

SCOPE NARRATIVE

Project HAM Tunnel Insp/Maint FY25/26

PID: 105473

Project Scope

Phase 1

Inspect the Lytle Tunnel (HAM-71-0134) which carries I-71 NB, I-71 SB, and a SB exit to Third Street in 3 separate bores as in conjunction with the National tunnel Inspection Standards as follows:

NTIS Inspection:

1. Inspect the tunnel in compliance with the National Tunnel Inspection Standards in the fall of 2025 and 2026. A minimum of two inspectors shall be certified tunnel inspectors having completed the Tunnel Safety Inspection class (FHWA-NHI-130110). The consultant shall provide inspectors names, resumes, and date of training completion for the two inspectors that will be conducting the inspections with their Letter of Interest (LOI).
2. Provide an electronic version report of any deficiencies found. The report shall include color photographs imbedded within the report to demonstrate the found deficiencies. The report shall include recommendations for immediate repair (less than 1 year) and long-term repairs (approximately 5 years). Approximate cost of each repair in current dollars shall be provided. Include an appendix in the back of the actual spreadsheet submission. Include a separate appendix calculating all element tunnel element quantities. Enter the data and element information into the State's Assetwise Asset Reliability (AWAR) Inspection software by Bentley. The draft report is due 45 days after the initial tunnel inspection. The final report is due 30 days after comments are received.
3. Inspection of the traffic portions of the tunnel shall be coordinated to coincide with maintenance closures conducted by ODOT for tunnel cleaning purposes in 2025 and 2026. The closure schedule typically takes place one week in September as shown below.
 - a. Beginning on a Tuesday, electrical and mechanical inspections initiate and are performed throughout the week into the upcoming weekend.
 - b. Wednesday, the Northbound tunnel is closed for cleaning by Hamilton County beginning 10 PM and re-opens 5 AM the next morning.
 - c. Thursday, the Northbound Tunnel is closed for structure inspection conducted by the consultant beginning 10 PM and re-opens 5 AM the next morning.
 - d. Friday, the Southbound ramp tunnel is closed for structure inspection conducted by consultant beginning 10 PM and re-opens 5 AM the next morning.
 - e. Friday, the Southbound mainline tunnel is closed for cleaning by Hamilton County beginning 10 PM and re-opens 5 AM next morning.

- f. Saturday, the Southbound Ramp tunnel is closed for cleaning by Hamilton County beginning 10 PM and re-opens 5 AM the next morning.
- g. Saturday, the Southbound Mainline Tunnel is closed for structure inspection conducted by consultant beginning 10 PM and re-opens 5 AM the next morning.
- h. Sunday is reserved for rainouts.
- i. ODOT will provide all traffic control.

Mechanical/Electrical Inspection and Maintenance.

1. In addition to the inspection per the NTIS standards, the consultant shall inspect, test and exercise the mechanical and electrical equipment per the attached ODOT Tunnel Inspection Plan for Electrical, Mechanical, and Structural. The testing shall be performed in the presence of the mechanical and/or electrical engineers experienced in tunnel mechanical and electrical systems. The Consultant shall provide names and resumes for at least two engineers that will be conducting the inspection and testing of the mechanical/electrical systems. These can be the same as the NTIS inspectors if they are appropriately qualified. At a minimum, the following systems shall be tested and inspected for two years per the attached ODOT Tunnel Inspection Plan beginning in the Fall of 2025 and 2026:
 - A. Fans- The three (3) fans shall each be tested per the attached ODOT Tunnel Inspection Plan to ensure they are working correctly both mechanically and electrically. They should be tested to ensure they can be actuated from within the tunnel and remotely through the SCADA system. A two week notice to ODOT is required prior to testing.
 - B. Dampers- Ensure Dampers and motors are working properly.
 - C. Lighting System- The lighting system shall be tested to ensure it is working correctly. Exact locations of malfunctioning and/or burnt-out lights shall be documented. Lumens shall be tested and document in each of the 3 lighting zones during dark (nighttime) hours within each bore and upon completion of the cleaning. (Note: ODOT staff or ODOT's electrical contractor through a separate contract may be replacing lights during cleaning operations. Notify ODOT staff immediately of issues found so they can repair in the same night/closure.)
 - D. Linear Heat Detection- The linear heat detection system in tunnel bores and mechanical/electrical facility shall be tested annually. The test shall include verification that the detection is properly relayed through the SCADA system to the Cincinnati Fire Department and ODOT's Traffic Management Center (TMC).
 - E. Standpipe System- Perform a hydrostatic test of the standpipe system per NFPA 6.3.2.1. in the second year of this contract "if authorized". Test the standpipe system by pressurizing the system to identify and/or locate any leaks in the system. (See attachment B testing procedures).
 - F. Gas Detection System- The gas detection system shall be tested and calibrated per the attached ODOT Tunnel Inspection Plan (during the Fall cleaning). Improperly working sensors shall be replaced. The test shall include verification that the detection is properly relayed through the SCADA system to the Cincinnati Fire Department and ODOT's traffic management center.

- G. Video / ITS System- Visually inspect the cameras and conduit systems in the tunnel and mechanical room. Immediately notify TMC of any issues. Document in report.
 - H. Building Components and Systems- Visually inspect all mechanical, electrical, plumbing systems and any components of the building.
 - I. Tunnel Closed Notification System – Test the system annually. Immediately notify TMC of any issues. Document in report.
 - J. SCADA – The consultant shall inspect the SCADA system annually to ensure it is working and communicating properly and remotely with ODOT’s Traffic Management Center and District 8.
2. A draft report (separate from NTIS Inspection in Assetwise) shall be provided by the mechanical/electrical engineers within 60 days of the cleaning of the tunnel bores that is held each fall. The report shall document the tests performed and the results of those tests. Any documentation required by any equipment manufacturer’s requirements shall be included in the report. In addition, a log sheet of the tests performed including the consultants name, engineer’s name, date and critical output/reading for each test shall be included in the appendix for each system. The log shall include previous tests and is intended to be a running log of all tests performed for future perpetuation. The report shall include recommendations for immediate repair (less than 1 year) and long-term repairs (approximately 5 years). Approximate cost of each repair in current dollars shall be provided.
 3. Notification of Entry and Testing- The Mechanical/Electrical Room is a secured facility monitored by ODOT’s Traffic Management Center (TMC). The consultant will be provided a key at the scope meeting which shall be returned at the end of the contract. Prior to entering the facility, the consultant will need to notify the TMC of entry and approximate duration. The Mechanical/Electrical facilities are typically accessed through a small building within Lytle Park above. Dedicated parking for this area is not available. Parking within the park is not allowed. If access, equipment or activities will affect the use of the park, a permit from the City of Cincinnati Parks Department will be required. Testing of fans outside normal monthly testing cycles will require 1-week written notification to the adjacent hotel.
 4. If requested by the district, the consultant shall prepare contract plans to repair any deficiencies found or enhance the tunnel as deemed necessary by ODOT. Payment of the item of work would be covered by a contract modification.

Phase 2 (shall begin upon authorization)

Consultant will support the Department in the development of scope of work, contracting terms, operational measurements, and the procurement of an Operations and Maintenance (O&M) Provider for the Lytle Tunnel & D8 Stormwater Pump Station O&M Contract. The O&M Contract will engage a separate O&M Provider through a competitive procurement, to provide a 7–10-year O&M agreement for routine maintenance and ongoing monitoring of the critical tunnel safety systems and the two stormwater pump station installations.

The goals for the O&M Contract are to

- a) Install and activate a Department provided SCADA operating system within the Lytle Tunnel, including any necessary upgrades to Programmable Logic Controllers (PLCs) and/or Remote Terminal Units (RTUs) for accurate monitoring.
- b) Design and Install necessary PLCs and/or RTUs for one (1) existing stormwater pump station.
- c) Monitor and perform necessary physical performance tests and resultant reporting on the Lytle Tunnel, a newly constructed pump station, and the existing stormwater pump station.
- d) create a single point of contact for routine maintenance and routine reporting of the three installations,
- e) create a streamlined contracting mechanism simplifying out-of-operation response, and
- f) create a contracting method which provides a balance risk profile for the operator and the Department.

The consultant or team member is expected to have the technical background and experience in procurement for an O&M contract within Ohio/ODOT contracting authority. The Consultant shall

- 1) Provide general management of the procurement of the O&M Contract.
- 2) If directed, assist in general industry outreach to gauge industry interest, gather industry recommendations, and evaluate industry responses.
- 3) Provide comments on contracting terms and conditions which properly address risk considerations of the critical infrastructure.
- 4) Provide assistance in determining operations and maintenance requirements for the Lytle Tunnel O&M Contract (7-10yr) while considering appropriate risk allocations.
- 5) Make recommendations for payment and compensation recommendations and structures.
- 6) Assist in development and preparation of RFQ and/or RFP documents, including selection criteria, proposal requirements, evaluation techniques, and determining/assembling necessary reference documentation.
- 7) Assist in the formulation of responses to request of information, release of invitations for proposals, engaging in potential one-on-one meetings, revise procurement documents (as necessary) and general organization of necessary procurement information.
- 8) Assist in the review and selection of the O&M Operator with the evaluation of proposals.

General Information

1. Existing Plans:

	Arch No	Name	Year	PID	Description
1	08C3619	HAM-71-1.34	2015	87268	Rehabilitation and equipment/ventilation expansion
2	08C1429	HAM-71-0.93	1967	N/A	Original Construction
3	AB partial	HAM-71-1.34	2015	87268	Rehab and expansion plans some "as-built" information.
4	08C1434	HAM-71-1.11	1970	N/A	Original Park Construction
5	08C2990	HAM-71-1.24	1977	N/A	Lighting Replacement in Third Street Exit Tunnel
6	08C1398	HAM-71-1.30/9.00	1995	N/A	I-71 rehab (included Tunnel Expansion Joint repairs)
7	08C1888	HAM-71/471-1.34/0.24	2003	76272	Expansion Joint Repair
8	2017 pics	Inspection Photos	2017	N/A	Photos from 2017 Inspection
9	2017 Insp	Inspection	2017	N/A	2017 Inspection Information
10		HAM IR71 1.34	2020	110259	Repair stone masonry veneer facade

See the FTP site for existing plans, inspection report and photos, and scope narrative:

<ftp://ftp.dot.state.oh.us/pub/Districts/D08/Programmatic/2023-January/PID105472/>

ATTACHMENT B

Hydraulic Testing procedure for Lytle Tunnel Standpipe

(per NFPA 25, section 6.3.2.1)

1. Verify all valves are closed, including hose valves on north and south high-speed lanes.
2. Connect a meter to a fire hydrant on 4th Street
3. Connect hose from meter to FDC (Fire Department Connection)
4. Open fire hydrant to start priming the system.
5. Bleed air out of system by opening low point drain valves on south bound and north bound high speed lanes.
6. Once air is out, close the valves.
7. Move into electric and control rooms
8. Open and drain air out of the low point drains in the electric and control rooms
9. Move to last valve at the end of the portals.
10. Open and drain the air out of the low point drains.
11. Once system is up to water street pressure, use hydrostatic pump and generator where the meter is tied into the fire hydrant. Pump to 200 psi for 2 hours.
12. Determine if the system passes or fails by the authorities with jurisdictions.
13. If system loses pressure, we will isolate or close sections valves, starting at the furthest one from the FDC to find leak or problem, moving to each valve in sequence until problem is found.
14. If system does not lose pressure, the test is complete.
15. Open all the drains, starting at the furthest hose valve on the North and South bound high-speed lanes, drain the system and make sure all valves are closed.

Project Map

