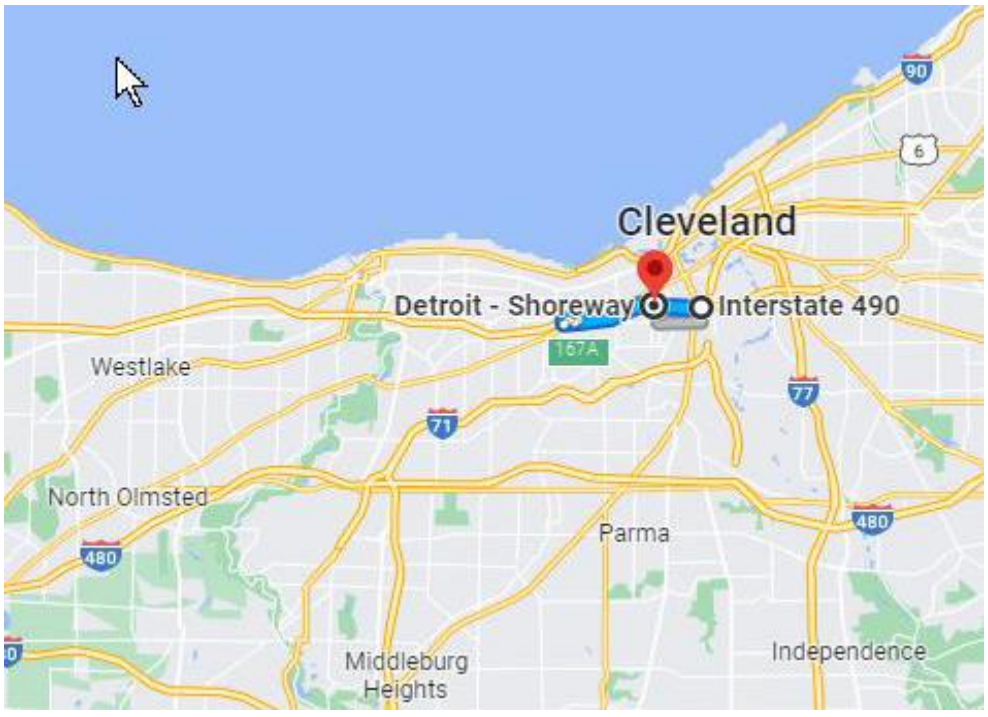
Design Exception Request

CUY-90-6.83

PID: 76779; Request 08

Letting Type: ODOT-Let

Design Designation			
I-90; 6.84-14.94			
Current ADT (2025)	163,000	Td	0
Design Year ADT (2045)	217,000	Design Speed	60
Design Hourly Volume (2045)	21,500	Legal Speed	60
Directional Distribution	58	Design Functional Class	1 - Interstates
Trucks (24hr B&C)	6	Functional Class Area Type	Urban
		NHS Project	Yes



Submitted By:

E-SIGNED by Jim Sima
on 2023-06-01 11:49:24 EST

Jim Sima
(Engineer of Record)

J.S.

Engineer of Record Seal

Approved by:

E-SIGNED by Adam Koenig
on 2023-06-01 13:57:08 EST

Adam Koenig

Approval Date: 3/2/2023

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Controlling Criteria Identification			
Section: I-90; 6.84-14.94			
Controlling Criteria	**Standard**	**Existing (a.)**	**Proposed**
Lane Width			
Shoulder Width	10 feet	6 feet	6 feet
Horizontal Curve Radius	24°45'00"	33°09'41"	28°58'10"
Maximum Grade			
SSD (Horizontal & Crest Vertical)			
Pavement Cross Slope			
Superelevation Rate	5.7%	2.0%	2.0%
Vertical Clearance			
Design Loading Structural Capacity			
(a.) "Existing" may be N/A (i.e. New alignment or new ramp)			

Project Description

Full depth pavement reconstruction of Interstate 90 from the Hilliard Blvd to I-490 in the cities of Rocky River, Lakewood and Cleveland, OH. Project includes full depth ashpalt concrete pavement for mainline I-90, and full depth concrete pavement for service interchange ramps. Project also includes drainage upgrades including replacement of portions of storm sewer trunk line and laterals, signing, pavement marking and ITS upgrades.

Section Description

For RAMP 12 (IR 90 WB to W. 117th ST.), the Shoulder width, horizontal curve radius and superelevation rate for Ramp 12 are deficient. Ramp is constrained by Belmont Avenue to the north, and Ramp 11 to the south which make re-alignment and widening infeasible.

Proposed Mitigation

None

Support for Deviation (Benefit-cost, R/W, Environmental, Constructability, Coordination with Other Projects, Relationship between any crash patterns and proposed design exception, etc.):

Providing a wider shoulder where the ramp is adjacent to Belmont Ave. right of way is not possible without right of way acquisition and would impact the access to the business on the north side of Belmont Ave. Providing a wider shoulder where the ramp is adjacent to Belmont Park would likely require either acquisition of park land or retaining walls to avoid impacting the park.

The western-most horizontal curve meets 25 mph which is less than 30 mph criteria from L&D Volume 1, Figure 503-1. The proposed curvature matches the existing except that the location of the baseline was offset 25 ft to create one continuous baseline. The proximity of this curve to both the T-intersection with W. 117th St. and the adjacent ramp curve to the east do not provide enough length for the development for a full superelevation rate of 5.7%. The proposed superelevation rate will match the existing rate.

The geometry of the ramp is constrained by Belmont Avenue right of way, Belmont Park and homes on W. 110th, W. 111th and W. 112th Streets on the north, by the W117th St. northbound to IR 90 westbound loop ramp on the south and by the W. 114th St. pedestrian bridge (CUY-90-1076) that traverses the east end of the ramp. These constraints make any changes to the alignment or widening the shoulder infeasible.

Does the requested Design Exception location fall within a Safety Integrated Project (SIP) Map Location?

Yes, Red Location

Does the crash analysis (GCAT and CAM Tool) show any patterns that would be adversely impacted by the proposed Design Exception?

No