DESIGN BUILD

SCOPE OF SERVICES

PID: 117955 **State Project Number:** 233008

County: Fayette **Route:** SR-435 **Section:** 1.52

1 PROJECT IDENTIFICATION & GENERAL INFORMATION

Table 1-1: Project Identification

PID	117955
State Project Number	233008
County-Route-Section	FAY-435-1.52
Highway Functional Classification & Federal Aid System	SR-435 – Major Collector US-35 – Other Freeways or Expressways I-71 – Interstate

1.1 Design Designation

The DBT shall use the design designations for each of the facilities below various design elements as specified within the Scope of Services.

The stationing referenced in this section is in reference to the SR-435 right-of-way centerline stationing shown in the right of way plan which has been provided in Appendix J.

Table 1-2a: Design Designation - SR-435 from Project Beginning to STA. 86+00

Location:	SR-435
Current ADT (2024):	18,680
Design Year ADT (2044):	24,590
Design Hourly Volume:	3,580
Directional Distribution:	68%
Trucks:	27%
Design Speed:	35 MPH (From Begin Project to STA. 63+78) 60 MPH (From STA. 63+78 to 86+00)
Legal Speed:	35 MPH (From Begin Project to STA. 63+78) 55 MPH (From STA. 63+78 to 86+00)
Design Functional Classification:	05 – Major Collector (Rural)
NHS:	No

Table 1-3b: Design Designation - SR-435 from STA. 86+00 to End Project

Location:	SR-435
Current ADT (2024):	8,110
Design Year ADT (2044):	12,830
Design Hourly Volume:	2,280
Directional Distribution:	68%
Trucks:	12%
Design Speed:	60 MPH
Legal Speed:	55 MPH
Design Functional Classification:	05 – Major Collector (Rural)
NHS:	No

Table 1-4c: Design Designation – US-35 WB exit ramp to SR-435 (Ramp D)

Location:	US-35 WB exit ramp to SR-435 (Ramp D)
Current ADT (2024):	4,240
Design Year ADT (2044):	7,280
Design Hourly Volume:	840
Directional Distribution:	-
Trucks:	31%
Design Speed:	Refer to L&D Volume 1 Section 503.2
Legal Speed:	
Design Functional Classification:	02 – Other Freeways or Expressways (Rural)
NHS:	Yes

Table 1-5d: Design Designation – I-71 SB exit ramp to SR-435 (Ramp EN)

Location:	I-71 SB exit ramp to SR-435 (Ramp EN)
Current ADT (2024):	4,340
Design Year ADT (2044):	5,150
Design Hourly Volume:	670
Directional Distribution:	-

Trucks:	29%
Design Speed:	Refer to L&D Volume 1 Section 503.2
Legal Speed:	
Design Functional Classification:	01 – Interstate (Rural)
NHS:	Yes

Table 1-6e: Design Designation – I-71 NB exit ramp to SR-435 (Ramp WS)

Location:	I-71 NB exit ramp to SR-435 (Ramp WS)
Current ADT (2024):	4,570
Design Year ADT (2044):	5,250
Design Hourly Volume:	590
Directional Distribution:	-
Trucks:	29%
Design Speed:	Refer to L&D Volume 1 Section 503.2
Legal Speed:	
Design Functional Classification:	01 – Interstate (Rural)
NHS:	Yes

Table 1-7f: Design Designation – SR-435 to I-71 SB entrance ramp (Ramp NW)

Location:	SR-435 to I-71 SB entrance ramp (Ramp NW)
Current ADT (2024):	4,040
Design Year ADT (2044):	4,350
Design Hourly Volume:	760
Directional Distribution:	-
Trucks:	26%
Design Speed:	Refer to L&D Volume 1 Section 503.2
Legal Speed:	
Design Functional Classification:	01 – Interstate (Rural)
NHS:	Yes

Table 1-8g: Design Designation – SR-729

Location:	SR-729
Current ADT (2024):	1,190
Design Year ADT (2044):	3,090
Design Hourly Volume:	290
Directional Distribution:	63%
Trucks:	16%
Design Speed:	60 MPH
Legal Speed:	55 MPH
Design Functional Classification:	05 – Major Collector (Rural)
NHS:	No

Table 1-9h: Design Designation – Bluegrass Blvd

Location:	Bluegrass Blvd
Current ADT (2024):	8,280
Design Year ADT (2044):	16,370
Design Hourly Volume:	2,380
Directional Distribution:	73%
Trucks:	5%
Design Speed:	60 MPH
Legal Speed:	55 MPH
Design Functional Classification:	07 – Local Road (Rural)
NHS:	No

1.2 Existing Plans and Project Information

Available information related to the Project is available in the Document Inventory shown in Table 1-3. The Document Inventory will identify whether the document is designated as "Reference Documents" or "Contractual Appendices".

Reference Documents appendices are provided for informational purposes only. The Department makes no representation or warranty as to the accuracy, adequacy, applicability,

or completeness of the Reference Documents. Except to the extent set forth to the contrary in the Contract Documents, reliance upon the Reference Documents shall be at the Proposer's risk, and the Department shall have no liability or obligation as a result of the inaccuracy, inadequacy, inapplicability, or incompleteness of the Reference Documents, regardless of the contents thereof.

Contractual Appendices in the Document Inventory are considered binding obligations of the DBT. The DBT shall meet requirements identified in the Contractual Appendices and shall implement the Work in accordance with these requirements.

The Offerors (i.e. prospective Design-Build Teams) shall examine the information provided in the Document Inventory to determine if the information accurately depicts existing field conditions.

The following existing plans are considered part of the Document Inventory and are available for review:

- FAY-35-3.44 (1991 Allen Rd Signal)
- Factory Shops Blvd Signal (1993)
- FAY-35-3.17 (1999 FAY-435 Signals Interconnect)
- FAY-35-2.57 (2000 Relocation of 35)
- FAY-71-0.00 (2022 Reconstruction of 71)
- FAY-71-3.75 (2006 Lighting)
- FAY-435-1.05 (2012 Resurfacing of 435 and 35)
- FAY-435-0.97 (2016 Reconstruction of 435)
- D06 STW CCTV FY17 (2017 ITS Project)
- FAY-35-4.52 (2020 Resurfacing of 35)
- Bluegrass Blvd Phase 1 (2020)
- FAY/PIC-SSR-FY21 (2020)
- Temporary Signal at SR-435 and Bluegrass Blvd (2023)

The plans identified in the Document Inventory are not as-built plans. All existing plans are considered Reference Documents.

In addition to the existing plans, appendices to the Scope of Services are listed in the Document Inventory and posted on the FTP site.

ftp.dot.state.oh.us - /pub/Contracts/Attach/FAY-117955/Appendices/

Table 1-10: Document Inventory

Appendix #	Appendix Title	Contractual/Reference Designation
A	Existing Plans	Reference
B	Geotechnical Data	Contractual
C	Interchange Operations Study	Contractual

D	Utility Plans	Reference
E	Not Used	
F	Utility Conflict Example	Reference
G	Existing Survey Data	Contractual
H	Preliminary Layout	Reference
I	Interchange Diagrams	Reference
J	Right-of-Way Plan	Contractual
K	Right-of-Way Status Matrix	Contractual
L	Roundabout Lane Arrangement	Contractual
M	Detour Determination Report	Contractual
N	Proposed Transverse Section FAY-435-0229	Reference
O	Approved Design Exceptions	Contractual
P	Supplemental Signal Requirements	Contractual

1.3 Railroad Coordination

Not applicable.

1.4 Airway/Highway Clearance

The DBT shall prepare and submit the Airway/Highway Clearance Analysis in accordance with Location and Design Manual Volume 3, Section 1407.1. In addition to the requirements set forth in Location and Design Manual Volume 3, Section 1407.1 for public use facilities, the DBT shall also perform analysis on the MedFlight helipad (private use) located just northeast of the SR-435/SR-729/Bluegrass Blvd intersection at 11280 SR 435.

The DBT shall convey all relevant documentation to ODOT and coordinate with the ODOT Project Manager to obtain all necessary approvals. The DBT shall account for the required time to obtain approvals in their schedule and will not be able to start work until the approvals and documentation are received by the ODOT Project Manager.

2 PRE-BID MEETING

This meeting is to discuss and clarify all issues that the project may have. Offeror attendance at the pre-bid meeting is optional.

Location: Virtual – Microsoft Teams

Date: August 21st, 2023

Time: 9:30am

3 CONTRACTOR PRE-QUALIFICATION

It is required that the Bidder be a Contractor prequalified in accordance with Section 102.01 of PN 126. The Contractor or one of the subcontractors identified in the Proposal must be prequalified for all Work Type Codes included in the Proposal.

The Bidder is also required to have engaged the services of an ODOT pre-qualified Consultant (Designer) in accordance with Section 4 of the Scope of Services to constitute the DBT.

If the Contractor, Designer, and/or the sub-consultant(s) submitted do not meet all the required qualifications, the Office of Contract Sales may reject the bid.

4 DESIGNER

Each Offeror shall name the Designer and all design sub-consultant(s) in the electronic form on the following web-page prior to Bid submittal:

https://www.dot.state.oh.us/Divisions/ContractAdmin/Contracts/Pages/Scope.aspx

Each Offeror must list relevant prequalification categories for the Designer and each design sub-consultants to show that the prequalification requirements listed below are satisfied. All consultant names and addresses must be the same as that on file with the Department as found on the following listing:

Pages - Firm Prequalification List (state.oh.us)

The Designer or sub-consultants of the Designer must be prequalified to perform design work associated with the following prequalification categories:

- NON-COMPLEX ROADWAY DESIGN
- COMPLEX ROADWAY DESIGN
- LEVEL 1 BRIDGE DESIGN

- LEVEL 2 BRIDGE DESIGN
- SUBSURFACE UTILITY LOCATION SERVICES
- BASIC TRAFFIC SIGNAL DESIGN
- TRAFFIC SIGNAL SYSTEM DESIGN
- ITS DESIGN AND OPERATIONS
- LIMITED LIGHTING DESIGN

In accordance with Section 104.011 of PN 126, design services that require prequalification may only be performed by firms that are prequalified for those services at the time of performance of the services.

Restrictions on Participation in design-build contracts:

Any Consultant who provided services to the Department that have been directly utilized in this design-build Proposal or Scope of Services document will NOT be eligible to participate in this design-build contract for this Project, either as a prime consultant or as a sub-consultant.

While not an all-encompassing list, the following consultants have been identified as being precluded from participation:

- LJB Inc.
- Woolpert
- Stantec

As per Section 2.18 of ODOT Consultant Conflict of Interest Waiver Guidance, any firms that have provided services related to this project may provide a waiver request to participate in the Design-Build Contract.

5 SCOPE OF WORK

Project Description:	The project will make improvements to SR-435, I-71 interchange ramps at SR-435, and the US-35 exit ramp at SR-435 in Fayette County with pavement widening, resurfacing, and other work as required. Remove, redesign, and replace the existing signals at SR-435/I-71 SB Ramps, SR-435/I-71 NB Ramps, and SR-435/Allen Rd. Design and install a new signal at SR-435/US-35 WB Exit Ramp to SR-435. Remove the temporary signal at the at SR-435/Bluegrass Blvd/SR-729 intersection. Design and construct a roundabout intersection. Design and construct a variable depth overlay on the SR-435 bridge over US-35 (SFN: 2400308) adjusting the crown point to match the roadway crown point.
Interim Completion Date	

for Ramp EN, Ramp NW, Ramp WS:	*9/15/24*
Interim Completion Date for all work except Permanent Signal Work (Section 18.4):	*11/1/24*
Project Completion Date:	*7/1/25*
Warranties:	*N/A*

Description of Critical Work	Interim Completion Date	Time Period	Disincentive $ per Day
Pavement, RPMs, and Striping installed on Ramp EN, Ramp NW, and Ramp WS. All lanes complete and open to traffic in final configuration, including temporary signals.	9/15/2024	Day	$15,000
All contract work except permanent signals (see Section 18.4)	11/1/2024	Day	$20,000

The approximate Project Limits are SR-435 SLM 1.52 to SLM 3.10.

The Consultant shall provide the engineering services, design, and preparation of detail construction plans for the construction of the proposed project.

The Contractor shall provide for the furnishing of materials, construction and completion in every detail of all the work described in the Contract Documents to fulfill the intent of the Contract.

6 FIELD OFFICE

Field office Type B as required by Construction and Material Specification Item 619, shall be available and completely functional no later than 1 week prior to the start of construction work. The field office requirements are only applicable to the Department's personnel.

7 GENERAL PROVISIONS FOR THE WORK

7.1 Governing Regulations

All services, including but not limited to survey, design and construction work, performed by the DBT and all subcontractors (including sub-consultants), shall be in compliance with all applicable ODOT Manuals and Guidelines.

It will be the responsibility of the DBT to acquire and utilize the necessary ODOT manuals that apply to the design and construction work required to complete this project.

The current edition, including updates released on or before the *7/10/23* of the following ODOT Manuals and Guidelines shall be met or exceeded in the performance of the design and construction work required to complete this project:

Bridge Design Manual
Location and Design Manuals:
- Volume One - Roadway Design
- Volume Two - Drainage Design
- Volume Three - Plan Preparation

Multimodal Design Guide
Pavement Design Manual (*all "should" statements will be considered "shall" statements for this project for the Pavement Design Manual)*
Specifications for Geotechnical Explorations
Survey Manual
Construction and Material Specifications
Proposal Notes for Construction and Material Specifications
Supplemental Specifications for Construction and Material Specifications
Item Master
Manual for Abandoned Underground Mines - Inventory and Risk Assessment
State Highway Access Management Manual
Standard Construction Drawings
Plan Insert Sheets
Traffic Engineering Manual
Ohio Manual of Uniform Traffic Control Devices
Real Estate Administration Policies and Procedures Manual:
- Appraisal
- Acquisition Property Management
- Relocation
- ROW Plans
- Utilities

Wireless Communication Tower Manual
Environmental Services Handbooks and Guidelines
Waterway Permits Manual
Design Mapping Specifications
CADD Engineering Standards Manual
Geotechnical Design Manual
City of Columbus Construction and Material Specifications Section 800 (water work)
City of Columbus Construction and Material Specifications Section 900 (sanitary work only)
City of Columbus Water Distribution System SCDs
City of Columbus Sewer SCDs (sanitary only)

The following Manuals and Guidelines shall be met or exceeded in the performance of the design and construction work required to complete this project. If conflicting requirements are found with any of the above ODOT Manuals and Guidelines, the DBT shall adhere to the requirements of the ODOT Manual or Guideline.

Roundabouts: An Informational Guide (NCHRP Report 672)
AASHTO Green Book – A Policy on Geometric Design of Highways and Streets (7th Edition)

7.2 CADD files supplied by the DBT

The DBT shall comply with ODOT's CADD Standards, and supply files in accordance with the CADD Engineering Standards Manual for OHDOT CONNECT. All data shall be provided to the Department according to the provisions as detailed under the appropriate CADD links accessed from the Department's Division of Engineering's website. This includes, but is not limited to, the level assignments, symbols, lines and line styles that are to be used, line weights, cells, placement of text and file naming conventions.

The standards and necessary downloads can be accessed at the following URL addresses:

https://www.transportation.ohio.gov/working/engineering/cadd-mapping/cadd/

The Department will accept CADD files through electronic media.

1. The DBT shall submit all CADD information produced in the process of plan development. All CADD information shall be submitted in the current version of MicroStation (*.dgn) format as indicated in the CADD Engineering Standards Manual for OHDOT CONNECT. The DBT shall provide a comprehensive set of complete and accurate CADD data which is compatible with ODOT's CADD systems with no additional work or modification.
2. The DBT shall submit all information produced in the process of plan development according to L&D Volume 3, Section 1500.

The DBT shall use a separate file name for each horizontal or vertical alignment. The DBT shall provide required ASCII report content in accordance with the CADD Engineering Standards Manual.

These requirements and procedures may be updated from time to time with notification provided on the ODOT Division of Engineering website. The DBT shall use ODOT cell files and ODOT seed files consistent with the version of the requirements identified in Section 7.1 (Governing Regulations).

7.3 Pre-Award Conference

Within 7 days following Bid opening, the apparent successful DBT shall attend a mandatory pre-award conference. This confidential meeting will be held with the Office of Contract Sales in the Division of Construction Management to discuss the DBT's bid of the lump sum items. The DBT shall be prepared to discuss general items of Work included within the lump sum bid items, approximate amounts of Work included within the DBT's Bid Items, and

general design approach and design concepts for the Work. Other Department representatives familiar with the Project may attend.

While not required, the DBT may prepare general engineering information to be presented to the Office of Contract Sales to help explain design concepts and quantities. This information will be used only by the Office of Contract Sales to assist in understanding the DBT's bid for award recommendation purposes.

No shared concepts, shared quantity information, discussions, comments made or shared by either party will be considered binding, a revision to the Contract Documents, or acceptance or validation of any design concept or assumed quantities of Work.

7.4 Partnering Agreement

The DBT is required to enter into a partnering agreement with the Department that is:

☐ Facilitated

☑ Self-Facilitated

The objective of this agreement is the timely completion of the work and a quality product that will be a source of pride to both the Department and the DBT. Partnering will not affect the terms and conditions of the contract. The partnering agreement is a document which is solely intended to establish an environment of cooperation between the parties. The costs associated with the partnering process will be in accordance with Section 108.02 of PN 126.

7.5 Communication

All communication during design and construction shall be with the District Project Manager and the District Project Engineer.

District's Project Manager's Name:	Kelsey Vandia
Phone number:	614-357-5430
E-mail:	Kelsey.Vandia@dot.ohio.gov

District's Project Engineer's Name:	Joe Brubaker
Phone number:	614-674-3272
E-mail:	Joseph.Brubaker@dot.ohio.gov

At the Pre-Design Meeting, the DBT shall name a Project Manager who will act as a liaison between the DBT and the Department.

7.5.1 Task Force Design Meetings

☐ Required

☑ Not Applicable

7.6 Permits

The DBT shall ensure that the Project is constructed and maintained in accordance with all requirements, regulations, and applicable permits required for the Project. This includes the permits described herein and any additional permits not specifically identified in the Contract Documents.

Unless noted otherwise in the Contract Documents, the DBT shall obtain all necessary permits and pay all charges, fees and taxes associated with these permits (e.g., city street opening permits, street crossing/equipment moving permits, water department fees, sewer permits, rail permits and fees, etc.). The DBT shall be responsible for any fines levied by regulatory agencies as a result of their construction activities or non-compliance with any permit special or general conditions.

The DBT shall obtain a permit from the State or local government having jurisdiction to perform any non-construction work within the existing Right of Way and/or limited access.

7.7 Entry on Private Property

The DBT, acting as The Department's agent, may enter upon any lands within the State for the purpose of inspecting, surveying, leveling, digging, drilling, or doing any work deemed necessary in the execution of any survey authorized by the Director of Transportation in accordance with Section 5517.01 of the Ohio Revised Code and ODOT's Survey Manual. Prior to performing said survey, the DBT will send notification letters indicating the date and duration of entry to the affected property owners no less than forty-eight hours nor more than 30 days prior to the date of entry for said survey in accordance with ODOT's Survey Manual. The DBT shall forward copies of all notification letters distributed to ODOT's Project Manager.

Any subsequent claims for compensation due to damages incurred while said activities were performed will be negotiated between the DBT and the affected property owners with final approval from ODOT's Project Manager. Crop and property damage minimization and reimbursement information, together with the crop damage reimbursement formula and Special Waiver of Damage form, will be provided to the DBT by ODOT's Project Manager.

Any subsequent entries onto private property for the purpose of obtaining additional survey or soil information prior to the submission of the Bid will be made in accordance with the procedures outlined in this section.

8 ENVIRONMENTAL

The DBT shall ensure that the Project is designed, constructed and maintained in accordance with all environmental requirements, regulations, and applicable permits required for this Project.

8.1 NEPA & Environmental Commitments

The DBT shall:

1. Monitor and document Work to demonstrate compliance with environmental commitments (if there are environmental commitments for the project).
2. Provide documentation of environmental commitment compliance at request of the Department (if there are environmental commitments for the project).
3. Follow Department and local regulations regarding dust control, adhering to dust control measures outlined in C&MS 616.
4. Adhere to local City ordinances for vehicle idling and all current U.S. Environmental Protection Agency (EPA) air quality regulations.

If the DBT becomes aware of any failure to perform an environmental commitment, the DBT shall notify the Department immediately.

8.2 Environmental Permits

The DBT shall:

1. Be aware of all applicable environmental permits related to the Work.
2. Coordinate with the Department and prepare applications and other relevant information necessary to obtain all environmental permits required to perform the Work.
3. Comply with all conditions imposed by environmental permits in design and construction.
4. Notify the Department regarding any failure to comply with the conditions of the environmental permits.
5. Maintain and update environmental permits to ensure they are in effect during the Work.
6. Coordinate with the Department and submit any documents regarding updates required for environmental approvals to the Department for coordination with the regulatory agency.

If the DBT modifies elements of the Conceptual Design used as the basis for obtaining a permit, the DBT accepts all responsibility for associated cost and schedule impacts resulting from the permit modification process and accepts the risk that the regulatory agency may not approve the proposed permit modification.

At no time shall the DBT coordinate environmental permitting issues directly with the regulatory agencies, unless directed to do so by the Department. The DBT shall not

commence with Work covered by environmental permits until the applicable permits approval are obtained from the regulatory agencies.

Table 8-2 identifies work performed by the Department related to various environmental permits and the status of Department activities. Table 8-2 is not a comprehensive list of the environmental permits required to perform the Work. Unless otherwise noted, the DBT shall be responsible to obtain all necessary environmental permits and pay all charges, fees and taxes associated with these permits.

Table 8-1: Status of Department Activities for Environmental Permits

Agency	Permit/Approval	Status
USACE	Section 404 RGP	Department in progress of obtaining.

The DBT shall acquire required noise permits and/or variances from the local jurisdiction.

The DBT shall be responsible for any fines levied by regulatory agencies as a result of their construction activities or non-compliance with any permit special or general conditions.

8.3 Temporary Sediment and Erosion Control

The DBT shall be responsible for designing and implementing all temporary sediment and erosion controls in accordance with SS 832 and the Ohio NPDES general permit for storm water discharges from construction activities (NPDES Permit). For information about OEPA's NPDES Permit requirements, see:
https://epa.ohio.gov/dsw/permits/GP_ConstructionSiteStormWater.

The DBT shall submit information to the Department for development of the Notice of Intent for the NPDES Permit, including the total acreage of earth disturbing activities for both off project and on project work. The DBT shall assume that approval from OEPA will require a minimum of 31 days following submittal to the ODOT Project Manager. Earth disturbing activity is not permitted prior to approval of coverage under the NPDES Permit.

For projects that require an NOI, the DBT must develop a Storm Water Pollution Prevention Plan in accordance with SS832 and the NPDES Permit. The DBT shall not initiate any earth disturbing activity until the SWPPP is approved.

The DBT shall be compensated for furnishing and installing items related to temporary sediment and erosion control requirements. The Department will compensate the DBT through an encumbered amount included in the Proposal as a non-bid reference number. The Proposal specifies the unit prices for the temporary sediment and erosion control items. Payments for temporary sediment and erosion control items that exceed the encumbered amount will be made through an Extra Work Change Order using the specified unit prices. The specified unit prices are fixed for the Contract Documents and may not be negotiated or adjusted for inflation or claimed changed condition.

All temporary erosion control items shall be removed before the project is accepted. Removed materials shall become the property of the DBT and shall be disposed of in accordance with the appropriate C&MS specifications.

8.4 Regulated Materials

The DBT shall meet all regulatory conditions imposed with regulated materials, including hazardous materials, associated with the Project. The DBT shall characterize, collect, contain, and properly dispose of all waste generated or encountered during the Work. The DBT shall ensure that the site is properly contained during construction so that regulated materials do not migrate off-site. The DBT shall prepare and implement a spill prevention and response plan that will address the proper storage and management of all fuels, oils, and chemicals being stored and/or used on the project and the actions to be taken if a release occurs on the project including notifying reportable releases and spills to the National Response Center and Ohio EPA Spill Hotline. The DBT is to address the project's known areas of regulated materials in their health and safety plan. The DBT is to take reasonable actions to prevent the general public from accessing the regulated materials areas to prevent an exposure and/or a release of the regulated materials.

If any unknown regulated materials are discovered through work on the Project, the DBT shall notify the Department immediately and shall follow the spill prevention and response plan, as well as all appropriate regulations.

9 RIGHT OF WAY (ROW)

The DBT shall perform all necessary construction work for the project within the Project Right of Way (See Appendix J). If the DBT determines that additional Right-of-Way is required to complete the project, the Department shall be notified immediately. Under no circumstance shall the DBT acquire any additional Right-of-Way.

The DBT shall locate existing right of way lines based on requirements specified in Chapter 4733-37 of the Ohio Revised Administrative Code (Board Rules) governed by regulations outlined in Chapter 4733, Ohio Revised Code (Regulation Laws). The DBT shall research existing right of way information from all available sources including but not limited to ODOT records, County road records, Commissioners' Journals and records of other County offices to the extent necessary to provide an accurate basis for the establishment of the existing right of way.

The DBT will stake and flag the existing right of way in the field prior to the start of construction and will maintain stakes and flags throughout the duration of the Project.

The DBT shall identify all right of way encroachments on the construction plans with the Interim Design submission. ODOT's Project Manager will be responsible for clearing all encroachments on Federal-aid projects in accordance with standard encroachment removal.

The DBT shall replace any existing L/A fence that is disturbed by the project.

The status of each parcel that is currently in the acquisition process is indicated in Appendix K (Right-of-Way Status Matrix). Additional requirements and information for specific parcels are included in the Right-of-Way Status Matrix. The DBT will be provided access to each parcel as the parcel is cleared. The Department will provide written notification to the DBT of the availability of each required parcel and notify the DBT of any access restrictions that

may be applicable. The DBT shall not be allowed access to any parcel until written notification is provided by the Department.

The Department will provide an update to the Right of Way Stats Matrix at the time of NTP. In addition, the Department will provide the DBT with monthly reports regarding the status of the acquisition process for parcels for which access was not provided at the time of NTP.

10 UTILITIES

10.1 Existing Utilities

The District Utility Coordinator, in coordination with the registered underground utility protection services, Oil and Gas Producers Underground Protection Service (OGPUPS), and other utility owners that are non-members of any utility protection services, has determined that the utilities identified in Table 10-1 are located in the area of the Project.

Table 100-1: Utility Contacts and Status

Utility Owner	Utility Contact	Relocation Status
Ohio Department of Transportation – District 6	David Carlin David.Carlin@dot.ohio.gov 740-833-8198	DBT to replace existing signal infrastructure with project per Section 18.4
Fayette County Engineer's Office (Water & Sewer Department)	Steve Luebbe steve.luebbe@fayette-co-oh.com 740-333-3538	DBT to relocate existing water line per Section 10.3 DBT to adjust/relocate existing sanitary sewer infrastructure per Section 10.3
AT&T	Chris Morris CM6828@ATT.COM 614-223-4176	To be coordinated by DBT.
AES	Bill Gourley WILLIAM.GOURLEY@AES.COM 937-331-4521	To be coordinated by DBT.
Spectrum/Charter	Jim Orebaugh JIM.OREBAUGH@CHARTER.COM 740-253-2122	To be coordinated by DBT.

Below is a list of **potential** utility conflicts that have been identified by the Department. This list is not meant to be all-inclusive, as other conflicts may exist.

- AES
  - At a minimum, the existing poles at STA. 107+10, 109+94, & 111+25 will likely need to be relocated.
  - The existing transformer, meter, pedestal, etc. at STA. 83+00 may be in conflict.
- AT&T
  - Potential joint user on AES poles
  - Potential underground conflicts
- Spectrum/Charter
  - Potential joint user on AES poles
  - Potential underground conflicts

10.2 General Requirements

The DBT shall:

1. Coordinate with the owners of all public and private/investor utility facilities affected by the Project.
2. Coordinate with the utility owners, third-parties and stakeholders to resolve all utility conflicts encountered on the Project.
3. Resolve any conflicts between utility facilities and the construction of the Project.
4. Coordinate the completion of all utility relocations with the respective utility owners and stakeholders.

The DBT shall put forth all efforts required to coordinate and resolve utility conflicts within the schedule and shall accept the associated cost and schedule risk, regardless of the entity performing the utility adjustment work, except as described in 11.8 (Deadlines and Delays).

The Department will solely determine compensable rights related to utility design, relocation, modification and construction for each conflict. When warranted, the Department will compensate the respective utility owner directly as outlined in Section 10.11(REIMBURSEMENT AND DEPOSIT PROCESSES).

No additional compensation will be made to the DBT for delays, inconveniences, or damages sustained by the DBT due to interference from the utilities or utility work.

The DBT shall be responsible to verify all utility relocation to ensure that the relocation work does not interfere with other proposed construction activities, including relocations of other utilities.

All new utility installation requests within limited access right of way shall be subject to the ODOT permitting process.

10.3 Water and Sanitary Relocations

The Fayette County Engineer's Office (Water & Sewer Department) owns both a water line facility and a sanitary facility along SR-435 (to the North). The existing plan for these facilities has been provided in Appendix D (Bluegrass Blvd Phase 1).

The DBT shall Design and Construct the relocation of the existing water line from approximately SR-435 CL STA. 93+75 to STA. 109+55 (existing termination). The DBT shall provide a new alignment of the water line so that the water line is located outside of the proposed pavement. The DBT shall terminate the new alignment at the NE quadrant of the intersection (outside of the pavement) similarly to the existing termination. The proposed alignment will reestablish a connection to the existing 12" running along SB Bluegrass Blvd. The proposed water line alignment will cross Bluegrass Blvd north of the proposed roundabout approximately at Bluegrass Blvd CL STA. 186+00. The alignment then will run longitudinally to the south along Bluegrass Blvd (outside of the pavement) and terminate at approximately Bluegrass Blvd CL STA. 183+25 outside of the pavement in the NE quadrant of the intersection. The DBT may reuse existing hydrants and valves. The DBT shall NOT reuse any existing water line conduit. The proposed water line shall be designed in accordance with City of Columbus Standards (Applicable sections of the City of Columbus CMS and applicable SCDs) and shall be the same size as existing (12").

The DBT shall leave the existing 6" and 12" sanitary force mains in place as long as it is determined the existing lines are not in conflict with the proposed pavement or subgrade treatment. If the DBT determines that the existing force mains will conflict with the proposed subgrade treatment or pavement, the DBT shall relocate the force mains outside of the pavement. A contingency bid item has been included "SPECIAL - SANITARY SEWER, FULL RELOCATION" to compensate the DBT in the scenario in which a full relocation is required.

If the DBT determines the existing force mains may remain in place, the DBT shall relocate the existing air release valve vault at SR-435 CL STA. 97+00 so that it is outside of the proposed pavement on SR-435. Relocating the air release valve vault may require relocating a portion of the existing sanitary force mains to adjust the alignment accordingly. Any proposed sanitary work shall be in accordance with City of Columbus standards and 10 States Standards. A contingency bid item has been included "SPECIAL - SANITARY SEWER, PARTIAL RELOCATION" to compensate the DBT in the scenario in which only the partial relocation is required.

Only one of the two contingency bid items ("SPECIAL - SANITARY SEWER, FULL RELOCATION" or "SPECIAL - SANITARY SEWER, PARTIAL RELOCATION") will be performed.

If the DBT modifies the preliminary design in such a way that additional manholes, valves, hydrants or other utility (water or sanitary) structures end up being located in the pavement – the DBT shall relocate those structures outside of the pavement at no cost to the department.

10.4 Governing Regulations for Utility Design and Construction

The DBT shall be responsible for the design and construction of utility adjustments for the following utility owners:

- ODOT
- Fayette County Engineer's Office

All utility work performed by the DBT shall be consistent with the Department's Utility Relocation Manual and must meet the Federal Highway Administration (FHWA) "Buy America" policy requirements of 23 USC313 and 23 CFR 635.410. Utility work shall be in accordance with ODOT's 8100 Policy for Accommodation of Utilities and 8200 Procedure for Utility Relocations, Adjustments and Reimbursement.

The DBT shall perform all utility work in compliance with the following:

1. Applicable ODOT design and construction standards.
2. City of Columbus specifications, manuals, standards of practice and construction methods shall be used for all sanitary and water work.

The DBT shall prepare utility relocation plans in accordance with the requirements of the Contract Documents for plan preparation and show, at a minimum, the following information: existing topography, right-of-way, lanes of travel, and the location of the existing utilities. When the DBT develops utility relocation plans, they shall be subject to review and approval by the utility owner in accordance with the design submittal requirements of the Contract Documents.

10.5 Utility Coordination

The DBT shall design the project construction work to minimize the scope and extent of utility conflicts and relocations. The DBT shall not design or construct the Work in a way that precludes legal occupancy of the highway right-of-way by the adjusted utility.

When utility relocations are necessary, coordination and scheduling of these relocations with the involved utilities shall be the responsibilities of the DBT.

Only those utilities affected by the Project shall be relocated or adjusted. If the DBT desires the temporary or permanent relocation or adjustment of the utilities for the DBT's benefit, the DBT shall conduct all negotiations with the utility owners and pay all costs associated with the relocation or adjustment. The DBT shall assume all schedule and cost impacts from these relocations or adjustments.

The DBT shall perform the following services related to utility coordination:

- Identify and locate all utility conflicts.
- Confirm the identification and contact information of the utilities within the project area as provided by the District Utility Coordinator to verify the nature, extent and location of their existing facilities.
- Minimize potential delays and coordinate the efficient relocation of affected utilities.
- Provide all project construction documents, other utility relocation plans, subsurface utility engineering (SUE) information, and geotechnical information for relocation of utilities.
- Coordinate all project work and utility work with the affected utility owners.

- Schedule and conduct utility coordination meetings during the project design and construction process.
- Maintain and update the utility coordination information monthly and make that information available to the District Utility Coordinator.

10.6 Notification

In accordance with ORC 153.64 and at least two (2) days prior to commencing construction operations in an area that may affect underground utilities, the DBT shall notify the Department, registered underground utility protection services, Oil and Gas Producers Underground Protection Service (OGPUPS), and other utility owners that are non-members of any utility protection services.

10.7 Utility Coordination Meetings

The DBT shall schedule and conduct utility coordination meetings commensurate with the complexity of each utility's relocation issues. The DBT shall notify the Department at least three (3) business days in advance of each of the meetings. The Department will participate as necessary. The DBT is responsible for generating meeting minutes within two (2) business days after the meeting and submitting those meeting minutes to the Department.

10.8 Scheduling of Utility Relocation Work

The DBT shall obtain activity durations for all utility relocation work-related activities from the representative utility owner for incorporation into the DBT's Project Schedule. The DBT shall provide all documentation supporting the utility owner's concurrence with the activity durations included in the project schedule.

The DBT shall pay all related acceleration costs incurred by the utility owner if the DBT requests acceleration of utility relocation work. These acceleration costs are NOT eligible for reimbursement to the Utility by the Department.

The DBT shall review the utility's design and/or permit application to ensure that the relocation does not interfere with other proposed construction activities, including relocations of other utilities. The DBT shall complete this review no later than fourteen (14) calendar days after its submission to the DBT, unless a different time period is expressly agreed to by both parties. The DBT shall compile and provide written review comments to the Department and the utility owner.

10.9 Deadlines and Delays

The DBT shall monitor the progress of all activities associated with utility relocations and promptly notify the Department when the progress of the activity controlled by a utility owner or a duration of relocation provided by the utility is not consistent with the durations obtained in section 10.8 (SCHEDULING OF UTILITY RELOCATION WORK).

The DBT may ask the Department to issue an Obstructive Removal Notice upon submission of sufficient documentation confirming that a utility owner has failed to perform within the schedule activity durations developed in Section 10.8.

The Department will solely determine if the Obstruction Removal Notice is to be issued. An Obstruction Removal Notice only governs the relocation process when the utility in question is located within the public road right-of-way. If a utility is located within the utility owner's easement, the notice does not apply and the relocation delay responsibility is based on the relocation schedule provided by the utility.

The Department will not be responsible for payment of delay claims associated with utility coordination/relocation unless the DBT is able to provide the Department with sufficient documentation for an Obstruction Removal Notice or failure of the utility to meet its utility relocation schedule.

10.10 Changes to Utility Relocation Work

The DBT shall not make any changes to the Project that would necessitate additional relocation of the utility once a utility relocation by the utility has begun. The DBT shall absorb the schedule impact and provide full compensation for one hundred percent (100%) of all costs (design and construction) associated with the additional relocation incurred by the utility owner if changes occur after relocation design or construction work has begun. The DBT shall provide all documentation related to changes in utility relocation work.

10.11 Utility Owner Inspections

The utility owner may inspect construction of any utility work performed by the DBT on the utility owner's facility. The DBT shall notify the Department of any such inspections. The DBT shall provide the Department with written documentation of all utility comments and resolutions.

The DBT shall provide safe access, including any necessary traffic control, for any utility work inspections performed by the utility owner.

10.12 Reimbursement and Deposit Processes

The DBT shall immediately notify the Department if a utility owner notifies the DBT that it believes any utility relocation work is reimbursable to that utility owner or if the utility believes an easement acquisition by the Department is required. The Department's District Utility Coordinator will work with the utility owner to confirm the compensable position and perform the Department's utility reimbursement process.

The DBT shall work with the District Utility Coordinator to determine how the utility will be made responsible for providing a deposit to cover the cost of that utility installation support if the project contains construction work to support the installation of a private/investor owned utility company's facilities.

10.13 Continuity of Utility Service

The DBT shall ensure that all utilities remain fully operational during all phases of the project, except as specifically approved by the utility owner. The DBT shall obtain approvals from the applicable utility owners for all necessary interruptions of service, including proposals for shutdowns and temporary diversions of affected utilities.

The DBT shall immediately alert the utility owner, the Department and occupants of nearby premises as to any utility related emergency (e.g., accidental breakage) which interrupts service. The DBT will coordinate with the utility owner to restore service. If service is interrupted, the DBT shall continue efforts to repair until any interrupted service is restored.

The DBT shall obtain approval for continued service from the local fire department authority prior to initiating Work which may impact fire hydrants.

Where the DBT is responsible for performance of utility relocation work, the DBT shall:

- Maintain service continuity to the extent practicable while performing the utility relocation work.
- Keep the utility owner fully informed of schedules, including coordinating with the utility owner with regard to the DBT's design, construction and inspection of the utility relocation work.
- Coordinate any changes with the utility owner.
- Keep the utility owner involved in making decisions that affect the utility owner's facilities so the utility owner is able to provide uninterrupted service to its customers, or be subject to the least interruptions practicable.

10.14 Existing Utility Locations

The DBT shall verify the actual location of all underground utilities, including type, number and depth. The DBT is responsible for verifying the actual location of all overhead utilities including type, number, and elevation of lines and all above ground utility facilities.

The DBT shall disconnect and remove or abandon to ground (abandon in place) all existing underground utilities to be abandoned, including service connections. The DBT shall remove all utility poles and other above ground utility facilities to be abandoned in their entirety.

10.15 Utility Conflicts

Additional unknown utilities may be present that may or may not conflict with the project. The DBT shall identify, verify and document all utility conflicts and potential utility conflicts encountered during the performance of both design and construction work.

10.16 Protection of Utilities

The DBT shall take all necessary precautions to prevent disturbance to utility facilities and coordinate project design and construction with utility adjustments.

The DBT shall perform work in a manner that will cause the least reasonable inconvenience to the utility owner and those being served by the utility. Existing, adjusted or new utilities

remaining within the right-of-way of the project shall be properly protected by the DBT to prevent disturbance or damage. If the DBT encounters a previously unknown utility that requires adjustment, the DBT shall not interfere with the utility, but shall take the proper precautions to protect the utility or take appropriate actions, per Contract Documents, to coordinate the adjustment of the facility.

10.17 Utility Relocations

The DBT shall coordinate and resolve all utility conflicts with the affected utility owner at no additional cost to the Department.

10.18 Utility Betterments

Any ineligible, unnecessary or betterment to the utility facility will be the responsibility of the utility owner and not the DBT. Determination of eligibility shall be coordinated through the Department. Payment for betterment or ineligibility costs shall be made by the appropriate utility owner through the Department to the utility contractor. Betterment procedures shall follow the Department's Utilities Relocation Manual.

10.19 Subsurface Utilities Engineering (SUE)

Subsurface Utility Engineering Required: ☑ Yes ☐ No

If marked yes, the DBT shall use a State approved subsurface utilities engineering location service to field verify all underground utilities prior to beginning of any design work and shall incorporate the results in the design.

DBT shall have the SUE perform the following Quality Levels:

☑ SUE Level A

☐ SUE Level B

☐ SUE Level C

☐ SUE Level D

11 MAINTENANCE OF TRAFFIC (MOT)

11.1 General

The DBT shall be responsible for designing, providing, and maintaining safe and effective traffic control 24 hours a day for the duration of the Project. The DBT shall furnish, install, maintain and remove all traffic control devices. The DBT shall implement Maintenance of Traffic (MOT) in a manner that minimizes both construction duration and impact to the traveling public.

The DBT shall provide advanced (see Section 11.8) written notice to the Department fourteen (14) days in advance of modifications in MOT or traffic patterns, including modifications to the following:

1. MOT configuration
2. Access
3. Detours
4. Schedule
5. Duration

The DBT shall furnish temporary MOT devices compliant with the AASHTO Manual for Assessing Safety Hardware (MASH), as applicable.

The DBT is responsible for maintaining access to the construction zone and employee parking that meets the requirements of the TTCM and does not unduly impact traffic and local residents and businesses.

The DBT plan submittals (interim & final) shall have the concrete joint CADD level(s) turned on in the MOT plans, with the level(s) adjustable within BlueBeam so that the Department can turn them on & off when reviewing the plan submittals.

The DBT shall prepare AutoTurn exhibits at locations where MOT zones will affect the access/turning ability of motorists. These locations include ramps, ramp intersections, side road intersections, and commercial drives. The DBT shall run AutoTurn with a WB-67 to demonstrate that the turn(s) can be made successfully. The DBT shall submit the AutoTurn exhibits along with the associated interim & final plan submissions.

Examine the location of the MOT wheel path and existing construction phase joint. A contingency quantity (PARTIAL DEPTH PAVEMENT REPAIR (442), 3.00” DEPTH) for partial depth pavement repair has been included for anywhere that the existing phase line will be placed in the wheel path. Usage of this quantity shall be as directed by the project engineer. If the length is extensive then possibly add a construction phase to repair the joint prior to shifting traffic. For guidance on the location of the wheel path, see Pavement design manual, section 504.7.4.

Provide lane closures a minimum of 24 hours prior to performing pavement repairs to allow the engineer to identify and mark the areas of the pavement in need of repairs.

The DBT shall take over maintenance responsibility of the existing/proposed pavement within the entire work limits (to include shift, tapers, etc. outside the project limits) at the point in time when they do any work impacting traffic. Once the DBT takes over the maintenance responsibility of pavement as described above they will retain maintenance responsibility of pavement until the roadway is open to traffic (11/1/24 interim completion date). Maintenance and repairs of the pavement during construction will be included under the “SPECIAL - MISCELLANEOUS PAVEMENT FOR DESIGN BUILD, MAINTENANCE” bid item.

For any temporary pavement that is to remain in place, the DBT has to follow the permanent specifications of each item placed. If permanent specifications are not followed, then the contractor must remove the temporary roadway and replace with new pavement.

11.2 MOT Requirements

The DBT shall design and implement the MOT in accordance with the requirements referenced in Table 11-1.

Table 11-1: MOT Requirements

Requirement	Detailed Requirement Information
Minimum number of lanes in each direction to remain open during construction	See Section 11.4 and corresponding subsections
Minimum lane width	11'-0" for all roadways and ramps. Note: Ramp design widths shall be increased, as necessary, for turning radii.
Maximum duration of detour	SR-729 – 30 Consecutive Calendar Days
Restrictions on lane closures during special events (sports events, fairs, concerts, etc.)	See Section 11.4.1
Restriction related to hospitals, fire and police, schools, etc.	N/A

11.3 Maintenance of Traffic Alternative Analysis (MOTAA)

An MOTAA is not required.

11.4 Lane, Ramp, and Road Closures

11.4.1 Lanes Open During Holidays and/or Special Events

No work shall be performed and the same number of lanes as were available at the start of the project shall be open to traffic during the following designated holidays or special events:

Holidays

New year's (observed) Labor Day
Total solar eclipse (4/8/24) General/regular election day (Nov.)
Memorial Day Thanksgiving
Fourth of July (observed) Christmas (observed)

The period of time that the lanes are to be open depends on the day of the week on which the holiday falls. The following schedule shall be used to determine this period:

Day of holiday or special event	Time all lanes must be open to traffic

Sunday	12:00 noon friday through 6:00 am monday
Monday	12:00 noon friday through 6:00 am tuesday
Monday (total solar eclipse)	12:00 noon friday through 6:00 am wednesday
Tuesday	12:00 noon monday through 6:00 am wednesday
Tuesday (gen./reg.Election)	5:00 am tuesday through 12:00 am wednesday
Wednesday	12:00 noon tuesday through 6:00 am thursday
Thursday	12:00 noon wednesday through 6:00 am friday
Thanksgiving	6:00 am wednesday through 6:00 am monday
Friday	12:00 noon thursday through 6:00 am monday
Saturday	12:00 noon friday through 6:00 am monday

During the same periods, maintain pedestrian access if pedestrian access was present prior to construction.

Newly constructed lane additions, once completed and initially opened to traffic, shall be open to traffic during all subsequent designated holidays and special events, and related periods of time, specified above.

No extensions of time shall be granted for delays in material deliveries, unless such delays are industry wide, or for labor strikes, unless such strikes are area wide.

Should the contractor fail to meet any of these requirements, the contractor shall be assessed a disincentive per the lane value contract (PN 127).

11.4.2 Short Duration Ramp Closures

For the purpose of performing the required work, ramps may be closed for short durations and detoured in accordance with the ramp closure table if approved by the engineer. Ramp closures are subject to a disincentive of $50 per minute for each minute exceeding the allowable closure duration.

For all ramp closures lasting more than 12 hours but less than 60 hours, the DBT shall provide the following:

-A minimum of two portable changeable message signs (PCMS) placed, as directed by the engineer, to warn drivers of the closure and to provide the designated detour route.

-Positive guidance along the detour route with detour signs (M4-9 series).

For all service ramp closures lasting less than 12 hours, the DBT shall provide the following:

-A minimum of two portable changeable message signs (PCMS) placed, as directed by the engineer, to warn drivers of the closure and to provide the designated detour route. When closing entrance ramps, corresponding lead-in lanes and turn lanes shall also be closed.

11.4.2.1 “Weekend” Ramp Closures for Concrete Pavement Tie-in

The DBT shall be permitted one “weekend” closure per ramp being reconstructed or widened with concrete pavement (Ramp EN, NW, WS, and D) to tie into the mainline pavement. “Weekend” closure is defined as a full closure of the ramp from 10PM Friday to 5AM Monday (55 Hours total).

11.4.2.2 I-71/SR-435 Ramp Closure Restrictions

Interstate Route 71 in Fayette County					
Secondary Route: State Route 435 SLM along 71:					
Ramp Designation	Movement	No Closures Allowed		Detour Routes	
		Mon-Fri	Sat-Sun	Primary Detour Route	Secondary Detour Route
EN	I-71 SB to SR-435	6AM-10PM	6AM-10PM	I-71 SB to SR-72 S to I-71 NB to SR-435 (Ramp WS)	
NW	SR-435 to I-71 SB	5AM-10PM	6AM-10PM	I-71 NB (Ramp SE) to SR-41 W to I-71 SB)to SR-435 (Ramp EN)	
SE	SR-435 to I-71 NB	5AM-10PM	6AM-10PM	SR-435 to I-71 SB (Ramp NW) to SR-72 S to I-71 NB to SR-435 (Ramp WS)	
WS	I-71 NB to SR-435	5AM-10PM	6AM-10PM	I-71 NB to SR-41-N to I-71 SB to SR-435 (Ramp EN)	I-71 NB to SR-41-N to SR-734W to SR-35

It is anticipated that the DBT will request an extended (>24 hours) closure of a dedicated turn lane on both Ramps EN & WS for completion of ramp widening work. For this request to be considered by the department, the DBT shall submit queue analysis proving that the extended closure of the dedicated turn lane does not result in an unacceptable queue length during AM or PM peak. An unacceptable queue length would be a queue that extends beyond the physical gore and/or degrades operations or capacity on I-71.

11.4.2.3 US-35/SR-435 Ramp Closure Restrictions

Ramp Closure Restrictions US Route 35 in Fayette County					
Secondary Route: State Route 435 SLM along 35:					
Ramp Designation	Movement	No Closures Allowed		Detour Routes	
		Mon-Fri	Sat-Sun	Primary Detour Route	Secondary Detour Route
C	SR-435 to US-35 EB	5AM-10PM	6AM-10PM	SR-435 WB to US-35 WB to SR-72 SB to US-35 EB	SR-435 EB to Old US-35* EB to Palmer Rd WB to US-35 EB
D	US-35 WB to SR-435	5AM-10PM	6AM-10PM	US-35 WB to SR-72 SB to US-35 EB to SR-435	US-35 WB to Old US-35* WB to SR-435
					*Approval required from local agency

11.4.3 Ramp Maintenance of Traffic Restrictions

It is anticipated that the the DBT will need to close turn lanes & reduce lane and shoulder widths along ramps to widen and/or reconstruct pavement. The following table provides allowable durations, disincentives, and additional notes for each restricted activity. Additionally, see requirements stated in 11.4.2.2 regarding the turn lane closures.

Ramp Name	Restricted Activity	Allowable Duration	Disincentive (Amount per calendar day the restriction remains in place beyond allowable duration specified)	Additional Notes
Ramp D	Lane & Shoulder Width Reduction	45 Days	$1000/day	
Ramp EN	Turn Lane Closure, Lane & Shoulder Width Reduction	21 Days	$5000/day	
Ramp NW	Lane & Shoulder Width Reduction	30 Days	$1000/day	Shall not occur concurrently with extended lane closure (reduction from 2 thru & 1 LT to 1 thru & 1 LT) of SR-435WB between the I-71 NB ramps intersection and I-71 SB ramps intersection unless turning radius is adequate
Ramp WS	Turn Lane Closure, Lane & Shoulder Width Reduction	21 Days	$5000/day	

11.4.4 SR-435 Lane Closure Restrictions

LANE VALUE CONTRACT TABLE						
Section (SLM)	Existing Number of Lanes per Direction	Lane closures are **NOT** permitted:				Disincentive Amounts per minute
		Lane Reduction	Mon to Fri	Sat	Sun	
FAY-435						
US 35 (0.00) to West Lancaster Road (1.38)	2	2 to 1	No Restriction	No Restriction	No Restriction	
West Lancaster Road (1.38) to Factory Shops Blvd (1.96)	2	2 to 1	6AM-9AM & 4PM-6PM	6AM-9AM & 4PM-6PM	6AM-9AM & 4PM-6PM	$105
Factory Shops Blvd (1.96) to US 35 (2.48) Westbound	2	2 to 1	No Restriction	No Restriction	No Restriction	
Factory Shops Blvd (1.96) to US 35 (2.48) Eastbound	1	1 shared lane	6AM-9AM & 4PM-6PM	6AM-9AM & 4PM-6PM	6AM-9AM & 4PM-6PM	$100
US 35 (2.48) to SR 729 (3.97)	1	1 shared lane	6AM-9AM & 4PM-6PM	6AM-9AM & 4PM-6PM	6AM-9AM & 4PM-6PM	$25
Short Term shoulder closures are permitted any time except 5AM-9AM & 3PM-6PM Monday-Friday						

Two-way signalized (temporary) traffic on SR-435 shall be maintained throughout construction.

None of the below extended lane closures for SR-435 WB shall occur concurrently so that adequate capacity is maintained along SR-435 WB from the SR-435/I-71 SB ramps intersection to Factory Shops Blvd.

- An extended lane closure (reduction from 2 thru & 1 LT to 1 thru & 1 LT) of SR-435 WB between the SR-435/I-71 NB ramps intersection and SR-435/I-71 SB ramps intersection shall be permitted for a duration of **14 consecutive calendar days** for the construction of the dual left turn lanes for the SR-435 WB to I-71 SB entrance ramp. A

disincentive shall be assessed in the amount of $5000 per day for each calendar day the lane remains closed to traffic beyond the specified limit.

- An extended lane closure (reduction from 2 to 1 lanes) of SR-435 WB between the SR-435/I-71 NB ramps intersection and Allen shall be permitted for a duration of **10 consecutive calendar days** for the construction of the right turn lane between Allen Rd and the I-71 NB entrance ramp. A disincentive shall be assessed in the amount of $5000 per day for each calendar day the lane remains closed to traffic beyond the specified limit.
- An extended lane closure (reduction from 2 thru lanes to 1 thru lane) of SR-435 WB between Allen Rd and Factory Shops Blvd shall be permitted for a duration of **21 consecutive calendar days** for the construction of the additional WB through lane between County Road 308. A disincentive shall be assessed in the amount of $5000 per day for each calendar day the lane remains closed to traffic beyond the specified limit.

11.4.5 Bluegrass Blvd Lane Closure Restrictions

Two-way signalized (temporary) traffic on Bluegrass Blvd shall be maintained throughout construction so that adequate access is provided for all traffic (passenger vehicles & trucks). The DBT shall expect to accommodate heavy truck traffic (WB-67's) and oversized loads throughout construction. Construction traffic for the Honda site will be using Bluegrass Blvd during construction for access, and this is the sole access point.

11.4.6 SR-729 Full Closure

A minimum of one lane of traffic on SR-729 shall be maintained at all times, except for a period not to exceed **30 consecutive calendar days**, from 9/1/2024 to 10/1/2024 when through traffic may be detoured. A disincentive shall be assessed in the amount of $1000 per day for each calendar day the roadway remains closed to traffic beyond the specified limit.

Portable changeable message signs (PCMS) shall be used to notify motorists of the upcoming closure (2 weeks in advance of the closure).

11.4.6.1 Detour Signing

Size and placement of detour signs (M4-9) shall follow the requirements of the OMUTCD Section 6F.03, Section 2A.11 and Table 6F.01.

In addition to the requirements in the OMUTCD, the designated detour shall be signed in accordance with the requirements below:

- Approximately 1500' prior to the tip of the painted gore at an interchange when exiting a high speed (45 MPH or greater) facility.
- At or near the existing sign in the gore of an interchange ramp.
- At or near the first existing lane assignment sign on an interchange exit ramp.
- At or near the existing lane assignment sign or existing route marker at the end of an exit ramp.

- Approximately 500’ prior to a required turn at an intersection not controlled by a stop sign (for 45 MPH or higher only).
- At or near the existing lane assignment sign or existing route marker at an intersection.
- Every 2 miles along a tangent section between turning movements outside a city.
- Every 2 blocks along a tangent section between turning movements within a city.
- At any other intersection or decision point where the detour route is contrary to the normal, expected turning maneuver or otherwise unclear.

Detour signs shall be placed, when possible, next to but not blocking existing route makers or lane assignment signs. Detour signs shall not obscure or be obscured by other existing or temporary signs.

Detour signs shall be erected and/or uncovered prior to the road or ramp being closed to traffic but no earlier than 4 hours prior to the closure. Detour signs shall be covered and/or removed no later than 4 hours following the road or ramp re-opening to traffic.

Detour signing will be paid under Lum Sum Item 614E12420 “DETOUR SIGNING”.

11.4.6.2 Local Detour Routes

In addition to the official, signed detour route, a local detour route has been determined to be the secondary, unsigned detour route or “Designated Local Detour Route”. This route is shown in Appendix M. During the time that traffic is detoured, the DBT shall maintain the local detour route (and any other routes in the vicinity of the project that are impacted by the additional traffic generated from the closure) in a condition which is reasonably smooth and free from holes, ruts, ridges, bumps, dust, and standing water. Once the detour is removed and traffic returned to its normal pattern, the designated local detour route shall be restored to a condition that is equivalent to that which existed prior to its use for this purpose. All repairs (both during the closure and after traffic is returned to its normal pattern) shall be at the direction of the engineer, and included under Lump Sum Item 614E18002 “MAINTAINING TRAFFIC, MISC.: REPAIR OF LOCAL ROUTES”.

11.4.7 I-71 & US-35 Mainline Lane Closure Restrictions

It is not anticipated that the DBT will need to close lanes on mainline I-71 or mainline US-35, but the following tables are provided in case it is found to be necessary.

LANE VALUE CONTRACT TABLE						
Section (SLM)	Existing Number of Lanes per Direction	Lane closures are NOT permitted:				Disincentive Amounts per minute per lane
		Lane Reduction	Mon to Fri	Sat	Sun	
FAY-35						
FAY-435 (4.37) to SR 739 (17.23)	2	2 to 1	No Restriction	No Restriction	No Restriction	
Ramps at Palmer Road	1	Closed	6AM-8AM & 4PM-6PM	No Restriction	No Restriction	$25
Shoulder closures are permitted any time except 5AM-9AM & 3PM-6PM Monday-Friday						

LANE VALUE CONTRACT TABLE						
FAY-71						
Section	Existing Number of Lanes per Direction	Lane closures are NOT permitted:				Disincentive Amounts per minute per lane
		Lane Reduction	Mon to Thur	Fri to Sat	Sun	
Green County Line (0.00) to SR 41 (9.45) Northbound	3	3 to 2	No Restriction	No Restriction	No Restriction	$160
		3 to 1	9AM-7PM	7AM-7PM	9AM-10PM	$160
Green County Line (0.00) to SR 41 (9.45) Southbound	3	3 to 2	No Restriction	No Restriction	No Restriction	$160
		3 to 1	9AM-7PM	7AM-10PM	9AM-7PM	$160
SR 41 (9.45) to Madison County Line (14.65) Northbound	2	2 to 1	9AM-7PM	7AM-7PM	9AM-10PM	$235
SR 41 (9.45) to Madison County Line (14.65) Southbound	2	2 to 1	9AM-7PM	7AM-10PM	9AM-7PM	$235
Ramps at SR 38	1	CLOSED	9AM-7PM	7AM-10PM	9AM-7PM	$75
Short term shoulder closures are permitted any time except 6AM-9AM and 3PM-6PM Monday-Friday.						

11.5 Work Zone Speed Reduction

The DBT shall evaluate if a work zone speed reduction is warranted based on the final MOT scheme. The evaluation requirements are listed in Section 600 of the Traffic Engineering Manual.

If a work zone speed reduction is warranted, the DBT shall design and implement signing in accordance with the requirements of the Traffic Engineering Manual.

11.6 Haul Routes

In addition to the requirements of C&MS 105.13, the Progress Schedule shall account for 30 Days for the Department to secure approval for haul routes.

11.7 Traffic Engineering Manual Notes

The DBT shall design and implement the MOT in accordance with the following TEM notes:

- 642-2 Item 614, Maintaining Traffic
- 642-6 Item 614, Maintaining Traffic (Lanes Open During Holidays or Special Events) – see section 11.7
- 642-7 Item 614, Maintaining Traffic (Lane Closure/Reduction Required)
- 642-8 Item 614, Maintaining Traffic (Notice of Closure Sign)
- 642-11 Item 614, Maintaining Traffic (Signs and Barricades)
- 642-12 Item 614, Maintaining Traffic
- 642-14 Trench for Widening
- 642-19 Dust Control (included in LS for Maintaining Traffic)
- 642-24 Work Zone Speed Zones (WZSZs)
- 642-27 Work Zone Increased Penalties Sign (R11-H5a)
- 642-29 Floodlighting
- 642-30 Item 614, Work Zone Impact Attenuator for 24" Wide Hazards (Unidirectional or Bidirectional)
- 642-41 Item 614, Portable Changeable Message Signs (At least 4 signs shall be maintained on site for the duration of the project)
- 642-44 Worksite Traffic Supervisor
- 642-48 Item 614, Work Zone Raised Pavement Marker, As Per Plan
- 642-49 Item 614, Work Zone Raised Pavement Markers on Permanent Concrete Surfaces
- 642-51 Delineation of Portable and Permanent Barrier
- 642-52 Delineation of Temporary and Permanent Guardrail
- 642-55 Item 614, Law Enforcement Officer (With Patrol Car) for Assistance During Construction Operations

11.8 Notification

11.8.1 Notification of Construction Initiation

At least fourteen days prior to starting initial construction activities, the DBT shall advise the District 6 Public Information Office via email at d06.pio@dot.ohio.gov, the District Work Zone Traffic Manager via email at d06.mot@dot.ohio.gov and the Central Office Special Haul Permits section by fax at (614)728-4099 of the anticipated start date of any construction activities including but not limited to the placing of work zone signs. The notification shall also include the project number, PID, name and phone number of the DBT, a point of contact and the anticipated impact on traffic. The DBT will immediately inform the District Public Information Office and the District Work Zone Traffic Manager of any and all delays and/or changes regarding the construction initiation date.

11.8.2 Notification of Traffic Restrictions

Throughout the duration of the project, the DBT shall notify the project engineer in writing of all traffic restrictions and upcoming maintenance of traffic changes. The DBT shall ensure the written notification is submitted in a timely manner to allow the project engineer to meet the required time frames set forth in the table below to inform Special Hauling (hauling.permits@dot.ohio.gov) and the District Public Information Office (PIO). This notification shall be received by the project engineer prior to the physical setup of any applicable signs or message boards. Information shall include but is not limited to all construction activities that impact or interfere with traffic and shall list the specific location, type of work, road status, date and time of restriction, duration of restriction, number of lanes maintained, number of lanes closed, detour routes if applicable, and any other information requested by the project engineer.

Notification Time Frame Table			
Item	*Duration of Closure*	*Notification due to District 6 PIO*	*Sign Displayed to Public*
Ramp & Road Closures	*>= 2 weeks*	*21 calendar days prior to closure*	*14 calendar days prior to closure*
	> 12 hours & < 2 weeks	*14 calendar days prior to closure*	*7 calendar days prior to closure*
	<= 12 hours	*4 business days prior to closure*	*2 business days prior to closure*
Lane Closures & Restrictions	*>= 2 weeks*	*14 calendar days prior to closure*	
	< 2 weeks	*5 business days prior to closure*	
Start of Construction & Traffic Pattern Changes	*N/A*	*14 calendar days prior to implementation*	

11.8.3 Public Outreach and Notification

The DBT shall be responsible for contacting the District 6 Public Information office via email at d06.pio@dot.ohio.gov. ODOT District 6 PIO shall coordinate efforts to notify adjacent residents, businesses, and emergency services of the upcoming project. Advance notification to PIO shall occur no later than fourteen (14) days prior beginning work. All notifications shall be made utilizing the template provided by the District 6 Public Information Office.

11.8.4 Points of Contact

ODOT District 6 Public Information
Brook Ebersole
(740) 833-8222
Brooke.Ebersole@dot.ohio.gov

ODOT District 6, District 6 Work Zone Traffic Manager
Gary Fetherolf
(740) 833-8162
gary.fetherolf@dot.ohio.gov

ODOT District 6, Fayette County Manager
David Burchett
O: (740) 833-8111 C: (740) 513-0159
david.burchett@dot.ohio.gov

11.9 Pavement Markings and Delineation

Temporary work zone striping shall be Class I paint except on permanent surfaces. Work zone pavement markings which would conflict with the final design shall be removable (CMS 740.06, Type I) tape unless the area will be resurfaced by the DBT prior to project completion.

For the purpose of this project, “Moving Operation” shall be limited to pavement marking striping.

11.10 Use of Weighted Channelizers

The weighted channelizer may be used in accordance with this Section. The weighted channelizer shall be predominantly orange in color and shall be made of lightweight, flexible, and deformable material. They shall be at least 42” in height with a weighted base. They may have a handle or lifting device which extends above the 42 inches minimum height.

The markings on the weighted channelizer shall be horizontal, circumferential, alternating orange and white retroreflective stripes 6 inches wide. Each weighted channelizer shall have a minimum of two orange and two white stripes. Any non-retroreflective spaces between the horizontal orange and white stripes shall not exceed 2 inches wide. The weighted channelizer shall have a 4-inch minimum width, regardless of orientation.

Use of weighted channelizers on freeways shall be limited to short-term operations for either day or night. Upon completion of work, the weighted channelizers shall be removed. The weighted channelizers may again be placed on the highway when the work is to resume on the following day or night. Any lane closure using channelization devices expected to remain for more than twelve hours shall require the use of drums or portable barrier.

When used at night, weighted channelizers shall only be placed in the tangent area and at a maximum spacing of 40 feet. The tangent area is defined as the area after the transition

taper where the work takes place. Drums shall be used in the transition tapers for night operations.

Steps shall be taken to ensure that the weighted channelizers will not be blown over or displaced by wind or moving traffic. Ballasts shall not present a hazard if the weighted channelizers are inadvertently struck, nor shall they affect the visibility of the weighted channelizers. All ballasts used shall be in accordance with the manufacturer's specifications.

11.11 Access to Private Property

Access to drives shall be maintained via existing pavement or temporary pavement.

Commercial driveways shall be reconstructed via part width to maintain access during construction. Temporary widening may be required to ensure commercial vehicle access. The DBT will coordinate with the property owner to minimize the impact to the owner and to ensure that business functionality is perpetuated during construction.

Maintain access to residential properties at all times. When a residential drive is closed for construction, maintain alternate access to the property. It may be required for the DBT to maintain one passable lane within a closure in order for vehicles to access residency with a vehicle.

The DBT will coordinate any closures, or partially closed during construction, with property owners and be responsible for any and all property use agreements for alternative access.

Notify and monitor the notification to the occupants/owners of commercial or residential drives to be closed, or partially closed during construction, and coordinate the closure at least 7 days before the closure begins (simply leaving a written notice or phone message is not sufficient). Coordinate alternate access to residential properties with the owner/occupant.

11.12 Wrecker and Emergency Vehicle Access

The DBT shall make provisions to assist in the access of wreckers and emergency vehicles throughout the work zone. This may include, but not limited to, providing flaggers or removing sections of barrier to allow emergency vehicles and wrecker to move through portions of the work zone to reach accidents and/or breakdowns. The intent is to minimize extended delays to the travelling public and to provide quicker response times for wreckers and emergency vehicles. All agents and employees of the DBT shall be made aware of this provision before work begins.

All activities associated with accommodating wrecker services and emergency vehicle access throughout the work zone shall be coordinated by the worksite traffic supervisor and the engineer.

11.13 Pre-Maintenance of Traffic Meeting

A pre-maintenance of traffic meeting shall be held (minimum 14 work days) prior to work beginning or any change of phasing. This meeting shall include the district work zone traffic

manager (d06.mot@dot.ohio.gov) as well as the DBT and any sub-contractors involved with temporary traffic control.

11.14 Coordination Between Contractors

Coordination will be required with adjacent ODOT projects. ODOT will have multiple ongoing projects in the area, including but not limited to:

FAY-71-0.00, PID 112747

CLI-729-2.85 and Various, PID 77922

The DBT must coordinate full-closures and significant MOT impacts with the Engineer & contractor(s) for all adjacent projects. The DBT shall contact Kelsey Vandia for contact information for adjacent projects.

11.15 Right of Way Permits

The DBT shall be responsible for obtaining all applicable right of way use permits to install maintenance of traffic signing.

11.16 Traffic Control Devices Quality

The DBT shall provide, erect, and maintain drums, signs, barriers, and other traffic control devices used for maintenance of traffic in acceptable condition, in accordance with ODOT's Quality Guidelines for Temporary Traffic Control Devices

11.17 Maintenance of Traffic Signal/Flasher Installation

The DBT shall be responsible for maintaining traffic signal/flasher installations within the project under the following conditions:

1. Existing signal/flasher installations which the approved plans require the DBT to adjust, modify, add onto or remove, or which the DBT actually adjusts, modifies or otherwise disturbs: the DBT shall be responsible for the entire installation (at an intersection) from the time the DBT's operations first disturb the installation until the installation has been subsequently removed or modified and the work is accepted.

2. New or reused signal/flasher installations or devices installed by the DBT: the DBT shall be responsible for maintenance of these from the time of installation until the work is accepted.

The DBT shall correct as quickly as possible all outages or malfunctions. The DBT shall provide the maintaining agency and the project engineer such addresses and phone numbers where his maintenance forces can be contacted. The DBT shall provide one or more persons to receive all calls and dispatch the necessary maintenance forces to correct outages. Such a person or persons may be used to perform other duties as long as prompt attention is given to these calls and a person is readily available continuously 24 hours a day, 7 days a week. All lamp outages, cable outages, electrical failures, equipment malfunctions and misaligned

signal heads shall be corrected to the satisfaction of the engineer with the signal back to service within four hours after the DBT has been notified of the outage.

In the event new signals are damaged prior to acceptance, all damaged equipment except poles and control equipment shall be replaced by the DBT to the satisfaction of the engineer with the signal back in service within 8 hours after the DBT's notification of the outage. The DBT shall arrange for full traffic control until the signal is back in operation. If poles and/or control equipment are damaged and must be replaced, the DBT shall make temporary repairs as necessary to bring the signal back into full operation within the allowed 8-hour period and shall make permanent repairs or replacement as soon thereafter as possible.

None of the above shall be construed as collective or consecutive outage time periods at any one location. That is, where more than one outage occurs at any one location then the allotted time limit shall be for the worst single outage.

Where outages are the direct result of a vehicle accident the response of the DBT shall be as outlined above. The DBT shall be responsible for collection of any compensation for this work from those parties responsible for the damage.

Where the DBT has failed to, or cannot respond to, an outage or signal equipment malfunction, at these locations within his responsibility, within periods as specified above, the engineer may invoke the provisions of section 105.15 and any subsequent billings to the state or appropriate municipality for police services and maintenance services by state (or municipal) forces shall be deducted from monies due or to become due the DBT in accordance with provisions of section 105.15.

Any vehicular traffic signal head, either new or existing which will be out of operation shall be covered in the manner described in CMS 632.25.

The DBT shall maintain complete records of malfunctions including:

- Time of notification of malfunction;
- Time of work crews arrival to correct the malfunction;
- Actions taken to correct the malfunction, including a list of parts repaired or replaced;
- A diagnosis of reason for the malfunction and probability of reoccurrence;
- Time of completion of the repair and system restored to full service.
- A copy of these records shall be provided to the engineer within three (3) working days following completion of each repair.

12 SURVEY

A. ODOT Survey Responsibilities

The Department survey crews have provided the following survey information, listed below:

1. Existing Survey Basemap & Project Control in Appendix G

B. DBT Survey Responsibilities

The DBT shall submit all survey data using ODOT's standard field codes and ODOT's standard mapping codes. Reduced point data, in comma delimited ASCII text format, will be provided for all surveyed points. This data will include: point number, North (y) coordinate, East (x) coordinate, elevation and point ID.

The DBT shall install all new centerline monuments, monument assemblies, and reference monuments, as required, in accordance C&MS 623 and the ODOT Real Estate Policies and Procedures manuals. The DBT shall set ROW monuments for parcels being acquired for the Project Right of Way. Monuments on Department-maintained facilities shall be furnished and installed in accordance with Department standards.

The DBT shall not disturb existing monumentation. If the DBT disturbs the monumentation, then the DBT shall replace the monument, in-kind, using a Registered Surveyor, with current registration, recognized by the Ohio State Board of Registration for Professional Engineers and Surveyors. Costs associated with monument replacement caused by DBT disturbance shall be borne by the DBT. The DBT shall provide copies of all monumentation changes to the District Real Estate Administrator.

The DBT shall include all control points, provided by the Department, in the ASCII file supplied by the DBT to the Department. They should retain the original point numbers and coordinate values as assigned by the Department.

The DBT shall provide the following items prior to final acceptance of the Record-Drawing plans:

1. Copies of all field notes (written or electronic) which shall include the following information:
    a. Date
    b. Crew members
    c. Weather conditions, including temperature, barometric pressure, etc.
    d. Instrument(s) used (Serial Number)
    e. Raw observation field data
    f. Other notes as needed
2. Copies of all Deeds, Plats, Maps and other written evidence used to establish points related to the project including summaries of all parole evidence acquired as a part of the survey operation.
3. Listing of all found monumentation (Horizontal and Vertical).
4. Listing of all monumentation set as part of the project (Horizontal and Vertical) including reference ties for recovery.
5. All monumentation shall be located utilizing NAD 83 (Horizontal Data), NAVD 88 (Vertical Data).
6. Short report indicating adjustment factors and methods, signed and certified by a Registered Surveyor (State of Ohio). The Registered Surveyor (State of Ohio) shall include in the report the datum used and all associated adjustments used.

13 PAVEMENT

13.1 General

Driveways disturbed by the project shall be reconstructed with pavement to match existing (existing concrete driveways will be reconstructed with concrete, existing asphalt driveways will be reconstructed with asphalt, existing aggregate driveways will be replaced with aggregate). Driveway buildups shall be per ODOT Location and Design Manual Volume 1, Section 805.

The full width of SR-435 shall be resurfaced (existing surface course removed entirely via planing at all locations and replaced per proposed build-ups in 13.2) from the rigid/flexible pavement break at STA. 63+21 to the full depth pavement for the proposed roundabout. SR-435 shall be planed at a variable depth and have asphalt placed at a constant depth at locations where the cross slope must be corrected, but full-depth pavement is not required. Variable depth planing operations shall not result in “scabbed” layers of asphalt that are less than .5” in depth.

The DBT shall refer to PDM 504.7 for guidance on widening existing pavement.

Old pavement and the widening shall, at a minimum, meet at the same subgrade elevation. The DBT may have to increase the depth of the 304 Aggregate Base or other pavement layers to ensure the top of subgrade elevation matches at the widening/old pavement.

Widening of concrete pavement is to occur at the longitudinal joint – at a minimum, existing shoulder pavement from the edge of shoulder to the existing longitudinal joint shall be completely removed and replaced. If the longitudinal joint will be within the proposed wheel path, additional existing pavement shall be removed to relocate it outside the wheel path. See PDM 504.7.4 for guidance on wheel path location. New concrete pavement shall be tied to the existing pavement using a Type D Longitudinal Joint per BP-2.1. Transverse joints in the widened pavement should be of the same type and placed at the same locations in the same alignment as the existing transverse joints. Label the location of the longitudinal joints on the Rigid Pavement Typical Sections, as required by SCD BP-2.1.

In locations where non-reinforced concrete shoulders are proposed to be tied to reinforced concrete driving lanes, the shoulder joints shall match the spacing alignment and location of the driving lanes to form one continuous joint across the pavement. Do not place any intermediate joints in the shoulder.

Tied longitudinal joints at the shoulders are required.

Concrete Jointing Diagrams shall be provided as part of the plans.

A minimum 2’ wide section shall be placed when widening rigid (concrete) pavement. Replacement must go to the nearest transverse joint. A minimum 5’ wide section shall be placed when widening asphalt pavement (can be a combination of new & replacement).

The DBT shall follow PDM sections 303.6 & 403.3 for Edge Course Design.

Underdrains are required at all full-depth pavement locations.

In locations where pavement widening is proposed over existing ditches, the existing ditch bottom shall be undercut 2' and replaced with roadway embankment material prior to the pavement widening.

Non-Tracking Tack Coat is to be used between each lift of asphalt concrete for all build-ups.

The DBT shall be totally responsible for any and all damage to the DBT's equipment that may result from the planing operation, including damage caused by castings and loop detectors. All planed pavement shall be resurfaced within 7 calendar days of planing operation.

13.2 Subgrade Treatment

All subgrade treatment work (subgrade compaction, cement stabilization, mixture design for chemically stabilized soils, excavate and replace, geotextile fabric, etc.) shall be included in the bid for Lump Sum Item 690E20240 "ROADWAY".

A combination of historical and current geotechnical exploration data is provided in contractual Appendix B. The DBT shall adhere to the global subgrade stabilization recommendations from Stantec's Geotechnical Data Report "FAY-117955-Geotech Exploration.pdf" dated 2/15/2023. The recommendation is global subgrade treatment via "Excavate and replace (Item 204, L&D3 note G121) to a depth of 12 inches with geotextile fabric" OR "Chemical stabilization (Item 206) to a depth of 14 inches with cement". The DBT shall utilize the latter option "Chemical stabilization (Item 206) to a depth of 14 inches with cement" for global treatment of subgrade at all proposed full-depth pavement locations where it is determined feasible (adequate width for the contractor's equipment to perform cement stabilization). If there are locations of full-depth pavement that are too narrow for cement stabilization, the DBT shall utilize the excavate and replace option. See section 608 of the Geotechnical Design Manual for more information/requirements regarding the excavate and replace option.

The DBT shall complete a mixture design for the cement stabilization per Supplement 1120. Subgrade sampling shall include 4 samples along Ramp D and in the vicinity of Boring, B-002-1-22 for classification and sulfate testing in order to delineate the extent of potentially high sulfate soil. Furthermore, the mix design shall include an extended swell test (28-day capillary soak) on a representative sample taken near B-002-1-22. The DBT shall be prepared to utilize the excavate and replace option for subgrade treatment along localized areas or the entirety of Ramp D if the sulfate content is determined (by the Department) to be too high.

If cement procurement issues disallow global cement stabilization, perform Item 204 subgrade compaction and necessary subgrade stabilization in accordance with plan note G121. The design build team must consider the GB1 Subgrade Analysis provided and locations of unsuitable/unstable subgrade.

13.3 Proposed Build-ups

The QC/QA designation shall be added if any single concrete pavement pay item exceeds 10,000 square yards (8500 square meters). The QC/QA designation shall be added to all concrete pavement items if any single item meets the threshold.

Unless otherwise noted, shoulders shall be the same material and buildup as mainline.

US-35 Exit Ramp to SR-435 (Ramp D)

Item 452 – 10" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 – 6" Aggregate Base

SR-435 – Widening/Full-Depth Pavement in Concrete Section at 71 Interchange

Item 452 – 10.5" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 – 6" Aggregate Base

SR-435 – from Pavement Break at Approx. STA. 63+21 to Proposed Roundabout

- **Full-Depth Paving**

Item 442 – 1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446)

Item 442 – Asphalt Concrete Intermediate Course, 12.5mm*, Type A (449) (Depth TBD by DBT)

Item 301 – 7" Asphalt Concrete Base, PG64-22, (449) (2 lifts required)

Item 407 – Non-Tracking Tack Coat (Rate per CMS Table 407.06-1)

Item 304 – 6" Aggregate Base

*19mm if depth is >2.5"

- **Crown Relocation (not-full depth pavement)**

Item 442 – 1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446)

Item 442 – Asphalt Concrete Intermediate Course, 12.5mm*, Type A (449) (Depth TBD by DBT)

Item 407 – Non-Tracking Tack Coat (Rate per CMS Table 407.06-1)

*19mm if depth is >2.5"

- **Resurfacing (no change in cross slope)**

Item 442 – 1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446)

Item 407 – Non-Tracking Tack Coat (Rate per CMS Table 407.06-1)

Proposed Roundabout and Approaches

The DBT is permitted to use either the rigid option or flexible option provided below.

- **Rigid Option**

Item 452 – 8" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 – 6" Aggregate Base

- **Flexible Option**

Item 442 – 1.5" Asphalt Concrete Surface Course, 12.5mm, Type A (446)

Item 442 – 1.75" Asphalt Concrete Intermediate Course, 12.5mm, Type A (449)

Item 301 – 9" Asphalt Concrete Base, PG64-22, (449) (2 lifts required)

Item 407 – Non-Tracking Tack Coat (Rate per CMS Table 407.06-1)

Item 304 – 6" Aggregate Base

I-71/SR-435 Ramps (Ramp NW, Ramp EN, Ramp WS)

- **Lanes**

Item 451 – 9" Reinforced Concrete Pavement, Class QC 1P

Item 304 – 6" Aggregate Base

- **Shoulders**

Item 452 – 9" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 – 6" Aggregate Base

*The existing right shoulder on Ramp EN & Ramp NW is composed of concrete and asphalt.

14 ROADWAY

14.1 General

DBT shall provide cross sections in the plans at 50' and any abrupt changes.

DBT shall replace any mailboxes that are impacted by construction.

The DBT shall evaluate the need for guardrail, design and construct to current ODOT standards within project limits. This includes evaluating existing guardrail within the project limits and updating to current ODOT standards.

The DBT shall determine whether the lateral clearance of the existing transformer located behind the guardrail coming off the SE quadrant of FAY-435-0229 is sufficient for the existing standard post spacing. If the DBT finds it is not, the DBT shall remove and replace the guardrail with half or quarter post spacing as applicable. If half or quarter post spacing requirements cannot be met, then the DBT shall have the transformer and associated hardware relocated by the utility owner.

Special Benching is required per Section 800 of the Geotechnical Design Manual when sidehill fills are planned on the face of an existing slope steeper than 4H:1V.

Proposed turn lane lengths shall be per the IOS (Appendix C) unless otherwise noted; the preliminary layout is for reference and was developed prior to the completion of the IOS – disregard discrepancies within the preliminary layout and associated CADD files. The turn lane lengths listed in the SOS (taken directly from the IOS) are total turn lane length, including storage and a 50’ taper.

14.1.1 SR-435

Minimum lane width for mainline SR-435 = 12’-0”

The existing SR-435 WB to I-71 SB left-turn lane shall remain at 480’ even though the IOS recommends 500’. Remove the existing concrete median west of I-71, design and construct an additional 230’ inside left turn lane for SR-435 WB to I-71 SB.

Design and construct a right turn lane for the SR-435 WB to I-71 NB movement that extends back to Allen Rd. Design and widen SR-435 WB to three (3) continuous lanes from County Road 308 to Allen Rd. Initiate widening just west of the intersection with County Road 308; this exceeds the requirements of the IOS. Redesign and reconstruct the four westbound commercial driveways between County Road 308 and Allen Rd. Redesign and reconstruct with the intersection of SR-435 & Allen Rd.

Design and construct SR-435 to 4-lane section (two-WB & two-EB) east of County Road 308. Design and construct asphalt resurfacing from approximately STA. 63+21 (Concrete/Asphalt Break) to the proposed roundabout. This will include realigning the existing drop right turn lane (345’ storage length per IOS) to US-35 EB entrance ramp so that two lanes are carried EB (and WB) to the bridge over US-35, and a dedicated right turn lane to US-35 EB ramp is provided.

Redesign and construct SR-435 to carry four lanes (two-WB & two-EB) east of the Ramp D/SR-435 terminal. The intersection at Davidson-Sollars Rd NW and all existing driveways will be reconstructed to accommodate the widening. The 4-lane section will be carried to the proposed roundabout intersection at SR-435/Bluegrass Blvd/SR-729.

Minimum paved shoulder width for mainline SR-435:

- Widening for turn lane at SR-435 WB to I-71 NB – 4.00’ per L&D
- STA. 63+21 (Concrete/Asphalt Break) to STA. 78+75 (End Approach Slab) – 6.00’
- STA. 78+75 (End Approach Slab) to Curbed Roundabout Approach – 8.00’

The crown on SR-435 shall be designed and constructed along the striped centerline. The proposed four lane section shall have two lanes sloped in each direction as per L&D1 301.1.5.

14.1.2 SR-435/I-71 Ramps

14.1.2.1 Ramp NW

Design and widen the SR-435 to I-71 SB entrance ramp (Ramp NW) to two lanes, receiving the dual left turn from 435 WB. Ramp NW shall be subsequently reduced to one lane prior to the merge with Mainline I-71.

14.1.2.2 Ramp EN

Design and construct dual left turn lanes with 500’ of storage length at the I-71 SB exit ramp (Ramp EN) to SR-435. Design and construct the right turn lane to have 500’ of storage length too, so that all three turn lanes develop at once. Remove, redesign, and replace the existing traffic signal at the ramp terminal.

Ramp EN lane assignment: LT, LT-T, RT

14.1.2.3 Ramp WS

Design and construct an additional right turn lane with 600’ of storage length at the I-71 NB exit ramp (Ramp WS) to SR-435 so that there are dual 600’ right turn lanes and a 600’ left turn lane. Remove, redesign, and replace the existing traffic signal at the ramp terminal.

Ramp WS lane assignment: LT, RT-T, RT

14.1.3 SR-435/US-35 Ramps

14.1.3.1 Ramp D

Redesign and reconstruct the pavement of the US-35 exit ramp to SR-435 “Ramp D” from the physical gore to SR-435. Redesign and widen to accommodate a 550’ right turn lane. Design and construct the Ramp D terminal at SR-435 to a signalized intersection.

Ramp D lane assignment is: LT, RT

14.2 Roundabout Requirements

14.2.1 Roundabout – General

The design vehicle for two-lane portions of the roundabout shall be WB-67 and Passenger Vehicle simultaneously with 3' max. encroachment of WB-67 into adjacent lane.

The design vehicle for the one-lane portions of the roundabout shall be a WB-67.

For the check vehicle, the DBT shall develop custom vehicle templates for a combine, tractor and planter, tractor and auger, and tractor, field cultivator, rolling basket - to verify the swept path movements utilizing vehicle tracking software.

The swept path for wider equipment such as a farm combine may come into conflict with vertical elements such as light poles and signs. The design for the roundabout should locate vertical elements such as barrier, light poles and signs outside of the swept path of the farm

equipment to prevent snagging. Per SCD TC-42.20 the signs should be placed 12’ from the edge of the paved shoulder.

Roundabout cross slope shall be 2% away from the central island.

The inscribed circle diameter shall be a minimum of 220’.

The truck apron width shall be a minimum of 12’ wide.

Pedestrian curb cuts shall be installed to accommodate pedestrian crossings. No installation of sidewalk or curb ramps will be required.

All splitter islands shall be concrete.

Each design submission (interim, final, released for construction) shall include a completed and updated copy of the Roundabout Critical Design Parameters Checklist (L&D Vol. 1 403-2) for the proposed roundabout.

The traffic control for the roundabout should be installed to fulfill opening year requirements per the IOS.

14.2.2 Roundabout – Configuration

The temporary signal at the intersection at SR-435/Bluegrass Blvd/SR-729 will be removed and the intersection will be converted to a roundabout. The roundabout lane arrangements are shown in Appendix L and summarized below.

•2 lanes entering from the western leg of SR-435 & 1 lane exiting to the western leg of SR-435. The circulatory roadway from the SR-435 dual lane entrance shall be continuous to the Bluegrass Blvd dual lane exit, with the inner lane also remaining a circulatory lane

•1 lane entering & 1 lane exiting from SR-729 (southern leg)

•1 lane entering & 1 lane exiting from the eastern leg of SR-435

•2 lanes exiting to Bluegrass Blvd and 1 lane entering the circulatory roadway from Bluegrass Blvd (northern leg)

•1 bypass (non-yielding) right turn lane (500’ of storage per IOS, measured from physical gore) for SB Bluegrass Blvd to SR-435 WB movement, developing the SR-435 WB outside lane

Note: The roundabout will be constructed to accommodate the design year requirements listed above, but the traffic control will be installed to accommodate the opening year requirements.

14.3 Curb Requirements

Existing curb may remain if the adjacent pavement is not being removed, replaced, or widened with the project, and any adjacent proposed curb tying into the existing curb is the same type as existing.

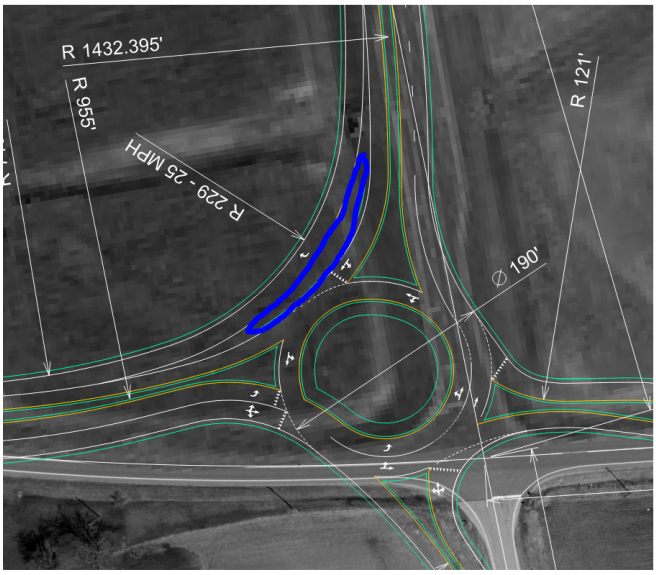
Curb Location Requirements:

- All splitter islands

- All edges of the circulatory roadway
- All “approaches” to the proposed roundabout (match limits of splitter islands)

Curb Type Requirements:

- Per L&D Volume 1 (305.2) Type 9 shall be used along the truck apron/inside edge of pavement of roundabouts
- Type 3 for edges of circulatory roadway and outside edges on approaches
- Type 4-C curb along all splitter islands, except around the “banana” splitter island separating the SB to WB bypass lane from the SB entrance shall be Type 10 curb (see blue outline on graphic below).



- Existing curb that is disturbed by the project shall be replaced to match existing.
    - Type 7 curb for curb against concrete median that will be disturbed for the dual left turn lanes for SR-435 WB to I-71 SB entrance ramp.

14.4 Design Exceptions

A design exception for the structural loading capacity on FAY-435-0229 (SFN: 2400308) has been approved by the department. The HL-93 loading is <1.00 (0.969). See Appendix O.

No additional design exceptions are anticipated for this project. The DBT shall notify ODOT regarding any design features that are believed to not meet the minimum design criteria and require a design exception.

The DBT may develop a design requiring a design exception, subject to sole discretion approval of the Department and FHWA. The DBT shall prepare any proposed design exceptions and submit to the Department for coordination with FHWA and approval. Following submittal of the complete design exception submittal, the Department will provide a response within

thirty (30) days. The DBT shall accept all cost and schedule risk associated with obtaining ODOT and FHWA approval of the design exception.

14.5 Interchange Operations Study

The DBT shall prepare a design compliant with the Interchange Operations Study (Appendix C). The DBT shall design and construct improvements per the IOS to SR-435 & I-71 SB ramps, SR-435 & I-71 NB ramps, SR-435 @ US 35 EB On Ramp, SR-435 @ US-35 WB Off Ramp, SR-435 & Bluegrass Blvd. Improvements recommended along SR-41 will not be designed or constructed with this project.

15 DRAINAGE

Post-construction storm water Best Management Practices (BMP) are required as per Location and Design Manual, Volume 2. Potential BMP locations are shown in the Preliminary Layout (Appendix H).

The DBT shall submit a final "as-built" plan to ODOT showing in plan view and table format the stormwater BMP outfall locations, description of BMP, description of outfall and BMP unit quantity. The table shall include latitude and longitude of each stormwater BMP outfall location as well as roadway station and offset.

County Engineer flow line approvals are required.

At all locations where existing conduits are impacted by the project:

- Perform drainage calculations to determine minimum conduit size required at that location.
    - Extend conduit (with in-kind material) as needed to accommodate proposed work if drainage calculations permit existing size.
        - Remove existing pipe to nearest sound joint prior to extension.
        - Provide masonry collar per DM-1.1 at connection to existing.
    - Remove and replace entire conduit if larger diameter pipe is required.

If drainage calculations permit CFN #1876628 (FAY-435-2.487) to remain in place, the DBT shall provide a Cured-In-Place Pipe Liner per SS 899 for the entire length (existing and any proposed extensions) of the conduit, and the DBT shall remove and replace the bent ends of the conduit to the nearest joint on each end of the conduit.

If longitudinal drainage is required, the DBT shall provide trench drains per SS 839 instead of slotted drains. Slotted drains shall not be used on the project.

Proposed manholes shall not be located in pavement.

16 LANDSCAPING

The DBT shall permanently grade and seed all impacted areas.

For the proposed roundabout, 8:1 grading shall be provided to denote the roundabout feature by creating a visual barrier to the straight through movement while not impacting the sight distance or view of signs. The earth mound in the central island formed by grading shall be topped with geotextile fabric and a 6” layer of No. 2 aggregate (as defined by CMS Table 703.01-1).

17 STRUCTURES

17.1 FAY-71-0377 L & R (SFN: 2401983 & 2402017)

No work is required.

17.2 FAY-435-0229 (SFN: 2400308)

The DBT shall design and construct an overlay using Superplasticized Dense Concrete (SS 847.06) with macro-synthetic fibers on the deck and approach slabs. The overlay shall be designed to adjust the crown of the bridge to be centered and aligned with the crown of the adjoining roadway. The DBT shall plane the entire existing deck & approach slabs at a depth of 1.75”. The DBT shall take special care to not mill into the top reinforcement mat of the existing bridge deck – which is presumed to have 2.50” of clearance per the existing plan (FAY-35-2.57). See Appendix N for more details on the proposed overlay. 2” preformed expansion joint filler shall be provided where required.

The overlay material shall meet the following criteria:

Superplasticized Dense Concrete (SDC) with 2 lbs./CY polypropylene fibers. Polypropylene fibers shall be 1.25” min. length and shall be added to the mix.

The fibers shall be incorporated into the mix in such a way that no 'balling' occurs. Upon inspection of the mix at the time of placement, if any 'balling' occurs, the engineer shall reject the remainder of the load at any time during the pour. Provide macro-synthetic fibers that are monofilament fibers made from virgin polypropylene, polyethylene, or co-polymers that are inert to alkali attack. Ensure the macro-synthetic fibers have a minimum tensile strength of 70 ksi, a minimum modulus of elasticity of 800 ksi, a minimum filament diameter of 0.012 inches, and aspect ratio between 60 and 100, and are between 1.0 and 2.5 inches in length. Store the macro-synthetic fibers according to the manufacture’s recommendation and keep the material free from dust, dirt and moisture.

The transit mixer charge shall be limited to 3/4 of its rated capacity or 6 cubic yards, whichever is smaller.

Concrete suppliers should recognize that admixtures may have an effect on strength, entrained air content, workability, etc. Of their concrete mixes. The concrete suppliers choice of one of these admixtures does not alleviate meeting design requirements.

A design exception for the structural loading capacity on FAY-435-0229 (SFN: 2400308) has been approved by the department. See Appendix O.

18 TRAFFIC CONTROL

18.1 Pavement Markings and Delineators

The DBT shall perform Work related to pavement markings and delineators in accordance with Section 7.1 and the following sections.

A. Pavement Marking:

All pavement markings shall conform to Section 640 of the CMS and shall be placed in accordance with current design standards.

Item 644 Thermoplastic shall be used on all asphalt surfaces. Item 646 Epoxy shall be used on all concrete surfaces, except for the I-71/SR-435 interchange ramps (Ramp EN, Ramp NW, and Ramp WS). Ramp EN, Ramp NW, and Ramp WS shall receive Item 642 Paint, as the final recessed-wet reflective striping will be installed with PID 112747. The DBT shall meet the interim completion date of 9/15/24 for Ramps EN, NW, and WS so that adequate time is allowed for the contractor of PID 112747 to install final striping.

Lane line contrast shall be applied as white on top of black as per option #1 of TEM 301-19.4 for all lane lines on concrete surfaces within the limits of the roundabout and approaches (if the DBT elects to construct the roundabout and approaches with the rigid pavement option provided in Section 13.3).

See OMUTCD Figure 3C-1 – White triangles before white dotted line are required for roundabout approaches.

See OMUTCD Figure 3C-14 – White chevron markings are required.

Lane-use arrows at roundabout approaches shall be normal arrows, with an oval symbolizing the central island, as shown in OMUTCD Figure 3C-2.

B. Raised Pavement Markers:

All pavement markings shall conform to Item 621 and shall be placed in accordance with current design standards.

C. Delineators:

All flexible delineators shall conform to Item 620 and shall be placed in accordance with current design standards. Confirmation that no conflicts exist between the proposed locations of delineators and any underground utilities shall be made prior to the installation of the delineators.

D. Barrier Reflectors:

All barrier reflectors shall confirm to Item 626 and shall be placed on bridge parapets, concrete barrier walls, retaining walls and guardrail, in accordance with current design standards. Guardrail blockout reflectors shall be installed on the side of the blockout away from traffic.

E. Object Markers:

All object markers shall conform to Item 630, Sign, Flat Sheet.

18.2 Signing

The DBT shall perform Work related to signs in accordance with Section 7.1 and the following sections.

Overhead signage indicating lane arrangements, including indication that the outermost through lane is for I-71 NB, shall be installed west of County Road 308 along SR-435 WB.

If a raised splitter island is available on the left-hand side of a multi-lane roundabout approach, an additional YIELD sign shall be placed on the left-hand side of the approach.

At roundabouts, Intersection Lane Control (R3-5, R3-6, and R3-8 series) signs shall display the standard arrows shown in OMUTCD Figure 2B-5.

Where the central island of a roundabout allows for the installation of signs, ONE WAY signs shall be used instead of or in addition to Roundabout Directional Arrow (R6-4 series) signs (see OMUTCD Section 2B.43) to direct traffic counter-clockwise around the central island.

Where the central island of a roundabout allows for the installation of signs, Roundabout Directional Arrow (R6-4 series) signs (see Figure OMUTCD 2B-20) shall be used in the central island to direct traffic counter-clockwise around the central island, except as provided in Paragraph 11 in OMUTCD Section 2B.40.

If an approach to a roundabout has a statutory or posted speed limit of 40 mph or higher, the Circular Intersection (W2-6) symbol sign with an advisory speed plaque shall be installed in advance of the circular intersection.

At locations where it is not readily apparent that traffic is required to keep to the right, a Keep Right (R4-7) sign shall be used.

Signage indicating lane assignment for the SB entrance of the roundabout shall be provided, specifically directing motorists that the bypass lane is for motorists headed towards I-71, and SR-435 EB (left-turn) should be utilized to access US-35 EB.

18.2.1 Flat Sheet Signs

Redesign and replace all existing flat sheet signs with new signs, except as indicated below. This also includes all STOP signs on intersecting roads. Size the signs in accordance with the OMUTCD.

- Flat sheet signs located along the interchange ramps at SR-435/I-71 & SR-435/US-35 shall be reused (if determined to be included in the final design)

Removed flat sheet signs shall become the property of the Contractor.

18.2.2 Extrusheet Signs

Redesign and replace all existing extrusheet signs with new signs. This includes all signs on the mainline and interchanges ramps. Size the signs in accordance with the OMUTCD.

Removed extrusheet signs shall become the property of the Contractor.

18.2.3 Ground Mounted Post Supports

Redesign and replace all existing ground mounted post supports with new supports for signs being relocated or replaced by the project. Do not disturb existing supports for signs that do not need to be relocated or replaced. All sign installations shall be on new supports.

Removed ground mounted supports shall become the property of the Contractor.

18.2.4 Ground Mounted Beam Supports

Redesign and replace all existing ground mounted beam supports with new ones. Supports subject to multidirectional impacts at intersections shall use the alternate connection on sizes larger than S4 x 7.7.

Removed ground mounted beam supports shall become the property of the Contractor. Remove all existing foundations.

18.2.5 Overhead Supports

Design all location of all supports per the Traffic Engineering Manual unless otherwise specified in the Scope of Services.

At all locations, a minimum vertical clearance shall be per the Traffic Engineering manual unless otherwise listed.

Removed overhead supports and sign lighting components shall become the property of the Contractor.

- US-35 East to Washington CH located at existing ramp gore (approximate STA. 70+75)
    - Remove and replace entirely (both sign and support) if impacted by final design
- US-35 East to Washington CH (approximate STA. 64+75)
    - Remove and replace sign only. Reuse support
- I-71 South to Cincinnati located in concrete median just east of FAY-71-0377R
    - Relocate if required by final design and reuse existing support and sign
- I-71 South to Cincinnati located just east of the 71 SB entrance ramp intersection with SR-435
    - Impacts to this sign are not anticipated, but if impacted by final design the DBT shall relocate and reuse existing support and sign

18.3 Lighting

The DBT shall perform Work related to lighting in accordance with Section 7.1 and the following sections.

The DBT shall provide lighting for the proposed roundabout (including bypass lanes) in accordance with TEM 1140-4.6.10. The roundabout intersection shall be classified as Collector/Collector, with Low Pedestrian Area Classification.

The DBT shall redesign and reconstruct the lighting control center and power service at the following locations:

- Pole mounted control center at NE quadrant of I-71 Ramps & SR-435 intersection
- Pole mounted control center just west of Ramp D terminal at SR-435

Reconstruction of control center and power service shall include removal of all existing equipment and installation of all new equipment. No existing materials shall be reused by the DBT. The existing control centers shall be salvaged and delivered to the district headquarters, and all other equipment shall be disposed of by the DBT. The proposed control centers shall be ground mounted.

The DBT shall relocate existing high mast poles on new foundations for any poles that are impacted by the final design.

18.4 Traffic Signals

The DBT shall perform Work related to lighting in accordance with Section 7.1 and the following sections.

The contact information for the District Traffic Engineer is provided below:

David Carlin
Traffic Operations Engineer
David.Carlin@dot.ohio.gov
740-833-8198 (office)
740-815-6015 (cell)

18.4.1 General Requirements

18.4.1.1 Vehicular Signal Heads

In addition to the requirements of CMS 632 and 732, the following shall apply to all signal heads:

- Vehicular signal heads shall be placed according to the “ODOT District 6 Standard Vehicular Signal Head Placement” shown in Appendix P.
- Traffic signal heads shall be located a minimum of 40’ to a maximum of 180’ away from the front of the stop bar on the far side of the intersection. Signal heads farther than 180’ away from the stop bar or locations with sight distance issue require a near sided supplemental signal head.
- A supplemental signal head is required at all locations where there are two or more through lanes (all locations in project limits).
- Far side mounting of signal heads shall be used as much as practical.

- Signal heads shall be black polycarbonate signal heads with cutaway visors including fluorescent yellow reflective aluminum back plates in accordance with CMS 732.22
- Open bottom tunnel visors should only be used in areas where the roadway skew causes side street motorists to clearly view the opposite approach signal heads.
- Proper exterior colors shall be obtained by use of colored plastic material rather than painting.
- All upper signal support hardware and piping up to and including the wire inlet fitting shall be ferrous metal.
- The entrance fitting shall be of the tri-stud design with serrated rings in order to achieve positive locking.
- All signal heads shall be tethered on span wires and rigidly mounted to the mast arm with the yellow lens located in front of the mast arm.
- The light emitting diode (led) signal lamp units shall meet the requirements of CMS 732.04. The DBT shall provide ODOT, in writing, with the led manufacturer name, serial number, part number, description of lamp, and date of manufacture for all led units that are to be used in the signal head prior to installation, for acceptance and warranty purposes.
- Signal heads shall have a minimum wall thickness of 0.11 inches.
- Lenses shall be 12 inch
- DBT shall apply a bead of silicone to the signal head, washer, and entrance adapter serrations to prevent water intrusion. Also, fill the space between concentric serration rings on the top of the signal head to completely exclude water from the space between the concentric rings. Before closing serrations, apply a bead of room-temperature vulcanizing (rtv) silicone to all serrated surfaces and then tighten. Rtv silicone shall be white to facilitate visual inspection. On heads with dual concentric serrated rings, completely fill the space between the rings with rtv silicone.
- Balance adjusters shall not be used on one-way heads or tethered heads

18.4.1.2 Signal Poles

Signal poles shall be galvanized steel (no wood poles). For span wire installations, pole strength shall be designed for 3% sag and pole height shall be designed for 5% sag. Design 10 or larger poles per TC-81.11 shall be used for all locations.

Poles shall be located outside the roadway clear zone; see ODOT Location and Design Manual Volume 1, section 600 for clear zone requirements. Clearance from overhead electric wires shall be as per utility company requirements.

3” minimum half blind coupling shall be installed on strain poles when applicable.

18.4.1.3 Detection

Advance/Dilemma Zone Detection shall be Wavetronix Advance Extended Range Smart Sensors (model ss-200e) and shall include the following:

• Power shall be provided from the traffic cabinet.

• All required inputs cards shall be included in the traffic cabinet and shall be compatible with caltrans, nema ts1 and nema Ts2 detector racks. The cards shall provide true presence detector calls or contact closure to the traffic controller.

• The unit shall be mounted directly to a pole or mast arm, as recommended by the manufacturer. Cable(s) shall be provided as required and recommended by the manufacturer.

• Surge protection devices, as recommended by the manufacturer shall be included both at the pole where the unit is located to protect the unit and in the traffic cabinet to protect the cabinet electronics.

• The manufacturer's representative shall be on site during installation and testing and shall provide onsite training on the setup, operation and maintenance of the unit.

• A serial to ethernet communications module and ethernet cable (min. 7 feet)

• The power supply and communication modules shall be secured to a single panel that can be mounted interior to the traffic cabinet. The panel shall include modular-plug style connections for a up to four (4) sensor cables.Additional sensors may be hard-wired to the communication modules, as necessary.

• Prior to programming, the DBT shall contact the ODOT District 6 district traffic engineer. A District 6 traffic department representative shall be present during the programming of the system.

Stop line detection shall be Wavetronix Smart Sensor Matrix detection units and shall include the following:

• Power shall be provided from the traffic cabinet.

• All required inputs cards shall be included in the traffic cabinet and shall be compatible with caltrans, nema ts1 and nema Ts2 detector racks. The cards shall provide true presence detector calls or contact closure to the traffic controller.

• The unit shall be mounted directly to a pole or mast arm, as recommended by the manufacturer. Cable(s) shall be provided as required and recommended by the manufacturer.

• Surge protection devices, as recommended by the manufacturer shall be included both at the pole where the unit is located to protect the unit and in the traffic cabinet to protect the cabinet electronics.

• The manufacturer's representative shall be on site during installation and testing and shall provide onsite training on the setup, operation and maintenance of the unit.

• A serial to ethernet communications module and ethernet cable (min. 7 feet)

• The power supply and communication modules shall be secured to a single panel that can be mounted interior to the traffic cabinet. The panel shall include modular-plug style connections for a up to four (4) sensor cables. Additional sensors may be hard-wired to the communication modules, as necessary.

• Prior to programming, the DBT shall contact the ODOT District 6 district traffic engineer. A District 6 traffic department representative shall be present during the programming of the system.

18.4.1.4 Cabinet/Controller

All cabinets shall be type TS2. All cabinets shall be furnished and installed according to CMS 633 and 733 and listed on the traffic authorized products list (tap).

The equipment provided shall be the latest model, currently under production and new. The catalog number for the ground mounted p cabinet shall be el 720 size 7 (size r) with a minimum of three shelves. The cabinet shall include surge suppression in a modular package containing a 12 pin beau connector with LED failure indication, power harnesses for both TS2 type 1 & type 2 controllers and an 8 port SDLC communication panel for easy integration of other hardware. The cabinet shall be aluminum with the natural aluminum finish inside and outside. The load bay shall be the tf5016 or newer, with 16 load switch positions, provide only the exact number of load switches required. Each load switch shall have light emitting diodes (leds) for the controller output and load switch output. Also provide 8 flash relay positions (but only supply the exact number of relays needed for each specific intersection), 1 nema 2-circuit flasher, and an mmu monitor. Each cabinet shall come equipped with two 16-channel cabinet detector racks (cdr) including bus interface units (biu). The loop detector termination panel for the second detector rack shall be omitted. Where loop detectors are specified, the cabinet shall include the exact number of four channel detector cards with software required for each intersection. The cabinet shall be equipped with a cabinet power supply (cps). The cabinet shall be wired to allow the use of evp confirmation lights. The police panel on the outside of the cabinet door shall have a flash switch, a switch for automatic/manual operation, signal on/off switch and a manual pushbutton with a minimum cord length of 10 feet. The technician panel on the inside of the cabinet door shall include a flash switch, a stop time switch, and an equipment on/off switch. A cabinet door open switch and a cabinet light on / off switch shall also be supplied.

The controller cabinet shall also include:

- Slide-out laptop shelf
- Interior, undershelf led cabinet lighting, including a minimum of 2 panels of 6 high-intensity LED’s each and a door-activated switch. The led panels shall be mounted in locations to maximize light on the cabinet equipment.
- A gooseneck/adjustable light fixture with an led lamp. The adjustable light fixture shall be mounted on the lower right side of the controller cabinet.
- A minimum of two (2) GFCI protected receptacles
- A minimum of six (6) surge protected (non-GFCI) receptacles

- Controller cabinet labeling to identify the wiring and function
- Detector lead-in cable: Phase number service, direction, movement type, and loop plan number.
- Signal head field wiring: Phase number, direction, movement type, and color (red, yellow, green, yellow arrow, green arrow) or pedestrian movement.

The malfunction management unit shall be manufactured by edi and have a rj-45 port for pc/network communications.

Each conduit entrance to the cabinet shall be sealed with a rubber pipe/conduit seal gasket. The seal shall be of a material and type tightly fitting and able to seal out water, insects, rodents, and dirt. The seal shall be easily removed for service installations or cable replacements.

The DBT shall provide the cabinet wiring diagram in the plans.

The controller for each cabinet shall be an econolite cobalt latest version provided by ODOT and programmed by the DBT. All requirements of SS 809 shall be followed, along with the additional description as stated below. The atc controller will be provided by the district without programming.

The DBT shall be responsible for programming each controller. If available, the existing controller data will be provided to the DBT by the district. ODOT will not be responsible for the programming. The existing data may require updates to reflect the proposed conditions described in the plans.

The controller will be a nema econolite cobalt as listed on the traffic authorized products list (tap). The DBT shall insure that the cabinet type being installed by the project is compatible with the provided controller.

18.4.1.5 Pull Boxes

Pull boxes next to the controller cabinet shall all be 24” concrete per CMS 725.08 without underdrains. Other pull boxes can be 18” concrete without underdrains. Pull boxes shall not be located in curb ramp areas or areas subject to vehicular traffic.

18.4.1.6 Conduit

- Maximum conduit run length between pull boxes and/or poles is 200 feet.
- Conduit must be sized for the number and size of the conductors contained in the conduit. Cable fill should not exceed the allowable amount inside of the cross-sectional area of the conduit as stated in the TEM.
- Rigid metal conduit per CMS 725.04 is required. Minimum size shall be 2” (when not under pavement). All wires shall be installed in conduit, no direct burial. Conduit sizes shall meet the requirements of TEM Section 450-3.4. Calculations for conduit sizing shall be submitted to the district for review.

- No open cutting of pavement for conduit installation will be permitted; conduit runs that cross the roadway shall be jacked or drilled under the pavement. Minimum size for conduit under roadway pavement shall be 3”.

18.4.1.7 Cable and Wire

- Unswitched power cable shall not be run inside of conduit, poles or pull boxes containing other signal cables.
- Lighting cables operating at voltages higher than 120 volts shall not be run inside of conduit, poles or pull boxes with signal cables.
- Utility company approval shall be obtained for the attachment of any interconnect cables to utility poles, and for the location of power sources.
- All abandoned cables shall be removed from aerial spans, conduit and pull boxes. Direct burial cables will be abandoned in place.
- Signal messenger wire size shall be 3/8-inch diameter.
- 7/c signal cable shall be installed to each signal head for future wiring modifications. Signal heads operating on the same phase can be jumpered with 7/c signal cable. Supplemental heads are to be wired separately from the required signal heads.
- Power cable shall be 1 conductor, No. 6 AWG – 3 runs.

18.4.1.8 Power Supply

Proposed/new service cable from the power source should be overhead. The DBT shall contact the meter section of the power company for information regarding the meter base installation prior to ordering poles. The DBT will be responsible for requesting and scheduling any inspections the power company may require for the power service hook up. The DBT shall be responsible to contact the power company for the electrical service connection. Under no circumstances shall the DBT splice power cable into the power company's circuits. The voltage supplied shall be nominally 120/240 volts. The DBT is responsible for obtaining any necessary permits and the paying of all fees with the exception of normal monthly energy charges. Where there is an existing traffic signal that is being replaced, the DBT shall coordinate with the power company to continue billing on the existing district 6 account. Where a new signal is being installed, the DBT shall establish the account in the district's name from the onset.

An uninterruptible power supply (ups), 1000 watt, shall be provided at each location. An UPS cabinet shall be mounted and sealed next to the TS2 controller cabinet type “R” and it shall include an auxiliary power panel.

In addition to the requirements of CMS 633 and 733, a cabinet riser (8 inch minimum) and anchor bolts shall be provided with the base mounted cabinet. Before performing the work, the DBT, the district traffic engineer and the project engineer will perform a site inspection to establish the location of the ups cabinet and foundation.

The UPS cabinet shall include a generator power panel with a heavy-duty power relay versus the line voltage generator switch. The generator inlet shall be a recessed panel with a door that is flush with the external side of the UPS cabinet. It shall include a recessed plug, automatic transfer switch, a door that securely closes over the power cord, and a LED light that indicates line power is available.

The UPS output notifications for on battery, battery 2-hour timer, and low battery-no line power shall be wired into the traffic signal cabinet back panel to provide special status alarms for each output into the signal controller. Special status alarms shall be programmed into the controller.

DBT shall provide a red LED status indicator lamp to allow maintenance personnel and law enforcement to quickly assess whether a traffic signal cabinet is being powered by a UPS. The LED housing shall be nema 4x, ip65 or ir66, rated for outdoor use and be tamper/ shatter resistant. It shall be a domed enclosure containing a red lens with led that is visible from 100 feet minimum. The enclosure and LED lamp unit shall be placed on the street-side of the cabinet or centered on the top surface of the ups cabinet and sealed from water intrusion. It should be wired using minimum 20ga stranded, insulated hookup wire to the status relay outputs of the UPS. The wires shall be terminated by lugs at the display end and permanently labeled “backup power status display,” with wire polarity indicated. The red LED shall only illuminate to indicate the cabinet is operating under UPS backup power (the “backup” operating condition). DBT shall program the UPS status relay outputs to produce the lamp status displays. These status displays will be solid 100% duty cycle (not flashing) displays. The operating voltage of the LED lamp shall be 120v ac unless otherwise indicated.

A battery balancer shall be furnished and installed with the system. Provide a 60-month warranty as required per the CMS and SS 800.

18.4.1.9 Modems

The DBT shall furnish a cdma modem, a 3-in-1 sharkfin cellular antenna with cables, and 2–6’ & 2–3’ ethernet cable for remote wireless cellular communication. For network consistency cdma modems shall be the sierra wireless airlink mp70 model configured for the at&t network. Additionally, the DBT shall furnish a comtrol rocketlinx es8108 ethernet switch with all power supplies necessary to function.

The DBT shall furnish and install a mouting bracket for the antenna with all necessary hardware including but not limited to spring nuts, washers, and bolts that installs to the mounting channel on the side of the signal cabinet.

The cdma modem equipment shall be delivered to ODOT district 6 traffic for programming and installation.

The DBT shall provide the modem serial numbers and necessary esn numbers for odot to establish wireless service.

18.4.1.10 Signal Phasing

Traffic signal phasing should be designed per the ODOT D6 standard layout (Appendix P).

Yellow change and all red clearance intervals shall be calculated with the formula found in TEM Section 403-2. Yellow times should be between 3-5 seconds and the all red intervals should be between 0-3 seconds. The maximum time for the all red interval is 3 seconds.

18.4.1.11 Inspection/Activation

Before any work is started on traffic signals in the project area, the district six traffic engineer and the DBT's representative shall review and resolve any potential problems at the location where the new signal will be constructed. The contractor shall provide the project engineer and district traffic engineer with 72 hour notice of any signal work to be performed at the intersection site(s) so that inspection services can be supplied.

Prior to activating a new traffic signal to stop-and-go mode and/or removing an existing traffic signal from service, all items in the proposed signal plan shall be fully completed, (i.e., vehicle detection, pedestrian signal heads, etc). The district traffic engineer will then review, approve or reject proposals to activate the traffic signal prior to completion.

The contractor shall notify the project engineer and district traffic engineer at least 10 working days prior to scheduling the final inspection of the signal installation. Final inspection is not considered complete until designated district traffic personnel inspect the traffic signal and issue written approval. If issues are found during the final inspection that effect the safety of the traveling public and/or the efficiency of the intersection, the signal shall not be activated on the proposed date. Any punch list items that are found shall be corrected and reinspected by district traffic personnel prior to final acceptance. ODOT forces shall only assume day to day maintenance of the traffic signal after final written acceptance has been issued.

If the traffic signal is a brand new installation (US-35 WB exit ram & SR-435), new signal activation signs are required as per standard construction drawing MT-120.00.

18.4.1.12 General/Other

Mast arm attachment heights shall be calculated and modified as per the elevation of the roadway and designed for a clearance height of 18.0' to ensure the signal head clearance height requirements of 17'-19' are met above the pavement. Signal heads shall be rigid mounted with the yellow lens centered on the mast arm and must be level within 6" of one another.

All box span signals shall be tethered in accordance with current applicable SCD's and/or Plan Insert Sheets. Signals shall be installed at a 17' mounting height. Calculations shall be provided with current SWISS software that accommodates signal back plates for review.

The traffic signal plan view sheet and wiring diagram shall include a legend describing the utilized symbols.

Plans shall include a field hookup chart verses the color sequence chart.

Synchro 8 signal timing files shall be provided by the DBT.

18.4.2 Temporary (Existing) Signal at SR-435/SR-729/Bluegrass Blvd

The DBT shall completely remove the existing temporary signal at SR-435/SR-729/Bluegrass Blvd. Complete removal includes but is not limited to poles, signal heads, pull boxes, cabinet, wires, conduits, and cables. All removed materials shall be removed/handled with caution and delivered to the district headquarters at 400 E William Street, Delaware, Ohio 43015. The DBT shall coordinate the delivery of the salvaged materials with the Project Engineer and The District Traffic Engineer.

Signs shall be erected that state “Signal to be Removed on MM/DD/YYYY” at the 4 approach legs of the intersection a minimum of 30 days prior to removal of the signal.

18.4.3 Proposed Signal at SR-435/US-35 WB Exit Ramp to SR-435 (Ramp D)

The DBT shall provide a new traffic signal at the intersection of the US-35 WB Exit Ramp (Ramp D) and SR-435. The signal type shall be a box span with strain poles. The detection type shall be radar (see section 18.4.1.3).

Ethernet communications to the intersection shall be provided via modem (see 18.4.1.9) to connect to the controller, UPS, MMU and Wavetronix. Connectivity with the existing wireless radio network on the SR-435 corridor shall be established.

If the DBT is unable to procure and install the proposed signal prior to 11/1/24, the DBT shall provide temporary signalization at the intersection.

The proposed signal timing shall be designed to be coordinated with the existing signals along SR-435 to the west (SR-435/I-71 SB Ramps, SR-435/I-71 NB Ramps, SR-435/Allen Rd, SR-435/County Road 308)

18.4.4 Existing Signals at SR-435/I-71 SB Ramps, SR-435/I-71 NB Ramps, and SR-435/Allen Rd

The DBT shall remove the existing signal infrastructure and replace with all new infrastructure at the following existing signalized intersections:

- SR-435/I-71 SB Ramps
- SR-435/I-71 NB Ramps
- SR-435/Allen Rd

The proposed signals shall be of the same type as existing (strain poles). The detection type for each location shall be radar (see section 18.4.1.3).

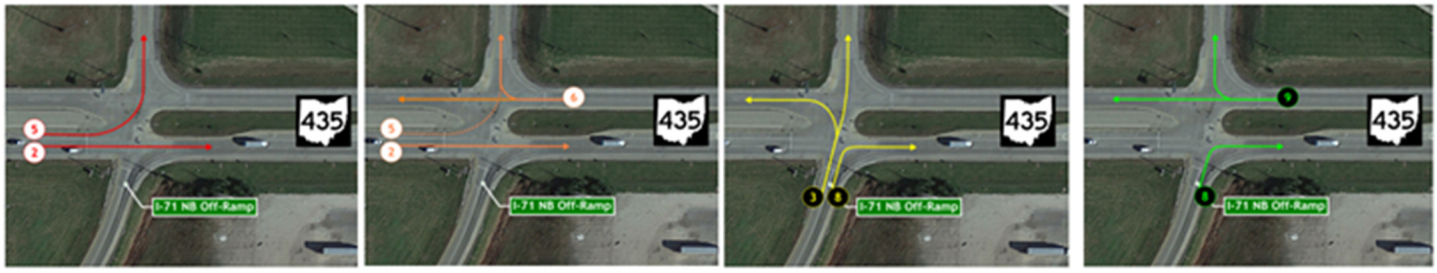
The DBT shall completely remove the existing signal infrastructure at each intersection. Complete removal includes but is not limited to poles, signal heads, pull boxes, cabinet, wires, cables, and conduits. No existing signal infrastructure shall be reused by the DBT unless otherwise noted in this section. Prior to removal the DBT shall coordinate with the Project Engineer and the District Traffic Engineer to determine which materials at each location shall be salvaged for delivery to the district headquarters at 400 E William Street, Delaware, Ohio 43015 (5 working days minimum). It is anticipated that the cabinets and radar detection units will be salvageable and the DBT shall plan to deliver them to district headquarters; the salvageability of all other materials will be determined on a case-by-case basis by the District

Traffic Engineer. Any materials that are not deemed salvageable are to be disposed of by the DBT.

The existing conduit housing the ethernet cable(s) between the existing signals may be reused by the DBT, but new ethernet cable(s) shall be provided. The existing modem located at the strain pole on the NE quadrant of the I-71 SB Ramps/SR-435 intersection may be reused by the DBT.

If the DBT is unable to procure and install the proposed signals at SR-435/I-71 NB Ramps, SR-435/I-71 SB Ramps, and SR-435/Allen Rd prior to 11/1/24, the DBT shall provide temporary signalization to accommodate the opening of the roadway.

The DBT shall design the SR-435/I-71 NB Ramps signal to be ran with the phasing shown in the below graphic:



18.4.5 Existing Signal at SR-435/County Road 308/Factory Shops Blvd

No work is anticipated at this existing signal.

18.5 Intelligent Transportation Systems (ITS)

The DBT shall maintain power/functionality to the ITS Camera Pole located in the median of I-71 at the SR-435 interchange throughout construction. The existing plan for this location is provided in Appendix A – see sheet 26/37 of D06 STTW CCTV FY17.

19 PROJECT SCHEDULE REQUIREMENTS

The DBT shall develop and maintain a project schedule in accordance with the selected note:

☐ CM&S 108.03 A. Progress Schedule

☐ Proposal Note 105 - Critical Path Method Progress Schedule for Single Season Projects

☐ Proposal Note 107 - Critical Path Method Progress Schedule for Multi-Season Projects

☑ Proposal Note 132 - Critical Path Method Progress Schedule for Design/Build Multi-Season Projects including updates released on or before the prebid meeting date, shall be met or exceeded.

20 PLAN SUBMITTALS AND REVIEW REQUIREMENTS

20.1 Plan Components

All plans format submitted by the DBT shall be in conformance with the following ODOT manuals:

1. Real Estate Policies and Procedures Manual Section 3100.
   Note: The DBT shall also identify all topographic features within the existing and proposed Right-Of-Way limits, including underground utilities.

2. Location and Design Manual, Volume 3:
   The following sections of the Location and Design Manual, Volume 3 are NOT required:

1302.13	Plan Signatures
1307.4	Quantity Calculations
1310.3	Earthwork and Seeding Quantities

Units of measure are **NOT** required.

Simplified plans (section 1301.2) are **NOT** allowed.

MOT Phasing plans shall be drawn at 1”=20’, 1”=30’ or 1”= 40’.

20.2 Quality Control

The DBT is responsible for the professional quality, technical accuracy and adherence to the Governing Regulations listed in Section 7.1 (Governing Regulations) of this document, for all plan submittals required under this contract.

The DBT shall immediately notify the Department of any apparent discrepancy between the various design and construction manuals and the Contract Documents.

The Department shall have the discretion to dictate the level of Design review. The Department’s acceptance of the design or failure to identify improper design does not, in any way, relieve the DBT of the responsibility for the quality, accuracy, or feasibility of the Design.

In the event the Department determines that any required submission is incomplete, contains inaccuracies which preclude a meaningful review, or does not adhere to the Governing Regulations listed in Section 7.1 (Governing Regulations) of this document, the Department will advise the DBT of the shortcomings and direct the DBT to revise and resubmit the plan. No time extension will be granted as a result of such action. The Department will schedule a review meeting or issue review comments as appropriate.

20.3 Buildable Units

Buildable Units (BUs) are portions of the projects which can be designed, reviewed and built with only limited controls and assumptions coming from the design of other portions of the project. Often a Buildable Unit will be defined by a geographic area within the plan, but it

may also be defined by types of work or construction stages which may require or permit similar, nearby work to be divided into separate Buildable Units. All Buildable Units shall summarize the materials required to construct that portion of the project. The summary shall include the Construction and Material Specifications Item Number, and a description of the materials to be used.

For the Interim Design, Final Design, and Released for Construction Design submittals, the DBT may break the project work into two or more separate BU which can be progressed through design and construction with minimal or known effect on each other and/or which can be dealt with sequentially such that sufficient data is available for design and review of each BU. In order that the design and construction of one BU may proceed without significant approved information from an associated BU, the DBT may develop and propose assumptions which will allow for the first BU to proceed through design and/or construction. These assumptions shall be submitted for review and comment but their accuracy and effort upon the final design are the sole responsibility of the DBT. Should error in these assumptions result in additional work, remedial work or other changes to assure an acceptable design or should they result in the need to remove work and substitute additional work, the Contractor shall be responsible for all such costs including, removal of unacceptable materials from the site, modification, additional work, repairs, etc. as necessary to produce an acceptable result.

If the DBT elects to develop Buildable Units, the DBT shall prepare, for review by the Department, a table of Buildable Units for the project with each BU described in detail. If the table is approved, the DBT shall modify the Progress Schedule to show a separate group of activities for BU and these activities shall encompass all of the design and construction work in each BU. The Progress Schedule for design review shall be developed such that information from other dependent BUs is available at the time of submission of the BU at hand. Work activities shall be further separated in the Progress Schedule to show a meaningful completion status (i.e. separate activities comprising the placement of a bridge deck on steel beams shall describe; shoring, form building, steel placement, placement of conduit & joints, pouring concrete, forming parapets, pouring or slip forming parapets, provision of membranes, provision of wearing surfaces, curing, repair, form removal, cleaning, etc.).

The Final Review Submission and Construction Plans shall specifically be identified by the Buildable Unit code. If the design of a BU requires input information from an adjacent or related BU, the source for that information in previously approved plans shall be cited or the DBT shall provide an estimated value of the data. The input data shall also be carefully identified. In the same way any assumption, calculations or results from the stage and BU which are used as input to another BU shall be similarly identified, and where appropriate, compared back to that BU to verify previous assumptions. Should assumptions not match values calculated later, the DBT shall re-analyze all affected components and determine appropriate changes. Should those elements have already been constructed, the DBT shall recommend repairs, adjustments, modifications or replacement of the existing work as necessary to comply with the Scope of Work. All costs for re-design, re-submissions, modifications, removals, disposal of materials and new work needed to remedy the project and bring it to compliance shall be borne by the Contractor and no time extensions shall be approved.

20.4 Comment Resolution Process

This section establishes transmittal processes and interaction between the Department and the DBT during submittal reviews in addition to the requirements found within the Scope of Services and other Contract Documents. The process can be modified upon mutual agreement between the DBT and the Department with the intention of meeting the requirements of the Contract or specific submission needs. This process may be revised by mutual agreement of both parties.

Specific identified procedures may be amended, revised, eliminated, or added to address project specific needs or mutual party understanding.

This process shall utilize electronic transmittals for all design submissions unless otherwise specified in the Scope of Services. Plan and design submissions shall be in PDF format, Microsoft Excel, Microsoft Word, or other document types as mutually agreed and appropriate to and for the submission.

Submissions should generally conform to the Scope of Service and other specification included in the Contract Documents, as appropriate, with variations as mutually agreed.

The Department shall establish a file transfer website (typically, an ODOT Project SharePoint, ProjectWise site, or other appropriate file transfer and storage site), with controlled and controllable access, for uploading design submissions and subsequent transmittal of design review comments.

Project specific process details shall be discussed at the Pre-Design Meeting. These details include the responsible contacts (Department and DBT), file server location/IP address, known required persons needing access, and login requirements.

A. Procedure

The Department will grant access to an identified DBT representative who will have authority and responsibility to create Buildable Unit Submission (BUS) folders and other folders within the transfer website. Each folder shall be logically named. Within each BUS folder, additional folders representing each stage of review (i.e. Interim/Final/Construction) will be created. If mutually agreeable, the DBT may perform this role if management by the DBT facilitates submissions.

With each Buildable Unit with each Design Submission, the DBT shall include a transmittal sheet describing the BUS, the BUS stage (Interim/Final/Construction), the contractual review response date (from the Department as well as any other third-party reviewer, if applicable), critical assumptions made for the BUS impacting subsequent BUS submissions, and any information which could facilitate review.

The DBT shall develop and utilize a Comment Resolution Spreadsheet (CRS) for each Buildable Unit with each Design Submission (Interim, Final, Construction) for use in logging and tracking review comments. The DBT shall provide a blank CRS to the Department and other third-party reviewers at Interim Design Submission. The Department and applicable reviewing agencies shall review for Contract requirements. The Department will utilize the CRS document to centralize all Department employee Buildable Unit Design Submission comments.

Department review comments will primarily focus on compliancy with the Contract Documents. The Department will refrain from making excessive preferential and formatting comments. Reviewer preferential comments shall be marked “Preference” within the CRS. While formatting comments do not need responded to, the Department reserves it’s right to reject a submission which, in its judgement, is not reasonably following required ODOT CADD standards.

An updated copy of the CRS shall be provided to all reviewers at the Final Submission. With the Final Submission on the transmittal page, the DBT shall identify major design revisions and design approaches made between Interim and Final Submission being outside the course of typical design progression and were not made to address Interim Review comments. The updated copy shall include all comments received at Interim submittal along with the DBT’s written disposition of all Non-Compliant comments made during formal Interim design submittals. The Department and other appropriate third-party reviewing agencies will review the DBT’s formal disposition to Interim Submittal review comments as well as revised plans to respond to previous comments. The Department will include any additional comments based on the Final Design Submittal review within the CRS.

The DBT shall clearly identify if an ODOT Interim review comment responded with an “Accept” by the DBT is not being corrected within a Final submission. If an “Accept” comment is not being addressed, the DBT shall clearly describe the intended resolution for the RFC submission. The Department may require additional information before the Construction Plan submission, or may request a Comment Resolution meeting (or phone call if appropriate) to understand the DBT’s design direction. The DBT shall memorialize the time of the Comment Resolution Meeting within the CRS submitted with the Construction Plans.

In the event the DBT believes that any review comment, or direction issued by the Department or other third-party review, require a change to a Contract, the DBT shall first contact the Department for clarification and shall, within 10 days of receipt of the comments or direction, provide written notice to the District Project Manager and Project Engineer concerning the reasons why the DBT believes the scope has been changed.

The DBT is not required to comment nor respond to ODOT identified Preference comments.

For comments considered substantial to the Department or the DBT, the DBT shall schedule a Comment Resolution Meeting with the Department to discuss.

1. The Department shall notify the DBT, either within the CRS or other notice, if the Department requires a Comment Resolution Meeting.
2. The DBT shall notify the Department within seven days of any “Non-Compliant” comments they intend to “Dismiss” or “Resolve”. The DBT shall schedule a Comment Resolution Meeting prior to the next stage submittal.
3. For less substantial comments and as agreed by the Department and the DBT, a comment resolution conference call may be sufficient.

The DBT shall obtain Department concurrence with the “Non-Compliant” comment dismissal and this concurrence shall be documented on the CRS.

The DBT shall resolve all outstanding issues and comments from the Final Submittal (or other outstanding comments) and prepare a full set of Design Documents stamped "Checked and Ready for Released for Construction" (RFC). The Department's expectation is that no revisions shall be made except for those required to address Final review comments. In the event that other revisions are required unrelated to review comments, the DBT shall notify the Department and coordinate revisions for concurrence.

The Department shall review to ensure all comments from final reviews have been resolved or "Closed" to the satisfaction of the Department. There is no formal review period for Construction submission.

The DBT has the responsibility for ensuring the RFC meets all contract requirements. If upon Department review it is determined that it is questionable as to whether comments received from the Department or other agencies have been resolved or addressed appropriately, the DBT shall stop construction of the portion of the Buildable Unit in question, consult with the commenter to resolve such comments. The DBT shall document resolution of the comment within the CRS.

The DBT continues to be liable for design accuracy regardless of ODOT review.

B. General Third-Party Requirements

A "Third-Party", in regard to the Design-Build Comment Resolution process, is any overseeing agency with oversight and design approval authority of relevant portions of the design as identified in the Contract.

Other third-party reviewers may not utilize the CRS.

It is the DBT's responsibility to reasonably add all third-party markups and comments received; the DBT shall consolidate third-party comments into the CRS corresponding to each Buildable Unit and save on the ODOT Project SharePoint site. Any plan markups shall also be scanned by the DBT and included on SharePoint within the appropriate BUS folder.

The DBT shall address all third-party review comments. All third-party review comments shall be, initially, considered as a "Non-compliant" comment type, as identified below.

With ODOT's concurrence, the DBT may subsequently identify comments as potentially a "Preference" or "Recommendation". The DBT shall obtain Department concurrence with the "Non-Compliant" comment dismissal and this concurrence shall be documented on the CRS.

C. Comment Resolution Spreadsheet

Minimum requirements of the CRS along with information on content is included below. The DBT may modify format or include additional information with Department concurrence.

Reviewer	
Comment ID No	Consecutive listing

Document	Submittals may include multiple components including plans, reports, calculations, etc. This column will list which item the comment is on.
Page	Page reference/location comment refers to
Comment type	Either “Non-compliant”, “Preference”, or “Recommendation”. Non-compliant – elements that do not meet requirements of the Contract. Preference – elements which depict the owner’s preferred design method or result but are not required by the Contract. Recommendation – a general noted item intended to make the designer aware of potential troublesome design methods.
Contract Section	If Comment Type is Non-compliant to the Contract, the reviewer shall include the Contract Document of the requirement that is non-compliant (for example, Scope Section 8.2, L&D Volume 1, BDM, etc)
Reviewer Note	A Reviewer Note is optional but is recommended to ensure the designer understands the intent to the comment made. Reviewer shall note if a Comment Resolution Meeting or discussion is desired.
Reviewer Agency	Representing Agency
Reviewer Name	Name of reviewer
DBT Response	
Resolution Code (Approve, Dismiss, or Resolve)	Accept – DBT agrees with the comment and addressed the comments Dismiss – DBT disagrees with the comment based on comment no longer applying because the design has changed, reviewer error, or other reasons. Resolve – DBT needs additional clarification and/or coordination to address the comment accordingly. Comment may also reflect a change to the Contract Documents which will require additional discussion and direction by the Department due to the financial/schedule impacts.
DBT Comment/Disposition	The DBT shall provide a more detailed response to the comment as necessary. Response shall note if a Comment Resolution Meeting or discussion is desired.
Reviewer Response	

Status	Open – the submittal did not address the original comment made. Closed – the submittal or disposition addresses the original comment. The DBT shall schedule a comment resolution meeting with the Department to discuss any comments from previous submittals that remain "Open" according to the reviewer. The DBT and the Department will also discuss whether review comments are in conformance with the Contract Document requirements or preferential comments. For less substantial comments and as agreed by the Department and the DBT, a comment resolution conference call may be sufficient.
Reviewer Name	Name of reviewer
Date Closed	Date that the reviewer responded to the comment.
Comments	Provide a more detailed response clarifying why comment remains "Open" or other information

20.5 Document Management

The DBT shall create and maintain a BUS Log sheet to facilitate submission tracking. The BUS Log shall identify the name of the Buildable Unit, brief description of the BUS, Interim Design submission date, Interim Submission review comments transmittal date, Final Submission date, Final Submission comments transmittal date, Released for Construction date, and a BUS Comments field. The BUS Comments field shall note any necessary resubmissions, dates of Comment Resolution meetings with noted submission stages, Over-the-Shoulder meeting dates resulting in design adjustments, or any other needed summarized data to help understand the BUS process. The BUS Log Sheet may be modified as necessary to facilitate review. The BUS Log shall be maintained in the master project folder, or in a location mutual agreeable and accessible to the DBT and the Department.

The DBT shall create a folder for each BU on the Department's Project SharePoint Site. Each BU folder shall have an "Interim", "Final", and "RFC" folder. All Design Documents (plans, calculations, reports, etc) submitted at each phase (Final, Interim, RFC) shall be uploaded by the DBT to the Project SharePoint Site. An updated CRS at each submittal shall be included in each folder with the latest including all comments "closed". Meeting minutes from comment resolution meetings or over-the-shoulder reviews shall be prepared by the DBT and also saved to SharePoint.

20.6 Optional Pre-submission Meeting

The DBT may request a Pre-submission Meeting to be held prior to, or concurrent with, the submission of a Buildable Unit. The intention of the Pre-submission meeting is an opportunity for the DBT to explain design intent to facilitate owner review. Formal assembly and submittal of drawings or other documents will not be required, but the DBT is encouraged to provide informal submittals to facilitate reviews.

20.7 Optional Over-the-Shoulder Reviews

The DBT or the Department may request "Over-The-Shoulder" (OTS) review of designs at any time in the design process. The OTS is an informal review of a partial design during development. This may include in-progress drawings, calculations, sketches, design concepts, proposed specifications, or any other document used or created during the design. They are to facilitate communication and the design process. These can be in the form of a phone call, meeting, correspondence, or any other means of information sharing between the DBT and the Department.

An Over-the-Shoulder review may be necessary to discuss direction on potential design changes. An OTS may be requested during any period in the design development. Appropriate third-party agencies, as well as the DBT and Department, may also participate in these meetings. The DBT or the Department may include the decision or direction given in an OTS within the applicable CRS submission.

The OTS reviews shall not replace the formal Interim and Final Review. Likewise, the Department may also request an OTS review during any stage of design to facilitate review or design development.

20.8 Major Design Decision

Separate submittals for concurrence with major design decisions are required. The submittals may be required during any phase of Design. Major design decisions involve significant utility relocation, unforeseen acquisition of ROW by the Department, traffic operation or geometric decisions that involve two or more viable solutions, designs not typical nor standards not ordinarily exercised by members of the engineering profession practicing under similar conditions at the same time and locality, and any other decision that impacts the public, operation of the facility or designs which require future long term excessive maintenance. The level of development of the submittal is dependent upon the level of detail necessary to accurately depict the major design decision.

When the DBT becomes aware of additional decisions during the design, they must advise the District Project Manager in writing.

20.9 Interim Design Review Submission

For each Buildable Unit, the DBT shall submit the Interim Design submission for review by the Department and other third-party agencies as appropriate.

Interim Design Submission is defined as followed:

A. Maintenance of traffic, traffic signals, lighting, utilities (water, power, sanitary, etc.), and landscaping shall be developed to Stage 2 level of detail as defined the ODOT Location & Design, Volume 3.
B. Full signing plans are not required at Interim, however, all overhead signage and major ground mounted signage shall be shown on plan sheets (may be shown on pavement marking plans if signing plans are not submitted).

C. All other plan components and supplemental submittal requirements as defined as Stage 1 per the ODOT Location & Design, Volume 3.

Unless indicated below, the Department will have 10 Work Days from receipt to review complete submissions. The following are excluded as Work Days: State Holidays, Federal Holidays, Saturdays, Sundays, the Friday after Thanksgiving, Christmas Eve, and the days between Christmas and New Year's Day. This review time must be shown on the required Progress Schedule.

Following this review, the DBT shall correct any errors, incorporate modifications, perform required investigations and make related changes to the plans and supporting documents prior to submitting the plans for Final Design review.

Plan Review Distribution Table**:** The DBT shall supply an electronic version (in PDF format) along with half size (11" x 17") paper prints simultaneously to the parties indicated below, except that **each affected utility company shall receive one full size (22"x34") plans.**

	Number of half size Sets
ODOT Project Manager & Project Engineer	1
Each affected utility or railroad company	1

20.10 FINAL DESIGN Review Submission

For each Buildable Unit the DBT shall submit the Final Design submission for review by the Department and other third-party agencies as appropriate.

The Final Design submission shall include submittal requirements as defined as Stage 3 per the ODOT Location & Design, Volume 3, however, subsummary sheets are not required. Quantity summaries shall be provided in electronic format (Excel and PDF) prior to construction for the Department's use in establishing testing requirements.

The Department shall have 10 Work Days from receipt to review complete submissions. The following are excluded as Work Days: State Holidays, Federal Holidays, Saturdays, Sundays, the Friday after Thanksgiving, Christmas Eve, and the days between Christmas and New Year's Day. This review time must be shown on the required Progress Schedule.

Following the review, the Department will return to the DBT marked plans noted 'ACCEPTED', 'ACCEPTED AS NOTED' or 'NOT ACCEPTED' as described in section 105.02 of the Construction and Material Specifications. The DBT shall correct errors, incorporate changes, perform

investigations, and make related changes to the plans and supporting documents prior to submitting construction plans.

Plan Review Distribution Table: The DBT shall supply an electronic version (in PDF format) along with half size (11" x 17") paper prints simultaneously to the parties indicated below except that each affected utility company shall receive one full size (22"x34") plans:

	Number of half size Sets
ODOT Project Manager & Project Engineer	1
Each affected utility or railroad company	1

20.11 Released for Construction Plans

After the review comments for the Final Design review submission have been complied with, and following approval of the design documentation, the DBT shall prepare plan sets for use during construction. All review comments shall be resolved in writing by the DBT to the satisfaction of the Department and appropriate third-party agencies before the DBT submits the construction plans. No revisions shall be made except for those revisions needed to address Final Design review comments.

Each plan sheet shall have its last revised date noted on the sheet and clearly marked 'Released for Construction'. The 'Released for Construction' plan set shall be signed, dated and sealed by a Professional Engineer. Physical construction shall not begin until the plans marked 'Released for Construction' are delivered to each party on the Plan Distribution Table below.

No time extensions will be approved by the District Construction Engineer if the plan distribution is not completed and project delays occur as a result.

Plans Distribution Table: The DBT shall supply an electronic version (in PDF format) along with full size (22" x 34") and/or half size (11" x 17") paper prints of the each plan submission simultaneously to the parties indicated below:

	# of Full Sets	# of Half Sets
ODOT Project Manager & Project Engineer	1	1
Each affected utility or railroad company	1	1

20.12 Plan Distribution Addresses

Ohio Department of Transportation, District 6
400 East William St.
Delaware, Ohio 43015
Attn: Kelsey Vandia & Joe Brubaker

Utility Companies
(As shown in section 10)

20.13 Plan Revisions

Plan Revisions are DBT requested, ODOT directed, or condition necessary changes to the Released for Construction plans which materially modifies the design intent, materially revises the Plan to an extent which would require revised design calculations, materially revises plan dimensions or plan depictions, or otherwise would modify the Released for Construction plans in a manner which a competent engineer would identify as a necessary design re-evaluation.

Plan Revisions are required to follow Interim, Final, and Released for Construction review processes. Plan Revision review timeframes and review breadth shall be dependent and commensurable the identifiable impacts of the Plan Revision, as agreed by the DBT and ODOT.

20.14 As-Built Construction Record-Drawing Plans

At the completion of the construction work for each respective Buildable Unit, the DBT shall provide a “Red-Line” set of drawings that clearly identify all changes made to the Released

for Construction Plans. They may be noted by hand markup of the revisions, utilizing the Clouding command in MicroStation (or other CAD software) or the Clouding command in PDF editing software. The red-lined drawings shall have a Contractor signed verification on the title sheet indicating all field changes are being incorporated into the red-lined drawings.

Prior to Final Acceptance of the Work, the DBT shall furnish the Department formal As-Built Construction Record-Drawing plans. The DBT shall provide a general summary within the final As-Built Construction Record-Drawing plans. The formal As-Built Construction Record-Drawing shall include all red-lined changes. Red-line change shall be denoted utilizing the Clouding command in MicroStation (or other CAD software) or the Clouding command in PDF editing software. The As-Built Construction Record-Drawing shall have a signed verification on the title sheet from the Designer and the Contractor indicating that all red-lined and field changes have been incorporated into the As-Built Construction Record-Drawing.

> Note: The Contractor's verification statement indicates all known field modifications made after the RFC plans where sealed by the Designer have been included in the formal Record-Drawing. The Contractor's verification statement shall be signed by the Contractor's Project Manager (or acceptable representative).
>
> Note: The Designer's verification indicates the Designer's acknowledgement of the red-line and field changes, the presented field changes have been included within the As-Built Construction Record-Drawing and is the Designer's concurrence that these changes meet the design intent of the Contract. The Designer's verification statement shall be signed by the Lead Designer's representative.

The DBT may choose to omit the "Red-Line" submission and submit only formal As-Built Construction Record-Drawing.

As-Built Construction Record-Drawing plans shall be submitted using the following method:

PDF Images created according to the documentation on the Office of Contracts website

http://www.dot.state.oh.us/DIVISIONS/CONTRACTADMIN/CONTRACTS/Pages/TIFF.aspx

In addition to the information shown on the construction plans, the Record-Drawing plans shall show the following:

1. All deviations from the original approved construction plans which result in a change of location, material, type or size of work.
2. Any utilities, pipes, wellheads, abandoned pavements, foundations or other major obstructions discovered and remaining in place which are not shown, or do not conform to locations or depths shown in the plans. Underground features shall be shown and labeled on the Record-Drawing plan in terms of station, offset and elevation.
3. The final option and specification number selected for those items which allow several material options under the specification (e.g., conduit).
4. Additional plan sheets may be needed if necessary to show work not included in the construction plans.

Notation shall also be made of locations and the extent of use of materials, other than soil, for embankment construction (rock, broken concrete without reinforcing steel, etc.).

The Plan index shall show the plan sheets which have changes appearing on them.

Two copies of the As-Built Construction Record-Drawing plans shall be delivered to the Project Engineer for approval upon completion of the physical work but prior to the request for final payment. After the Department has approved the As-Built Construction Record-Drawings, the associated electronic files shall be delivered to the District Capital Programs Administrator. Acceptance of these plans and delivery of the associated electronic files is required prior to the work being accepted and the final estimate approved.

The plans shall be prepared in conformance with the Location and Design Manual, Volume 3, Section 1200 - Plan Preparation.