

Form Name: SFY 2026 Municipal Bridge Application
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State Fiscal Year 2026 Municipal Bridge Application

Agreement of Understanding I have read and understand the program guidance and the terms described in the overview above

Contact Information

Applicant/Project Sponsor City of Salem, Ohio

Name Joeseph Cappuzzello

Address 231 South Broadway Avenue
Salem, OH 44460

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Bridge Inspection and Studies/Analysis

Are the applicant's local bridge inspections up to date? Yes

Does a Structure Type Analysis need to be performed? Yes

Does a Hydraulics Analysis need to be performed? Yes

Project Identifiers

ODOT District 11

County Columbiana

Route Pennsylvania Avenue

Structure crosses over: Middle Fork Beaver Creek

Bridge Structure File Number 1560605

Project Type Replacement

Is the anticipated project going to be administered as ODOT-let or Local-let? ODOT-let

Project Description

Describe the Current Conditions

DESCRIBE THE CURRENT CONDITIONS:

Current conditions of Pennsylvania Avenue Bridge, Number 1560605, in Salem, Ohio

The existing structure consists of twin steel corrugated pipe arch culverts (11 feet 2 inches wide by 7 feet 2 inches tall) that convey the Middle Fork of Little Beaver Creek in a north-south direction beneath Pennsylvania Avenue in Salem, Ohio. Adjacent to this crossing is an active Norfolk Southern railway line, which recently upgraded its upstream bridge-approximately 50 feet away-to a concrete slab structure, underscoring the importance of modernization in the corridor.

A detailed inspection conducted on April 17, 2024, rated the culvert structure as "poor" and recommended it be prioritized for either full replacement or rehabilitation. As a result, the bridge has been added to the State Fiscal Year (SFY) 2026 Target Bridge List under the Municipal Bridge Program. Further analysis from the Ohio Department of Transportation's (ODOT) Office of Structural Engineering, dated July 11, 2024, revealed extensive structural deterioration, including 100% section loss in several locations. A reduced load posting was advised:

- 23 tons for 2-axle vehicles
- 43 tons for 3-axle vehicles

Detailed Structural Deficiencies

• West Pipe:

- o Coating failure and peeling observed on both the sides and top
- o Widespread holes in the pipe invert, including typical openings up to 1.5 inches in diameter
- o Approximately 18 inches from the outlet, localized perforations are present
- o Mid-length reveals a concentrated zone of invert degradation (approx. 8" x 3") with full section loss

• East Pipe:

- o Numerous holes throughout the pipe's full length and floor corrosion evident
- o Many corrugations have deteriorated with 100% section loss along 1-inch-wide strips of the invert
- o Coating is actively peeling from both side walls and pipe crown

Additional Observations:

- Persistent downstream vegetation has obstructed hydraulic flow, trapping silt, water, and debris within the culvert-exacerbating corrosion and impairing structural integrity
- Safety hazards include:
 - o A deteriorated northbound guardrail requiring full replacement
 - o A deteriorated southbound guardrail requiring full replacement
- The downstream elevation is heavily overgrown, impeding flow and contributing to further invert corrosion due to stagnant water and sediment accumulation

The extent of structural deterioration, combined with impaired hydraulic function and visible safety risks, confirms the urgency

for investment in bridge replacement. Upgrading this culvert crossing will restore safe transport routes, improve stream flow, reduce future maintenance costs, and align with regional infrastructure improvements already initiated by adjacent stakeholders.

Describe the Proposed Work

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The City of Salem would like to replace the twin corrugated pipe arch with a 30' concrete slab bridge on concrete abutments. The slab bridge will be sized to carry both the Middle Fork of Little Beaver Creek and the UNT that ties into the Middle Fork 10' South of the proposed structure. The project will be constructed during the summer months during school vacation using a detour to not impact the Salem Bus garage due West of the project. The project will likely require temporary construction easements for access purposes. Utility impacts include overhead electric lines that parallel Pennsylvania Avenue on the North, and underground waterline that crosses the creek on the outlet end of the culvert.

Identify Any Potential Environmental or Right-of-Way Issues

It is anticipated that a Categorical Exclusion Level 1 will need to be completed for the project. Wetland delineation, stream evaluation and associated permitting will also need to be completed. The Middle Fork Beaver Creek is listed as a Group 1 mussel stream and will need to be evaluated for the presence of mussels. No historical structures are anticipated. ROW will need to be evaluated for potential temporary impacts associated with construction of the project. It is anticipated the project will need to be coordinated with Norfolk and Southern RR due to the proximity to their ROW.

Identify Any Historical Significance Relating to the Proposed Project

None

Describe Any Preventative Maintenance and/or Rehabilitation That Has Previously Occurred on the Bridge

Describe Any Preventative Maintenance and /or Rehabilitation That Has Occurred on the Bridge:

In the early 1990s, a 48-inch wastewater line was installed to serve the then-new Wastewater Plant located at the end of Pennsylvania Avenue. The line was buried deep between existing culverts and the slab Railroad bridge. During construction, the trench was initially backfilled with standard construction material and topped with cement. Today, that cement layer functions as a swale, directing stormwater runoff from the City of Salem into Beaver Creek-contributing additional flow, particularly during heavy rainfall events. Load posting signs have been added on both approaches since the last inspection in July 2024

Project Development Details

Project Data

Substructure Condition Rating	4
Superstructure Condition Rating	4
Deck Condition Rating	4
Annual Average Daily Traffic	1500
Legal Bridge Load Limit (Percentage)	81%

Safety Indicators (Optional)

Speed	35
Number of Lanes	2
Functional Class of Roadway	Local

Lack of Facilities	<p>Lack of Facilities: The existing guardrail over the dual culverts poses a potential safety hazard due to its condition and design limitations. Additionally, recent structural inspections conducted in April and July of 2024 have resulted in a "poor" condition rating for the dual culverts. These evaluations also led to the implementation of load restrictions, indicating that the bridge no longer meets its original capacity standards and may be vulnerable under increased loads. These findings highlight the urgent need for rehabilitation or replacement to ensure continued safe usage and compliance with transportation safety requirements.</p>
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Gaps in bicycle and pedestrian network	None
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Presence of bicycle and pedestrian generators (neighborhoods, destinations, transit, etc.)	None
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Bicycle/Pedestrian Volume Data	None
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Alignment with State and US Bike Route System	No
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Project Funding

Preliminary Engineering and Environmental Funding

State Fiscal Year	2026
Local Contribution	88400
Other Funding Sources	0
Municipal Bridge Program Funding Request	353600
Total Preliminary Engineering and Environmental Funding	442000

Design Funding

State Fiscal Year	2027
Local Contribution	10200
Other Funding Sources	0
Municipal Bridge Program Funding Request	40800
Total Design Funding	51000

Right-of-Way Funding

State Fiscal Year	2027
Local Contribution	12500
Other Funding Sources	0
Total Right-of-Way Funding	12500

Construction Contract Funding

State Fiscal Year	2029
Local Contribution	75000
Other Funding Sources	0
Municipal Bridge Program Funding Request	1425000
Total Construction Contract Funding	1500000

Construction Inspection Funding

State Fiscal Year	2029
Local Contribution	7500
Other Funding Sources	0
Municipal Bridge Program Funding Request	142500
Total Construction Inspection Funding	150000

Total Project Funding

Total Local Contribution	193600
Total From Other Funding Sources	0
Total Municipal Program Funding Request	1961900
Total Project Costs	2155500

Project Funding Sources

Identify all sources of already secured local contribution funds and funds from other sources: See attached Salem City Auditor Letter

Identify all sources of anticipated local contribution funds and funds from other sources that have not yet been secured and the timeframe in which the funds are expected to be secured: None

What happens if the anticipated funding sources identified above are not awarded? Continued reduction in load weight, Complete closure.

Identify the work to be done utilizing Municipal Bridge funding (to ensure eligibility): Preliminary engineering, stage 1 design, stage 2 design, environmental engineering, drilling, lab testing, right-of-way plans, final engineering, and r/w phase, ODS's, total demo, and replacement.

Project Evaluation Information

Explain how the project scope and various alternatives were assessed, as well as cost estimates, environmental impacts, and community impacts.

Various alternatives were carefully assessed to address site-specific drainage and connectivity needs, including pipe culverts, box culverts, and a concrete slab bridge. Each option was evaluated in terms of construction feasibility, cost-effectiveness, and impact on the surrounding environment and community including impacts to the adjacent RR and traffic control options. While pipe culverts offered the lowest initial cost, box culverts demonstrated greater durability and hydraulic capacity. The concrete slab bridge, although the most expensive, provided the most resilient long-term solution with minimal disruption to local ecosystems and enhanced accessibility for residents. A hydraulic analysis, environmental study, railroad coordination and community outreach will be completed during the design phase to further refine the selected alternative.

Community Impacts:

Bridge Structure 1560605 Pennsylvania Avenue Bridge, Salem, Ohio

Constructed in 1970-prior to the development of the Salem Industrial Park, this aging twin-culvert bridge has served the community faithfully for over 55 years. However, due to decades of wear and the sharp increase in vehicular usage following the Industrial Park's expansion, the structure has deteriorated significantly.

Structural inspections conducted in April and July 2024 resulted in a "poor" condition. These limitations directly affect traffic flow and raise public safety concerns, particularly given the bridge's critical role as a primary connector for the region. The most recent average daily traffic (ADT) count, recorded on April 17, 2024, was approximately 1,500 vehicles. This volume includes:

- Employees commuting to the 27 businesses located within the Salem Industrial Park
 - Staff from the Salem City Wastewater Plant
 - Local motorists relying on this corridor as a time-saving route
- More than 3,000 individuals are employed within the Industrial Park alone, and many rely on this bridge daily to access work, school, and services. Its continued degradation poses a threat not only to public safety and traffic mobility but also to the economic and social fabric of the community.

The bridge is adjacent to the Salem City Schools bus garage, where 25 staff members oversee the safe transportation of school children. It also serves as a critical connection for five City of Salem employees who work around the clock at the Wastewater Plant-an essential facility that safeguards public health and environmental compliance.

Replacing the bridge is essential to:

- Protect the safety of schoolchildren, employees, and residents
- Maintain operational reliability for vital municipal facilities

- □ Sustain economic productivity and growth in Salem
- □ Ensure uninterrupted connectivity for daily life and emergency response

This project supports a broader vision of quality of life, employee well-being, and municipal resilience. Its completion will reinforce the City of Salem's commitment to its workforce, school system, and business community-while securing long-term infrastructure that fuels local development and public service.

What other solutions were considered for this project?

Other solutions considered for this project included the rehabilitation of the existing twin cell culverts. These solutions included slip-lining the existing culvert, reinforced concrete invert, or installing falsework to prevent further structural deformation and ultimate collapse. For reasons previously stated these options offered a short-term solution requiring significant resources to maintain.

Why was the proposed alternative selected over others?

The proposed alternative was selected as it offered the most long-term solution and option with the least maintenance requirements for the City of Salem.

What are the forecasted impacts if this project is not awarded funding?

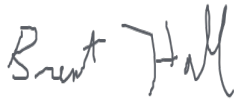
Salem is coordinating with their engineer to develop a rehabilitation strategy aimed at keeping the bridge operational and avoiding additional reductions to the current load posting limits of 23 tons for 2-axle vehicles, and 43 tons for 3-axle vehicles. Proposed scenarios may include slip-lining the existing culvert, reinforced concrete invert, or installing falsework to prevent future structural deformation and ultimate collapse. Permanent repairs present significant challenges due to complete section loss in the culvert and the high volume of industrial truck traffic in the area. Slip lining will reduce the hydraulic opening potentially impacting the 100-year floodplain. A reinforced concrete invert will aid in directing the flow under Pennsylvania Avenue without eroding the base but does not address the section loss in other areas of the culvert identified in the inspection report. Implementing falsework will decrease the hydraulic capacity of the dual culvert and introduce ongoing maintenance demands caused by debris accumulation. Should load limits be reduced further, traffic will be rerouted along the 5.5-mile detour via Salem Parkway, Jennings Avenue, and State Route 62, and State Route 9 before connecting with Pennsylvania Avenue.

Ethics and Conflict of Interest

If selected for award, I agree to review and comply with the Ethics and Conflict of Interest laws, including 23 CFR 1.33; 23 CFR 636.116; and ORC sections 102.03, 2921.42, and 2921.43.

Signature

Signature



Print Name of Submitter	Brent Hall
Print Title of Submitter	Project Manager
Print Entity of Submitter	Alfred Benesch & Company

Attachments

Photographs of Project Site (Limit 10)	https://www.formstack.com/admin/download/file/18341390801
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Project Schedule	https://www.formstack.com/admin/download/file/18341390802
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Project Cost Estimate	https://www.formstack.com/admin/download/file/18341390805
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Other Attachments	https://www.formstack.com/admin/download/file/18341390806
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