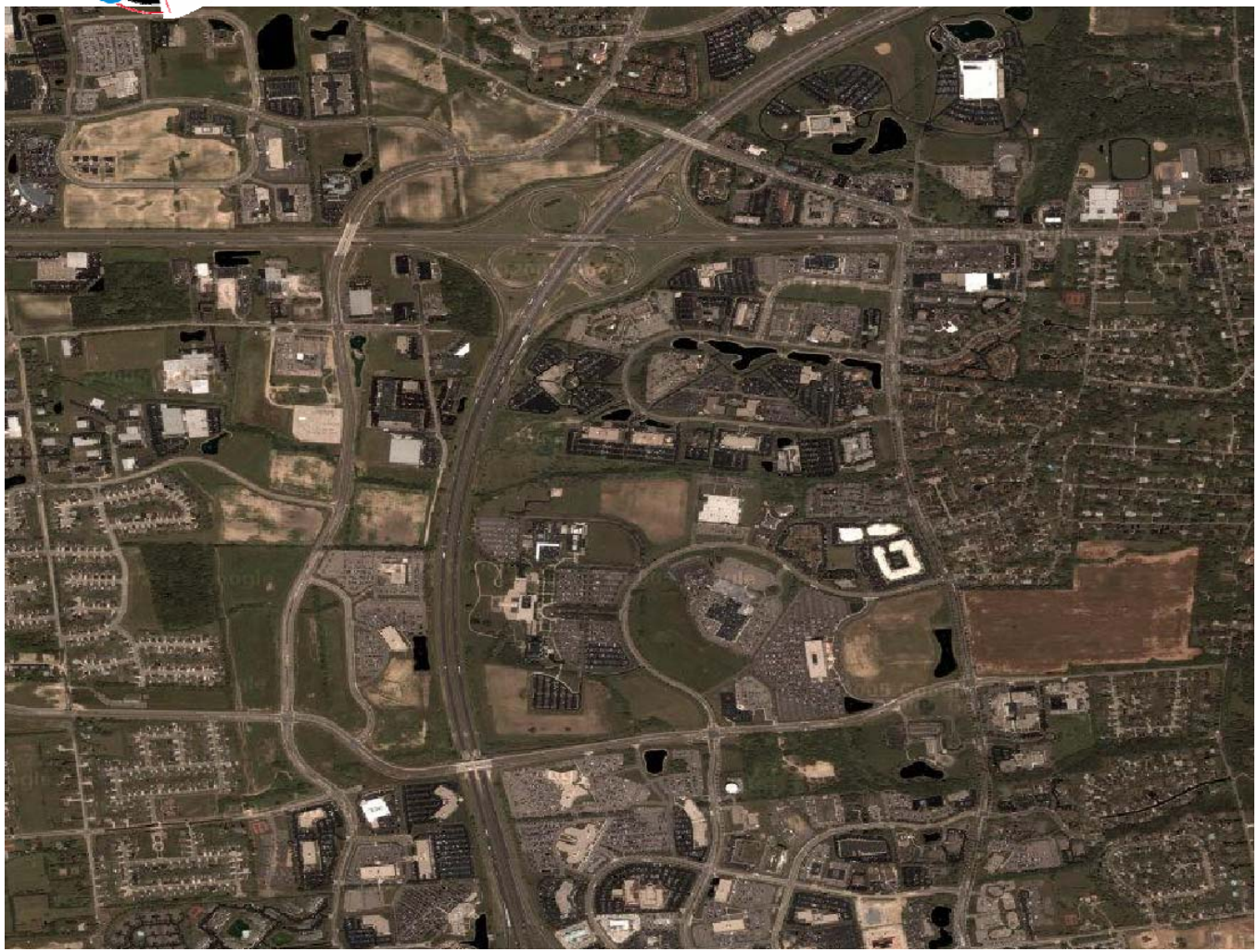
I-270 / US 33
Northwest
Freeway
Study

Red Flag Summary



November 2005

BURGESS & NIPLE

RED FLAG SUMMARY

(Form Revised 2/20/04)

The purpose of this Red Flag Summary is to identify concerns that could cause revisions to the anticipated design and construction scope of work, the proposed project development schedule, the estimated project budget, or the potential impacts of the project on the surrounding area.

Date Red Flag Summary Completed: pending
District: 06
Project Name (County, Route and Section): FRA-270-NW Freeway Corridor
City, Township or Village Names(s): Columbus/ Hilliard/ Dublin
PID: 75154
Prepared by: Kathy Vogt
ODOT Project Manager: n/a, MORPC Project

GENERAL PROJECT PLANNING INFORMATION

Project Description:
The FRA-270-NW Freeway Corridor project is part of a Major Investment Study to determine the needed modifications to the transportation system associated with I-270 and the U.S. 33 interchange area including areas along I-270 and I-70 to the south and I-270 and Sawmill Road to the north.

Project Limits/General Location
I-270 / U.S. 33 NW Freeway focus area begins at I-70 (West Freeway)/I-270 interchange and proceeds north to I-270/U.S. 33 interchange. From there the study follows US-33 from the interchange to the U.S. 42 interchange. It also continues to follow I-270, to the twin bridges over the Scioto River. Focus interchanges include: I-70, Roberts Road, Cemetery Road, Tuttle Crossing, SR 161/I-270, SR 161/Avery Road, and SR 161/U.S. 42. In addition, the interchange arterials will be considered for study to the extent that they influence traffic flow on the freeway system, or are influenced by it. The general study area boundaries are: Fisher Road to the south, the Scioto River/Wilson and Trabue Roads to the east, the Delaware County line to the north and Avery Road to the west. The U.S. 33 portion of the study corridor extends beyond the U.S. 42 interchange.

Structures:

Freeway Bridges

Bridge Number	Location	Sufficiency Rating
FRA-270-1731	Under U.S. 33 WB	94.1
FRA-270-1757	Under Post Road	94.0
FRA-270-1856L	Scioto River, SR 745, SR 257	94.0
FRA-270-1762	S Indian Run	93.4
FRA-270-1762	S Indian Run	93.4
FRA-270-1823	N Indian Run	93.4
FRA-270-1823	N Indian Run	93.4
UNI-33-2037	Under U.S. 42	93.0
UNI-33-2357	Kile Ditch	91.0
UNI-33-2357	Kile Ditch	91.0
FRA-33-0014	South Fork Indian Run	90.7
FRA-270-1856R	Scioto River, SR 745, SR 257	89.2
FRA-270-1619	Cramer Ditch	88.2
FRA-270-1619	Cramer Ditch	88.2
FRA-270-1003	Lt Frontage Road / Ray Run	88.1
FRA-270-1563	Over I-270	87.9
FRA-270-0829	Under Fisher Road EB	85.8
FRA-270-1003	Raymond Run	85.0
FRA-270-1003	Raymond Run	85.0
FRA-270-1474	Hayden Run and Hayden Run Road	83.6
FRA-270-1264	Under Cemetery Road WB	83.4
FRA-270-0888	I-270 Under Ramp To I-270SB	82.5
UNI-33-2211	Under CR 9	81.5
FRA-270-0856	I-270 Under Ramp To I-70EB	81.0
UNI-33-2489	SR-161	80.9
FRA-270-1474	Hayden Run and Hayden Run Road	80.2
UNI-33-2489	SR-161	76.4
FRA-270-0830	Under Fisher Road WB	75.7
FRA-270-1385	Under CR 31 Davidson Road	75.1
FRA-270-1729	Under U.S. 33 EB	74.5
FRA-270-1049	Under Roberts Rd EB CR28	74.4
FRA-270-1103	Scioto Darby Creek Road and RR	74.2
FRA-270-1180	Over NS RR	74.2
FRA-270-1180	Over NS RR	74.2
FRA-270-1103	Scioto Darby Creek Road and RR	74.1
FRA-270-1673	Cosgray Ditch	72.1
FRA-270-1050	Under Roberts Rd WB CR28	72.0
FRA-270-1263	Under Cemetery Road EB	71.4
FRA-270-1292	Hilliard Run	71.2

Bridge Number	Location	Sufficiency Rating
FRA-270-0930	Under CR 27 Trabue Road	71.1
FRA-270-1084	Roberts Milliken Ditch	70.0
FRA-270-1126	Bricker Run	70.0
FRA-270-1149	Railroad Run	70.0
FRA-270-1249	Tudor Ditch	70.0
UNI-33-2102	Under CR 16	**66.1**
FRA-33-0379	Scioto R and Ramp SR 257 SB	**62.0**
FRA-33-0222	Under Emerald Parkway	**60.0**
UNI-33-2450	Gordon Tri-County Ditch	**58.9**

Arterial Bridges

Bridge On	Log point	Location	Sufficiency Rating
Roberts Road	8.12	Over Rob Milliken Ditch	96.7
Dublin Road	8.87	Over Hayden Run	71.8
Dublin Road	5.86	Over unnamed tributary	79.1
Dublin Road	10.04	Over Cramer Ditch	78.8
Dublin Road	4.93	Over unnamed tributary	97.2
Dublin Road	5.25	Over Kuhn Ditch	90.5
Dublin Road	10.66	Over Cosgray Ditch	80.2
Dublin Road	4.65	Over unnamed tributary	98.3
Dublin Road	3.40	Over Roberts Mill Ditch	97.1
Dublin Road	6.65	Over Tudor Ditch	86.0
Dublin Road	7.82	Over Smith Ditch	81.3
Dublin Road	8.35	Over unnamed tributary	77.4
Scioto-Darby Creek Road	0.01	Over Big Darby Creek	91.6
Scioto-Darby Creek Road	7.34	Over Conrail	80.3
Hayden Run Road	5.32	Over Hayden Run	94.9
Hayden Run Road	5.86	Over Hayden Run	98.0
Hayden Run Road.	6.20	Over Hayden Run	99.0
Rings Road	4.24	Over Cramer Ditch	99.4

Estimated Cost: Unknown

Funding Source(s):

- ☒ Federal
- ☒ State
- ☒ Local Undetermined
- ☐ Private _____

Are funding splits required? ☒ Yes ☐ No

Specify: probable

Anticipated quarter and Fiscal Year of project award: ____

Project Sponsor: MORPC; resulting projects by ODOT and/or local jurisdictions

Is local legislation required? ☐ Yes ☐ No

Is FHWA oversight required? ☒ Yes ☐ No

Is project location on the congestion/safety list? ☒ Yes ☐ No

Locations are within the area are on the HSP lists

Problem identified by *(indicate document date)*:

- ☐ District Work Plan _____
- ☐ Congestion Study _____
- ☐ Safety Study _____
- ☐ Major New _____
- ☐ MPO TIP _____
- ☒ MPO LRP dated 2004
- ☐ Access Ohio _____
- ☐ Other _____

Are there any other projects in the area (ODOT, local or utility) that might conflict with the project (e.g., a local project on the proposed detour route for the ODOT project, a resurfacing project a year after a pavement marking project)? ☐ Yes ☒ No *Specify* Can only evaluate after a project or program has been recommended as a result of this study. Will need to revisit this question at that time.

Are there growth or land use changes in the area surrounding the project that could have an impact on project scope? ☐ Yes ☐ No *Specify* _____

Are there any known public involvement issues? ☐ Yes ☐ No *Specify* These will be constantly reevaluated thru the Advisory Committee Meetings and others.

Purpose and Need (Must be a separate document for Major Projects):

Refer to Goals and Objectives as adopted by MORPC NWCS Steering Committee. (See Draft Purpose and Need, Section document)

EXISTING INFORMATION:
Check all information that was reviewed for the Red Flag Summary. Not all information is available or necessary for every project. The scope of the Red Flag Summary should be commensurate with the nature of the proposed project.

☒ Legal Speed _see following Table
POSTED/P
RIMA
FACIE
SPEED
LIMITS

COUNTY	URBAN AREA	STREET NAME	LOCATION	SPEED LIMIT
Franklin	Columbus	Avery Rd	From US 33 to Shier Rings Rd	35
Franklin	Columbus	Avery Rd	From Shier Rings Rd to Rings Rd	45
Franklin	Columbus	Avery Rd	From Rings Rd to Hayden Run Rd	55
Franklin	Columbus	Avery Rd	From Hayden Run Rd to Dexter Ave	35
Franklin	Columbus	Avery Rd	From Dexter Ave to Scioto Darby Rd	25
Franklin	Columbus	Avery-Muirfield Dr	From Perimeter Dr to US 33	35
Franklin	Columbus	Bridge St	I-270 to Riverside Dr	35
Franklin	Columbus	Britton Rd	From Davidson Rd to Hayden Run Rd	35
Franklin	Columbus	Cemetery Rd	From Main St to I-270	35
Franklin	Hilliard	Davidson Rd	From Avery Rd to Dublin Rd	35
Franklin	Columbus	Dublin Rd	From Glick Rd to Bridge St	45
Franklin	Columbus	Dublin Rd	From Bridge St to Hayden Run Rd	45
Franklin	Columbus	Emerald Pkwy	From Dublin Rd to Perimeter Dr	35
Franklin	Columbus	Emerald Pkwy	From Perimeter Dr to Woerner & Temple Rd	40
Franklin	Columbus	Emerald Pkwy	From Woerner & Temple Rd to Britton Rd	35
Franklin	Columbus	Fishinger Rd	From I-270 to Riverside Dr	35
Franklin	Columbus	Frantz Rd	From Dublin Rd to Bridge St	35
Franklin	Columbus	Glick Rd	From Dublin Rd to Muirfield Dr	35
Franklin	Columbus	Glick Rd	From Dublin Rd to SR 257	25
Franklin	Columbus	Hayden Run Rd	From Avery Rd to Riverside Dr	45
Franklin	Dublin	High St (Dublin)	From Emerald Pkwy to Bridge St	35
Franklin	Columbus	Hilliard-Rome Rd	From Roberts Rd to I-70	50

POSTED/PRIMA FACIE SPEED LIMITS				
Franklin	Columbus	Industrial Pkwy	From SR 161 to US 42	50
Franklin	Columbus	Main St	From Scioto Darby Rd to Heritage Club Dr	35
Franklin	Columbus	Main St	From Heritage Club Dr to Roberts Rd	45
Franklin	Columbus	Muirfield Dr	From Perimeter Dr to Glick Rd	35
Franklin	Columbus	Perimeter Dr	From Avery-Muirfield Dr to Emerald Pkwy	35
Franklin	Columbus	Rings Rd	From I-270 to Frantz Rd	35
Franklin	Columbus	Riverside Dr	From I-270 to Fairfax Dr	50
Franklin	Columbus	Riverside Dr	From Fairfax Dr to Trabue Rd	45
Franklin	Columbus	Roberts Rd	From Hilliard-Rome Rd to I-270	50
Franklin	Columbus	Roberts Rd	From I-270 to Dublin Rd	35
Franklin	Columbus	Scioto-Darby Creek Rd	From Alton-Darby Creek Rd to Cosgray Rd	45
Franklin	Columbus	Scioto-Darby Creek Rd	From Cosgray Rd to Leap Rd	35
Franklin	Columbus	Scioto-Darby Creek Rd	From Leap Rd to Dublin Rd	50
Franklin	Columbus	SR 257	From Glick Rd to Stratford Ave	45
Franklin	Columbus	SR 257	From Stratford Ave to I-270	50
Franklin	Columbus	Trabue Rd	From Hilliard-Rome Rd to Hague Ave	45
Franklin	Columbus	Trabue Rd	From Hague Ave to Riverside Dr	35
Franklin	Columbus	Tuttle Rd	From Avery Rd to Noor Rd	45
Franklin	Columbus	Tuttle Rd	From Noor Rd to Emerald Pkwy	35
Franklin	Columbus	Tuttle Rd	From Emerald Pkwy to Frantz Rd	45
Franklin	Columbus	Tuttle Rd	From Frantz Rd to Dublin Rd	25
Franklin	Dublin	US 33	From I-270 N to US 42	65/55
Franklin	Columbus	Wilson Rd	From I-70 to Roberts Rd	35
Franklin	Columbus	Woerner-Temple Rd	From Avery Rd to I-270	35

POSTED/P
RIMA
FACIE
SPEED
LIMITS

COUNTY	URBAN AREA	STREET NAME	LOCATION	SPEED LIMIT
Franklin	Cols/Unincorp.	Feder Rd	from Hilliard-Rome to Cole Rd	45
Franklin	Hilliard/Unincorp.	Alton-Darby Creek Rd	from Feder Rd to Walker Rd	45
			(no signs posted w/in these termini)	
Franklin	Columbus	Walcutt Rd	from Trabue Rd to Roberts Rd	45
Franklin	Columbus	Walcutt Rd	from Roberts Rd to Scioto-Darby Rd	50
Franklin	Hilliard	Leap Rd	from Scioto-Darby Rd to Davidson Rd	35
Franklin	Dublin	Post Rd	from USR 33/Frantz Rd to Industrial Pkwy	35
Franklin	Dublin	Shier-Rings Rd	from Emerald Parkway to Cosgray	35
Franklin	Dublin	Hard Rd	from Sawmill Rd to Riverside Dr/USR 33	35
Franklin	Dublin	Bright Rd	from Sawmill Rd to Riverside Dr/USR 33	25
Franklin	Columbus	Sawmill Rd	from Sawmill Place Blvd to Hard Rd	45
Franklin	Hilliard	Wilcox Rd	from Tuttle Crossing Blvd to Corp. Bndy.	25
Franklin	Hilliard	Wilcox Rd	from Corp. Bndy. to Hayden Run Rd	45
Franklin	Columbus	Renner Rd	from Alton-Darby Creek Rd to Hilliard-Rome Rd	45
Franklin	Hilliard	Lyman Dr	from Cemetery Rd to Davidson Rd	35

☒ Design Speed _5 mph greater than legal speed, typical_____
☒ Traffic Data:
Opening Year ADT: _____
Design Year ADT: see 2030 Mainline Peak Hour Volumes Figure 27 and Figure 28 for Planning Level ADT's in the E&FC report Figure
Design Hourly Volume: Planning Level peak perio volumes provided in E&FC Report, Figures 25 & 26
Directional Distribution: _____
Trucks (24 Hour B&C): _____
(Traffic data does not need to be certified for the Red Flag Summary.)

☒ Turning movement traffic counts
☒ Functional Classification:
  ☒ Interstate, freeway
  ☒ Arterial
  ☒ Collector
  ☒ Local
☒ Locale:
  ☐ Rural
  ☒ Urban
☒ National Highway System (NHS):
  ☒ NHS Routes: _____
  ☐ non-NHS Routes: _____
☐ (3R) Project?
  ☐ Yes
  ☒ No
☒ Aerial mapping
☐ Ohio Utility Protection Service (OUPS) Markings
☒ United States Geological Survey (USGS) topographic mapping
☐ Federal Emergency Management Agency (FEMA) flood plain study mapping
☐ Natural Resources Conservation Services (NRCS) mapping
☒ County map(s)
☒ Airport locations within 4 miles of project **Don Scott Field**
☐ Tax maps
☐ Property deeds
☐ Pavement marking log

☐ Original construction plans _____
☐ Existing right of way plans _____
☐ Bridge inspection reports
☒ Bridge Load Ratings
☐ Pile Driving Logs
☐ Recorded vertical clearances for overpasses and underpasses
☐ Old Soil borings
☐ Old Geologic reports
☐ Pavement Cores
☐ Dynaflect Testing
☐ Deck Cores
☐ Maintenance history
☐ Pavement Condition Ratings (PCR's)
☐ County Manager concerns
☐ Traffic Studies, Highway Safety Program (HSP) Studies
☐ Previous Maintenance of Traffic concerns on roadway
☒ Accident History/Accident Reports
☐ Past project construction diaries
☐ Permitted Lane Closure Map
☐ Property owner contacts
☒ National Register of Historic Places
☐ Other: _____

EXISTING GEOTECHNICAL INFORMATION:

Identify all geotechnical references found. It is assumed, based on the project type, that not all reference materials listed herein will be applicable for use during the Red Flag Study. This study should provide a comprehensive review of all existing information available for the project area and should be supplemented with a complete field reconnaissance.

Review of information from ODOT: **see Existing and Future Conditions Report, section 4.3**

- ☐ Original construction plans including plan views, profiles, and cross-sections
- ☐ Construction diaries and inspection reports for original construction
- ☐ Compile information on changes to the plans during construction activities (e.g., slope, spring drains)
- ☐ Interview people knowledgeable with the previous projects
- ☐ Maintenance records
- ☐ Boring log on file with the Office of Geotechnical Engineering
- ☐ History and occurrence of landslides
- ☐ History and occurrence of rockfalls
- ☐ Other_____

Review of information from ODNR:

From the Division of Geological Survey

- ☐ Boring logs on file
- ☐ Measured geologic sections
- ☐ Bedrock Geologic Maps
- ☐ Bedrock Topography Maps
- ☐ Bedrock Structure Maps
- ☐ Geologic Map of Ohio
- ☐ Quaternary Geology of Ohio
- ☐ Known and Probable Karst in Ohio
- ☐ Bulletins
- ☐ Information Circulars
- ☐ Report of Investigations
- ☐ Location and information on underground mines
- ☐ Location and characteristics of karst features
- ☐ Landslide maps
- ☐ Other_____

From the Division of Mineral Resource Management

- ☐ Applications and permits files for surface mines (coal & industrial mineral)
- ☐ Active, reclaimed or abandoned surface mines
- ☐ Abandoned Mine Land (AML) sites
- ☐ Emergency Projects
- ☐ Other_____

From the Division of Soil & Water

- ☐ Water well logs
- ☐ Soil Surveys
- ☐ Ohio Wetland Inventory Maps
- ☐ National Wetland Inventory Maps
- ☐ Presence of lake bed sediments, organic soils or peat deposits
- ☐ Other _____

Other Sources:

- ☐ Aerial photographs
- ☐ Satellite imagery
- ☒ USGS quadrangles
- ☐ USGS publications and files
- ☐ City and County Engineers
- ☐ Academia with engineering or geology programs
- ☐ USGS Open File Map Series #78-1057 “Landslides and Related Features”
- ☐ Other _____

SITE VISIT:
A site visit is required for ALL projects.
The site visit shall consist of visual inspection of the entire project area including the ditch lines, cut slopes, stream banks, bridge foundations, pavement, rock/soil slopes, etc.

Date(s) of site visit: 5 - 4 - 05 5 - 11 - 05 5 - 16 - 05

ODOT DISCIPLINE INVOLVEMENT:

List name and phone number of individual(s) representing each discipline during the site visit and preparation of the Red Flag Summary. One individual may represent multiple disciplines. Check box if individual attended the site visit.

- ☐ District Project Manager _____
- ☐ Geometrics **Kathy Vogt 839-0250**
- ☐ Hydraulics _____
- ☐ Pavements **Kathy Vogt 839-0250**
- ☐ Geotechnical _____
- ☐ General Roadway **Kathy Vogt 839-0250**
- ☐ Structures _____
- ☐ Traffic Control **Bill Bielek, Ravi Ambadipudi 459-2050**
- ☐ Signals **Bill Bielek, Ravi Ambadipudi 459-2050**
- ☐ Maintenance of Traffic **Bill Bielek, Ravi Ambadipudi 459-2050**
- ☐ Right of Way/Real Estate _____
- ☐ Utilities _____
- ☐ Survey _____
- ☐ Environmental **Hardlines Design Group (Archaeology) 784-8733**
- ☐ Highway Management _____
- ☐ Central Office Program Manager _____
- ☐ ODOT County Manager** _____
- ☐ District Production Administrator** _____
- ☐ District Planning and Programming Administrator** _____

** The County Manager, Production Administrator and Planning/Programming Administrator (or qualified representative) must attend the site visit.

EXTERNAL AGENCY INVOLVEMENT:

Indicate external agency involvement during identification of red flags. List the name and phone number of individual(s) representing each agency during the site visit. Check box if individual attended the field review.

☐ Federal Highway Administration (FHWA) _____
☐ County Engineer _____
☐ City Engineer _____
☐ Other local public agency _____
☐ Federal Emergency Management Agency FEMA _____
☐ U.S. Army Corps of Engineers (USACE) _____
☐ U.S. Coast Guard _____
☐ Ohio Department of Natural Resources (ODNR) _____
☐ Ohio Environmental Protection Agency (OEPA) _____
☐ Railroad/Railway Company _____
☐ State Historic Preservation Office (SHPO) _____
☐ Metropolitan Planning Organization (MPO) **Nick Gill (MORPC) (614) 233 - 4151**
☐ Utility Companies: _____ (Power)
_____ (Telephone)
_____ (Water)
_____ (Gas)
_____ (Sanitary)
_____ (Cable)
_____
_____

☐ Other _____

ODOT COUNTY MANAGER CONCERNS:

List any comments/requests from the ODOT County Manager.

ACCIDENT DATA:

Summarize accident history. Indicate any design features that should be revised to increase safety.

See Existing and Future Conditions Report, section 4.9 and Tables 15-19

ENVIRONMENTAL ISSUES:

Make a preliminary determination on whether the following resources will be affected by the proposed project.

Involvement	Resource	Comments	References*
☒Yes ☐ No ☐ Possible	Parkland, nature preserves and wildlife areas *(name)*	See Existing and Future Conditions Report, Section 3.6.1	
☐ Yes ☒ No ☐ Possible	Cemetery *(name)*		
☒Yes ☐ No ☐ Possible	Scenic River *(name)*	**See Footnote 1**	EPM: 104.2, 104.2.4
☐Yes ☐ No ☐ Possible	Public Facilities *(name)*		
☒Yes ☐ No ☐ Possible	Threatened and Endangered Species and/or habitat (e.g., Indiana bat trees, etc.):	See Existing and Future Conditions Report, Section 3.5.2	EPM: 104.2, 104.2.6
☐Yes ☐ No ☒ Possible	Existing cat tails: *(location)*	See Footnote 1	
☒Yes ☐ No ☐ Possible	Existing wet areas: *(location)*	See Footnote 1	EPM: 104.2, 104.2.3
☒Yes ☐ No ☐ Possible	Streams, rivers and watercourses: *(Use Designation)*	Scioto River, North Fork Indian Run, South Fork Indian Run, Hayden Run	EPM: 104.2, 104.2.4
☐Yes ☐ No ☒ Possible	Historic Building(s) *(location)*	See Footnote 1	EPM: 104.3
☐Yes ☐ No ☒ Possible	Historic Bridge(s): *(location)*	See Footnote 1	EPM: 104.3

☒Yes ☐ No ☐ Possible	Farmland: *(location)*	See Existing and Future Conditions Report, Section 3.6.2	
☒Yes ☐ No ☐ Possible	Landfill(s): *(location)*	See Existing and Future Conditions Report, Section 3.5.3	
☐Yes ☐ No ☒ Possible	Total Maximum Daily Load (TDML) Streams *(location)*	See Footnote 1	
☐Yes ☐ No ☒ Possible	ODOT MS4 Phase 2 Regulated Areas: *(location)*	See Footnote 1	
☒Yes ☐ No ☐ Possible	Evidence of hazardous materials: *(location)*	See Existing and Future Conditions Report, Section 3.5.4	EPM: 104.7,
☐Yes ☒No ☐ Possible	Sensitive environmental justice areas: *(specify))*		
☒Yes ☐ No ☐ Possible	Federal Emergency Management Agency (FEMA) floodplains: *(specify)*	See Existing and Future Conditions Report, Section 3.5.3	EPM: 104.2, 104.2.5
☐Yes☒ No ☐ Possible	Lake Erie Coastal Management Area: *(specify)*		EPM: 104.2
☐Yes ☐ No ☒ Possible	Sole Source Aquifers: *(location)*	See Footnote 1	
☐Yes ☐ No ☒ Possible	Wellhead Protection Areas: *(specify)*	See Footnote 1	
☐Yes ☐ No ☒Possible	Other environmental issues: *(specify)*	See Footnote 1	

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[1] This issue can not be determined at this time. Once alternatives are generated, this issue will be studied in more detail.

GEOMETRIC ISSUES:

Use the design speed, design functional classification and available traffic data to make a preliminary determination as to the geometric standards for the project. Compare these requirements to accident data and impacts if deviations are being considered.

Design Exception Required?	Design Feature	Preliminary Comments Regarding Justification	References*
☐Yes ☒No ☐Possible ☐Not Applicable	Lane Width (including curve widening)		LDV1: 301.1.1
☐Yes ☒No ☐Possible ☐Not Applicable	Graded Shoulder Width		LDV1: 301.2.3
☐Yes ☒No ☐Possible ☐Not Applicable	Bridge Width		LDV1: 302.1
☐Yes ☒No ☐Possible ☐Not Applicable	Structural Capacity		
☐Yes ☒No ☐Possible ☐Not Applicable	Horizontal Alignment (including Excessive Deflections, Degree of Curve, Lack of Spirals, Transition/Taper Rates and Intersection Angles)		LDV1: 202, 401.2
☐Yes ☒No ☐Possible ☐Not Applicable	Vertical Alignment (including grade breaks)		LDV1: 203
☐Yes ☒No ☐Possible ☐Not Applicable	Grades		LDV1: 203.2
☐Yes ☒No ☐Possible ☐Not Applicable	Stopping Sight Distance		LDV1: 201.2
☐Yes ☒No ☐Possible ☐Not Applicable	Pavement Cross Slopes		LDV1: 301.1.5
☐Yes ☒No ☐Possible	Superelevation (Maximum rate, transition, position)		LDV1: 202.4

☐Not Applicable			
☐Yes ☒No ☐Possible ☐Not Applicable	Horizontal Clearance		LDV1: 301.2.5
☐Yes ☒No ☐Possible ☐Not Applicable	Vertical Clearance		LDV1: 302.1

Indicate if the following geometric issues are present or should be considered during project development. Consider work on the mainline as well as any side roads or service roads. Provide additional comments as needed.

	Design Issue	**Comments**	**References***
☐Yes ☐No ☒Possible ☐Not Applicable	Does the existing horizontal alignment need to be modified?	New lane configurations could be a possible solution, which could lead to changes in the horizontal alignment. See Roadway Inventory Report on the CD portion of the E&FC report	LDV1:202
☐Yes ☒No ☐Possible ☐Not Applicable	Does the existing vertical alignment need to be modified?		LDV1:203
☐Yes ☒No ☐Possible ☐Not Applicable	Does stopping sight distance need to be increased?		LDV:201.2
☐Yes ☒No ☐Possible ☐Not Applicable	Does intersection sight distance need to be increased?		LDV1: 201.3
☐Yes ☐No ☒Possible ☐Not Applicable	Are there any hazards in the clear zone? *(specify treatment)*	Median crossover crashes on I-270 have been identified as a problem, resulting in recommendation to add cable barrier.	LDV1: 600.2, 601
☒Yes ☐No ☐Possible ☐Not Applicable	Does existing guardrail need to be replaced (e.g., too low, poor condition)?	If added lanes are recommended for mainline I-270, the grass median/cable barrier would need to be replaced with concrete barrier.	LDV1: 602, 603
☒Yes ☐No ☐Possible ☐Not Applicable	Is there sufficient area for guardrail anchor assemblies (E-98 or B-98)?		LDV1: 602, 603
☐Yes ☐No ☒Possible	Does the number of turn lanes appear to be adequate?	Depending on traffic modeling, interchange arterials may need lane additions or other	LDV1: 401.7, 402

	Design Issue	Comments	References*
☐Not Applicable		reconfigurations.	
☐Yes ☐No ☒Possible ☐Not Applicable	Does the number of through lanes appear to be adequate?	Additional through lanes could be a recommended solution for I-270, U.S. 33, or one or more of the interchange arterials.	LDV1: 401.7
☐Yes ☐No ☒Possible ☐Not Applicable	Are changes to access control required?		LDV1: 800, 801, 802
☒Yes ☐No ☐Possible ☐Not Applicable	Are there any drive locations that will require special attention during design (e.g., very steep grades, high volume commercial drives, drives close to bridges or intersections)?	Cemetery Road, Roberts Road experience considerable peak hour congestion near their interchanges with I-270, causing traffic flow disturbances that back up onto the freeway as well.	LDV1: 803, 804, 805
☐Yes ☐No ☐Possible ☒Not Applicable	Are new mailbox turnouts required?		LDV1: 803.1
☐Yes ☒No ☐Possible ☐Not Applicable	Is there any evidence of accidents due to substandard vertical clearance on overpass structures?		
☐Yes ☐No ☒Possible ☐Not Applicable	Will an interchange be added or modified?	New interchange locations will be studied as a means of addressing problems at several potential locations (Scioto-Darby, Davidson and Mitchell-Dewitt) The loop ramps at the U.S. 33 and the I-70 interchanges with I-270 may present significat capacity/congestion issues.	LDV1: 403, 404
☐Yes ☐No ☒Possible ☐Not Applicable	Do the existing intersection radius returns need to be modified to accommodate larger truck turning movements?	Roberts Road carries very high truck volumes, as does Cemetery Road (to a lesser extent). Improved turning room could be a potential solution for these interchange arterials.	LDV1: 401.5

	Design Issue	Comments	References*
☐Yes ☒No ☐Possible ☐Not Applicable	Does grading need to be upgraded? To what criteria (e.g., clear zone, safety, standard)?		LDV1: 307
☒Yes ☐No ☐Possible ☐Not Applicable	Are there any other geometric issues? *Describe*	Several existing interchanges exhibit design features that have become obscelete and no longer meet current design criteria. These are discussed more fully elsewhere. See Roadway Inventory Report on the CD portion of the E&FC report	HCM 2000, LDV1:

HYDRAULIC ISSUES:

Indicate if the following drainage issues are present or should be considered during project development. Side road and service road work should be considered in this assessment. Provide additional comments as needed.

	Design Issue	Comments	References*
☐Yes ☐No ☒Possible ☐Not Applicable	Based on visual evidence (height of debris, erosion or other markings left from high water) and approximate drainage areas, does the existing drainage system (culverts, storm sewers and/or ditches) appear to be appropriately sized and functioning properly? *Describe deficiencies.*		LDV2: 1003 – 1006
☐Yes ☐No ☒Possible ☐Not Applicable	Is there evidence of alignment or flow velocity problems (e.g., scour, bank erosions, silting) at culvert entrances or exits?		LDV2: 1107
☐Yes ☐No ☒Possible ☐Not Applicable	Are there sinkholes or other deterioration in the pavement that would indicate separations in the existing pipes?		
☐Yes ☐No ☒Possible ☐Not Applicable	Should guardrail over culverts be eliminated with clear zone grading?		LDV1: 307.2
☐Yes ☐No ☒Possible ☐Not Applicable	Should the existing culverts be replaced?		LDV2: 1105
☐Yes ☐No	Should the existing culverts be extended?		LDV2: 1105

	Design Issue	Comments	References*
☒Possible ☐Not Applicable			
☐Yes ☐No ☒Possible ☐Not Applicable	Will a new alignment concentrate flow (in culverts) that is currently overland flow?		LDV2: 1105
☐Yes ☒No ☐Possible ☐Not Applicable	Will the maximum height of cover (100') be exceeded for any culvert?		LDV2: 1008
☐Yes ☐No ☒Possible ☐Not Applicable	Will bankfull design be used for any culverts?		LDV2: 1105.3.3
☐Yes ☐No ☒Possible ☐Not Applicable	Could materials with long lead times (e.g., large boxes) have an impact on construction schedule?		
☐Yes ☐No ☒Possible ☐Not Applicable	Does the existing drainage system have an odor that might indicate that it includes septic connections?		LDV2: LD-30 Form 1111.1
☐Yes ☐No ☒Possible ☐Not Applicable	Is the exposed curb height in existing gutters adequate to contain flow (include height of proposed resurfacing)?		LDV2: 1103.
☐Yes ☐No ☒Possible ☐Not Applicable	Do the existing inlets or catch basins need to be raised to meet proposed grade?		
☐Yes ☐No ☒Possible ☐Not Applicable	Is the project in a FEMA flood zone?		LDV2: 1005
☐Yes ☐No ☒Possible ☐Not Applicable	Does the project affect a wetland or waterway (e.g., stream, river, jurisdictional ditch)?		LDV2: 1001.2
☐Yes ☐No ☒Possible ☐Not Applicable	Is the existing and/or proposed channel alignment compatible with the existing/proposed structure?		
☐Yes ☐No ☒Possible ☐Not Applicable	Will channel relocation be required?		
☐Yes ☐No	Will Municipal Separate Storm Sewer System		

	Design Issue	Comments	References*
☒Possible ☐Not Applicable	(MS4) requirements apply?		
☐Yes ☐No ☒Possible ☐Not Applicable	Will post construction flow requirements be required?		LDV2: 1115.1 1115.2
☐Yes ☐No ☒Possible ☐Not Applicable	Is there evidence of existing field tiles?		LDV2: 1002.3.6, 1108
☐Yes ☐No ☒Possible ☐Not Applicable	Are underdrain outlets functioning properly?		
☐Yes ☐No ☒Possible ☐Not Applicable	Will a new storm sewer outfall be required?		LDV2: 1104
☐Yes ☐No ☒Possible ☐Not Applicable	Is ditch cleanout required?		
☐Yes ☐No ☒Possible ☐Not Applicable	Does the drainage work warrant any special maintenance of traffic considerations?		TEM: PART 6
☐Yes ☐No ☒Possible ☐Not Applicable	Are there any other hydraulic issues? *Describe.*		

GEOTECHNICAL ISSUES: see Existing and Future Conditions Report, Section 4.3

"Geotechnical Red Flag" features may include, but are not limited to, known or suspected geologic hazards (e.g., organic soils, karst, rockfalls, landslides, surface and underground mines, poor subgrade conditions, or difficulty in correcting existing surface or subsurface drainage problems).

According to the Ohio Division of Geological Survey map of the Quaternary Geology of Ohio, the soil types within the Northwest Freeway Study Area are from the late Wisconsinan age, comprised of flat to gently undulating ground moraine deposits except near the intersection of U.S. 33 and U.S. 42. Near that intersection, soils are the result of end moraine deposits.

Soil surveys of Franklin and Union counties map surface soils as deep, nearly level, and gently sloping, very poorly to moderately well drained, and formed mainly in medium and moderately fine textured glacial till. The depth to bedrock varies over the Northwest Freeway Study Area. The shallowest bedrock, primarily hard limestone and dolomite, will be encountered in the Dublin-Hilliard area, generally within 50 feet of existing grades. Along I-270 from the North Fork of Indian Run to Sawmill Road, bedrock outcrops are visible at the ground surface. Along U.S. 33, beginning at its intersection with Avery Road and extending to U.S. 42, the depth to bedrock is 50 feet to 100 feet below existing grades.

From a geotechnical perspective, the soil and bedrock types in the Northwest Freeway Study Area generally provide suitable foundation support for the construction of roadways, culverts, and bridges. Near surface soils generally exhibit lower strengths which can be attributed to higher moisture contents and less relative compactness. This condition most likely will require stabilization of the subgrade by moisture conditioning, recompacting, or undercutting.

SUMMARY OF GEOTECHNICAL ISSUES

Based on the information compiled during this study indicate whether or not the following geotechnical issues are present or should be further considered during project development. Provide additional comments as needed.

	Design Issues	Comments	References*
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there evidence of soil drainage problems (e.g., wet or pumping subgrade, standing water, the presence of seeps, wetlands, swamps, bogs)?		SSI: 2.1, 2.2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there evidence of any embankment or foundation problems (e.g., differential settlement, sag, foundation failures, slope failures, scours, evidence of channel migrations)?		SSI: 2.1, 2.2
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Is there evidence of any landslides?		SSI: 2.1, 2.2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there evidence of unsuitable materials (e.g., presence of debris or man-made fills or waste pits containing these materials, indications from old soil borings)?		SSI: 2.1, 2.2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there evidence of rock strata (e.g., presence of exposed bedrock, rock on the old borings)?		SSI: 2.1
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there evidence of active, reclaimed or abandoned surface mines?		SSI: 2.1, 2.2, AUM
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Is there information pertaining to the existence of underground mines?		SSI: 2.1, 2.2, AUM
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Are soil borings needed for pavement design, foundations (bridge, headwall, retaining wall, noise wall) or slopes?		SSI: 2.1, 2.2

	Design Issues	Comments	References*
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Does an undercut appear to be needed?		SSI: 5.3.2.1
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Should the Office of Geotechnical Engineering be contacted to evaluate the project site?		SSI: 1.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other geotechnical issues? *Specify*.		

Provide a list of bulleted items referencing additional areas of concern or special notation.

PAVEMENT ISSUES:

Indicate if the following pavement issues are present or should be considered during project development. Side road and service road work should be considered in this assessment. Provide additional comments as needed. **Maintenance history and PCR info was reviewed.**

	Design Issue	Comments	References*
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Are pavement cores needed to determine the existing pavement buildup and/or condition?		
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Is the proposed pavement buildup known? (For pavement preservation projects, pavement treatment, including pavement type & thickness should be specified in the design scope of services)		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the existing pavement concrete or asphalt?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are dynaflect tests available to assess existing pavement condition?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does the proposed pavement buildup need to be approved by the Pavement Selection Committee?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are joint repairs needed?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are pressure relief joints needed?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are pavement repairs needed?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does the maintenance of traffic scheme require additional permanent or temporary pavement?		
☐Yes ☐ No	Does curb need to be replaced due to deteriorated		

	Design Issue	Comments	References*
☒ Possible ☐ Not Applicable	condition or lack of curb reveal?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does sidewalk need to be replaced or installed?	Possibly on arterial roadways	LDV1: 306.2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are new curb ramps needed?		LDV1: 306.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Do truncated domes need to be installed?		LDV1: 306.3.5
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Is there any work on side roads, service roads or ramps?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any special drive treatments or preferences (e.g., concrete for all drive aprons, curved aprons, etc.)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Has the site received repeated resurfacings in recent years?		
☐Yes ☐ No ☒ Possible ☐Not Applicable	Does pavement deterioration appear to be caused by drainage or geotechnical problems?		
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any other pavement issues? *Specify*.		

STRUCTURAL ISSUES:

Indicate if the following structure issues are present or should be considered during project development. Provide additional comments as needed. Provide a separate table for each structure.

Structure:	**Design Issue**	**Comments**	**References***
☐Yes ☐ No ☒ Possible ☐Not Applicable	Can the structure be replaced with a prefabricated box culvert or 3-sided box?		BDM: 201
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does the bridge (including foundation) meet current design live loading?		BDM: 301.4, 301.4.1, 301.4.2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Was the existing structure built according to plan?		BDM: 206, 401.1, 610.1
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is deck coring needed?		BDM: 412
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the deck delaminated? *Specify.*		BDM: 412
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is non-destructive testing needed to determine the amount of delamination?		BDM: 412
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the bridge deck in good condition?		BDM: 412
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Has a deck condition survey (Bridge Design Manual, Section 412) been performed?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there areas to be patched or repaired on the deck?		BDM: 403.1, 404.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the bridge a good candidate for an overlay? *Specify type of overlay if known.*		BDM: 404.1, 404.2

Structure:	Design Issue	Comments	References*
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does the bridge rail meet current standards?		BDM: 209.2, 304, 410
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is a fatigue analysis required?		BDM: 402.2, 402.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Should all fatigue prone details be retrofitted or replaced? *Specify.*		BDM: 402.2, 402.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the abutment (including backwall, beam seats, breatwall, wingwall, etc.)) in good condition? *Specify location and level of deterioration.*		BDM: 403.1
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there any evidence of substructure movement (e.g., settlement, rotation)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Should piers be replaced or reused? *Specify*.		BDM: 303.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there any evidence of existing beam deterioration/section loss, strands exposed, shear joints leaking or longitudinal cracks?		BDM: 402.1
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are the bearings in good condition?		BDM: 411
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Can the deck joint be eliminated? If not, specify what modifications are necessary.		BDM: 205.8, 205.9, 406
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are new approach slabs needed?		BDM: 209.5
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Can hinges be removed to make the members continuous?		BDM: 402.8

Structure:	Design Issue	Comments	References*
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does existing vertical and horizontal clearance meet design standards?		BDM: 207.1, 207.3, 209.8
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the bridge on a curve, skew or superelevation transition?		BDM: 207.5, 209.1
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there any evidence that the bridge does not meet hydraulic capacity?		BDM: 202.5, 203
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there existing sidewalks on or adjacent to the bridge?		BDM: 209.11
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will the structure work require any special maintenance of traffic (e.g., closing of roadway for erection of beams, maintenance of waterway traffic, location of cut line, etc.)? *Specify.*		BDM: 208, 409, 304.3.5
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the structure in a Federal Emergency Management Agency (FEMA) flood plain?		BDM: 203
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is there any erosion in the existing channel?		BDM: 203.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the foundation exposed due to scour?		BDM: 203.3, 409.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will there be more than 25’ of channel relocation?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any opportunities to construct the bridge faster (e.g., precast walls, segmental construction)?		
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Is there any railroad involvement?		BDM: 209.8

Structure:	Design Issue	Comments	References*
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Does the bridge need to accommodate future additional roadway lanes or railroad tracks?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will temporary shoring be required next to the railroad?		BDM: 208.3
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Could materials with long lead times for delivery (e.g., steel beams) have an impact on the construction schedule?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any problems with existing retaining walls?		BDM: 204.9
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other structures issues? *Specify*.		

TRAFFIC CONTROL ISSUES:

Indicate if the following traffic control (signals, signing, pavement markings, etc.) issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Do the existing signs need to be replaced due to poor condition?		TEM: 260
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any obvious deviations from requirements of the Ohio Manual of Uniform Traffic Control Devices (OMUTCD)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is a particular type of pavement marking desired (e.g., paint, epoxy, thermoplastic)?		TEM: 320
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will pavement planing affect loop detectors?		TEM: 450-10.7 420-5
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will pavement widening affect pole locations?		TEM: 450-6
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Will resurfacing effect signal height?		TEM: 450-7
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does it appear that any traffic control items will fall outside the existing right of way limits (e.g., large signs, strain poles)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any special pedestrian considerations?		TEM: 404
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any accidents that can be related to existing signal deficiencies (e.g., timing, lack of turn lanes)?		TEM: 402-3.5
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Do turn lane lengths appear to have sufficient storage capacity?	It is likely that insufficient turn lane lengths will be identified. A detailed analysis of key intersections will need to be performed.	LDV1: 401.7

☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does the controller need to be upgraded?		TEM: 460
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Do proprietary materials need to be specified?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Should signs or signal installations be supplemented with lighting?		TEM: 408
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are any TODS signs present?		TEM: 207-3
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Could material with long lead times for delivery have an impact on the construction schedule (e.g., strain poles)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	If traffic control at an intersection is being changed from stop control to signalization, does the stop condition road need to be upgraded to accommodate faster traffic?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other traffic control issues? *Specify.*		

MAINTENANCE OF TRAFFIC ISSUES:

Indicate if the following maintenance of traffic issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Can traffic be detoured?	Not possible for I-270, U.S. 33 or interchange arterials	TEM: 602-6
☐Yes ☐ No ☐ Possible ☒ Not Applicable	Is the local alternate detour route in good condition? Are there any load limits or bridge width restrictions?		
☐Yes ☐ No ☐ Possible ☒ Not Applicable	Will the detour route have a detrimental impact on emergency vehicles, school buses or other sensitive traffic?		
☐Yes ☐ No ☐ Possible ☒ Not Applicable	Are there any load limits on the proposed detour route?		
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Does the project fall within the permitted lane closure map?		TEM: 630-4
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Is existing bridge width sufficient to maintain traffic?		TEM: 640-2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will temporary pavement be required?		TEM: 640-2, 640-11
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Should temporary pavement be retained after project completion?		TEM: 640-11
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will the speed limit be lowered by more than 10 mph during construction?	Need for speed limit reduction on freeway facilities is likely during construction.	TEM: 640-18
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is the existing shoulder in good enough condition to support traffic during construction?	This issue and its applicability should be investigated further as alternatives are developed.	TEM: 640-5

☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does pedestrian traffic need to be maintained?	Not on freeway facilities. Possible on interchange arterials.	TEM: 64-25
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will additional width be required on culverts or bridges to maintain traffic?		TEM: 640-2
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Will a temporary structure/runaround be required?		TEM: 640-11
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will a cross over be utilized?		TEM: 640-11
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will the road need to be closed for short durations (e.g., 15 minutes for beam erection)?		TEM: 640-8
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Can drive access be maintained at all times?		TEM: 640-10
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Can trucks make turning movements during construction?	Cannot be evaluated until specific alternatives for interchange arterials are developed.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will portable concrete barrier wall obstruct stopping sight distance?	Could be an issue at Roberts, Cemetery roads, depending on alternatives chosen.	LDV1-201.2
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will additional signal heads be needed for drives and/or side roads?		TEM: 605-13
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any issues regarding access to the work site?		TEM: 640-9
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any issues regarding construction timeframes (e.g., time of day, time limits)?		TEM: 606-3 640-14
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Have innovative contracting ideas been considered? *Specify.*		

☐Yes ☒ No ☐ Possible ☐ Not Applicable	Are there specific requirements for maintaining railroad traffic?		TEM: 606-19
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does it appear that the maintenance of traffic will require additional right of way?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other maintenance of traffic issues? *Specify.*		

RIGHT OF WAY/SURVEY ISSUES:

Indicate if right of way or survey issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will there be any work beyond the existing right of way limits?	Not likely for freeway construction, but possible at interchanges and adjacent arterials.	
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Will major real estate relocation acquisition be involved?		
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Will relocation of residences be involved?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will relocation of businesses be involved?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does access control need to be revised?	Potential alternatives at Cemetery and Roberts roads could involve changes in access control. Also a possibility on U.S. 33/SR 161 east of Frantz Road.	
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any obvious encroachments?		
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Can the number of involved property owners be determined? If so, how many?	Specific R/W involvement cannot be enumerated at this stage of project development.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will temporary parcels be needed (e.g., for drive work)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will right of way need to be acquired for an agency other than ODOT (e.g., county, city)? *Specify.*		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will additional right of way be needed for utility relocations?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will right of way need to be acquired for storm sewer outfalls?		

☐Yes ☐ No ☐ Possible ☒ Not Applicable	Do property owners need to be contacted for the locations of underground items such as leach fields, septic systems or field tiles that might be effected by the proposed take?		
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Are there any mineral rights considerations?		
☐Yes ☐ No ☐ Possible ☒ Not Applicable	Are there any specific property owner concerns?	Cannot be determined at this stage of project development.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will right of way acquisition from a railroad/railway be involved?	RR underpass for Cemetery Road, between Parkway Lane and Lacon Road could constrain widening alternatives. Likewise for RR overpass at Roberts Road (Buckeye Railyard).	
☐Yes ☐ No ☐ Possible ☒ Not Applicable	Can work agreements be used?		
☐Yes ☐ No ☐ Possible ☒ Not Applicable	Does the centerline of construction match the centerline of right of way?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will right of way be acquired for wetland or stream mitigation?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other right of way or survey issues? *Specify.*		

UTILITY ISSUES:

Indicate if the following utility issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Do existing utilities need to be relocated?	Utility relocation almost a certainty for the likely scope of this project. Magnitude cannot be determined at this stage.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Can utility conflicts be minimized (e.g., by careful placement of storm sewer and underdrains)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Would the project benefit from subsurface utility engineering (SUE)?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there existing utilities on an existing structure that need to be relocated?	Has not yet been assessed.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any specific utility requirements or concerns? *Specify*.		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there facilities that require a large lead time to relocate?	Has not yet been assessed.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is additional right of way needed to accommodate utility relocations?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there water or sanitary lines that will be relocated as part of the ODOT contract?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other utility issues? *Specify.*		

PERMIT ISSUES:

Indicate if the following permit issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will an individual Corps of Engineers/Environmental Protection Agency 404/401 permit be required?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Does it appear that the project can be constructed under a nationwide 404/401 permit? If so, which permit and what specific requirements apply?		
☐Yes ☒ No ☐ Possible ☐ Not Applicable	Will a Coast Guard permit be required?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is review by a local public agency or project sponsor required? *Specify.*		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is Airway/Highway clearance analysis required?	Tuttle Crossing interchange is within three miles of Don Scott Field.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is Federal Emergency Management Agency (FEMA) approval required?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is railroad/railway coordination required?	See R/W section, re: Cemetery Road RR underpass.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is State Historic Preservation Office (SHPO) coordination for work involving historic bridges or historic properties required?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is coordination with ODNR for work involving State Scenic Rivers, State Wildlife Areas or State Recreational Areas required?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Is coordination with any other agency required? (See Location and Design Manual, Figures 1402-2 through Figure 1402-7.)		

MISCELLANEOUS ISSUES:

Indicate if the following issues are present or should be considered during project development. Provide additional comments as needed.

	Design Issue	Comments	References*
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Will a value engineering study be required due to project cost (total cost greater than $20 million) or project complexity?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Will warranties be used?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there aesthetic concerns? *Specify*.	Interchange designs or noise walls in urban areas with vocal constituencies could make aesthetic design an important issue.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any concerns relating to noise walls?	New construction along freeways make noise wall construction a likely possibility.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there areas available within the existing right of way for portable plans or waste and borrow sites?	Cannot be adequately addressed at this time.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there specific concerns related to pedestrian access?	Possibly, depending on identified project needs at adjacent interchange arterial streets	LDV1: 306
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Any concerns related to landscaping?		
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any concerns related to existing or proposed lighting (e.g., light trespass, river navigation, airway clearance)?	Dublin aesthetic guidelines. Don Scott Field (see above)	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Are there any other concerns? *Specify*.		

RED FLAG MAPPING:
Is a map showing locations of red flag areas attached? ☒ Yes ☐ No
See E&FC Report Chapter 3 Demographics and Land Use.

GEOTECHNICAL DELIVERABLES:
Include copies of plan views, geologic cross-sections, existing boring logs, and soil and rock testing data. This information should be augmented with data from ODOT's archived files of previous projects in the area. Additional information on soil survey data, glacial deposits, bedrock topography, bedrock structure, and aquifer mapping, etc. should be compiled as a GIS workspace. Both digital ortho-quarter quadrangles and U.S.G.S. quadrangles should be available for base mapping. Copies of the reference maps and ArcView files should be provided.

SCOPE, SCHEDULE AND BUDGET CONSIDERATIONS:

Based on the responses to the red flag questions, do any of the following need to be modified?

	Issue	Comments	References*
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Conceptual scope?	The project is still in the conceptual scope development stage.	
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Work limits?	Due to the early stage of project development, work limits have not been developed nor estimated.	LDV3-1303.7
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Probable environmental document type?	As above, the project scope is still too indeterminate to estimate probable level of impact and thus document type.	
☐Yes ☐ No ☒ Possible ☐ Not Applicable	Major/Minor/Minimal classification?	Resulting project type will almost certainly be Major.	
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Schedule?	Schedule can only be estimated after conceptual scope has been identified.	
☒Yes ☐ No ☐ Possible ☐ Not Applicable	Budget?	As with schedule, budget cannot be adequately determined following conceptual scope definition.	

*Abbreviations: AUM = Manual for Abandoned Underground Mine Inventory and Risk Assessment
BDM = Bridge Design Manual
LDV1 = Location and Design Manual, Volume 1
LDV2 = Location and Design Manual, Volume 2
LDV3 = Location and Design Manual, Volume 3
SSI = Specifications for Subsurface Investigations
TEM = Traffic Engineering Manual
EPM = Environmental Process Manual