17°14'38.0" E		
Tangential Length:		184.027		
Element: Circular				
PC	( )	501+86.63 R1	672441.974	2195341.396
PI	( )	502+73.05 R1	672359.443	2195367.013
CC	( )		672866.593	2196709.407
PT	( )	503+59.26 R1	672280.590	2195402.366
Radius:		1432.394		
Delta:		6°54'17.4" Left		
Degree of Curvature (Arc):		4°00'00.0"		
Length:		172.621		
Tangent:		86.415		
Chord:		172.517		
Middle Ordinate:		2.600		
External:		2.604		
Tangent Direction:		S 17°14'38.0" E		
Radial Direction:		S 72°45'22.0" W		
Chord Direction:		S 20°41'46.7" E		
Radial Direction:		S 65°51'04.6" W		
Tangent Direction:		S 24°08'55.4" E		
Element: Linear				
PT	( )	503+59.26 R1	672280.590	2195402.366
PC	( )	505+96.13 R1	672064.450	2195499.272
Tangential Direction:		S 24°08'55.4" E		
Tangential Length:		236.870		
Element: Circular				

PC	( )	505+96.13 R1	672064.450	2195499.272
PI	( )	507+78.61 R1	671897.938	2195573.926
CC	( )		670892.445	2192885.190
CS	( )	509+60.59 R1	671723.301	2195626.849

Radius:	2864.789
Delta:	7°17'21.8" Right
Degree of Curvature (Arc):	2°00'00.0"
Length:	364.469
Tangent:	182.481
Chord:	364.223
Middle Ordinate:	5.794
External:	5.806
Tangent Direction:	S 24°08'55.4" E
Radial Direction:	S 65°51'04.6" W
Chord Direction:	S 20°30'14.5" E
Radial Direction:	S 73°08'26.3" W
Tangent Direction:	S 16°51'33.7" E

Element: Clothoid

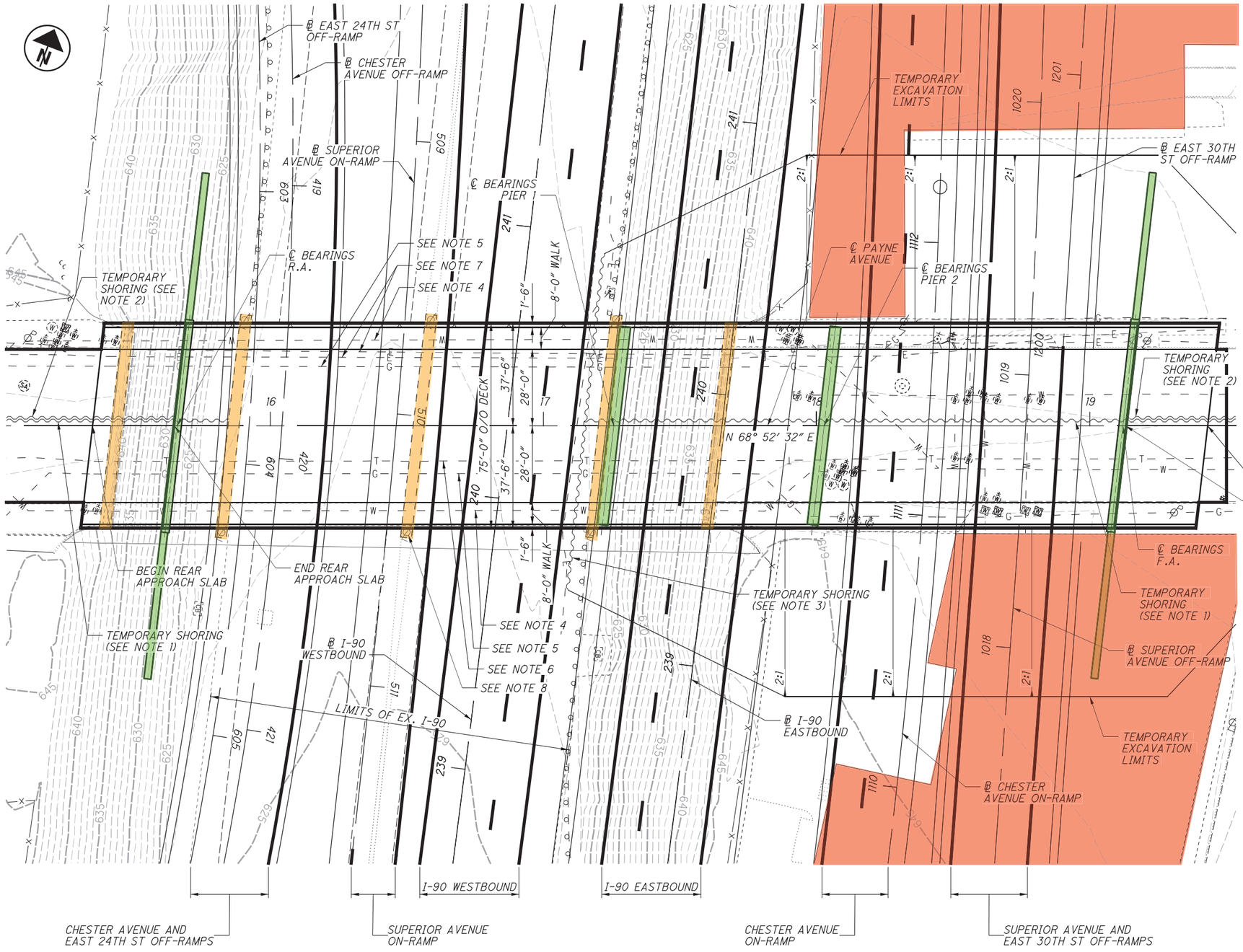
CS	( )	509+60.59 R1	671723.301	2195626.849
SPI	( )	510+27.27 R1	671659.492	2195646.186
ST	( )	511+60.59 R1	671530.609	2195680.382

Entrance Radius:	2864.789
Exit Radius:	0.000
Length:	200.000
Angle:	2°00'00.0" Right
Constant:	756.940
Long Tangent:	133.342
Short Tangent:	66.674
Long Chord:	199.989
Xs:	199.976
Ys:	2.327
P:	0.582
K:	99.996
Tangent Direction:	S 16°51'33.7" E
Radial Direction:	S 73°08'26.3" W
Chord Direction:	S 15°31'33.6" E
Radial Direction:	S 75°08'26.3" W
Tangent Direction:	S 14°51'33.7" E

BURGESS & NIPLE

330 Rush Alley | Suite 700 | Columbus, OH 43215 | 614.459.2050

Appendix B – Bridge Exhibits



NOTES

1. ANCHORED STEEL SHEET PILE TEMPORARY SHORING FOR PHASE 1 REMOVAL AND CONSTRUCTION.
2. TEMPORARY WIRE-FACED MSE RETAINING WALL FOR PHASE 2 REMOVAL AND CONSTRUCTION.
3. CANTILEVERED STEEL SHEET PILE TEMPORARY SHORING FOR PIER 1 CONSTRUCTION.
4. EXISTING ATTACHED WATER LINE TO BE TEMPORARILY RELOACATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
5. EXISTING ATTACHED GAS LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
6. EXISTING ATTACHED FIBER OPTIC LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
7. EXISTING ATTACHED ELECTRICAL CONDUIT TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
8. EXISTING LIGHT POLE ATTACHED TO EXISTING PIER CAP TO BE REMOVED AND REPLACED, TYPICAL OF 6.
9. EXCAVATION LIMITS SHOWN ARE FOR PHASED CONSTRUCTION AND TRADITIONAL ABUTMENTS.
10. PROPOSED WINGWALLS SHOWN ARE AN ESTIMATE. RETAINING WALLS MAY BE REQUIRED AT EACH CORNER OF THE PROPOSED BRIDGE INSTEAD.

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES.

SPANS: 42'-0"±, 68'-0"±, 68'-0"±, 42'-0"± C/C BEARINGS
ROADWAY: 56'± F/F CURB WITH 8'-0"± WALKS
LOADING: CF = 2000 (51)
SKEW: 6°25'00"± LEFT FORWARD
WEARING SURFACE: 1" MONOLITHIC WEARING SURFACE
APPROACH SLABS: AS-1-54 (25'-0"± LONG)
ALIGNMENT: TANGENT
CROWN: 0.0156± FT/FT
STRUCTURAL FILE NUMBER: 1808044
DATE BUILT: 1959, 1994 MAJOR REHABILITATION
DISPOSITION: TO BE REMOVED AND REPLACED.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL GIRDER WITH COMPOSITE REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES AND SEMI-INTEGRAL ABUTMENTS.

SPANS: 161'-0", 77'-0", 110'-0" C/C BEARINGS
ROADWAY: 56'-0" F/F CURB
LOADING: HL-93
SKEW: 06° 34' 24" LEFT FORWARD
FUTURE WEARING SURFACE: 0.060 KSF
APPROACH SLABS: 30'-0" LONG (AS-1-15 AND AS-2-15)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41° 30' 25.61" N
LONGITUDE 81° 40' 17.49" W

LEGEND

F.A. = FORWARD ABUTMENT
F/F = FACE TO FACE
O/O = OUT TO OUT
R.A. = REAR ABUTMENT

SITE PLAN - ALTERNATIVE 1A - PHASED CONSTRUCTION

DESIGN AGENCY

DESIGNED	DRAWN	REVIEWED	DATE
KMA	KMA	JAA	02/2023
CHECKED	REVISED		STRUCTURE FILE NUMBER
BCS			

SITE PLAN - ALTERNATIVE 1A - PHASED CONSTRUCTION
PAYNE AVENUE
OVER I-90 EB, WB, AND RAMPS

CUY-90-14.90
PID No.

1 / 1

1 / 4

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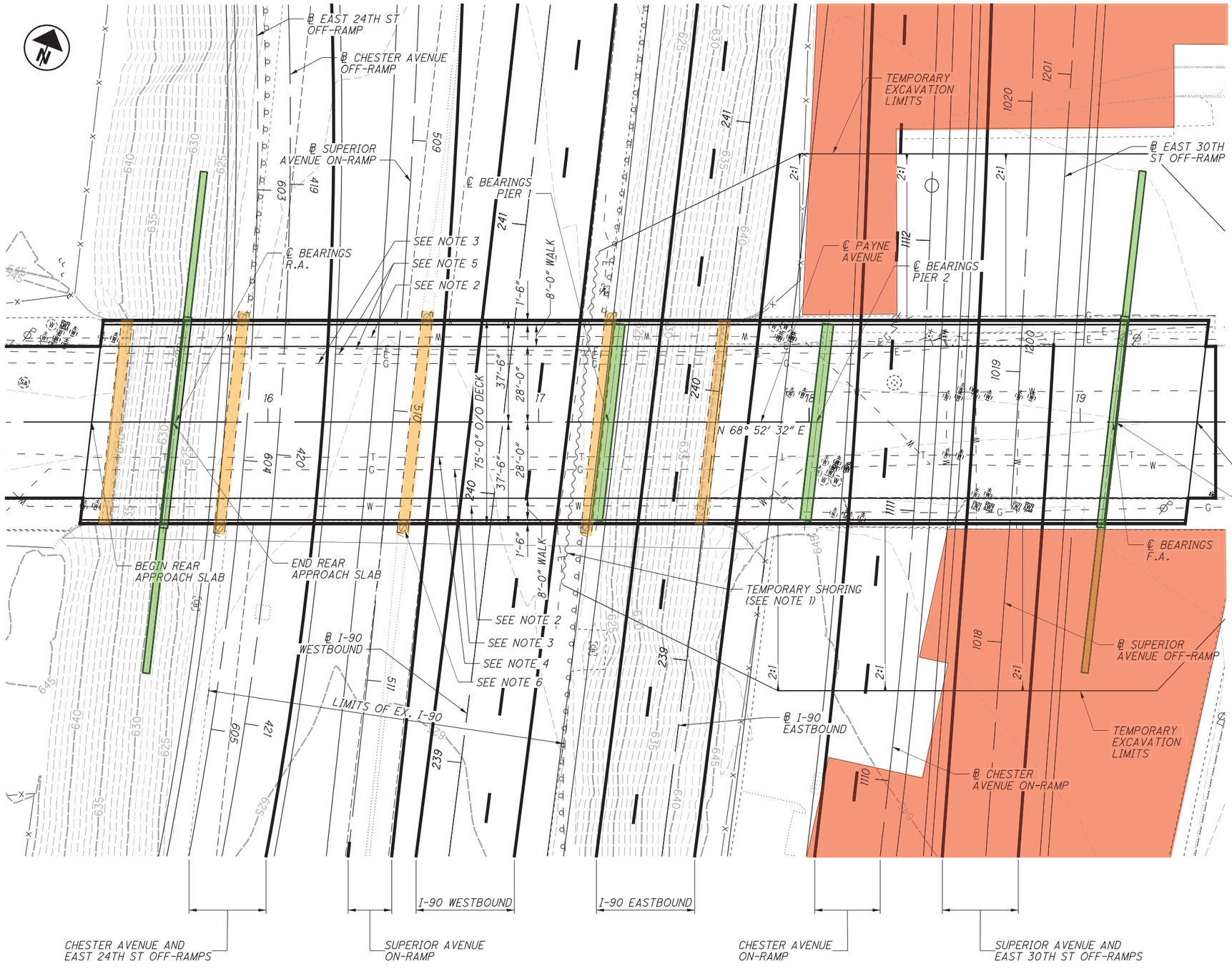

NOTES

1. CANTILEVERED STEEL SHEET PILE TEMPORARY SHORING FOR PIER 1 CONSTRUCTION.
2. EXISTING ATTACHED WATER LINE TO BE TEMPORARILY RELOACATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
3. EXISTING ATTACHED GAS LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
4. EXISTING ATTACHED FIBER OPTIC LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
5. EXISTING ATTACHED ELECTRICAL CONDUIT TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
6. EXISTING LIGHT POLE ATTACHED TO EXISTING PIER CAP TO BE REMOVED AND REPLACED, TYPICAL OF 6.
7. EXCAVATION LIMITS SHOWN ARE FOR TRADITIONAL ABUTMENTS.
8. PROPOSED WINGWALLS SHOWN ARE AN ESTIMATE. RETAINING WALLS MAY BE REQUIRED AT EACH CORNER OF THE PROPOSED BRIDGE INSTEAD.

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES.

SPANS: 42'-0"±, 68'-0"±, 68'-0"±, 42'-0"± C/C BEARINGS
ROADWAY: 56'± F/F CURB WITH 8'-0"± WALKS
LOADING: CF = 2000 (51)
SKEW: 6°25'00"± LEFT FORWARD
WEARING SURFACE: 1" MONOLITHIC WEARING SURFACE
APPROACH SLABS: AS-1-54 (25'-0"± LONG)
ALIGNMENT: TANGENT
CROWN: 0.0156± FT/FT
STRUCTURAL FILE NUMBER: 1808044
DATE BUILT: 1959, 1994 MAJOR REHABILITATION
DISPOSITION: TO BE REMOVED AND REPLACED.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL GIRDER WITH COMPOSITE REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES AND SEMI-INTEGRAL ABUTMENTS.

SPANS: 161'-0", 77'-0", 110'-0" C/C BEARINGS
ROADWAY: 56'-0" F/F CURB
LOADING: HL-93
SKEW: 06° 34' 24" LEFT FORWARD
FUTURE WEARING SURFACE: 0.060 KSF
APPROACH SLABS: 30'-0" LONG (AS-1-15 AND AS-2-15)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41° 30' 25.61" N
LONGITUDE 81° 40' 17.49" W

LEGEND

F.A. = FORWARD ABUTMENT
F/F = FACE TO FACE
O/O = OUT TO OUT
R.A. = REAR ABUTMENT

SITE PLAN - ALTERNATIVE 1B - FULL CLOSURE

DESIGN AGENCY

DESIGNED	DRAWN	REVIEWED	DATE
KMA	KMA	JAA	02/2023
CHECKED	REVISED		STRUCTURE FILE NUMBER
BCS			

SITE PLAN - ALTERNATIVE 1B - FULL CLOSURE
PAYNE AVENUE
OVER I-90 EB, WB, AND RAMPS

CUY-90-14.90
PID No.

1 / 1

1A / 4

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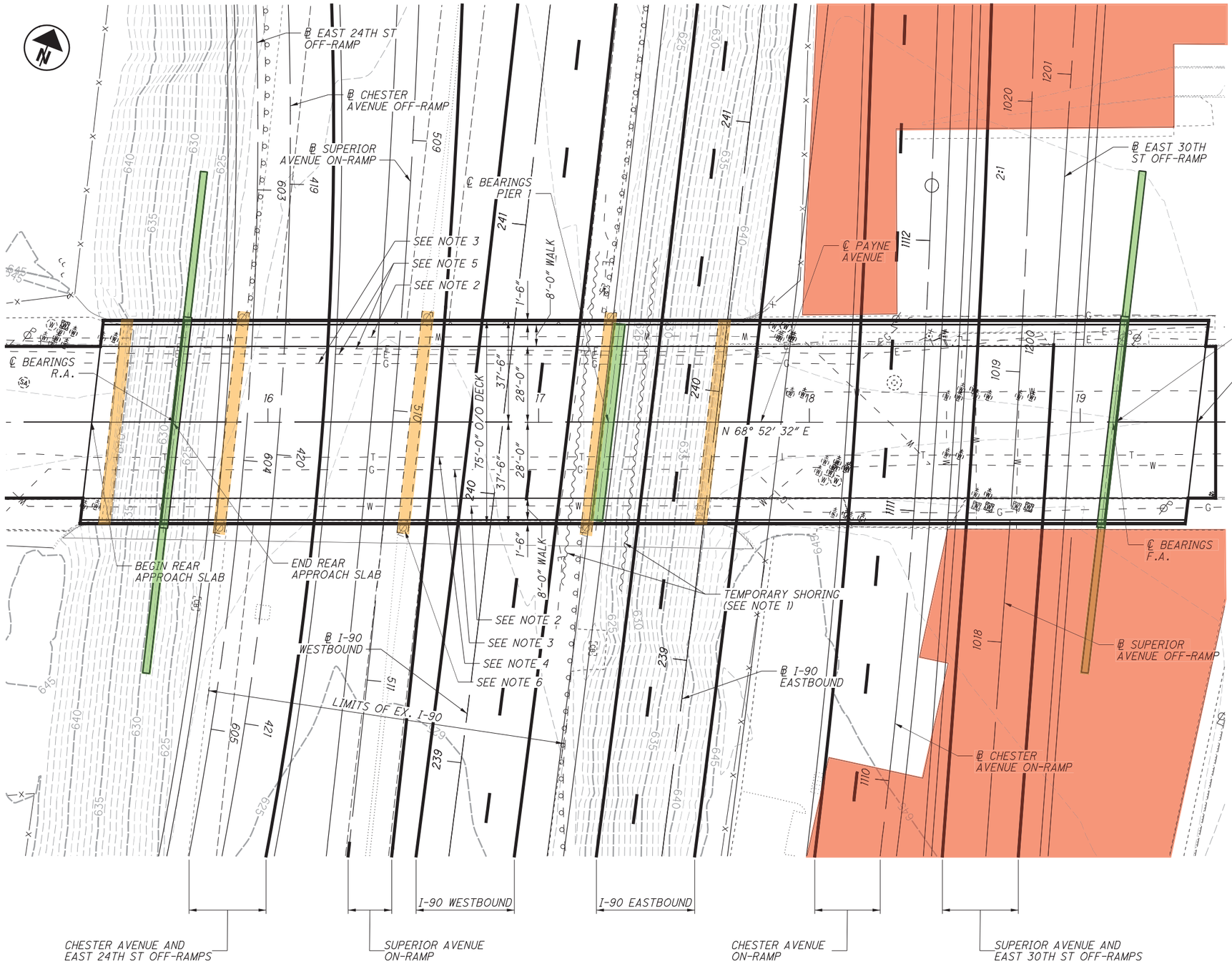

NOTES

1. CANTILEVERED STEEL SHEET PILE TEMPORARY SHORING FOR PIER 1 CONSTRUCTION.
2. EXISTING ATTACHED WATER LINE TO BE TEMPORARILY RELOACATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
3. EXISTING ATTACHED GAS LINETO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
4. EXISTING ATTACHED FIBER OPTIC LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
5. EXISTING ATTACHED ELECTRICAL CONDUIT TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
6. EXISTING LIGHT POLE ATTACHED TO EXISTING PIER CAP TO BE REMOVED AND REPLACED, TYPICAL OF 6.
7. PROPOSED WINGWALLS SHOWN ARE AN ESTIMATE. RETAINING WALLS MAY BE REQUIRED AT EACH CORNER OF THE PROPOSED BRIDGE INSTEAD.

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES.

SPANS: 42'-0"±, 68'-0"±, 68'-0"±, 42'-0"± C/C BEARINGS
ROADWAY: 56'± F/F CURB WITH 8'-0"± WALKS
LOADING: CF = 2000 (51)
SKEW: 6°25'00"± LEFT FORWARD
WEARING SURFACE: 1" MONOLITHIC WERAING SURFACE
APPROACH SLABS: AS-1-54 (25'-0"± LONG)
ALIGNMENT: TANGENT
CROWN: 0.0156± FT/FT
STRUCTURAL FILE NUMBER: 1808044
DATE BUILT: 1959, 1994 MAJOR REHABILITATION
DISPOSITION: TO BE REMOVED AND REPLACED.

PROPOSED STRUCTURE

TYPE: CONTINUOUS STEEL GIRDER WITH COMPOSITE REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES AND SEMI-INTEGRAL ABUTMENTS.

SPANS: 161'-0", 187'-0" C/C BEARINGS
ROADWAY: 56'-0" F/F CURB
LOADING: HL-93
SKEW: 06° 34' 24" LEFT FORWARD
FUTURE WEARING SURFACE: 0.060 KSF
APPROACH SLABS: 30'-0" LONG (AS-1-15 AND AS-2-15)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41° 30' 25.61" N
LONGITUDE 81° 40' 17.49" W

LEGEND

F.A. = FORWARD ABUTMENT
F/F = FACE TO FACE
O/O = OUT TO OUT
R.A. = REAR ABUTMENT

SITE PLAN - ALTERNATIVE 2

DESIGN AGENCY

DESIGNED	DRAWN	REVIEWED	DATE
KMA	KMA	JAA	02/2023
CHECKED	REVISED		STRUCTURE FILE NUMBER
BCS			

SITE PLAN - ALTERNATIVE 2
PAYNE AVENUE
OVER I-90 EB, WB, AND RAMPS

CUY-90-14.90
PID No.

1 / 1

3 / 4

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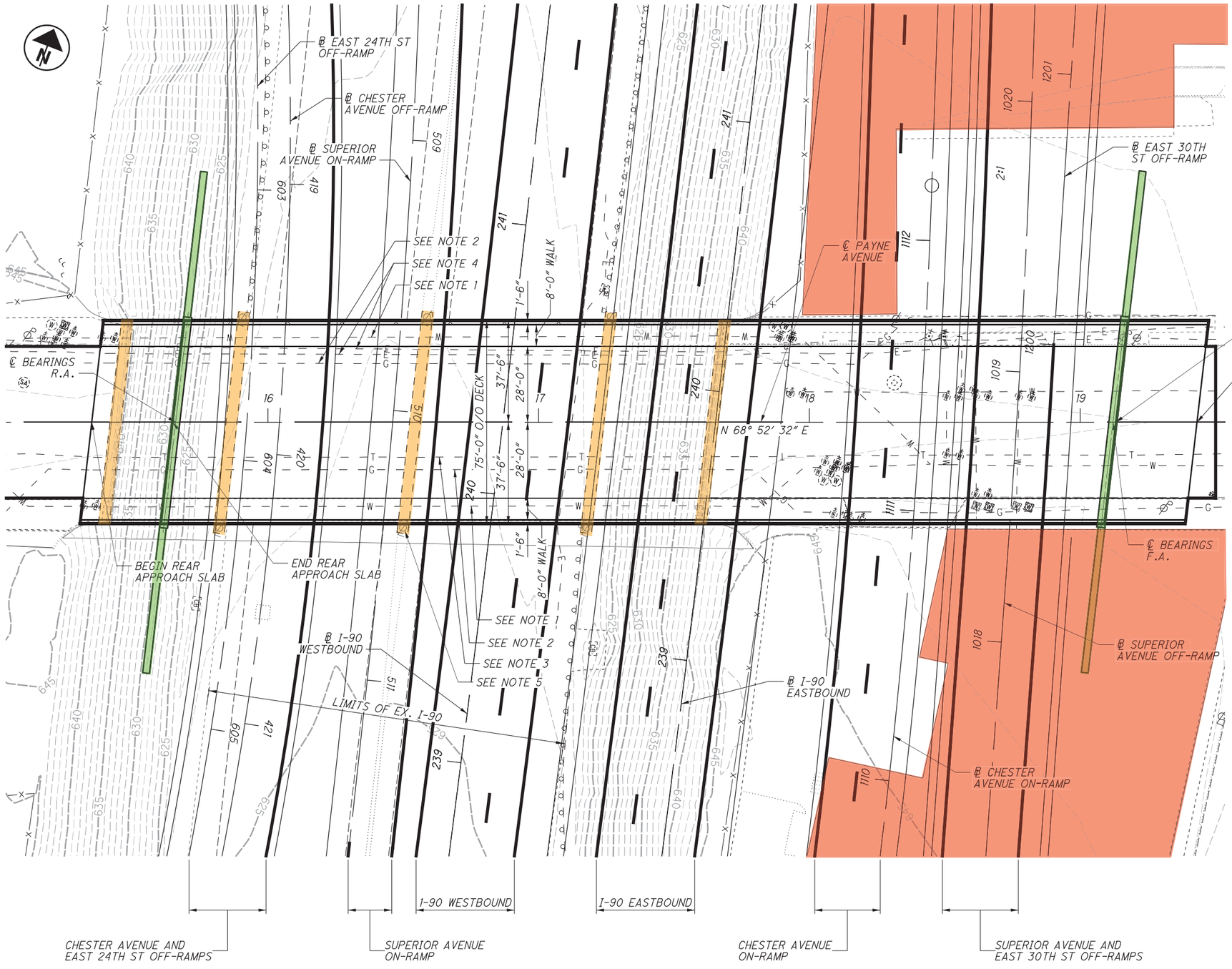

NOTES

1. EXISTING ATTACHED WATER LINE TO BE TEMPORARILY RELOACATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
2. EXISTING ATTACHED GAS LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
3. EXISTING ATTACHED FIBER OPTIC LINE TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
4. EXISTING ATTACHED ELECTRICAL CONDUIT TO BE TEMPORARILY RELOCATED AND RE-ATTACHED TO THE PROPOSED BRIDGE.
5. EXISTING LIGHT POLE ATTACHED TO EXISTING PIER CAP TO BE REMOVED AND REPLACED, TYPICAL OF 6.
6. PROPOSED WINGWALLS SHOWN ARE AN ESTIMATE. RETAINING WALLS MAY BE REQUIRED AT EACH CORNER OF THE PROPOSED BRIDGE INSTEAD.

EXISTING STRUCTURE

TYPE: CONTINUOUS STEEL BEAM WITH REINFORCED CONCRETE DECK AND REINFORCED CONCRETE SUBSTRUCTURES.

SPANS: 42'-0"±, 68'-0"±, 68'-0"±, 42'-0"± C/C BEARINGS
ROADWAY: 56'± F/F CURB WITH 8'-0"± WALKS
LOADING: CF = 2000 (51)
SKEW: 6°25'00"± LEFT FORWARD
WEARING SURFACE: 1" MONOLITHIC WEARING SURFACE
APPROACH SLABS: AS-1-54 (25'-0"± LONG)
ALIGNMENT: TANGENT
CROWN: 0.0156± FT/FT
STRUCTURAL FILE NUMBER: 1808044
DATE BUILT: 1959, 1994 MAJOR REHABILITATION
DISPOSITION: TO BE REMOVED AND REPLACED.

PROPOSED STRUCTURE

TYPE: STEEL THROUGH TRUSS WITH STEEL STRINGERS, COMPOSITE REINFORCED CONCRETE DECK, AND REINFORCED CONCRETE SUBSTRUCTURES.

SPANS: 348'-0" C/C BEARINGS
ROADWAY: 56'-0" F/F CURB
LOADING: HL-93
SKEW: 06° 34' 24" LEFT FORWARD
FUTURE WEARING SURFACE: 0.060 KSF
APPROACH SLABS: 30'-0" LONG (AS-1-15 AND AS-2-15)
ALIGNMENT: TANGENT
CROWN: 0.016 FT/FT
COORDINATES: LATITUDE 41° 30' 25.61" N
LONGITUDE 81° 40' 17.49" W

LEGEND

F.A. = FORWARD ABUTMENT
F/F = FACE TO FACE
O/O = OUT TO OUT
R.A. = REAR ABUTMENT

SITE PLAN - ALTERNATIVE 3

DESIGN AGENCY

DESIGNED	DRAWN	REVIEWED	DATE
KMA	KMA	JAA	02/2023
CHECKED	REVISED	STRUCTURE FILE NUMBER	
BCS			

SITE PLAN - ALTERNATIVE 3
PAYNE AVENUE
OVER I-90 EB, WB, AND RAMPS

CUY-90-14.90
PID No.

1 / 1

4 / 4

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BURGESS & NIPLE

330 Rush Alley | Suite 700 | Columbus, OH 43215 | 614.459.2050

Appendix C – Bridge Inventory Reports

(203) Bridge (Dedicated) Name: | BRIDGE INVENTORY AND APPRAISAL | Report Date: 2/2/2023

Structure File Number: 1809415 | Inventory Bridge Number: CUY 00090 18120

Sufficiency Rating: N/A Deficiency Rating: FO | CSX RR | Bridge Status: Active

(2) District: 12 | (3) County: 18-CUYAHOGA | (9) Location: .44 Mi. E. Of Jct. Us-6 | (7) Facility Carried: Csx Rr

(4) FIPS Code: None | Owner: | (208) Route On Bridge: Non Highway Traffic On Bridge (I.E. | (207) Route Under Bridge: State (Odot) (Toll Free)

(102) Direction of Traffic: 0 - Highway Traffic Not Carried | (103) Temporary Structure: | (110) Designated National Network: National Network | (101) Parallel: N

(42A) Type Serv: (On): Railroad | (42B) Type Serv (Under): Highway, With Or W/Out Pedestrian

INVENTORY ROUTE DATA

(5A) Route On/Under: 2 - 2: Single Route Goes "Under" The Structu

(5B) Hwy Sys: 1 - Interstate Highway

(5D) Route No: 00090 (5E) Dir: Not Applic (5C) Des: Mainline

(6) Feature Int: Csx Rr

(200) CL: 18120 (201)Spec Des: (209) Interstate Mile: 173.93

(29) Avg. Daily Traffic(ADT): 110,508 (30) ADT Year: 2015

(235) Truck Traf: 0 (210) Corridor: (104) NHS: structure/route is on nhs

(26) Functional Class: urban - principal (100) Strahnt: Is On An Interstate Strahnet

INTERSECTED ROUTE DATA

(370A) Record Type: (370B) Hwy Sys:

(370D) Route No: (370E) Dir: (370C) Des:

(373) Feature Int:

(382) CL: 0000 (371) Interstate Mile: (387) Special Desig:

(379) Avg. Daily Traffic(ADT): 0 (380) ADT Year: 0

(381) Truck Traf: 0 (384) Corridor: (378) NHS: -

(375) Functional Class: (386) Strahnt:

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: Ft (47) Card: 60.0 Ft

(53) Prac Max Vert On Brg: 0.0 Ft

Min Vrt Clr On Brg: (336) NC: 15.0 Ft (10) Card: 15.2 Ft

Min Latl Clr: (338) Right NC: Ft (337) Right Card: Ft

(340) Left NC: Ft (339) Left Card: Ft

(45) Main Spans Number: 2 | (43) Type: Steel | /Girder And Floorbeam System | /Not Applicable

(46) Approach Spans Nbr: 0 | (44) Type: Other | /Other | /Not Applicable

(307) Total Spans: 2 | (48) Max Span: 64.0 Ft | (49) Overall Leng: 132.0 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete | (531) Type: Gravity | (533) Fnd: Cast-In-Place Reinforced Concrete Piles

Abut-Fwd (527) Matl: Concrete | (526) Type: Gravity | (528) Fnd: Cast-In-Place Reinforced Concrete Piles

Pier-Pred (535) Matl: Concrete | (534) Type: Capped Column | (536) Fnd: Cast-In-Place Reinforced Concrete Piles

(663) Stream Velocity: 00000 fps | (113) Scour: Not Over Waterway

(92B) Underwater Inspection: N Freq: 0 | (655) Chan Prot: Not Applicable

(93B) Date of last Underwater Insp: | (657) Drainage Area: Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: | (326) NC: Ft | (325) Card: Ft

(328) Prac Max Vrt Under Clear: Ft

Min Vert Under Clear: | (327) NC: Ft | (54) Card: 15.0 Ft

Min Lat Under Clear: | (329) Right NC: Ft | (55) Right Card: 4.0 Ft

(330) Left NC: Ft | (56) Left Card: 4.0 Ft

STRUCTURE INFORMATION

(19) Bypass Length: 0.0 Miles

(16) Latitude: 41 Deg 30 Min 57.29 Sec (17) Longitude: 81 Deg 40 Min 29.19 Sec

(20) Toll: On Free Road

(263) Date Built: 7/1/1959 (264) Major Reconstruction Date:

(28A) No. Lanes On: 0 (28B)No. Lanes Under: 8

(301) Horiz Curve: (34) Skew: 0 Deg

(32) App. Rdw Width: 115 Ft (51) Brg. Rdw Width: 0.0 Ft

(52) Deck Width: 115.0 Ft (424) Deck Area: 15180 Sq. Ft

(406) Median Type: None /Non Barrier /No Joint

(33) Bridge Median: No Median

Sidewalks: (50A) Left 0.0 Ft (50B) Right 0.0 Ft

Type Curb or Sidewalk:

(427) Left Matl: Other (428) Type: None

(429) Right Matl: None (430) Type: Other

(35) Flared: 1 (408) Composite: N - Non-Composite

LOAD RATING INFORMATION

(31) Design Load: RAILROAD

(64) Opr Rat Fact/Ton: 0.000

(66) Inv Rat Fact/Ton: 0.000

(734) Ohio Percent of Legal Load: 0

(704) Year of Rating: 0 (708) Rate Soft:

(63) Opr Rat Method: No Rating Analysis Or Evaluation Perform

(65) Inv Rat Method: No Rating Analysis Or Evaluation Perform

Load Rater: (705) (706) (707) PE#: 0

APPRAISAL

(71) Waterway Adequacy: N Not Applicable

(72) Approach Alignment: 4 Meets minimum tolerable limits

(67) Calc Str Appraisal: 3 - Intolerable - high priority of corrective acti

(68) Calc Deck Geometry: N - Not Applicable

(69) Calc Underclearance: 4 - Meets minimum tolerable limits

APPROACH INFORMATION

(401) Approach Guardrail:

(403) Approach Pavement: (402) Grade:

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft

(580) Depth of Fill: 0.0 Ft (582) Headwalls:

GENERAL INFORMATION

(475) Main Member: Riveted Built-Up Steel (477) Moment Plate:

(414) Expansion Joint: None

(453) Bearing Devices: Other

(407) Railing: Steel Post And Steel Panel (Decorative)
(409) Deck Drainage: Other (Natural-Off The Bridge Ends)
(107) Deck Type: Concrete Cast-In-Place
Deck Protection: (108B) External: None
(108C) Internal: Na
(108A) Wearing Surface: Na
(423) Thickness: 0.0 in (422) Date of Wearing Surface:
(547) Slope Protection: None

(38) Navigation: N (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft
(92C) Spec Insp: N Freq: 0 (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: 0 (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown Steel - Plans Available And Stee (465) Framing: None Or Not Applicable
(482) Paint: Eeu (426) Bridge Railing Steel:
(483) PCS Date: 12/1/1983

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible
(112) NBIS: Y
(842) Hist/Designer:
(827) Hist Build Year:
(828) Hist Type: None N/A
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 153385 (115) Year of Future ADT: 2035

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No: 043756
(252) Microfilm Reel: CUY016
(251) Standard Drawing:
Aperture Cards:
(246) Orig: 1
(247) Repair: 2
(245) Fabr: 2
(709) Rating Source: N NOT APPLICABLE

INSPECTION SUMMARY

(58) Deck: 7
(59) Superstructure: 6
(60) Substructure: 7
(62) Culvert: N
(61) Channel: N
(C6) Approaches:
General Appraisal: 6
(41) Operational Status: A
(90) Inspection date: 10/20/2022
(91) Desig Insp Freq: 12 Mos

SURVEY ITEMS

(36A) Railings: Na/Safety Feature Not Required
(36B) Transitions: Na/Safety Feature Not Required
(36C) Guardrail: Na/Safety Feature Not Required
(36D) Guardrail Ends: Na/Safety Feature Not Required
(219) Temporary Barrier:
(223) Temporary Shoring:
(224) Temporary Sub Decking: N

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line: U
(266) Gas Line: U
(269) Sanitary Sewer: U
(267) Telephone Line:
(268) TV Cable:
(270) Water Line:
(271) Other Utilities:

SPECIAL FEATURES

(283) Lighting:
(431) Fence: N
(433) Glare-Screen: N
(436) Splash-Guard:
(459) Catwalks: N
(271) Other-Feat:
(279) Signs-On:
(281) Signs-Under
(432) Fence-Ht on Bridge 0.0 FT
(434) Noise Barrier Walls

Insp 1st: 01 - State Highway Agency
2nd:
3rd:
(21) Major Maint 1st: 01 - State Highway Agency
2nd:
3rd:
(225) Routine Maint 1st: 01 - State Highway Agency
2nd:
3rd:

(203) Bridge (Dedicated) Name: | BRIDGE INVENTORY AND APPRAISAL | Report Date: 2/2/2023

Structure File Number: 1808168 | Inventory Bridge Number: CUY 00706 1783

Sufficiency Rating: 095.5 Deficiency Rating: FO | IR-90 (LAKESIDE) | Bridge Status: Active

(2) District: 12 | (3) County: 18-CUYAHOGA | (9) Location: .35 Mi. E. Of Jct. Us-6 | (7) Facility Carried: Lakeside Ave (Cr-7

(4) FIPS Code: None | Owner: | (208) Route On Bridge: Municipal | (207) Route Under Bridge: State (Odot) (Toll Free)

(102) Direction of Traffic: 2 - 2-Way Traffic | (103) Temporary Structure: | (110) Designated National Network: Not National Network | (101) Parallel: N

(42A) Type Serv: (On): Highway | (42B) Type Serv (Under): Highway, With Or W/Out Pedestrian

INVENTORY ROUTE DATA

(5A) Route On/Under: 1 - 1: Route Carried "On" The Structure

(5B) Hwy Sys: 4 - County Highway

(5D) Route No: 00706 (5E) Dir: Not Applic (5C) Des: Mainline

(6) Feature Int: Ir-90 (Lakeside)

(200) CL: 1783 (201)Spec Des: (209) Interstate Mile:

(29) Avg. Daily Traffic(ADT): 3,674 (30) ADT Year: 2015

(235) Truck Traf: 0 (210) Corridor: (104) NHS: structure/route is not on nhs

(26) Functional Class: urban - collector (100) Strahnt: Not A Strahnet Route

INTERSECTED ROUTE DATA

(370A) Record Type: 2 2: Single Route Goes (370B) Hwy Sys: Interstate Highway

(370D) Route No: 00090 (370E) Dir: (370C) Des: 1 MAINLINE

(373) Feature Int: Lakeside Ave (Cr-706)

(382) CL: 1802 (371) Interstate Mile: (387) Special Desig:

(379) Avg. Daily Traffic(ADT): 114,638 (380) ADT Year: 2021

(381) Truck Traf: 0 (384) Corridor: (378) NHS: Structure/Route Is On Nhs

(375) Functional Class: Urban - Principal (386) Strahnt: Is On An Interstate Strahnet

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: Ft (47) Card: 66.5 Ft

(53) Prac Max Vert On Brg: 99.0 Ft

Min Vrt Clr On Brg: (336) NC: 0.0 Ft (10) Card: 99.0 Ft

Min Latl Clr: (338) Right NC: Ft (337) Right Card: Ft

(340) Left NC: Ft (339) Left Card: Ft

(45) Main Spans Number: 4 | (43) Type: Steel Continuous | /Stringer/Multi-Beam Or Girder | /Not Applicable

(46) Approach Spans Nbr: 0 | (44) Type: Other | /Other | /Not Applicable

(307) Total Spans: 4 | (48) Max Span: 70.0 Ft | (49) Overall Leng: 237.0 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete | (531) Type: Stub Gravity | (533) Fnd: Cast-In-Place Reinforced Concrete Piles

Abut-Fwd (527) Matl: Concrete | (526) Type: Stub Gravity | (528) Fnd: Cast-In-Place Reinforced Concrete Piles

Pier-Pred (535) Matl: Concrete | (534) Type: Capped Column | (536) Fnd: Cast-In-Place Reinforced Concrete Piles

(663) Stream Velocity: 00000 fps | (113) Scour: Not Over Waterway

(92B) Underwater Inspection: N Freq: 0 | (655) Chan Prot: Not Applicable

(93B) Date of last Underwater Insp: | (657) Drainage Area: Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: | (326) NC: Ft | (325) Card: Ft

(328) Prac Max Vrt Under Clear: Ft

Min Vert Under Clear: | (327) NC: Ft | (54) Card: 15.1 Ft

Min Lat Under Clear: | (329) Right NC: Ft | (55) Right Card: 3.0 Ft

(330) Left NC: Ft | (56) Left Card: 3.0 Ft

STRUCTURE INFORMATION

(19) Bypass Length: 2.0 Miles

(16) Latitude: 41 Deg 30 Min 52.05 Sec (17) Longitude: 81 Deg 40 Min 27.07 Sec

(20) Toll: On Free Road

(263) Date Built: 7/1/1959 (264) Major Reconstruction Date:

(28A) No. Lanes On: 2 (28B)No. Lanes Under: 8

(301) Horiz Curve: (34) Skew: 14 Deg

(32) App. Rdw Width: 40 Ft (51) Brg. Rdw Width: 40.0 Ft

(52) Deck Width: 55.1 Ft (424) Deck Area: 13059 Sq. Ft

(406) Median Type: None /Non Barrier /No Joint

(33) Bridge Median: No Median

Sidewalks: (50A) Left 6.0 Ft (50B) Right 6.0 Ft

Type Curb or Sidewalk:

(427) Left Matl: Steel (428) Type: Concrete

(429) Right Matl: Concrete (430) Type: Steel

(35) Flared: 0 (408) Composite: N - Non-Composite

LOAD RATING INFORMATION

(31) Design Load: HS 20

(64) Opr Rat Fact/Ton: 1.300

(66) Inv Rat Fact/Ton: 1.000

(734) Ohio Percent of Legal Load: 150

(704) Year of Rating: 1973 (708) Rate Soft: Bars

(63) Opr Rat Method: Allowable Stress (As) Rating Reported By

(65) Inv Rat Method: Allowable Stress (As) Rating Reported By

Load Rater: (705) (706) (707) PE#: 0

APPRAISAL

(71) Waterway Adequacy: N Not Applicable

(72) Approach Alignment: 8 Equal to present desirable criteria

(67) Calc Str Appraisal: 7 - Better than present minimum criteria

(68) Calc Deck Geometry: 6 - Equal to present minimum criteria

(69) Calc Underclearance: 3 - Intolerable - high priority of corrective

APPROACH INFORMATION

(401) Approach Guardrail:

(403) Approach Pavement: (402) Grade:

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft

(580) Depth of Fill: 0.0 Ft (582) Headwalls:

GENERAL INFORMATION

(475) Main Member: Rolled Steel (477) Moment Plate:

(414) Expansion Joint: Sliding Metal Plate Angle

(453) Bearing Devices: Rockers & Bolsters

(407) Railing: Reinforced Concrete And Steel
(409) Deck Drainage: Inlets With Drain Pipes
(107) Deck Type: Concrete Cast-In-Place
Deck Protection: (108B) External: Built-Up
(108C) Internal: Na
(108A) Wearing Surface: Integral Concrete (Separate Non-Modified
(423) Thickness: 2.0 in (422) Date of Wearing Surface: 7/1/1993
(547) Slope Protection: Concrete (Cast-In-Place)

(38) Navigation: N (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft
(92C) Spec Insp: N Freq: 0 (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: 0 (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown Steel - Plans Available And Stee (465) Framing: None Or Not Applicable
(482) Paint: Other Paint (426) Bridge Railing Steel:
(483) PCS Date: 1/1/1987

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible
(112) NBIS: Y
(842) Hist/Designer:
(827) Hist Build Year: 1959
(828) Hist Type: Continuous
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 5100 (115) Year of Future ADT: 2035

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No: 043756
(252) Microfilm Reel: CUY016
(251) Standard Drawing:
Aperture Cards:
(246) Orig: 1
(247) Repair: 2
(245) Fabr: 2
(709) Rating Source: 1 PLAN INFORMATION AVAILABLE FOR LOAD RATI

INSPECTION SUMMARY

(58) Deck: 6
(59) Superstructure: 7
(60) Substructure: 7
(62) Culvert: N
(61) Channel: N
(C6) Approaches:
General Appraisal: 7
(41) Operational Status: A
(90) Inspection date: 7/14/2022
(91) Desig Insp Freq: 12 Mos

SURVEY ITEMS

(36A) Railings: Meets Acceptable Standards
(36B) Transitions: Na/Safety Feature Not Required
(36C) Guardrail: Na/Safety Feature Not Required
(36D) Guardrail Ends: Na/Safety Feature Not Required
(219) Temporary Barrier:
(223) Temporary Shoring:
(224) Temporary Sub Decking: Y

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line: Y
(266) Gas Line: Y
(269) Sanitary Sewer: U
(267) Telephone Line:
(268) TV Cable:
(270) Water Line:
(271) Other Utilities:

SPECIAL FEATURES

(283) Lighting:
(431) Fence: Y
(433) Glare-Screen: N
(436) Splash-Guard:
(459) Catwalks: N
(271) Other-Feat:
(279) Signs-On:
(281) Signs-Under
(432) Fence-Ht on Bridge 0.0 FT
(434) Noise Barrier Walls

Insp 1st: 01 - State Highway Agency
2nd:
3rd:
(21) Major Maint 1st: 01 - State Highway Agency
2nd:
3rd:
(225) Routine Maint 1st: 04 - City Or Municipal Highway Agency
2nd:
3rd:

(203) Bridge (Dedicated) Name: | BRIDGE INVENTORY AND APPRAISAL | Report Date: 2/2/2023

Structure File Number: 1809350 | Inventory Bridge Number: CUY 00090 17960

Sufficiency Rating: N/A Deficiency Rating: FO | NSC RR | Bridge Status: Active

(2) District: 12 | (3) County: 18-CUYAHOGA | (9) Location: .28 Mi. E. Of Jct Us-6 | (7) Facility Carried: Nsc Rr

(4) FIPS Code: None | Owner: | (208) Route On Bridge: Non Highway Traffic On Bridge (I.E. | (207) Route Under Bridge: State (Odot) (Toll Free)

(102) Direction of Traffic: 0 - Highway Traffic Not Carried | (103) Temporary Structure: | (110) Designated National Network: National Network | (101) Parallel: N

(42A) Type Serv: (On): Railroad | (42B) Type Serv (Under): Highway, With Or W/Out Pedestrian

INVENTORY ROUTE DATA

(5A) Route On/Under: 2 - 2: Single Route Goes "Under" The Structu

(5B) Hwy Sys: 1 - Interstate Highway

(5D) Route No: 00090 (5E) Dir: Not Applic (5C) Des: Mainline

(6) Feature Int: Nsc Rr

(200) CL: 17960 (201)Spec Des: (209) Interstate Mile: 173.77

(29) Avg. Daily Traffic(ADT): 114,638 (30) ADT Year: 2015

(235) Truck Traf: 0 (210) Corridor: (104) NHS: structure/route is on nhs

(26) Functional Class: urban - principal (100) Strahnt: Is On An Interstate Strahnet

INTERSECTED ROUTE DATA

(370A) Record Type: (370B) Hwy Sys:

(370D) Route No: (370E) Dir: (370C) Des:

(373) Feature Int:

(382) CL: 0000 (371) Interstate Mile: (387) Special Desig:

(379) Avg. Daily Traffic(ADT): 0 (380) ADT Year: 0

(381) Truck Traf: 0 (384) Corridor: (378) NHS: -

(375) Functional Class: (386) Strahnt:

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: Ft (47) Card: 59.8 Ft

(53) Prac Max Vert On Brg: 0.0 Ft

Min Vrt Clr On Brg: (336) NC: 15.1 Ft (10) Card: 15.1 Ft

Min Latl Clr: (338) Right NC: Ft (337) Right Card: Ft

(340) Left NC: Ft (339) Left Card: Ft

(45) Main Spans Number: 2 | (43) Type: Steel Continuous | /Stringer/Multi-Beam Or Girder | /Not Applicable

(46) Approach Spans Nbr: 0 | (44) Type: Other | /Other | /Not Applicable

(307) Total Spans: 2 | (48) Max Span: 64.0 Ft | (49) Overall Leng: 145.6 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete | (531) Type: Cantilever | (533) Fnd: Cast-In-Place Reinforced Concrete Piles

Abut-Fwd (527) Matl: Concrete | (526) Type: Cantilever | (528) Fnd: Cast-In-Place Reinforced Concrete Piles

Pier-Pred (535) Matl: Concrete | (534) Type: Capped Column | (536) Fnd: Cast-In-Place Reinforced Concrete Piles

(663) Stream Velocity: 00000 fps | (113) Scour: Not Over Waterway

(92B) Underwater Inspection: N Freq: 0 | (655) Chan Prot: Not Applicable

(93B) Date of last Underwater Insp: | (657) Drainage Area: Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: | (326) NC: Ft | (325) Card: Ft

(328) Prac Max Vrt Under Clear: Ft

Min Vert Under Clear: | (327) NC: Ft | (54) Card: 15.1 Ft

Min Lat Under Clear: | (329) Right NC: Ft | (55) Right Card: 1.8 Ft

(330) Left NC: Ft | (56) Left Card: 1.8 Ft

STRUCTURE INFORMATION

(19) Bypass Length: 0.0 Miles

(16) Latitude: 41 Deg 30 Min 49.58 Sec (17) Longitude: 81 Deg 40 Min 24.18 Sec

(20) Toll: On Free Road

(263) Date Built: 7/1/1959 (264) Major Reconstruction Date:

(28A) No. Lanes On: 0 (28B)No. Lanes Under: 8

(301) Horiz Curve: (34) Skew: 14 Deg

(32) App. Rdw Width: 0 Ft (51) Brg. Rdw Width: 0.0 Ft

(52) Deck Width: 262.8 Ft (424) Deck Area: 38264 Sq. Ft

(406) Median Type: None /Non Barrier /No Joint

(33) Bridge Median: No Median

Sidewalks: (50A) Left 0.0 Ft (50B) Right 0.0 Ft

Type Curb or Sidewalk:

(427) Left Matl: None (428) Type: None

(429) Right Matl: None (430) Type: None

(35) Flared: 0 (408) Composite: N - Non-Composite

LOAD RATING INFORMATION

(31) Design Load: RAILROAD

(64) Opr Rat Fact/Ton: 0.000

(66) Inv Rat Fact/Ton: 0.000

(734) Ohio Percent of Legal Load: 0

(704) Year of Rating: 0 (708) Rate Soft:

(63) Opr Rat Method: No Rating Analysis Or Evaluation Perform

(65) Inv Rat Method: No Rating Analysis Or Evaluation Perform

Load Rater: (705) (706) (707) PE#: 0

APPRAISAL

(71) Waterway Adequacy: N Not Applicable

(72) Approach Alignment: 4 Meets minimum tolerable limits

(67) Calc Str Appraisal: 3 - Intolerable - high priority of corrective acti

(68) Calc Deck Geometry: N - Not Applicable

(69) Calc Underclearance: 4 - Meets minimum tolerable limits

APPROACH INFORMATION

(401) Approach Guardrail:

(403) Approach Pavement: (402) Grade:

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft

(580) Depth of Fill: 0.0 Ft (582) Headwalls:

GENERAL INFORMATION

(475) Main Member: Riveted Built-Up Steel (477) Moment Plate:

(414) Expansion Joint: None

(453) Bearing Devices: Sliding (Bronze)

(407) Railing: Steel Post And Steel Panel (Decorative)
(409) Deck Drainage: Other (Natural-Off The Bridge Ends)
(107) Deck Type: Concrete Cast-In-Place
Deck Protection: (108B) External: Built-Up
(108C) Internal: Na
(108A) Wearing Surface: Na
(423) Thickness: 0.0 in (422) Date of Wearing Surface:
(547) Slope Protection: None

(38) Navigation: N (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft
(92C) Spec Insp: N Freq: 0 (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: 0 (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown Steel - Plans Available And Stee (465) Framing: None Or Not Applicable
(482) Paint: Other Paint (426) Bridge Railing Steel:
(483) PCS Date: 1/1/1987

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible
(112) NBIS: Y
(842) Hist/Designer:
(827) Hist Build Year:
(828) Hist Type: None N/A
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 159118 (115) Year of Future ADT: 2035

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No: 043756
(252) Microfilm Reel: CUY016
(251) Standard Drawing:
Aperture Cards:
(246) Orig: 1
(247) Repair: 2
(245) Fabr: 2
(709) Rating Source: N NOT APPLICABLE

INSPECTION SUMMARY

(58) Deck: 7
(59) Superstructure: 7
(60) Substructure: 7
(62) Culvert: N
(61) Channel: N
(C6) Approaches:
General Appraisal: 7
(41) Operational Status: A
(90) Inspection date: 8/6/2021
(91) Desig Insp Freq: 24 Mos

SURVEY ITEMS

(36A) Railings: Na/Safety Feature Not Required
(36B) Transitions: Na/Safety Feature Not Required
(36C) Guardrail: Na/Safety Feature Not Required
(36D) Guardrail Ends: Na/Safety Feature Not Required
(219) Temporary Barrier:
(223) Temporary Shoring:
(224) Temporary Sub Decking: N

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line: U
(266) Gas Line: U
(269) Sanitary Sewer: U
(267) Telephone Line:
(268) TV Cable:
(270) Water Line:
(271) Other Utilities:

SPECIAL FEATURES

(283) Lighting:
(431) Fence: N
(433) Glare-Screen: N
(436) Splash-Guard:
(459) Catwalks: N
(271) Other-Feat:
(279) Signs-On:
(281) Signs-Under
(432) Fence-Ht on Bridge 0.0 FT
(434) Noise Barrier Walls

Insp 1st: 01 - State Highway Agency
2nd:
3rd:
(21) Major Maint 1st: 01 - State Highway Agency
2nd:
3rd:
(225) Routine Maint 1st: 01 - State Highway Agency
2nd:
3rd:

(203) Bridge (Dedicated) Name: | BRIDGE INVENTORY AND APPRAISAL | Report Date: 1/18/2023

Structure File Number: 1808044 | Inventory Bridge Number: CUY 00723 0709

Sufficiency Rating: 074.9 Deficiency Rating: FO | IR-90 (PAYNE) | Bridge Status: Active

(2) District: 12
(3) County: 18-CUYAHOGA
(9) Location: .21 Mi. E. Of Jct. Us-322
(7) Facility Carried: Payne Ave
(4) FIPS Code: None
Owner:
(208) Route On Bridge: Municipal
(207) Route Under Bridge: State (Odot) (Toll Free)
(102) Direction of Traffic: 2 - 2-Way Traffic
(103) Temporary Structure:
(110) Designated National Network: Not National Network
(101) Parallel: N
(42A) Type Serv: (On): Highway
(42B) Type Serv (Under): Highway, With Or W/Out Pedestrian

INVENTORY ROUTE DATA

(5A) Route On/Under: 1 - 1: Route Carried "On" The Structure
(5B) Hwy Sys: 4 - County Highway
(5D) Route No: 00723 (5E) Dir: Not Applic (5C) Des: Mainline
(6) Feature Int: Ir-90 (Payne)
(200) CL: 0709 (201)Spec Des: (209) Interstate Mile:
(29) Avg. Daily Traffic(ADT): 5,796 (30) ADT Year: 2016
(235) Truck Traf: 0 (210) Corridor: (104) NHS: structure/route is not on nhs
(26) Functional Class: urban - collector (100) Strahnt: Not A Strahnet Route

INTERSECTED ROUTE DATA

(370A) Record Type: 2 2: Single Route Goes (370B) Hwy Sys: Interstate Highway
(370D) Route No: 00090 (370E) Dir: (370C) Des: 1 MAINLINE
(373) Feature Int: Payne Ave
(382) CL: 1748 (371) Interstate Mile: (387) Special Desig:
(379) Avg. Daily Traffic(ADT): 123,735 (380) ADT Year: 2021
(381) Truck Traf: 0 (384) Corridor: (378) NHS: Structure/Route Is On Nhs
(375) Functional Class: Urban - Principal (386) Strahnt: Is On An Interstate Strahnet

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: Ft (47) Card: 65.0 Ft
(53) Prac Max Vert On Brg: 99.0 Ft
Min Vrt Clr On Brg: (336) NC: 0.0 Ft (10) Card: 99.0 Ft
Min Latl Clr: (338) Right NC: Ft (337) Right Card: Ft
(340) Left NC: Ft (339) Left Card: Ft

STRUCTURE INFORMATION

(19) Bypass Length: 2.0 Miles
(16) Latitude: 41 Deg 30 Min 25.61 Sec (17) Longitude: 81 Deg 40 Min 17.49 Sec
(20) Toll: On Free Road
(263) Date Built: 7/1/1959 (264) Major Reconstruction Date: 5/13/1994
(28A) No. Lanes On: 6 (28B)No. Lanes Under: 8
(301) Horiz Curve: (34) Skew: 6 Deg
(32) App. Rdw Width: 59 Ft (51) Brg. Rdw Width: 56.0 Ft
(52) Deck Width: 75.2 Ft (424) Deck Area: 16920 Sq. Ft
(406) Median Type: None /Non Barrier /No Joint
(33) Bridge Median: No Median
Sidewalks: (50A) Left 8.4 Ft (50B) Right 8.4 Ft
Type Curb or Sidewalk:
(427) Left Matl: Steel (428) Type: Concrete
(429) Right Matl: Concrete (430) Type: Steel
(35) Flared: 0 (408) Composite: N - Non-Composite

(45) Main Spans Number: 4 (43) Type: Steel Continuous /Stringer/Multi-Beam Or Girder /Not Applicable
(46) Approach Spans Nbr: 0 (44) Type: Other /Other /Not Applicable
(307) Total Spans: 4 (48) Max Span: 68.0 Ft (49) Overall Leng: 225.0 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete (531) Type: Stub Gravity (533) Fnd: Cast-In-Place Reinforced Concrete Piles
Abut-Fwd (527) Matl: Concrete (526) Type: Stub Gravity (528) Fnd: Cast-In-Place Reinforced Concrete Piles
Pier-Pred (535) Matl: Concrete (534) Type: Capped Column (536) Fnd: Cast-In-Place Reinforced Concrete Piles
(663) Stream Velocity: 00000 fps (113) Scour: Not Over Waterway
(92B) Underwater Inspection: N Freq: 0 (655) Chan Prot: Not Applicable
(93B) Date of last Underwater Insp: (657) Drainage Area: Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: (326) NC: Ft (325) Card: Ft
(328) Prac Max Vrt Under Clear: Ft
Min Vert Under Clear: (327) NC: Ft (54) Card: 15.0 Ft
Min Lat Under Clear: (329) Right NC: Ft (55) Right Card: 8.0 Ft
(330) Left NC: Ft (56) Left Card: 8.0 Ft

LOAD RATING INFORMATION

(31) Design Load: HS 20
(64) Opr Rat Fact/Ton: 1.300
(66) Inv Rat Fact/Ton: 1.000
(734) Ohio Percent of Legal Load: 150
(704) Year of Rating: 1973 (708) Rate Soft: Bars
(63) Opr Rat Method: Load Factor (Lf) Rating Reported By Rati
(65) Inv Rat Method: Load Factor (Lf) Rating Reported By Rati
Load Rater: (705) (706) (707) PE#: 0

APPRAISAL

(71) Waterway Adequacy: N Not Applicable
(72) Approach Alignment: 8 Equal to present desirable criteria
(67) Calc Str Appraisal: 6 - Equal to present minimum criteria
(68) Calc Deck Geometry: 2 - Intolerable - high priority of replacemen
(69) Calc Underclearance: 3 - Intolerable - high priority of corrective

APPROACH INFORMATION

(401) Approach Guardrail:
(403) Approach Pavement: (402) Grade:

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft
(580) Depth of Fill: 0.0 Ft (582) Headwalls:

GENERAL INFORMATION

(475) Main Member: Rolled Steel (477) Moment Plate:
(414) Expansion Joint: Elastomeric Strip Seal
(453) Bearing Devices: Rockers & Bolsters

(407) Railing: Reinforced Concrete Parapet
(409) Deck Drainage: Scuppers And Downspouts
(107) Deck Type: Concrete Cast-In-Place
Deck Protection: (108B) External: Na
(108C) Internal: Epoxy Coated Reinforcing
(108A) Wearing Surface: Monolithic Concrete (Concurrently Placed
(423) Thickness: 1.0 in (422) Date of Wearing Surface: 5/13/1994
(547) Slope Protection: Concrete (Cast-In-Place)

(38) Navigation: N (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft
(92C) Spec Insp: N Freq: 0 (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: 0 (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown Steel - Plans Available And Stee (465) Framing: None Or Not Applicable
(482) Paint: Other Paint (426) Bridge Railing Steel:
(483) PCS Date: 1/1/1987

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible
(112) NBIS: Y
(842) Hist/Designer:
(827) Hist Build Year: 1959
(828) Hist Type: Continuous
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 8045 (115) Year of Future ADT: 2036

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No: 055658
(252) Microfilm Reel: CUY017
(251) Standard Drawing:
Aperture Cards:
(246) Orig: 2
(247) Repair: 2
(245) Fabr: 2
(709) Rating Source: 1 PLAN INFORMATION AVAILABLE FOR LOAD RATI

INSPECTION SUMMARY

(58) Deck: 5
(59) Superstructure: 6
(60) Substructure: 6
(62) Culvert: N
(61) Channel: N
(C6) Approaches:
General Appraisal: 6
(41) Operational Status: A
(90) Inspection date: 7/23/2022
(91) Desig Insp Freq: 12 Mos

SURVEY ITEMS

(36A) Railings: Meets Acceptable Standards
(36B) Transitions: Meets Acceptable Standards
(36C) Guardrail: Meets Acceptable Standards
(36D) Guardrail Ends: Meets Acceptable Standards
(219) Temporary Barrier:
(223) Temporary Shoring:
(224) Temporary Sub Decking: N

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line: U
(266) Gas Line: Y
(269) Sanitary Sewer: U
(267) Telephone Line:
(268) TV Cable:
(270) Water Line:
(271) Other Utilities:

SPECIAL FEATURES

(283) Lighting:
(431) Fence: Y
(433) Glare-Screen: N
(436) Splash-Guard:
(459) Catwalks: N
(271) Other-Feat:
(279) Signs-On:
(281) Signs-Under
(432) Fence-Ht on Bridge 6.0 FT
(434) Noise Barrier Walls

Insp 1st: 01 - State Highway Agency
2nd:
3rd:
(21) Major Maint 1st: 01 - State Highway Agency
2nd:
3rd:
(225) Routine Maint 1st: 04 - City Or Municipal Highway Agency
2nd:
3rd:

(203) Bridge (Dedicated) Name: | BRIDGE INVENTORY AND APPRAISAL | Report Date: 2/2/2023

Structure File Number: 1808222 | Inventory Bridge Number: CUY 00002 17050

Sufficiency Rating: 093.5 Deficiency Rating: FO | IR-90 (SR-2 1705) | Bridge Status: Active

(2) District: 12 | (3) County: 18-CUYAHOGA | (9) Location: Jct. Sr-2 | (7) Facility Carried: Sr 2

(4) FIPS Code: None | Owner: | (208) Route On Bridge: State (Odot) (Toll Free) | (207) Route Under Bridge: State (Odot) (Toll Free)

(102) Direction of Traffic: 2 - 2-Way Traffic | (103) Temporary Structure: | (110) Designated National Network: National Network | (101) Parallel: N

(42A) Type Serv: (On): Highway | (42B) Type Serv (Under): Highway, With Or W/Out Pedestrian

INVENTORY ROUTE DATA

(5A) Route On/Under: 1 - 1: Route Carried "On" The Structure

(5B) Hwy Sys: 3 - State Highway

(5D) Route No: 00002 (5E) Dir: Not Applic (5C) Des: Mainline

(6) Feature Int: Ir-90 (Sr-2 1705)

(200) CL: 17050 (201)Spec Des: (209) Interstate Mile:

(29) Avg. Daily Traffic(ADT): 17,069 (30) ADT Year: 2015

(235) Truck Traf: 0 (210) Corridor: (104) NHS: structure/route is on nhs

(26) Functional Class: urban - principal (100) Strahnt: Not A Strahnet Route

INTERSECTED ROUTE DATA

(370A) Record Type: 2 2: Single Route Goes (370B) Hwy Sys: Interstate Highway

(370D) Route No: 00090 (370E) Dir: (370C) Des: 1 MAINLINE

(373) Feature Int: Sr-2

(382) CL: 1820 (371) Interstate Mile: (387) Special Desig:

(379) Avg. Daily Traffic(ADT): 110,508 (380) ADT Year: 2021

(381) Truck Traf: 0 (384) Corridor: (378) NHS: Structure/Route Is On Nhs

(375) Functional Class: Urban - Principal (386) Strahnt: Is On An Interstate Strahnet

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: Ft (47) Card: 35.0 Ft

(53) Prac Max Vert On Brg: 99.0 Ft

Min Vrt Clr On Brg: (336) NC: 0.0 Ft (10) Card: 99.0 Ft

Min Latl Clr: (338) Right NC: Ft (337) Right Card: Ft

(340) Left NC: Ft (339) Left Card: Ft

(45) Main Spans Number: 4 | (43) Type: Steel Continuous | /Stringer/Multi-Beam Or Girder | /Not Applicable

(46) Approach Spans Nbr: 0 | (44) Type: Other | /Other | /Not Applicable

(307) Total Spans: 4 | (48) Max Span: 70.0 Ft | (49) Overall Leng: 203.0 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete | (531) Type: Stub Gravity | (533) Fnd: Spread Footing (On Soil)

Abut-Fwd (527) Matl: Concrete | (526) Type: Stub Gravity | (528) Fnd: Spread Footing (On Soil)

Pier-Pred (535) Matl: Concrete | (534) Type: Capped Column | (536) Fnd: Spread Footing (On Soil)

(663) Stream Velocity: 00000 fps | (113) Scour: Not Over Waterway

(92B) Underwater Inspection: N Freq: 0 | (655) Chan Prot: Not Applicable

(93B) Date of last Underwater Insp: | (657) Drainage Area: Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: | (326) NC: Ft | (325) Card: Ft

(328) Prac Max Vrt Under Clear: Ft

Min Vert Under Clear: | (327) NC: Ft | (54) Card: 15.0 Ft

Min Lat Under Clear: | (329) Right NC: Ft | (55) Right Card: 6.0 Ft

(330) Left NC: Ft | (56) Left Card: 6.0 Ft

STRUCTURE INFORMATION

(19) Bypass Length: 2.0 Miles

(16) Latitude: 41 Deg 31 Min 00.41 Sec (17) Longitude: 81 Deg 40 Min 31.54 Sec

(20) Toll: On Free Road

(263) Date Built: 7/1/1959 (264) Major Reconstruction Date:

(28A) No. Lanes On: 4 (28B)No. Lanes Under: 6

(301) Horiz Curve: (34) Skew: 4 Deg

(32) App. Rdw Width: 78 Ft (51) Brg. Rdw Width: 78.0 Ft

(52) Deck Width: 85.1 Ft (424) Deck Area: 17275 Sq. Ft

(406) Median Type: Raised Median /50" Deflector Type (New Jersey

(33) Bridge Median: Closed Median With Non-Mountable Barrier

Sidewalks: (50A) Left 0.0 Ft (50B) Right 0.0 Ft

Type Curb or Sidewalk:

(427) Left Matl: None (428) Type: None

(429) Right Matl: None (430) Type: None

(35) Flared: 0 (408) Composite: N - Non-Composite

LOAD RATING INFORMATION

(31) Design Load: HS 20

(64) Opr Rat Fact/Ton: 1.300

(66) Inv Rat Fact/Ton: 1.000

(734) Ohio Percent of Legal Load: 150

(704) Year of Rating: 1973 (708) Rate Soft: Bars

(63) Opr Rat Method: Allowable Stress (As) Rating Reported By

(65) Inv Rat Method: Allowable Stress (As) Rating Reported By

Load Rater: (705) (706) (707) PE#: 0

APPRAISAL

(71) Waterway Adequacy: N Not Applicable

(72) Approach Alignment: 8 Equal to present desirable criteria

(67) Calc Str Appraisal: 6 - Equal to present minimum criteria

(68) Calc Deck Geometry: 9 - Superior to present desirable criteria

(69) Calc Underclearance: 3 - Intolerable - high priority of corrective

APPROACH INFORMATION

(401) Approach Guardrail:

(403) Approach Pavement: (402) Grade:

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft

(580) Depth of Fill: 0.0 Ft (582) Headwalls:

GENERAL INFORMATION

(475) Main Member: Rolled Steel (477) Moment Plate:

(414) Expansion Joint: None

(453) Bearing Devices: Elastomeric (Laminated)

(407) Railing: 42" Deflector Type Parapet (New Jersey S
(409) Deck Drainage: Other (Natural-Off The Bridge Ends)
(107) Deck Type: Concrete Cast-In-Place
Deck Protection: (108B) External: None
(108C) Internal: Na
(108A) Wearing Surface: Latex Concrete Or Similar Additive
(423) Thickness: 1.2 in (422) Date of Wearing Surface: 7/1/1983
(547) Slope Protection: Concrete (Cast-In-Place)

(38) Navigation: N (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft
(92C) Spec Insp: N Freq: 0 (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: 0 (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown Steel - Plans Available And Stee (465) Framing: None Or Not Applicable
(482) Paint: Eeu (426) Bridge Railing Steel:
(483) PCS Date: 1/1/1987

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible
(112) NBIS: Y
(842) Hist/Designer:
(827) Hist Build Year: 1959
(828) Hist Type: Continuous
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 23692 (115) Year of Future ADT: 2035

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No: 043756
(252) Microfilm Reel: CUY016
(251) Standard Drawing:
Aperture Cards:
(246) Orig: 1
(247) Repair: 1
(245) Fabr: 1
(709) Rating Source: 1 PLAN INFORMATION AVAILABLE FOR LOAD RATI

INSPECTION SUMMARY

(58) Deck: 8
(59) Superstructure: 7
(60) Substructure: 6
(62) Culvert: N
(61) Channel: N
(C6) Approaches:
General Appraisal: 6
(41) Operational Status: A
(90) Inspection date: 12/6/2022
(91) Desig Insp Freq: 12 Mos

SURVEY ITEMS

(36A) Railings: Meets Acceptable Standards
(36B) Transitions: Meets Acceptable Standards
(36C) Guardrail: Meets Acceptable Standards
(36D) Guardrail Ends: Meets Acceptable Standards
(219) Temporary Barrier:
(223) Temporary Shoring:
(224) Temporary Sub Decking: N

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line: U
(266) Gas Line: U
(269) Sanitary Sewer: U
(267) Telephone Line:
(268) TV Cable:
(270) Water Line:
(271) Other Utilities:

SPECIAL FEATURES

(283) Lighting:
(431) Fence: N
(433) Glare-Screen: N
(436) Splash-Guard:
(459) Catwalks: N
(271) Other-Feat:
(279) Signs-On:
(281) Signs-Under
(432) Fence-Ht on Bridge 0.0 FT
(434) Noise Barrier Walls

Insp 1st: 01 - State Highway Agency
2nd:
3rd:
(21) Major Maint 1st: 01 - State Highway Agency
2nd:
3rd:
(225) Routine Maint 1st: 01 - State Highway Agency
2nd:
3rd:

(203) Bridge (Dedicated) Name: | **BRIDGE INVENTORY AND APPRAISAL** | **Report Date: 1/18/2023**

Structure File Number: 1808079 | **Inventory Bridge Number: CUY 00006 16720**

Sufficiency Rating: 093.2 Deficiency Rating: FO | **IR-90 (SUPERIOR)** | **Bridge Status: Active**

(2) District: 12 | (3) County: 18-CUYAHOGA | (9) Location: Jct. Us-6 | (7) Facility Carried: Usr 6

(4) FIPS Code: None | Owner: | (208) Route On Bridge: State (Odot) (Toll Free) | (207) Route Under Bridge: State (Odot) (Toll Free)

(102) Direction of Traffic: 2 - 2-Way Traffic | (103) Temporary Structure: | (110) Designated National Network: National Network | (101) Parallel: N

(42A) Type Serv: (On): Highway | (42B) Type Serv (Under): Highway, With Or W/Out Pedestrian

INVENTORY ROUTE DATA

(5A) Route On/Under: 1 - 1: Route Carried "On" The Structure

(5B) Hwy Sys: 2 - U.S. Numbered Highway

(5D) Route No: 00006 (5E) Dir: Not Applic (5C) Des: Mainline

(6) Feature Int: Ir-90 (Superior)

(200) CL: 16720 (201)Spec Des: (209) Interstate Mile:

(29) Avg. Daily Traffic(ADT): 12,298 (30) ADT Year: 2015

(235) Truck Traf: 0 (210) Corridor: (104) NHS: structure/route is on nhs

(26) Functional Class: urban - other principal (100) Strahnt: Not A Strahnet Route

INTERSECTED ROUTE DATA

(370A) Record Type: 2 2: Single Route Goes (370B) Hwy Sys: Interstate Highway

(370D) Route No: 00090 (370E) Dir: (370C) Des: 1 MAINLINE

(373) Feature Int: Superior Us-6

(382) CL: 1768 (371) Interstate Mile: (387) Special Desig:

(379) Avg. Daily Traffic(ADT): 117,021 (380) ADT Year: 2021

(381) Truck Traf: 0 (384) Corridor: (378) NHS: Structure/Route Is On Nhs

(375) Functional Class: Urban - Principal (386) Strahnt: Is On An Interstate Strahnet

CLEARANCE ON THE BRIDGE

Min. Hriz on Bridge: (335) NC: Ft (47) Card: 81.1 Ft

(53) Prac Max Vert On Brg: 99.0 Ft

Min Vrt Clr On Brg: (336) NC: 0.0 Ft (10) Card: 99.0 Ft

Min Latl Clr: (338) Right NC: Ft (337) Right Card: Ft

(340) Left NC: Ft (339) Left Card: Ft

(45) Main Spans Number: 4 | (43) Type: Steel Continuous | /Stringer/Multi-Beam Or Girder | /Not Applicable

(46) Approach Spans Nbr: 0 | (44) Type: Other | /Other | /Not Applicable

(307) Total Spans: 4 | (48) Max Span: 70.0 Ft | (49) Overall Leng: 224.0 Ft

SUBSTRUCTURE

Abut-Rear (532) Matl: Concrete | (531) Type: Stub Gravity | (533) Fnd: Cast-In-Place Reinforced Concrete Piles

Abut-Fwd (527) Matl: Concrete | (526) Type: Stub Gravity | (528) Fnd: Cast-In-Place Reinforced Concrete Piles

Pier-Pred (535) Matl: Concrete | (534) Type: Capped Column | (536) Fnd: Cast-In-Place Reinforced Concrete Piles

(663) Stream Velocity: 00000 fps | (113) Scour: Not Over Waterway

(92B) Underwater Inspection: N Freq: 0 | (655) Chan Prot: Not Applicable

(93B) Date of last Underwater Insp: | (657) Drainage Area: Sq Mi

CLEARANCE UNDER THE BRIDGE

Min. Horiz Under Clear: | (326) NC: Ft | (325) Card: Ft

(328) Prac Max Vrt Under Clear: Ft

Min Vert Under Clear: | (327) NC: Ft | (54) Card: 15.6 Ft

Min Lat Under Clear: | (329) Right NC: Ft | (55) Right Card: 5.0 Ft

(330) Left NC: Ft | (56) Left Card: 5.0 Ft

STRUCTURE INFORMATION

(19) Bypass Length: 2.0 Miles

(16) Latitude: 41 Deg 30 Min 35.66 Sec (17) Longitude: 81 Deg 40 Min 19.49 Sec

(20) Toll: On Free Road

(263) Date Built: 7/1/1959 (264) Major Reconstruction Date: 1/1/1993

(28A) No. Lanes On: 6 (28B)No. Lanes Under: 7

(301) Horiz Curve: (34) Skew: 13 Deg

(32) App. Rdw Width: 81 Ft (51) Brg. Rdw Width: 81.1 Ft

(52) Deck Width: 95.1 Ft (424) Deck Area: 21302 Sq. Ft

(406) Median Type: None /Non Barrier /No Joint

(33) Bridge Median: No Median

Sidewalks: (50A) Left 8.0 Ft (50B) Right 8.0 Ft

Type Curb or Sidewalk:

(427) Left Matl: Steel (428) Type: Concrete

(429) Right Matl: Concrete (430) Type: Steel

(35) Flared: 0 (408) Composite: N - Non-Composite

LOAD RATING INFORMATION

(31) Design Load: HS 20

(64) Opr Rat Fact/Ton: 1.300

(66) Inv Rat Fact/Ton: 1.000

(734) Ohio Percent of Legal Load: 150

(704) Year of Rating: 1973 (708) Rate Soft: Bars

(63) Opr Rat Method: Load Factor (Lf) Rating Reported By Rati

(65) Inv Rat Method: Load Factor (Lf) Rating Reported By Rati

Load Rater: (705) (706) (707) PE#: 0

APPRAISAL

(71) Waterway Adequacy: N Not Applicable

(72) Approach Alignment: 8 Equal to present desirable criteria

(67) Calc Str Appraisal: 7 - Better than present minimum criteria

(68) Calc Deck Geometry: 5 - Somewhat better than minimum adequ

(69) Calc Underclearance: 3 - Intolerable - high priority of corrective

APPROACH INFORMATION

(401) Approach Guardrail:

(403) Approach Pavement: (402) Grade:

CULVERT INFORMATION

(575) Culvert Type: Not A Culvert Or Rigid Frame (578) Length: 0.0 Ft

(580) Depth of Fill: 0.0 Ft (582) Headwalls:

GENERAL INFORMATION

(475) Main Member: Rolled Steel (477) Moment Plate:

(414) Expansion Joint: Elastomeric Strip Seal

(453) Bearing Devices: Rockers & Bolsters

(407) Railing: Reinforced Concrete Parapet
(409) Deck Drainage: Inlets With Drain Pipes
(107) Deck Type: Concrete Cast-In-Place
Deck Protection: (108B) External: Na
(108C) Internal: Epoxy Coated Reinforcing
(108A) Wearing Surface: Monolithic Concrete (Concurrently Placed
(423) Thickness: 2.0 in (422) Date of Wearing Surface: 1/1/1993
(547) Slope Protection: Concrete (Cast-In-Place)

(38) Navigation: N (39) Nav Vert Clr: 0.0 Ft (40) Nav Horiz Clear: 0.0 Ft
(92C) Spec Insp: N Freq: 0 (93C) Special Inspection Date:
(92A) Fracture Critical Insp: N Freq: 0 (93A) Fracture Critical Feature Inspection Date:
(474) Main Structure System: Not Applicable (I.E. Culvert, Beam, Slab (468) Hinges: Not Applicable (Structures With No Hinge
(487) Structural Steel Memb: Unknown Steel - Plans Available And Stee (465) Framing: None Or Not Applicable
(482) Paint: Other Paint (426) Bridge Railing Steel:
(483) PCS Date: 1/1/1987

GENERAL INFORMATION (CONTINUED)

(37) Hist Significance: Not Eligible
(112) NBIS: Y
(842) Hist/Designer:
(827) Hist Build Year: 1959
(828) Hist Type: Continuous
(98A) Border Bridge State:
(98B) Border Bridge Resp:
(99) Border Bridge SFN:

PROPOSED IMPROVEMENTS

(114) Future ADT (On Bridge): 17070 (115) Year of Future ADT: 2035

ORIGINAL PLANS INFORMATION

(250) Fabricator:
(249) Contractor:
(248) Ohio Original Construction Project No: 055658
(252) Microfilm Reel: CUY017
(251) Standard Drawing:
Aperture Cards:
(246) Orig: 2
(247) Repair: 2
(245) Fabr: 2
(709) Rating Source: 1 PLAN INFORMATION AVAILABLE FOR LOAD RATI

INSPECTION SUMMARY

(58) Deck: 6
(59) Superstructure: 7
(60) Substructure: 7
(62) Culvert: N
(61) Channel: N
(C6) Approaches:
General Appraisal: 7
(41) Operational Status: A
(90) Inspection date: 7/14/2022
(91) Desig Insp Freq: 12 Mos

SURVEY ITEMS

(36A) Railings: Meets Acceptable Standards
(36B) Transitions: Meets Acceptable Standards
(36C) Guardrail: Meets Acceptable Standards
(36D) Guardrail Ends: Meets Acceptable Standards
(219) Temporary Barrier:
(223) Temporary Shoring:
(224) Temporary Sub Decking: N

(253) SFNs Replacing this retired bridge:
(255) SFNs That were replaced by this bridge:

UTILITIES

(265) Electric Line: Y
(266) Gas Line: Y
(269) Sanitary Sewer: U
(267) Telephone Line:
(268) TV Cable:
(270) Water Line:
(271) Other Utilities:

SPECIAL FEATURES

(283) Lighting:
(431) Fence: Y
(433) Glare-Screen: N
(436) Splash-Guard:
(459) Catwalks: N
(271) Other-Feat:
(279) Signs-On:
(281) Signs-Under
(432) Fence-Ht on Bridge 0.0 FT
(434) Noise Barrier Walls

Insp 1st: 01 - State Highway Agency
2nd:
3rd:
(21) Major Maint 1st: 01 - State Highway Agency
2nd:
3rd:
(225) Routine Maint 1st: 04 - City Or Municipal Highway Agency
2nd:
3rd:

BURGESS & NIPLE

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Appendix D – Disposition to ODOT Comments

BURGESS & NIPLE				DATE:	November 11, 2023		
REVIEW COMMENTS							
PROJECT:	Cleveland Innerbelt Study - Payne Avenue Bridge Study Memorandum					**PROJECT NO:**	60054
REVIEWERS:	James Calanni (D12); Patrick Toman (D12); Drake Brauer (D12); Mike Herceg (D12); Dayna Mallas (D12)			**PHASE:**	TECHNICAL MEMORANDUM	**SHEET:**	

Comment #	Tech Memo Page No.	Details	Reviewer Comment	Reviewer	Designer Response	Comment addressed by:	Comment Completed (X) / No action required (NAR) / *Consider in Next Steps (NS)*
1			It appears the building in the SW quadrant of the bridge is very close to the right of way. Will raising the profile affect this building?	Calanni	*This is a good point. This would need to be evaluated during the next phase of project development once additional information regarding the building is obtained and likely conversations occur with the building owner. There are two doors that open up on the sidewalk along Payne Avenue. If the profile is raised, it would need to be evlauated if the pedestrian access route (PAR) width of the sidewalk could be maintained in the same elevation/location to maintain access to the building. The sidewalk is very wide and could allow for a solution that raises the profile of the roadway and makes the elevation up before getting to the building. This would need to be evaluated.*	Toombs	*NS*
2			Alternative 1 has a very short center span with respect to the approach span lengths. Will uplift occur at either pier?	Calanni	No, the minimum reactions for both piers for both interior and exterior girders are positive so won't experience uplift.	Ackerman	NAR
3	5		Alternative 2 is a two-span bridge, but the narrative provides superstructure depths for three spans. (See pdf sheet 5/53). Please correct discrepancy.	Calanni	Narrative was updated to state the depths are for Span 1, over the pier, and Span 2.	Ackerman	X
4			Will a two-span bridge option work if the girder spacing is tightened significantly and the span-to-depth ratio requirement is waived?	Calanni	It is probably feasible to design the girders this way, but based on our analysis of using 11 girders that were spaced at 6-feet, the increased steel weight would be substantial and the subsequant cost increase would be several million dollars.	Ackerman	X
5			Looks like this has some potential. Interesting span arrangement though. I would think we would go with the full closure since there are many alternate routes available.	Herceg	*A full closure is a valid alternative for vehicular traffic for the reasons stated in the comment. Other considerations, including maintaining utilities across the structure, may need to be evaluated to determine if the bridge can be completely removed from service during construction*	Toombs	*NS*
6	3		I agree with Mike [Herceg] that this has some potential. My only comment is on sheet 3 the consultant mentions the plan is to finish increasing vertical clearance with the major reconstruction project. The consultant will have to be mindful of how deep they place footers for piers and abutments to account for lowering the pavement. We are running into footer conflicts on all the other major rehab projects right now.	Brauer	*This is a good point. We agree that the footing depths would need to be carefully considered as additional design occurs during the next phase of project development.*	Ackerman	*NS*
7			For Alternative 3 – are the ROW impacts expected to be the same as Alternative 1? Would be nice if the memo had a simple statement of Alternate 3 ROW impacts. – Even though the $20M price tag really takes this out of the running.	Mallas	The ROW impacts are expected to be similar between the two alternatives because the abutment locations would be the same.	Ackerman	NAR
8			If the utilities located on the existing structure are determined to still be in service, are we still going to prefer the detour – and anticipate that a separate utility bridge would be required for the utilities (Water, Gas, Fiber Optic)?	Mallas	*This is a good point and one that would need resolved during the next phase of project development. The bridge could be phased which would allow utilities to be maintained across the bridge. There are also a lot of adjacent parallel routes so the bridge phasing could be only what is needed for maintaining utilities and not necessarily for vehicular traffic.*	Toombs	*NS*

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Comment #	Tech Memo Page No.	Details	Reviewer Comment	Reviewer	Designer Response	Comment addressed by:	Comment Completed (X) / No action required (NAR) / *Consider in Next Steps (NS)*
9			If the acquisition at Ramp C3 can't be avoided, could it be an option to investigating possibility of eliminating Ramp C3 to avoid acquiring the Cleveland Foodbank building and to keep the connection between E27th and E30th?	Mallas	This is a possibility. Changing the access by removing proposed Ramp C3 would require revising the Interchange Modification Study (IMS) which would require additional traffic analysis to show that the ramp terminal intersection with Superior Avenue wouldn't poorly operate with the additional traffic. An additional study is being completed to evaluate potential geometric modifications to create additional space between the building and proposed Ramp C3.	Toombs	NAR
10			Closing and detouring Payne Ave. to construct the bridge appears preferable due to the height of temporary shoring that would be required to build part-width in two phases. B&N discusses temporary shoring requiring tiebacks or potential use of wire faced MSE walls, but existing underground utilities on Payne Ave. may affect feasibility of both options.	Toman	*Agreed. This would need to be evaluated and confirmed during the next phase of project development when additional location services and utility coordination occurs with the owners.*	Toombs	*NS*
11			Agree that it makes sense to pursue a design exception for vertical clearance over existing IR-90 for and achieve full 16.5' minimum vertical clearance via the future profile of proposed IR-90.	Toman	Good to know that this is a tool in the toolbox to use during the next phase of project development if needed.	Toombs	NAR