



**Monroe Council Agenda
Regular Meeting of Council
February 25, 2025 – 6:30 PM
233 South Main Street, Monroe, Ohio**

Pledge of Allegiance

Roll Call

Approval of the Minutes

Council Minutes of February 11, 2025

Visitors

Committee Reports

Public Works Committee

Finance Committee

Administrative Liaison Committee

Technology Committee

Public Involvement Committee

Public Safety Committee

Old Business

Ordinance No. 2025-02. An Ordinance amending and supplementing Sections 286.08 and 286.09 of the Codified Ordinances to change the planning, zoning, and building permit fees. (Second Reading)

New Business

Resolution No. 16-2025. A Resolution authorizing the City Manager to enter into a professional services agreement by and between the City of Monroe and Fishbeck Engineering to provide professional floodplain management services.

Sponsor: Gary Morton

Strategic Priority: Well Managed Services and Infrastructure

Background: This agreement establishes a contract between the City of Monroe and Fishbeck Engineering for professional floodplain management services, set to begin March 1, 2025. The purpose is to ensure our city maintains compliance with FEMA requirements and the National Flood Insurance Program (NFIP).

Key aspects of the agreement include:

The scope of services covers four main areas:



1. Permit review and development - Fishbeck will review all development permits in flood hazard areas within 10 business days
2. Administration and coordination - They will serve as our designated floodplain manager and coordinate with state/federal agencies
3. Technical services - Including flood map interpretation and processing map changes
4. Public assistance - Providing technical guidance to property owners and developers

The financial terms are structured as follows:

- An annual administrative allowance of \$12,000, billed monthly (max \$1,000 per month)
- Additional review services are billed separately at hourly rates
- The consultant bears all costs for required certifications and training

Important protections for the city include:

- Required insurance coverage (\$1M professional liability, \$2M general liability)
- Indemnification provisions protecting the city from third-party claims
- The ability to terminate at 30 days notice
- All services must be performed by qualified personnel with appropriate certifications

The agreement is for a 12-month term ending February 28, 2026. This arrangement allows us to maintain professional floodplain management services without having to employ a full-time specialist, while ensuring we meet all federal and state requirements for flood management.

Resolution No. 17-2025. A Resolution of the City Council of the City of Monroe, Ohio declaring support for the preservation of the federal tax exemption of municipal bonds.

Sponsor: Jake Burton

Strategic Priority: Good Governance

Background: The Ohio Municipal League (OML) issued a Federal Call to Action on February 12, 2025 titled "Protecting the Tax-Exempt Status of Municipal Bonds", requesting municipalities to pass a resolution declaring support for the preservation of the federal tax-exempt status of municipal bonds. A copy of the member alert issued to Ohio municipalities is included for review.

Communities of all sizes, including the City of Monroe, rely on tax-exempt municipal bonds as a critical tool to finance infrastructure projects and essential public services. These bonds help fund everything from municipal buildings to roads and utilities projects. These bonds are unique because the interest earned by investors are typically exempt from federal income taxes, and often from state and local taxes as well. This tax-exempt status makes bonds attractive to investors, allowing governments to borrow at lower interest rates. The savings on these lower interest rates are passed along to communities, allowing local governments to stretch their dollars further when investing in



long-term projects that improve quality of life, spur economic growth, and build stronger communities. The National League of Cities (NLC) anticipates that tax-exempt municipal bonds may be at risk as Congress is expected to focus on sunseting tax provisions. NLC recently collaborated with the Government Finance Officers Association (GFOA) to launch the #BuiltByBonds campaign to undeniably demonstrate the importance of tax-exempt municipal bonds in every congressional district nationwide. A document created by NLC and GFOA titled "Understanding Financing Options Used for Public Infrastructure" has been included for review.

Passage of this legislation will declare the city's support for the preservation of the federal tax-exempt status of municipal bonds.

Administrative Reports

63 Corridor Safety Study Discussion

Executive Session - to consider the purchase and/or sale of property, employment, and compensation of a public employee and public officials.

Adjournment



**Monroe Council Minutes
Regular Meeting of Council
February 11, 2025 – 6:30 p.m.
233 South Main Street, Monroe, Ohio 45050**

Pledge of Allegiance

Mayor Funk opened the regular meeting of Council at 6:30 p.m. with the Pledge of Allegiance.

Roll Call

Council members present: John Centers, Kelly Clark, Keith Funk, Tom Hagedorn, Christina McElfresh, and Ben Wagner.

Mrs. McElfresh moved to excuse Mr. Graves; seconded by Dr. Clark. Voice vote. Motion carried.

Mrs. McElfresh moved to amend the agenda to consider a Motion to Reconsider prior to the approval of the minutes; seconded by Dr. Clark. Roll call vote: six ayes. Motion carried.

Mrs. McElfresh moved to reconsider the motion made on January 28, 2025, for the adoption of Ordinance No. 2025-01; seconded by Mr. Centers. Roll call vote: five ayes; one nay (Hagedorn). Motion carried.

Mrs. McElfresh moved to adopt Ordinance No. 2025-01; seconded by Dr. Clark. Roll call vote: five ayes; one nay (Hagedorn). Motion carried.

Approval of the Minutes

Mrs. McElfresh moved to amend the January 28, 2025, Council Minutes, to reflect the motion for reconsideration and motion to adopt Ordinance No. 2025-01 made on February 11, 2025, including the final vote; seconded by Mr. Wagner. Voice vote. Motion carried.

Mrs. McElfresh moved to adopt the January 28, 2025, Council Minutes, as amended; seconded by Mr. Wagner. Voice vote. Motion carried.

Visitors

Michael Garver addressed City Council with his concerns of requiring annexation into the City for those developments that would utilize City water. Mr. Garver noted that while he is a Lemon Township Trustee, he is addressing Council as a Lemon Township resident only and not on behalf of the Trustees. Mr. Garver is concerned if developments requiring City water need to be annexed it will cause the Township to slowly diminish.



Committee Reports

None.

Old Business

None.

New Business

Resolution No. 14-2025. A Resolution approving a Then-and-Now Certificate in the amount of \$3,825 to the Center for Local Government for the annual dues.

The Clerk of Council read the title of Resolution No. 14-2025.

Mrs. McElfresh asked Mr. Lester how often the services of the Center for Local Government are used. Mr. Lester replied that the City uses their services for benchmarking with other communities, job classifications, and leadership development.

Mrs. McElfresh moved to adopt Resolution No. 14-2025; seconded by Mr. Centers. Roll call vote: six ayes. Motion carried.

Resolution No. 15-2025. A Resolution authorizing the City Manager to enter into a professional services agreement by and between the City of Monroe and Fishbeck for the Bicentennial Commons Park Loop Trail and the Great Miami River Trail Extension.

The Clerk of Council read the title of Resolution No. 15-2025.

Mayor Funk recognized this is only design and understood it is the logical next step, but moving forward with it makes sense.

Mr. Wagner advised this matter was discussed during the Public Works Committee meeting this evening. Fishbeck completed the drainage study and with the next phase of planning the loop, the mitigation gets built out phase-by-phase.

Mrs. McElfresh moved to adopt Resolution No. 15-2025; seconded by Mr. Wagner. Roll call vote: six ayes. Motion carried.

Ordinance No. 2025-02. An Ordinance amending and supplementing Sections 286.08 and 286.09 of the Codified Ordinances to change the planning, zoning, and building permit fees.

The Clerk of Council read the title of Ordinance No. 2025-02.

Mayor Funk stated that Ordinance No. 2025-02 will be on the next agenda for a second reading.



Consideration of Motion authorizing the expenditure to Mid-Miami Roofing, Inc. for the property located at 602 South Main Street in the amount of \$934,605.10.

No action taken.

Consideration of Motion authorizing a five-year lease purchase with Ohio CAT for a Mini-Excavator for the total amount of \$96,186.

Mr. Hagedorn asked where this would be stored. Mr. Morton replied it could be stored in an outbuilding at the existing Public Works Facility on Holman.

Mrs. McElfresh moved to authorize a five-year lease purchase with Ohio CAT for a Mini-Excavator for the total amount of \$96,186; seconded by Mr. Hagedorn. Voice vote. Motion carried.

Consideration of Motion authorizing a five-year lease purchase with Ohio CAT for a Rubber Tire Front-end Loader in the amount of \$272,801.

Mr. Hagedorn inquired as to the storage of this piece of equipment. Mr. Morton advised that it would also be stored inside a building.

Mrs. McElfresh moved to authorize a five-year lease purchase with Ohio CAT for a Rubber Tire Front-end Loader in the total amount of \$272,801; seconded by Dr. Clark. Voice vote. Motion carried.

Consideration of Motion accepting the October, November, and December 2024, Finance Reports as submitted.

Mrs. McElfresh moved to accept the October, November, and December 2024, Finance Reports as submitted; seconded by Mr. Wagner. Voice vote. Motion carried.

Consideration of Motion requesting a hearing for the issuance of a C1 and C2 Liquor Permit to Philly Petroleum LLC.

No action taken.

Administrative Reports

Mrs. McElfresh moved to adjourn into executive session to discuss details relative to the security arrangements and emergency response protocols for a public body or public office; seconded by Mr. Hagedorn. Roll call vote: six ayes. Motion carried.

Council adjourned into executive session at 6:54 p.m.



Mrs. McElfresh moved to reconvene into regular session; seconded by Mr. Hagedorn. Voice vote. Motion carried.

Council reconvened into regular session at 8:04 p.m.

Adjournment

Mrs. McElfresh moved to adjourn the regular meeting of Council; seconded by Mr. Hagedorn. Voice vote. Motion carried.

The regular meeting of Council adjourned at 8:04 p.m.

Respectfully submitted,

Angela S. Wasson, MMC
Clerk of Council

ORDINANCE NO. 2025-02

AN ORDINANCE AMENDING AND SUPPLEMENTING SECTIONS 286.08 AND 286.09 OF THE CODIFIED ORDINANCES TO CHANGE THE PLANNING, ZONING, AND BUILDING PERMIT FEES.

WHEREAS, as best practice the City's residential, commercial, and zoning permit fee schedules should be reviewed annually to stay up to date with the costs associated with professional services, Consumer Price Index-Urban Consumers inflation rates, and staff time.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF MONROE, STATE OF OHIO, THAT:

SECTION 1: Section 286.08 of the Codified Ordinances is hereby amended and supplemented to read as follows:

“286.08. Planning and Zoning Code.

Fees for applications and requests under the provisions of this Planning and Zoning Code shall be as follows:

Subdivisions: (Residential and Commercial)

A. Minor Subdivision (3-5 lots, excluding extension of construction of public roadway)

Site Plan Review	\$75/lot
Construction Drawings Review and Site Inspections	1.5% of Engineers Estimate
Bonds (Performance/Maintenance)	Based on Engineers Estimate
Amendments to Plat (prior to recording of original submission)	50% of original site plan review fee

B. Major Subdivision (6 lots and above and/or extension or construction of public roadway)

Preliminary Plat Review	\$75/lot
Construction Drawings Review and Site Inspections	1.5% of Engineers Estimate
Bonds (Performance/Maintenance)	Based on Engineers Estimate
Final Plat Review	\$75/lot
Amendments to Preliminary or Final Plat (prior to recording of original submission)	50% of original preliminary plat review fee

Site Plan Review

Residential:

Site Plan review for detached single unit dwelling (new construction) \$100.00

Site Plan review for all other housing types (new construction), per unit \$80.00

Commercial:

Review and inspection fees (based upon estimated real property improvement value, not including land):

\$0 to \$250,000.00 - \$3,200.00

\$250,001.00 to \$500,000.00 - \$4,300.00

\$500,001.00 to \$1,000,000.00 - \$6,500.00

\$1,000,001.00 to \$10,000,000.00 - \$7,600.00

\$10,000,001.00 to \$20,000,000.00 - \$9,800.00

\$20,000,000.00 to \$50,000,000.00 - \$11,000.00

\$50,000,001.00 and over - \$21,000.00

plus \$0.01 per square foot of structure

Subject Matter Experts

When any application has been submitted to the City for permits, certificate, or approval that involves the submission of technical information by the applicant, it is recognized that the City may need to incur expenses for the expertise of engineers and other subject matter experts to evaluate such technical data. As a condition of the City agreeing to consider any such application, the applicant must agree to reimburse the City at once for any such expenses. That reimbursement must be received by the City before any such permit, certificate or approval is issued. Services for subject matter experts may include but are not limited to engineering reviews, engineering studies and/or reports (related to traffic and storm water), inspections, GIS surveying and mapping of improvements, and legal services.

Development Agreements

When an application has been submitted requiring a development agreement, the City and the applicant shall establish a Memorandum of Understanding for the creation of the development agreement in accordance with section 1205.12 of the Planning and Zoning Code. As a condition of the City agreeing to consider any such application requiring a development agreement, the applicant must agree to reimburse the City at once for any such expenses related to the creation of the development agreement. Expenses may include but are not limited to services for legal and engineering reviews. Said reimbursement must be received by the City before any such permit, certificate, or approval is issued.

Planned Unit Development

Planned Unit Development \$500.00 (Residential and Commercial)

Planned Unit Development Amendments \$500.00

When an application has been submitted to the City for a Planned Unit Development, a development agreement shall be created. The City and the applicant shall establish a Memorandum of Understanding for the creation of the development agreement in accordance with section 1205.12 of the Planning and Zoning Code. As a condition of the City agreeing to consider any such application, the applicant must agree to reimburse the City at once for any such expenses

related to the creation of the development agreement. Expenses may include but are not limited to legal and engineering reviews. Said reimbursement must be received by the City before any such permit, certificate or approval is issued.

Signage

\$75.00 (permanent or face change)

Zoning

Zoning Map or Text Amendment \$500.00

Home occupation (non-profit organizations shall be exempt from a permit fee) \$75.00

Accessory use or structure zoning review \$30.00

Zoning review for new business/use \$100.00

Fence permit \$30.00 (residential and commercial)

Temporary Use \$30.00

Addition/Extension \$100

Certificate of Zoning Compliance

- Residential \$100.00 plus \$0.01 per sq. ft.
- Commercial/Industrial \$200.00 plus \$0.01 per sq. ft.

Zoning Verification \$50.00

Variance:

- Residential/Agricultural \$300.00
- Commercial/Industrial \$500.00

Conditional Use \$300.00

Lot consolidation or lot split:

- 2 lots (Residential and Commercial), excluding construction of public roadway. \$50.00

Demolition

- Residential \$50.00
- Commercial \$100.00

Administrative Appeal to the Board of Zoning Appeals \$300.00

Administrative Adjustment \$50.00

Public hearing notification Total Actual cost of publication and mailing”

SECTION 2: Section 286.09 of the Codified Ordinances is hereby amended and supplemented to read as follows:

“286.09. Building permit fees.

- (a) One-, Two- and Three-Family Residential Building permit applications shall be accompanied by a fee of \$260.00.
- (b) Residential building permit applications (other than (a) above) shall be accompanied by a fee of \$100.00.
- (c) Commercial building permit applications shall be accompanied by a fee of \$500.00.
- (d) The commercial building plan and inspection fee scheduled shall be based upon the following schedule:

Commercial and industrial buildings (OBC)		
Minimum building fee		\$500.00
Use groups A-Assembly, B-Business, E-Education, I-Institutional, M-Mercantile and R-Residential (excluding 1, 2 and 3 family structures) per the Ohio Building Code		
Structural fees:		
Base Fee		\$275.00
New construction/addition	multiply the sq. ft. times	\$0.45
Or, partial permits:		
Footing/foundation	multiply the sq. ft. times	\$0.17
Shell	multiply the sq. ft. times	\$0.17
Interior finish	multiply the sq. ft. times	\$0.20
Use groups F-Factory, H-High Hazard, S-Storage and U-Utility/Miscellaneous Per Ohio Building Code		
Structural Fees:		
Base Fee		\$275.00
New construction/addition	multiply the sq. ft. (up to 100,000 sq. ft.) times	\$0.25
Multiply sq. ft. of the portion of building over 100,000 sq. ft.		\$0.17
Or partial permits:		
Footing/foundation	multiply the sq. ft. (up to 100,000 sq. ft.) times	\$0.15
Multiply sq. ft. of the portion of building over 100,000 sq. ft.		\$0.12
Shell	multiply the sq. ft. times	\$0.15
Multiply sq. ft. of the portion of building over 100,000 sq. ft.		\$0.12
Interior finish	multiply the sq. ft. of finished area times	\$0.07
Multiply sq. ft. of the portion of building over 100,000 sq. ft.		\$0.07
Warehouses without changes after shell approval		\$500.00 + plan review fee
Electrical fees: minimum base fee		\$275.00 plus \$6.50 per 100

		sq. ft. of total floor area
Vehicle Charging		\$275.00 plus \$175.00 for additional changes on same permit
Electric for Solar Panels		\$275.00 plus \$5.00 per panel
Mechanical fees: Use groups A.B.E.I.M.R. minimum base fee		\$275.00 plus \$6.50 per 100 sq. ft. of total floor area
For Use Groups F, H, S, U,		\$275.00 plus \$200.00 per unit (no duct work)
If adding duct work to existing shell approval		\$275.00 plus \$3.00 per sq. ft. of duct work
Fire suppression fees: minimum base fee		\$275.00 plus \$6.50 per 100 sq. ft. of total floor area
Fire alarm fee: minimum base fee		\$275.00 plus \$6.50 per device
Minor alteration: per each type of permit		\$100.00 (Bldg, Elec, HVAC, Gas, Fire Protection)
Permanent signs: under 30 sq. ft.	structural	\$100.00
	electrical	\$100.00
Over 30 sq. ft.	structural	\$185.00
	electrical	\$185.00
Demolition permit: per building		\$100.00
Special inspection		\$100.00
Re-inspection fee		\$100.00
Permit renewal fee		\$100.00
Certificate of occupancy		\$300.00
Temporary certificate of occupancy		\$500.00

Occupying without certificate of occupancy	\$500.00
Commercial plan review fees: per hour	\$80.00
Commercial revision fee (base fee plus plan review fees)	\$200.00
Starting work without permits	\$200.00 or double the fees, whichever is greater.
Unspecified permit fee—For any permit type, not specifically listed in this fee schedule, the fee shall be calculated to the most similar permit type at the discretion of the Building Official.	
Board assessment	
Pursuant to Ohio R.C. 3781.102(F)(1) an assessment equal to three (3) percent of those fees imposed for plans and specifications and inspection approvals in connection with non-residential buildings shall be collected and remitted to the Ohio Board of Building Standards.	

- (e) The residential building plan and inspection fees shall be based upon the following schedule:

Residential One, Two and Three Family Buildings (RCO):	
Building fees:	
Base fee—New homes, additions and alterations	\$100.00 plus \$0.35 per sq. ft.
Electric fees:	
Base fee:	\$100.00 plus \$0.06 per sq. ft.
Construction temporary	\$100.00
Service entrance only	\$75.00
Service and additional wiring	\$100.00
Swimming pool	\$100.00
Electric Vehicle Chargers	\$100.00
Generator	\$100.00
Solar Array (Bldg. and Electric)	\$90.00 plus \$6.00 per panel

Solar Array with Battery Storage	\$125.00 plus \$6.00 per panel
Mechanical (HVAC) Fees:	
Base fee: new, addition, remodel	\$100.00 plus \$0.05 per sq. ft.
Each additional unit	\$50.00
Duct extension only	\$50.00
Replacement heating and A/C (combined)	\$100.00
Replacement heating or A/C	\$75.00
Gas piping inspection	\$75.00
Accessory structure fees:	
120 sq. ft. or less	No permit required
121 sq. ft. or greater	\$100 + \$0.25 per sq. ft.
Decks	\$100.00 + \$0.25 per sq. ft.
Swimming pools	\$100.00
Demolition permit:	
Per building	\$80.00
Administrative fees:	
Permit renewal fee	\$100.00
Re-inspection fee (3 rd and subsequent)	\$90.00
Special inspection	\$75.00
Residential revision fee	\$150.00
Minor revision	\$80.00
Certificate of occupancy	\$100.00
Copy set of residential plans/re-stamp plans	Actual Cost
Occupying without certificate of occupancy	\$500.00
Missed inspection	\$150.00
Temporary certificate of occupancy (30 days)	\$125.00
Starting work without permits	\$100.00 or double the fees, whichever is greater.
Non-permit inspection request	\$80.00
Temporary Tent 400-699 sq. ft with sides	\$80.00 plus 0.15 per sq. ft.

Temporary Tent 700 sq. ft or more with or without sides	\$100.00 plus 0.12 per sq. ft.
Fence over six feet tall	\$75.00
Board assessment	
Pursuant to Ohio R.C. 3781.102(F)(2) an assessment equal to one (1) percent of those fees imposed for plans and specifications and inspection approvals in connection with residential buildings shall be collected and remitted to the Ohio Board of Building Standards.	

(f) Special building permit fees.

- (1) A fee of \$816.14 per single-family residence will be charged at the time a new building permit is issued. This is to be a one-time fee charged only on the initial permit for the dwelling.
- (2) A fee of \$816.14 per individual family unit will be charged on all building permits for new multi-family construction.
- (3) A fee of \$816.14 will be charged on each commercial and industrial building permit at the time of issuance. This fee will be charged only once for each structure.

Effective January 1, 2009, and every January 1 thereafter, the fees required in division (a) of this section shall be increased by the annual CPI-U inflationary index as published by The United States Bureau of Labor Statistics.”

SECTION 3: This measure shall take effect and be in full force from and after earliest period allowed by law.

PASSED: _____

ATTEST:

APPROVED:

Clerk of Council

Mayor

First Reading: _____

RESOLUTION NO. 16-2025

A RESOLUTION AUTHORIZING THE CITY MANAGER TO ENTER INTO A PROFESSIONAL SERVICES AGREEMENT BY AND BETWEEN THE CITY OF MONROE AND FISHBECK ENGINEERING TO PROVIDE PROFESSIONAL FLOODPLAIN MANAGEMENT SERVICES.

WHEREAS, Council deems it necessary to obtain the services of Fishbeck Engineering to provide professional floodplain management services to remain in compliance with the Federal Emergency Management Agency and National Flood Insurance Program.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF MONROE, STATE OF OHIO, THAT:

SECTION 1: The City Manager is hereby authorized to enter into a professional services agreement by and between the City of Monroe and Fishbeck Engineering to provide professional floodplain management services. The terms and conditions of said agreement are set forth on Exhibit "A" attached hereto and made a part hereof.

SECTION 2: This measure shall take effect and be in full force from and after its passage pursuant to Section 7.08 (C) of the Charter.

PASSED: _____

ATTEST:

APPROVED:

Clerk of Council

Mayor

CITY OF MONROE

PROFESSIONAL SERVICES AGREEMENT

Floodplain Management Services

This Professional Services Agreement (the "Agreement") is made and entered into on February ____, 2025, by and between the City of Monroe, Ohio, an Ohio municipal corporation with an address of 233 South Main Street, Monroe, Ohio 45050 (the “City”) and Fishbeck Engineering, a Michigan Corporation, with an address at 10856 Reed Hartman Highway, Suite 175, Cincinnati, Ohio 45242 (the “Consultant”).

- A. The City desires that Consultant provide the Services, as defined below, on a nonexclusive basis, on the terms and conditions stated herein.
- B. The Consultant desires to provide the Services to the City, on the terms and conditions stated herein.
- C. The City and the Consultant hereby agree that the Consultant shall provide the City with the Services, and the City shall compensate the Consultant for the same, pursuant to the terms and conditions of this Agreement.

1. SCOPE OF SERVICES

The Consultant agrees to provide professional floodplain management services (the “Services”) to the City in accordance with FEMA requirements for the National Flood Insurance Program (NFIP), including but not limited to:

1.1. Permit Review and Development

- Review all development permits within Special Flood Hazard Areas (SFHAs) within ten (10) business days of receipt
- Provide written responses to all requests to both the City and the requesting party within the ten (10) business day period
- Ensure compliance with local floodplain management ordinances
- Verify elevation requirements for new and substantially improved structures
- Maintain records of permits and elevation certificates

1.2. Administration and Coordination

- Serve as the designated floodplain manager for the City
- Coordinate with state and federal agencies
- Represent the City during Community Assistance Visits
- Maintain and update community floodplain management regulations

1.3. Technical Services

- Interpret Flood Insurance Rate Maps (FIRMs) and flood studies
- Process Letters of Map Change
- Conduct substantial damage/improvement determinations
- Perform site inspections for ordinance compliance

1.4. Public Assistance

- Provide technical assistance to property owners and developers
- Respond to public inquiries regarding flood risks and requirements
- Maintain public information regarding floodplain management

2. TERM

2.1. This Agreement shall commence on March 1, 2025, and continue for twelve (12) months, ending on February 28, 2026.

3. COMPENSATION

3.1. Administrative Allowance: The City agrees to an annual allowance of up to twelve thousand dollars (\$12,000.00) to administer the City's floodplain records. This allowance shall be billed monthly at hourly rates not exceeding one thousand dollars (\$1,000.00). Administrative services covered by this allowance include:

- Updates to FEMA maps and documentation
- Maintaining City compliance with all FEMA regulations
- General floodplain management administration
- Record keeping and documentation maintenance
- Regulatory compliance monitoring and updates

3.2. Review Services All floodplain reviews shall be billed separately from administrative services at the hourly rates listed on the attached rate schedule.

- These review services shall be invoiced individually per review to allow the City to forward costs to the requested party.

3.3. Invoicing Requirements

- Administrative work shall be invoiced monthly to development@monroeohio.gov
- Individual reviews shall be invoiced separately to development@monroeohio.gov
- All invoices shall be directed to: City of Monroe Department of Development 233 South Main Street Monroe, Ohio 45050 Email: development@monroeohio.gov

3.4. The Consultant shall be solely responsible for all the costs of obtaining and maintaining the required certifications, training, and professional development for the floodplain manager and any support staff. The City shall not reimburse any training, certification, or professional development expenses.

4. QUALIFICATIONS AND PERSONNEL

4.1. The Consultant shall maintain qualified personnel knowledgeable about FEMA regulations, local floodplain ordinances, and NFIP requirements.

4.2. Key personnel assigned to this project shall maintain appropriate certifications and training throughout the contract period. The Consultant shall provide copies of all current certifications for the designated floodplain manager to the City annually, no later than January 31 of each year, or within 30 days of any certification renewal or update. This documentation shall include, but is not limited to:

- ASFPM Certification (if applicable)
- State-specific floodplain management certifications
- Relevant professional engineering licenses
- Documentation of completed continuing education requirements
- Any other certifications relevant to floodplain management

5. DELIVERABLES

5.1. The Consultant shall provide:

- Monthly activity reports
- Copies of all permit reviews and determinations
- Documentation of inspections and violations
- Updated floodplain management records
- Annual report of activities and recommendations
- Annual submission of all current certifications and training documentation for the designated floodplain manager

6. INSURANCE AND LIABILITY

6.1. The Consultant shall maintain:

- Professional Liability Insurance: \$1,000,000 per occurrence
- General Liability Insurance: \$2,000,000 aggregate
- Workers' Compensation Insurance as required by law

6.2. The City shall not be liable to the other for any incidental, indirect, or consequential damage arising out of this Agreement, which shall include, without limitation, loss of use or profits. Except for one's willful misconduct, the City and Consultant agree that City's employees, officers, directors, and agents will not be personally liable for any damages arising from this Agreement.

6.3. The Consultant will indemnify and hold the City harmless from any third party claim, damage, or liability for injury or loss sustained by any third party, for which the City is legally obligated to pay, to the extent caused by the Consultant's negligence.

7. TERMINATION

7.1. Either party may terminate this Agreement with 30 days written notice.

7.2. The Consultant shall transfer all records and files to the City upon termination.

8. GOVERNING LAW/VENUE

8.1. This Agreement shall be governed by and construed in accordance with the laws of the State of Ohio, without regard to conflicts of law principles.

8.2. Any action brought under this Agreement shall only be brought in a court of competent jurisdiction located in Warren County, Ohio.

9. SIGNATURES

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date first above written.

CITY OF MONROE, OHIO

By: _____

Title: _____

Signature: _____

Date: _____

FISHBECK ENGINEERING

By: _____

Title: _____

Signature: _____

Date: _____

Understanding Financing Options Used for Public Infrastructure

➔ A PRIMER



**PUBLIC
FINANCE
NETWORK**



About the **Public Finance Network**

Formed in 1988, the Public Finance Network is a coalition of organizations united to preserve state and local government use of tax-exempt bonds. The Network represents the wide array of local and state government financing and infrastructure activities. The Public Finance Network is administered by the GFOA and its Director of the Federal Liaison Center, Emily Brock.

For information about the Network and financing issues, contact any of its members, listed in Appendix C, call 202-393-8467 or write to 660 North Capitol St., NW, Suite 410 Washington, D.C. 20001.



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INTRODUCTION

Understanding Financing Options Used For Public Infrastructure (the “Primer”) provides an overview of tax-exempt bonds and other financings used by state and local governments and public entities.

The Primer covers numerous issue areas related to tax-exempt financings. These sections include:

- » **The fundamentals of tax-exempt bonds** and other financing tools that are available to state and local governments and related entities;
- » **The role tax-exempt bonds play** in infrastructure financings and as an investment product;
- » **Congressional actions** over the past fifty years related to this market

This Primer was prepared in coordination with several members of the Public Finance Network (PFN). The PFN is a coalition of organizations interested in preserving the tax-exempt status of state and local government bonds. A list of some PFN members and contact information appears in Appendix C.

FUNDAMENTALS OF THE TAX-EXEMPT MARKET AND OTHER FINANCING STRUCTURES UTILIZED BY THE PUBLIC SECTOR

For over a century, state and local governments and public entities have depended on access to the capital market and issuance of tax-exempt bonds to provide for the nation’s infrastructure. Unlike the Federal Government that issues bonds (Treasures) to pay for operating expenses, state and local governments primarily issue bonds to pay for long term capital projects and longstanding infrastructure.

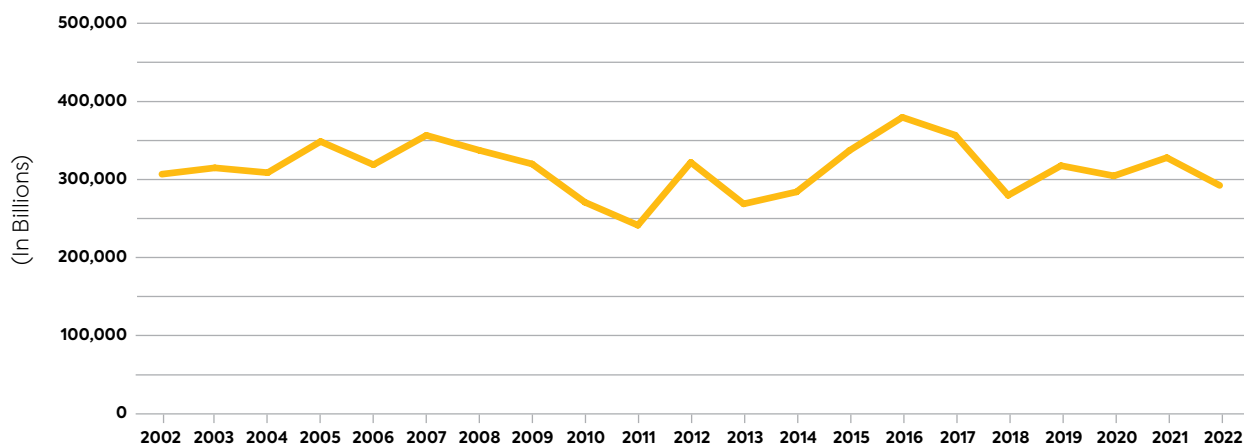
All citizens benefit from the issuance of tax-exempt bonds. Although the primary beneficiaries of a particular bond issuance are the citizens of the issuing community for a specific project, the nation as a whole has a vital interest in maintaining adequate public facilities to support a dynamic economy. The national interest is well served by keeping state and local government borrowing costs at the lowest cost to taxpayers, thereby providing an incentive for public investment in infrastructure and other facilities.

Over 50,000 state and local governments and public entities are able to issue tax-exempt bonds for key infrastructure in their communities at a lower cost, as the interest of the bonds is exempt from federal taxation to investors. **Tax-exempt bonds are a fundamental and important intergovernmental partnership between the Federal Government and communities.**

Bond Issuance

There are three main ways for state and local governments to finance capital projects: 1. pay-as-you-go financing, 2. using intergovernmental revenues such as federal and state grants, and 3. issuing bonds or securing other financing. Borrowing, or debt financing, is accomplished by issuing bonds or other debt to pay for specific projects or services. A bond is a debt instrument bearing a stated rate of interest that matures on a certain date, at which time a fixed sum of money plus interest is payable to the bondholder. Bonds are most often structured with a 20-30 year term to coincide with the useful life of the project. Governments establish payment structures and use platforms (typically through the use of trustee services) to ensure payments are made to investors in a manner that is timely and easy to manage.

Pursuant to federal and state laws, tax-exempt bonds may be issued by a state or local government. Tax-exempt bonds may also be issued by special units of government such as authorities, commissions, or districts to benefit other entities such as non-profit hospitals and colleges who cannot issue bonds themselves, a relationship called “conduit financing.”

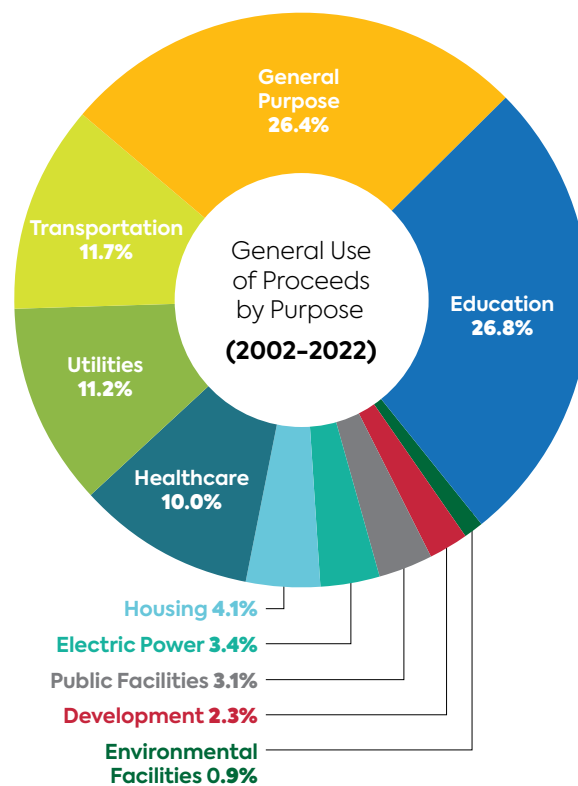
Exhibit 1. 20-Year History of Tax-Exempt Bond Issuance

SOURCE: THOMSON REUTERS, 1/10/2023

Entities issuing debt typically need the support of their communities when pursuing a bond measure. This allows the decisions on public infrastructure and capital improvement needs to be made at the level where the project impacts citizens directly (e.g., libraries, schools, roads and road improvements, water systems, mass transit, affordable housing, public and non-profit hospitals, and other government owned facilities). The entity must also abide by various federal laws and regulations at the time of and following the issuance of the bonds as well as numerous zoning, environmental, licensure and other regulatory requirements. They are the best way to implement the infrastructure needs of each community effectively, as the decision to issue bonds for various projects is determined and approved of by either the citizens themselves through bond referenda or by their elected legislative bodies directly or through appointed boards.

Snapshot of Tax-Exempt Bond Issuance and Projects Funded by Bonds

Long-term bonds to finance infrastructure are those that are issued with call or maturity dates of more than one year. The projects financed through tax-exempt bonds cover a multitude of public purposes that help communities across the country. Exhibit 2 provides an overview of the categories financed by long-term bonds from 2002-2022.

Exhibit 2. Projects funded by bonds by type and five year average

SOURCE: THOMSON REUTERS, 1/10/2023

PROJECTS FUNDED BY TAX-EXEMPT BONDS

The Tax-Exemption of Bond Interest

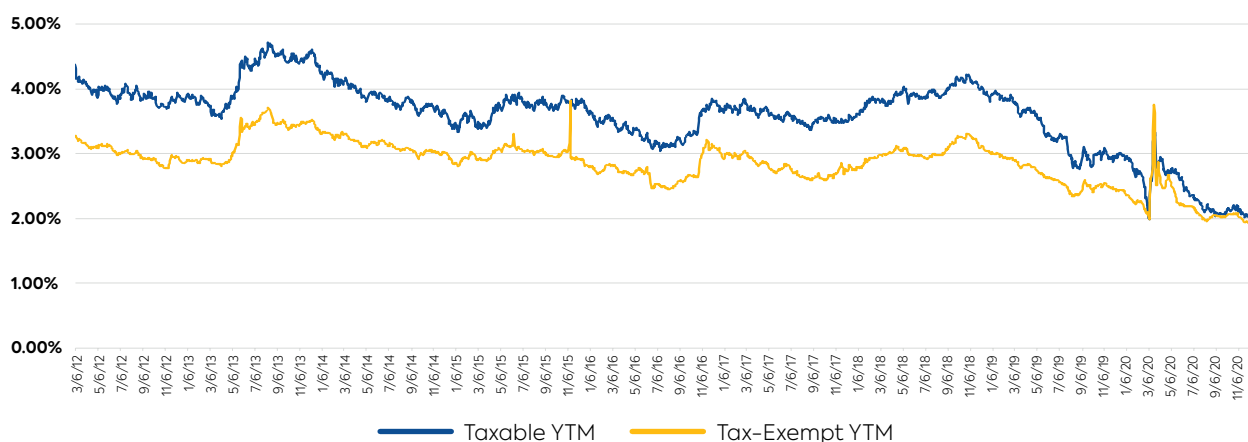
The exemption from income tax of tax-exempt bond interest existed prior to and was included in the country's first income Tax Code over a century ago. Today, the Internal Revenue Code in §103 and §141 through §150 specifies the rules for determining if a bond may be issued on a tax-exempt basis and severely restricts the issuance procedures and purposes—and in some cases the volume—of debt sold annually in each state.

Unlike corporate debt issues, the interest received by holders of tax-exempt bonds is exempt from federal income taxes and may also be exempt from state and local income taxes. Consequently, investors accept a lower interest rate on these investments. For over 100 years, this lower rate meant reduced borrowing costs for state and local governments, which directly benefits tax and rate payers. Even from a small snapshot comparing yield data as illustrated in Exhibit 3, it is clear that tax-exempt bonds are advantageous for state and local governments from a cost savings perspective.

The difference in savings between taxable and tax-exempt municipal bonds to the issuer is about 210 basis points, according to a 2025 data brief supported by municipal market participants.¹ In other words, if a community were offered a taxable borrowing rate of 5.5 percent, the decision to issue on a tax-exempt basis would be expected to drive the borrowing rate down by 2.10 percentage points to a new rate of 3.4 percent. Further, the data brief estimates the tax-exemption will save issuers and borrowers about \$823.92 billion between 2026 and 2035. Elimination of the tax-exemption would correspondingly raise borrowing costs \$823.92 billion, a cost that would be passed onto American residents and amount to a \$6,554.67 tax and rate increase for each American household over the next decade.

Tax-exempt bonds are generally categorized as one of two types—general obligation bonds or revenue bonds.² General obligation bonds are backed by the “full faith and credit” of the state or local government that issues the bonds. These typically would be

Exhibit 3. Comparison of Taxable and Tax-Exempt Yield to Maturity (2012–2020)



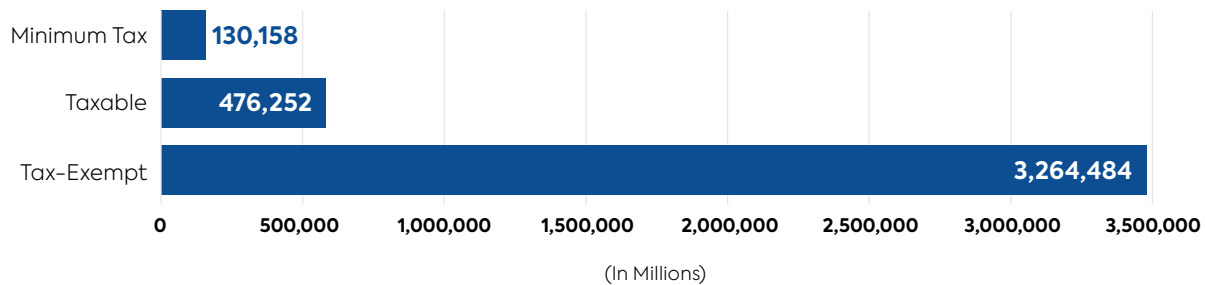
SOURCE: S&P DOW JONES INDICES, S&P MUNICIPAL BOND INDEX AND S&P TAXABLE MUNICIPAL BOND INDEX, 1/1/2021

¹ <https://www.gfoa.org/protecting-bonds>

² A complete discussion of types of bonds issued by state and local governments and entities can be found in Appendix A.



Exhibit 4. Bond Issuance Volume by Type, 2012 to 2022



SOURCE: THOMSON REUTERS, 1/10/2023

financings for fire stations, police stations, K-12 schools, and city halls. The general taxing authority of the jurisdiction is pledged to guarantee repayment of the debt on these different public facilities.

Revenue bonds are issued for a specific project or system, such as power, water and sewer, and are paid for from the revenues received from the project or system. One category of revenue bonds are qualified private activity bonds. These bonds finance a specified list of public purpose projects where use of the project and repayment of the bonds comes from a non-public source, such as airports, low income housing, and colleges and hospitals. For a time, issuers of tax-exempt debt were also able to issue two types of taxable bonds—tax credit bonds and direct subsidy bonds. The former were issued for specific types of projects prior to 2018. By investing in tax credit bonds, the investor received a federal tax credit and the issuer paid a lower interest rate. The

latter (including former Build America Bonds) were issued mostly from 2010-2012. With direct subsidy bonds, the issuing entity receives a payment from the Federal Government for part of the interest costs. Exhibit 4 illustrates the amount of bonds issued in each of these categories over the past 10 years.

What is a basis point?

A basis point is a way to talk about very small changes in percentages. If you split 1% into 100 pieces, each piece would be 1 basis point. So, if you have a savings account with an interest rate that goes from 2.00% to 2.50%, that's a change of 50 basis points.

The Nation's Infrastructure Needs Remain Critical

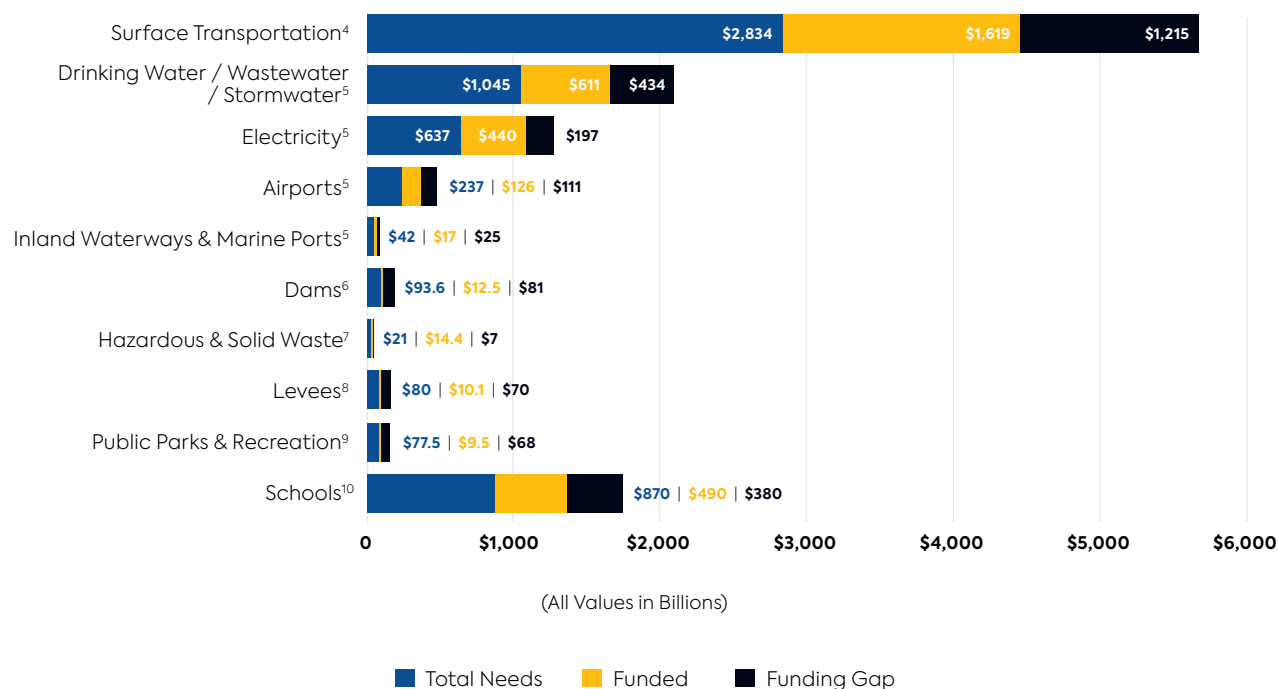
According to the 2021 Infrastructure Report Card by the American Society of Civil Engineers (ASCE), our nation's infrastructure earned a cumulative grade of C-.³ For the years 2020-2029, infrastructure spending needs are estimated to be \$5.9 trillion. However, the likely funding available for this infrastructure is \$3.4 trillion, leaving unmet infrastructure spending needs at \$2.6 trillion through 2025 (see Exhibit 5).

With the country's infrastructure needs being so great, it is important to note that the majority of these infrastructure costs have traditionally been borne by state and local governments and public entities.

Exhibit 6 illustrates the amount of public spending by level of government from 2002-2022.

Also as noted in Exhibit 6, the Federal Government's contributions to public construction spending has remained relatively constant especially over the past 20 years. This has increased pressure on state and local governments to provide for the initial infrastructure (mainly through the issuance of tax-exempt bonds as demonstrated in Exhibit 1), and to maintain the infrastructure throughout its lifecycle in order to best serve their communities.

Exhibit 5. ASCE Cumulative Infrastructure Needs by System Based on Current Trends, 2016–2025 (10 Years)



³ ASCE, 2021 Infrastructure Report Card at 4

Data taken from ASCE Failure to Act 2021 study + rail funding gap from ASLRRA

⁵ Data taken from ASCE Failure to Act 2021 study. www.asce.org/failuretoact

⁶ Includes estimates from ASDSO, USACE, U.S. Bureau of Reclamation, and FEMA

⁷ Data based on conversations with ASTSWAMO: RCRA Part C; Brownfield analysis; the Superfund funding information does not include DOE's Environmental Management program

⁸ Total needs numbers is based on discussions with the National Committee on Levee Safety

⁹ Estimates from National Parks Service; National Association of State Park Directors; City Parks, and National Association of State Park Directors

¹⁰ Data from State of our Schools: America's K-12 Facilities (2016). 21st Century School Fund, Inc., U.S. Green Building Council, Inc.

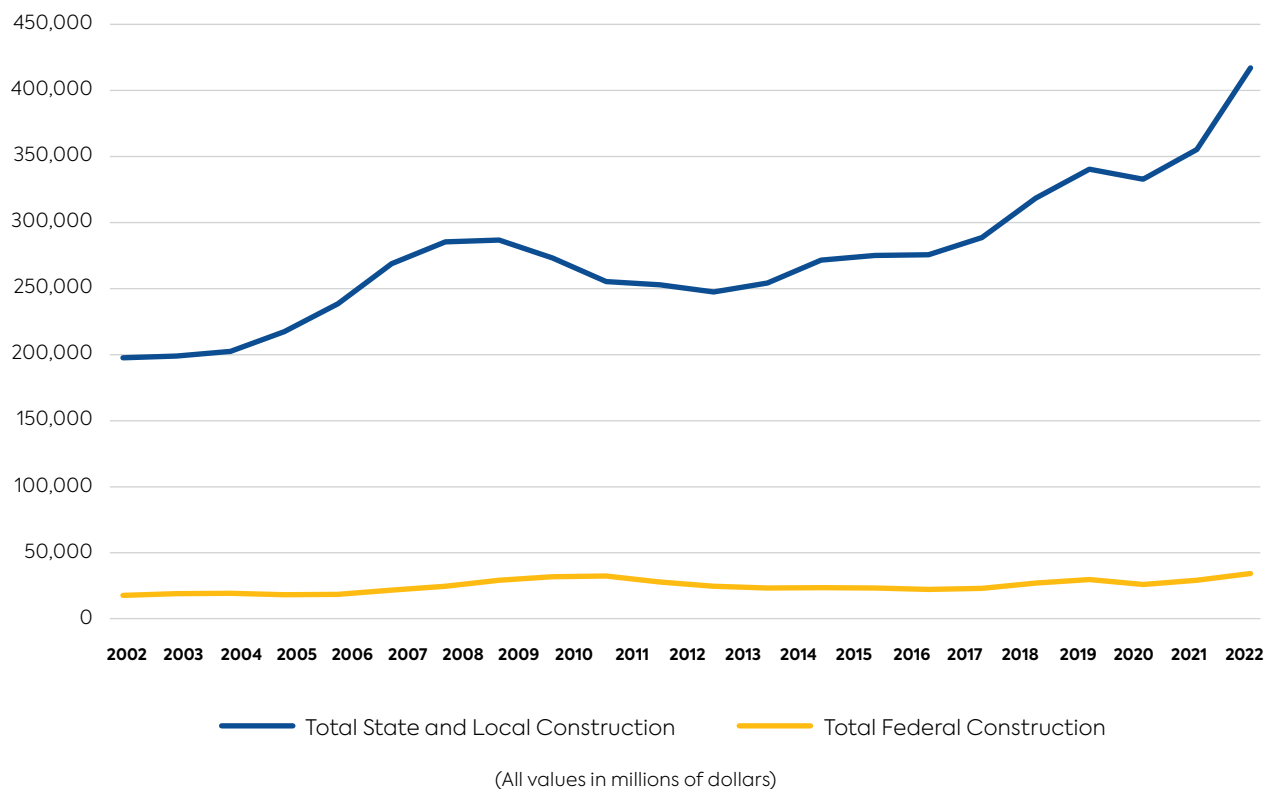
Public Construction: the State and Local Share

The construction projects that are paid for by tax-exempt bonds and other funding mechanisms is borne primarily by state and local governments. These projects not only serve to provide the capital improvements of specific communities, but also positively impact the national economy.¹¹

“Sustained infrastructure spending creates a progressively more productive economy. Because of cumulative effects through time, by 2030 infrastructure investments would produce economy-wide returns of close to \$3 per every \$1 invested.”

– **National Association of Manufacturers, 2014**

Exhibit 6. Annual Value of Public Construction Put in Place 2002–2023



SOURCE: GFOA ANALYSIS OF U.S. CENSUS BUREAU DATA ON PUBLIC CONSTRUCTION

¹¹ [Census Data on Public Construction](#)

RECENT FEDERAL INFRASTRUCTURE LEGISLATION

Infrastructure Investment and Jobs Act of 2021

One positive development regarding federal infrastructure spending, is that after a one-year extension, the 117th Congress managed to enact the next five-year surface transportation program – the Infrastructure Investment and Jobs Act (IIJA) of 2021 (aka the Bipartisan Infrastructure Law). However, the IIJA not only provided funding for the nation's surface transportation programs, it also provided over \$500 billion in new spending focused on upgrading roads and bridges, repairing and

improving water systems, and increasing access to broadband, plus many other areas of investment.

The IIJA provided a much needed boost in funding that complements the financing tools available to state and local governments and public entities. Further, the IIJA also included private activity bond enhancements by creating new categories as well as increasing the nationwide volume cap for qualified highway or surface freight transportation bonds (*see Appendix B for further details*).

Inflation Reduction Act of 2022

A year after passing the IIJA, the 117th Congress passed another historic infrastructure related bill, the Inflation Reduction Act of 2022 (IRA), which will invest \$370 billion over ten years to help lower energy costs, strengthen supply chains, and incentivize more investment in clean energy solutions across all sectors. It is important to note that there will be additional tax incentives offered for projects that will benefit low-income and disadvantaged communities.

There are over a dozen programs that will receive funding thanks to the IRA, and a few of them deserve to be highlighted, as they finally allow tax-exempt entities (e.g., cities, towns, etc.) to take advantage of renewable energy tax incentives. The Production Tax Credit (PTC) for energy property provides tax credits for projects that produce electricity from renewable sources and the Investment Tax Credit (ITC) provides a tax credit for investment in renewable projects more broadly.

Both the PTC and ITC offer credits through 2033 and will help localities finance clean energy projects more efficiently by complementing the municipal bonds typically used to start those projects. It should be noted, both PTC and ITC incorporate a reduction of up to 15% of the total credit amount if tax-exempt bonds are used to finance the acquisition or construction of eligible energy property or facilities.

Some of the other programs worth mentioning include the following:

- **Clean Commercial Vehicles Tax Credit:** a new direct pay provision that gives tax exempt entities a tax credit when they purchase a qualified commercial clean vehicle.
- **Greenhouse Gas Reduction Fund:** new competitive grants program administered by the Environmental Protection Agency intended to mobilize financing for clean energy and climate projects that reduce greenhouse gas emissions. There is \$27 billion available, of which \$15 billion must benefit low-income and disadvantaged communities.
- **Funding for Local Climate Resiliency Projects:** over \$4 billion in funding is available to help municipalities combat climate change by focusing on flooding, drought mitigation, and other climate resiliency related projects.

TAX-EXEMPT BONDS SERVE ANOTHER PURPOSE – SAFE INVESTMENTS FOR CITIZENS

Most tax-exempt bonds are purchased and held by individuals. At the end of 2016, of the more than \$3.8 trillion of tax-exempt bonds outstanding, 74% were held by individuals through direct investments and indirectly through mutual funds, money market funds, state and local government retirement plans, and related holdings.

As portrayed in Exhibit 8, more than half of all individuals claiming tax-exempt interest are over the age of 65. The fixed income needs and investment strategies of retirees underpins the fact that there remains strong constant demand for tax-exempt bonds. While there are many investment reasons and strategies for individuals to hold tax-exempt bonds, one of the key reasons is that they are historically very safe investments.

The tax-exempt bond sector has proven over and over again to be safe for investors. Since 2007, tax-exempt bonds have a five-year average default rate of 0.15%, while corporate bonds using the same criteria show 6.92%.¹² Exhibit 9 shows that municipal defaults since 1937, when the U.S. Bankruptcy Code was amended to include municipalities, pale in comparison to corporate defaults in 2020 alone.

General Federal Regulations and Municipal Obligations

The IRS has numerous sections of the Internal Revenue Code related to tax-exempt obligations. It specifies the determination of the tax-exempt status of bonds, when bonds can be refunded, and numerous other rules that issuers of tax-exempt bonds must adhere to under §103 of the Code in order to qualify as tax-exempt. Taxable bonds, tax credit bonds and direct subsidy bonds are also addressed in the Internal Revenue Code.

Tax-exempt bonds must also adhere to arbitrage regulations. This means that any amount of arbitrage (earnings on the investment of tax-exempt bond proceeds at a rate that exceeds the municipal bond yield) must be (painstakingly) calculated, and any earnings gained (with certain exceptions) rebated to the Federal Government.

Exhibit 7. 20 Year Average History of Holders of Municipal Securities

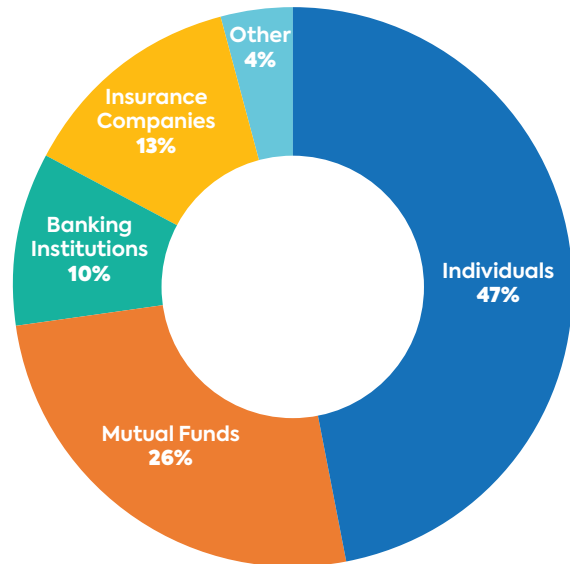
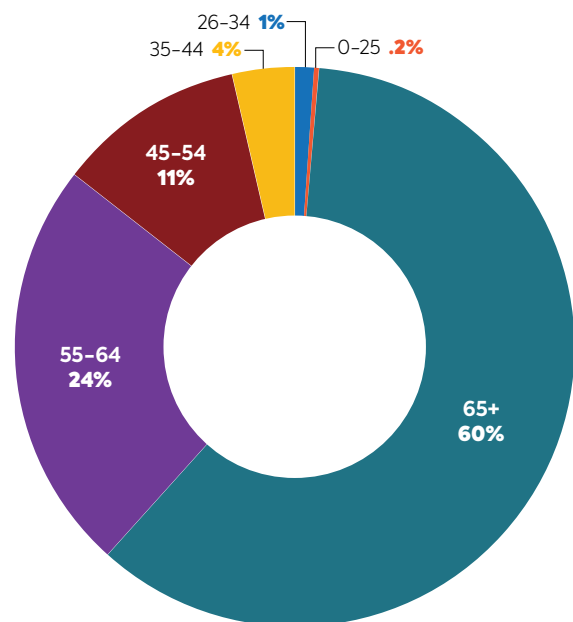
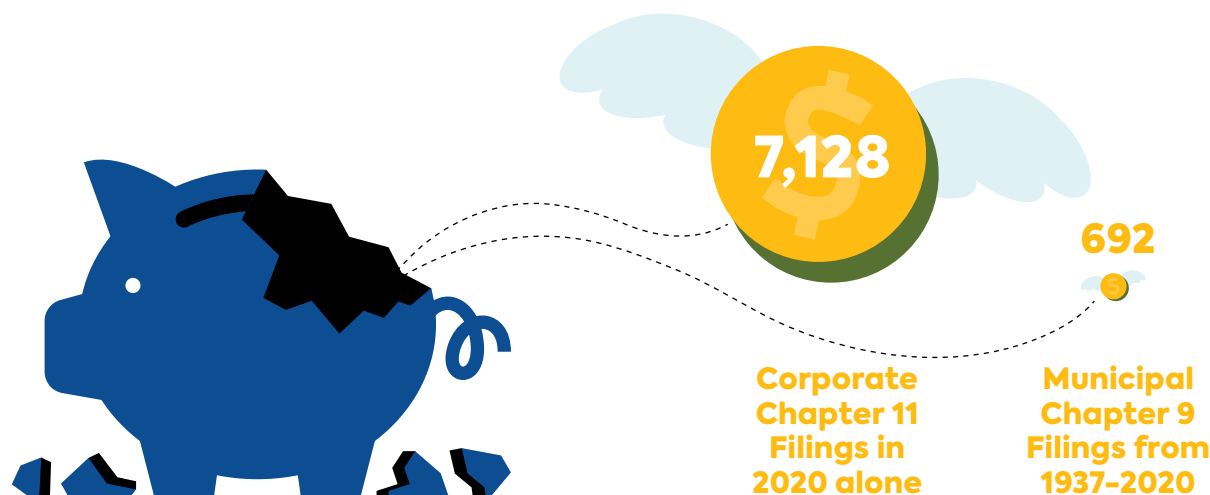


Exhibit 8. Retirees as Bond Holders



Number of Returns with Tax-Exempt Interest Deduction by Age Group, Tax Year 2018

¹² Moody's Investor Service, US Municipal Bond Defaults and Recoveries, 2017

Exhibit 9. Comparison of Defaults between Corporations and Municipalities

SOURCE: GFOA ANALYSIS OF AACER DATA, 1/1/2021

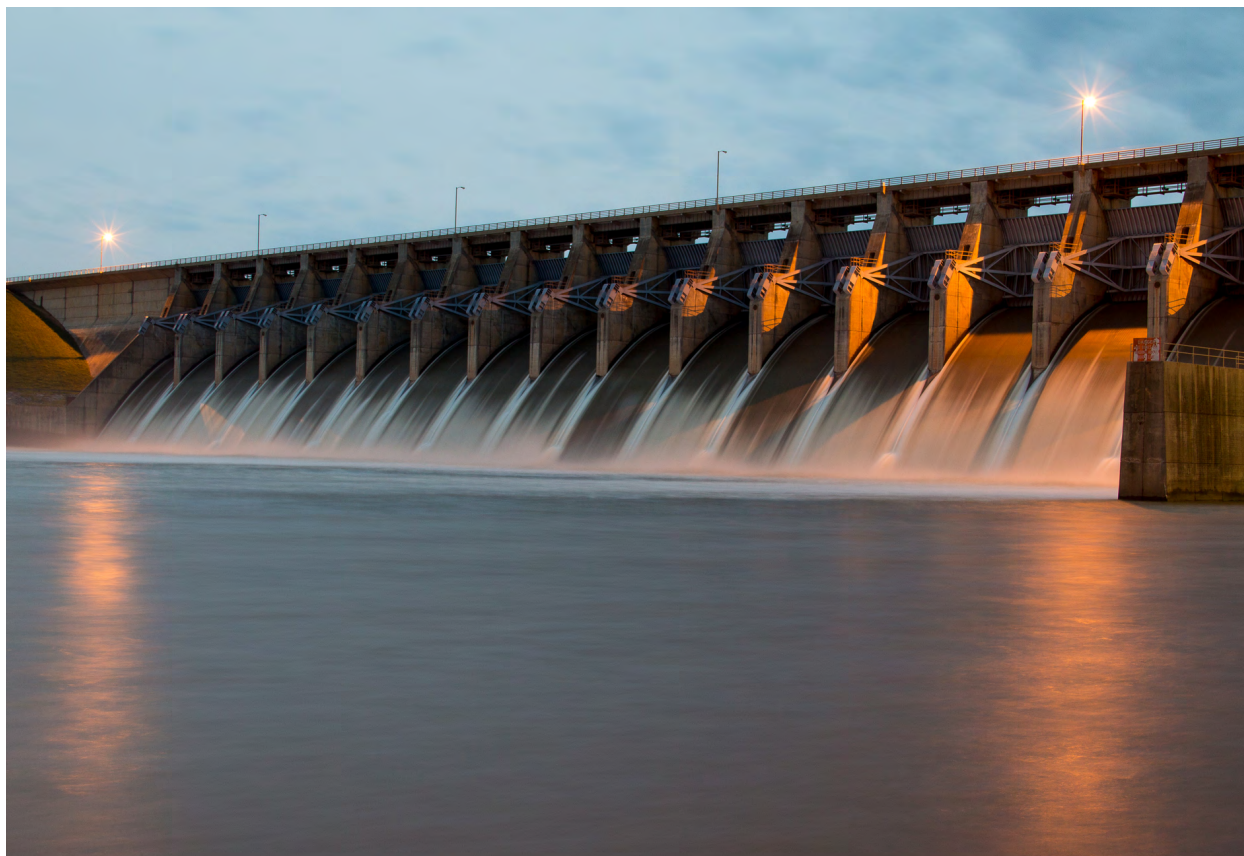
In keeping with principles of federalism that preserve state and local financial authority, municipal obligations issued by state and local governments are exempt from the Securities and Exchange Commission's (SEC) registration and reporting requirements that apply to corporations. However, the anti-fraud provisions of the Securities Exchange Act of 1934 (SEC Rule 10b-5) apply. Any person, including a municipal issuer, who makes false or misleading statements of material fact or omits any material fact that causes such statements to be misleading violates federal law.

To ensure that existing and potential bondholders have relevant financial and operating information about state and local governments that are issuing municipal bonds, state and local government issuers provide or disclose information about their bonds and/or about their governmental functions before, during, and after

issuing municipal obligations. Since certain municipal bonds are exchanged between buyers and sellers in the secondary market after a primary issuance (bond sale) has been completed, continuing disclosure information remains necessary for decisions being considered by investors in the municipal market. The securities laws related to these disclosures can be found in Rule 15c2-12 of the Securities Exchange Act of 1934.

Issuer disclosure practices continue to evolve and be enhanced. GFOA leads the Disclosure Industry Group that is a consortium of industry associations committed to developing market-based, not regulatory-based, solutions to meet issuer and investor needs. For example, in 2020, this group developed the General Continuing Disclosure Considerations for Municipal Securities that focuses on considerations related to COVID-19 pandemic disclosures.¹³

¹³ Available at <https://www.gfoa.org/gfoa-led-disclosure-industry-working-group-publishes>



CONCLUSION

Financing our country's infrastructure depends on a robust and reliable tax-exempt bond market. Allowing state and local governments to issue bonds in this affordable manner provides the capital for projects that are important to their communities—as well as for projects that benefit the country as a whole. Governments have issued bonds to pay for capital projects since the 1800s, and the interest on those bonds has been exempt since the country's first tax code was enacted.

In addition to being the financing source for which a majority of infrastructure projects are funded, tax-exempt bonds provide safe investment vehicles, with a

majority of owners being individuals, and many of those being retirees.

Utilizing tax-exempt bond financings is a win-win-win for the country, communities, and investors. Our country benefits by allowing for a robust capital market to flourish, our communities are able to build affordable infrastructure specifically related to their needs, and investors have a safe haven for their investment portfolios.

As our country's infrastructure needs continue to grow, maintaining tax-exempt bonds is essential to making that happen.

APPENDIX A: TYPES OF BOND ISSUANCES AND FINANCINGS

As noted previously, the two most common types of bonds issued are: **General Obligation** – bonds backed by the full faith and credit of the state or local government that issues the bonds. This means the general taxing power of the jurisdiction is pledged to guarantee repayment of the debt. The second type is **Revenue Bonds** – bonds issued for a specific project or system and paid for from the revenues received from the project or system.

There are other types of bonds and financings utilized by state and local governments and entities which are noted below. Most of the descriptions come from the Glossary developed by the Municipal Securities Rulemaking Board¹² and discuss the types of bonds as identified under the federal tax rules.

Bank Qualified Debt

This is the designation given to a public purpose bond offering by the issuer if it reasonably expects to issue in the calendar year of such offering no more than \$10 million (\$30 million for bonds issued in 2009-2010) of bonds of the type required to be included in making such calculation under the Internal Revenue Code. When purchased by a commercial bank for its portfolio, the bank may deduct a portion of the interest expense incurred to carry the position.

Private Activity Bonds (PAB)¹³

The proceeds of a PAB are used by one or more private entities. A municipal security is considered a private activity bond if it meets two sets of conditions set out in Section 141 of the Internal Revenue Code. A municipal security is a private activity bond if, with certain exceptions, more than 10 percent of the proceeds of the issue are used for any private business use (the “private business use test”) and the payment of the principal of or interest on more than 10 percent of the proceeds of such issue is secured by or payable from property used for a private business use (the “private security or payment test”). A municipal security is also a private activity bond if, with certain exceptions, the amount of proceeds of the issue used to make loans to non-governmental borrowers exceeds the lesser of 5 percent of the proceeds or \$5 million (the “private loan financing test”). Interest on private activity bonds is generally not excluded from gross income for federal income tax purposes unless the bonds fall within certain defined categories (“qualified bonds” or “qualified private activity bonds”), as described below. For some private activity bonds, the Federal Government sets an annual volume cap of how much each state can issue.

The following categories of private activity bonds are qualified bonds under current federal tax laws and can be issued on a tax-exempt basis if a variety of requirements are met:

Exempt facility bonds – Private activity bonds issued to finance various types of facilities owned or used by private entities, including airports, docks and certain other transportation-related facilities; water, sewer and certain other local utility facilities; solid and hazardous waste disposal facilities; certain residential rental projects (including multi-family housing revenue bonds); and certain other types of facilities. Enterprise zone and recovery zone facility bonds are also considered exempt facility bonds.

Qualified 501(c)(3) bonds – Private activity bonds issued to finance a facility owned and utilized by a 501(c)(3) organization, such as a college or hospital.

Qualified mortgage bonds – Private activity bonds issued to fund mortgage loans to finance owner-occupied residential property. Qualified mortgage bonds are often referred to as single family mortgage revenue bonds.

Qualified small issue bonds – Private activity bonds issued to finance manufacturing facilities. Qualified small issue bonds may be issued on a tax-exempt basis in an amount up to \$1 million, taking into account certain prior issues, or an amount up to \$10 million, taking into account certain capital expenditures incurred during the three years prior and the three years following the issuance of such bonds.

Qualified student loan bonds – Private activity bonds issued to finance student loans for attendance at higher education institutions.

Qualified veterans’ mortgage bonds – Private activity bonds that are general obligations of a state issued to fund mortgage loans to finance owner-occupied residential property for veterans. The ability of states to issue new and refunding qualified veterans’ mortgage bonds on a tax-exempt basis is limited.

Tax Credit Bonds

Tax Credit Bonds are taxable bonds issued by governmental entities that provide the investor with a credit on their taxes instead of interest payments. Prior to 2018, Congress authorized the credit amounts available to be issued for the following programs – *Qualified Zone Academy Bonds* (QZABs); *Qualified School Construction Bonds* (QSCBs); *Clean Renewable Energy Bonds* (CREBs) and *New Clean Renewable Energy Bonds* (NCREBs); and *Qualified Energy Conservation Bonds* (QECBs). However, all tax credit bond programs were eliminated as of 12/31/2017.

Direct Subsidy Bonds

While not currently permitted to be issued, in the past, Congress authorized governments to issue taxable direct subsidy bonds. These bonds allowed the government/issuing entity to receive a payment from the Federal Government for the life of the bond, covering a percentage of the interest costs. The largest direct subsidy bond program was Build America Bonds (BABs), which could be issued for most governmental purposes, and state and local governments received a subsidy equal to thirty-five percent (35%) of the interest paid on the bonds for the life of the bond. In many cases, BABs provided the issuer with a lower net interest cost on the financing compared with conventional tax-exempt bonds. The authority to issue new BABs expired at the end of 2010.

Other direct subsidy bond programs that are no longer available include Recovery Zone Economic Development Bonds (RZEDBs), which provided a 45% subsidy rate for qualifying governmental purpose projects.

Additionally, beginning in 2010 and continuing until applicable volume caps were used up, traditional tax credit bond programs—QZABs: Qualified Zone Academy Bonds, QSCBs: Qualified School Construction Bonds, NCREBs: New Clean Renewable Energy Bonds, and QECBs: Qualified

Energy Construction Bonds were permitted to be issued as direct subsidy bonds with various subsidy rates.

Subsequently, Congress has effectively reduced the subsidy amounts that were promised to issuers within the sequestration process.

Other Types of Financings

Direct Loans – A loan to a state or local government or entity from a banking institution or another lender. The obligations may constitute municipal securities.¹⁴

Public-Private Partnerships (P3) – A generic term for a wide variety of financial arrangements whereby governmental and private entities agree to transfer an ownership interest of, or substantial management control over, a governmental asset to the private entity in exchange for upfront or ongoing payments and/or services.¹⁵

Green Bonds – Bonds that are issued and whose proceeds are used for environmental benefits, and appeal to some investors. Of note, there is nothing in the tax code nor are there any federal laws related to green bonds.

Environment, Social and Governance (ESG) Bonds – Bonds that are issued and whose proceeds are used for various environmental, social and governance criteria, and appeal to some investors. Of note, there is nothing in the tax code nor are there any federal laws related to ESG bonds.

¹⁴ MSRB, Glossary of Municipal Securities Terms, 2013, www.msrb.org/glossary.aspx {with minor non-material edits}.

¹⁵ Ibid.

APPENDIX B: FEDERAL LAWS AFFECTING BOND FINANCINGS

Over the years, Congress has changed, added to, eliminated and even restricted the various types of bond financing options available to state and local governments and entities. The following summary outlines some of the major provisions of federal tax law since 1968 as they relate to tax-exempt bond financing.

Infrastructure Investment and Jobs Act of 2021 (Public Law 117-58)

This Act provided another five-year authorization of the nation's surface transportation programs, as well as a \$550 billion infusion of new spending focused on various infrastructure related sectors. The Act also introduced new private activity bond categories by allowing the issuance of tax-exempt PABs for qualified broadband projects and carbon dioxide capture facilities. Further, the Act increased the separate nationwide volume cap for qualified highway or surface freight transportation bonds from \$15 billion to \$30 billion.

Tax Cuts and Jobs Act of 2017 (Public Law 115-97)

The tax bill established into law on January 3, 2018 contains several provisions which directly impact state and local government bond issuance.

Advance Refunding of Municipal Bonds: To the surprise of many within the public issuer community, both House and Senate versions included a repeal of advance refunding bonds. Public issuers sought to fully preserve advance refunding, given the significant savings public issuers have historically experienced as a result. Unfortunately, the conference bill repealed advance refunding bonds after December 31, 2017 and provided no transition relief.

Tax Credit Bonds: Tax credit bonds are another important finance mechanism used by various public issuers that were also impacted by the conference bill. Initially, only the House version repealed the ability to issue tax-credit and direct-pay bonds, while the Senate retained current law. The conference bill prospectively repealed the authority to issue all tax credit and direct pay bonds, such as clean renewable energy bonds and qualified school new construction bonds, after December 31, 2017.

Revenue Provisions Contained in the American Taxpayer Relief Act of 2012 (Public Law 112-240)

The Act extended the ability to issue tax-exempt enterprise zone facility bonds and New York Liberty Zone bonds for two years, through December 31, 2013.

The Airport and Airway Trust Fund Provisions and Related Taxes in the FAA Modernization and Reform Act of 2012 (Public Law 112-95)

The Act amended the prohibition on the use of qualified

tax-exempt private activity bond proceeds for airplanes to exclude fixed-wing emergency medical aircraft.

Revenue Provisions of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (Public Law 111-312)

The Act extended for two years through December 31, 2011, the special \$15 million per-user bond limitation and the relief from resident and employee requirements for certain tax-exempt bonds issued in the District of Columbia Enterprise Zone.

The Act extended authority to issue New York Liberty Zone bonds for two years and Gulf Opportunity Zone Bonds for one year (both through December 31, 2011).

Revenue Provisions of the American Recovery and Reinvestment Act of 2009 (Public Law 111-5)

This law provided a de minimis safe harbor to allow financial institutions to hold up to 2 percent of their assets in tax-exempt obligations issued in 2009 and 2010 without full reduction of their attributable interest expense deductions. For bonds issued in 2009 and 2010, the law increased the annual volume limit from \$10 million to \$30 million for qualified small issuers and applies that limitation at the borrower level (rather than at the level of the conduit issuer).

Private activity bonds – and current refundings of private activity bonds – issued in 2009 and 2010 are exempt from the Alternative Minimum Tax.

The Act expanded the availability (through January 1, 2011) of PABs to facilities creating intangible property.

The Act creates a new category of exempt facility bonds, “Recovery Zone Facility Bonds”, to finance acquisition, construction, or reconstruction of depreciable property in a “recovery zone.” The Act provides several criteria of economic distress for qualifying as a “recovery zone.”

The Act allows Indian tribal governments to issue up to \$2 billion of “tribal economic development bonds” if such a bond would qualify as a tax-exempt bond if issued by a state or local government. Additionally, tribal economic bonds cannot finance gaming facilities, buildings containing gaming facilities, or any facility outside the Indian reservation.

The Act provides that for purposes of qualifying as an exempt facility PAB, a high-speed intercity rail transportation facility must use vehicles that are capable of attaining speeds in excess of 150 miles per hour, rather than using vehicles that are reasonably expected to operate at speeds in excess of 150 miles per hour.

Emergency Economic Stabilization Act of 2008, Energy Improvement and Extension Act of 2008, and Tax Extenders and the Alternative Minimum Tax Relief Act of 2008 (110-343)

The law extended the authority to issue qualified green bonds

through September 30, 2012, and the authority to issue qualified enterprise zone facility bonds through December 31, 2009.

It provided tax-exempt bond financing like Gulf Opportunity Zone Bonds with certain modifications to the Midwestern disaster area. Specifically, it allows the issuance of a certain type of qualified private activity bonds (called, “qualified Midwestern disaster area bonds”) to finance the construction and rehabilitation of certain residential and nonresidential property located in the Midwestern disaster area. Qualified Midwestern disaster area bonds must be issued before January 1, 2013. Depending on the purpose for which such bonds are issued, qualified Midwestern disaster area bonds are treated as either exempt facility bonds or qualified mortgage bonds. Bond issuance within a state is limited to \$1,000 multiplied by that state’s population. It eased first-time homebuyer rules for mortgage revenue bonds for residences in the Midwestern disaster area.

It provided tax-exempt bond financing like Gulf Opportunity Zone Bonds with certain modifications to Louisiana and Texas. Specifically, it allows the issuance of a certain type of qualified private activity bonds (called, “Hurricane Ike disaster area bonds”) to finance the construction and rehabilitation of certain residential and nonresidential property located in the Hurricane Ike disaster area. Hurricane Ike disaster area bonds must be issued before January 1, 2013. Depending on the purpose for which such bonds are issued, Hurricane Ike disaster area bonds are treated as either exempt facility bonds or qualified mortgage bonds. Bond issuance within each state is limited to \$2,000 multiplied by that state’s population.

The law waived certain mortgage revenue bond requirements for affected taxpayers and allows the bond proceeds to be used for rebuilding.

Housing and Economic Recovery Act of 2008 (Public Law 110-289)

The law provided that a multi-family refinancing bond is treated as a refunding notwithstanding a change in obligors under the first and second conduit loans. It conformed “next available unit,” full-time student, and single occupancy requirements for the low-income housing tax credit and tax-exempt bond qualified residential rental project rules. It waived annual recertification requirements under the low-income credit and tax-exempt bonds for any project as long as no residential unit in the project is occupied by tenants who fail to satisfy the otherwise applicable income limits.

It authorized an additional \$11 billion of volume cap for 2008 for the purpose of issuing qualified mortgage bonds or private activity bonds for qualified residential rental projects.

It created an exception to the new mortgage requirement for qualified mortgage bonds by authorizing the use of such bonds to refinance certain qualified subprime loans.

It exempted from the Alternative Minimum Tax interest paid on qualified residential rental program bonds, qualified mortgage revenue bonds, and qualified veterans’ mortgage bonds issued after July 30, 2008.

It waived the federal guarantee proscription for Federal Home Loan Bank guaranteed bonds issued after July 30, 2008, and before January 1, 2011, (i.e., these bonds are not proscribed from qualifying as tax-exempt.)

It waived mortgage revenue bond first-time homebuyer requirements for residences located in Presidentially declared disaster areas. In addition, residences located in such areas were treated as targeted area residences for purposes of the income and purchase price limitations. The provision applies to bonds issued after May 1, 2008 and before January 1, 2010.

It expanded the Gulf Opportunity Zone (for purposes of qualifying to issue Gulf Opportunity Zone Bonds) to include Colbert County, Alabama, and Dallas County, Alabama.

Heroes Earnings Assistance and Relief Tax Act of 2008 (Public Law 110-245)

The Act permanently extended the limited exception from the first-time homebuyer rule for veterans under the qualified mortgage bond program. The Act increases the annual limit on qualified veterans’ mortgage bonds that can be issued in Alaska, Oregon, and Wisconsin in years after 2009 to \$100 million. For 2008 and 2009, the \$100 million limit is phased in by applying the present-law applicable percentages for those years (i.e., 60 percent in 2008 and 80 percent in 2009).

With respect to qualified veterans’ mortgage bonds issued in California or Texas, the provision repeals the requirement that veterans receiving loans financed with qualified veterans’ mortgage bonds must have served before 1977 and reduces the eligibility period to 25 years (rather than 30 years) following release from military service.

Food, Conservation, and Energy Act of 2008 (Public Laws 110-234 and 110-246)

The law increased the maximum amount of qualified small issue bond proceeds available to first-time farmers from \$250,000 to \$450,000 and indexed this amount for inflation. The provision also eliminates the fair market value test when determining whether a farmer has previously owned “substantial farmland” and, so, does not qualify.

U.S. Troop Readiness Veterans’ Care, Katrina Recovery, and Iraq Accountability Appropriations Act, 2007 (Public Law 110-28)

The Act provided that qualified Gulf Opportunity Zone repair or reconstruction loans (financed with qualified mortgage revenue bonds and Gulf Opportunity Zone Bonds) are treated as qualified rehabilitation loans for purposes of

qualified mortgage bond rules and, as a result, may be used to acquire or replace existing mortgages, without regard to the “existing walls” or 20-year rule under present law.

Tax Relief and Health Care Act of 2006 (Public Law 109-432)

The law extended by two years (through 2007) the authority to issue qualified enterprise zone facility bonds by the District of Columbia.

It modified qualified mortgage bond requirements to allow financing of mortgages without regard to the first-time homebuyer requirement for certain veterans. It also made permanent Tax Increase Prevention and Reconciliation Act of 2005 changes to the definition of an eligible veteran and State volume limits for qualified veterans’ mortgage bonds issued by the States of Alaska, Oregon, and Wisconsin. The total volume of veterans’ bonds that can be issued in each of these three States is \$25 million for 2010 and each calendar year thereafter.

It made permanent the Tax Increase Prevention and Reconciliation Act of 2005 codification of the arbitrage exceptions for the Texas Permanent University Fund.

Tax Increase Prevention and Reconciliation Act of 2005 (Public Law 109-222)

The Act reversed the exclusion from taxpayer information reporting requirements for municipal bond interest payors. Instead, payors must file an information return with the Internal Revenue Service including the amount of interest paid and the name, address, and taxpayer identification number of every person to whom interest is paid in a calendar year.

The law also expanded the Qualified Veterans’ Mortgage Bond program to allow financing for more recent veterans – including active duty personnel – to qualify and increased the volume limit for such bonds in certain states, with all volume for new issuances for those states expiring after 2010.

It codified and extended through August 31, 2009, an IRS exception granted to certain arbitrage rules for the Texas Permanent University Fund.

It accelerated the application of the \$20 million capital expenditure limitation for qualified small issue bonds (from bonds issued after September 30, 2009, to bonds issued after December 31, 2006).

It imposed new requirements on pooled financing bonds. First, the provision imposes a written loan commitment requirement to restrict the issuance of pooled bonds where potential borrowers have not been identified (“blind pools”). Second, in addition to the current three-year expectations requirement, the issuer must reasonably expect that at least 30 percent of the net proceeds of the pooled bond will be loaned to ultimate borrowers one year after the date of issue. Third, the provision requires the redemption of outstanding bonds with proceeds that are not loaned to ultimate borrowers

within the required loan origination periods. Finally, the provision eliminates the rule allowing an issuer of pooled financing bonds to disregard the pooled bonds for purposes of determining whether the issuer qualifies for the small issuer exception to rebate.

It provided exceptions to service area limitation and local furnishing restrictions for bonds issued to finance the Lake Dorothy (Alaska) hydroelectric project or the acquisition of the Snettisham (Alaska) hydroelectric project.

Gulf Opportunity Zone Act of 2005 (Public Law 109-135)

The Act authorized the issuance of qualified private activity bonds to finance the construction and rehabilitation of residential and nonresidential property located in the Gulf Opportunity Zone (“Gulf Opportunity Zone Bonds”). Issuance of such bonds is limited in each affected state to \$2,500 times the population of that state. Depending on the purpose for which such bonds are issued, Gulf Opportunity Zone Bonds are treated as either exempt facility bonds or qualified mortgage bonds.

The law permitted an additional advance refunding of certain governmental and qualified 501(c)(3) bonds issued by the State of Alabama, Louisiana, or Mississippi, or their political subdivisions. It also permitted one advance refunding of certain exempt facility bonds for airports, docks, or wharves. Such refundings are subject to a state-by-state cap.

It created Gulf Tax Credit Bonds, proceeds from which were to repay bond debt outstanding prior to Hurricane Katrina. The maximum amount of Gulf Tax Credit Bonds that may be issued is \$200 million in the case of Louisiana, \$100 million in the case of Mississippi, and \$50 million in the case of Alabama.

It eased first-time homebuyer rules for mortgage revenue bonds for residences in the Gulf Opportunity Zone and extended the waiver of the first-time homebuyer requirement provided by the Katrina Emergency Tax Relief Act of 2005 to financing provided through December 31, 2010.

Katrina Emergency Tax Relief Act of 2005 (Public Law 109-73)

The law waives the mortgage revenue bond first-time homebuyer requirement for qualified Hurricane Katrina recovery residences. The provision also increased from \$15,000 to \$150,000, the permitted amount of a qualified home-improvement loan with respect to residences located in the Hurricane Katrina disaster area to the extent such a loan is for the repair of damage caused by Hurricane Katrina.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (Public Law 109-59)

The Act established a new category of exempt facility PABs to finance surface transportation projects receiving federal assistance, surface freight transfer facilities, and international bridge or tunnel projects. The Department of Transportation is authorized to allocate up to \$15 billion in such bonds. The

Act also provides that bonds issued by a state-acquired railroad real-estate investment trust (REIT) should be considered exempt from tax.

The Energy Policy Act of 2005 (Public Law 109-58)

This law created an exception from arbitrage restrictions for tax-exempt bond-financed prepayments by a governmental utility for supplies of natural gas to be sold to its retail customers. The exception also applies to prepayments by a governmental utility for natural gas to be used to generate electricity to be sold to its retail customers.

American Jobs Creation Act of 2004 (Public Law 108-357)

The Act increased the \$10 million capital expenditures limit for small-issue bonds to \$20 million.

It also created a new category of exempt-facility bond, the qualified green building and sustainable design project bond (“qualified green bond”). The bonds are exempt from state volume limitations. Rather, there is a national limitation of \$2 billion of qualified green bonds that the Secretary may allocate to qualified green buildings and sustainable design projects.

To Clarify the Tax Treatment of Bonds and Other Obligations Issued by the Government of American Samoa (Public Law 108-326)

The Act provided that in addition to the prior exemption from federal income tax, the interest on any obligation issued by the Government of American Samoa is exempt from State, local, and territorial taxes.

Working Families Tax Relief Act of 2004 (Public Law 108-311)

The Act extended authority to issue Liberty Zone bonds through December 31, 2009, extended additional advance refunding authority through December 31, 2005, and provided that bonds of the Municipal Assistance Corporation are eligible for advance refunding.

Job Creation and Worker Assistance Act of 2002 (Public Law 107-147)

The Act allowed the issuance in 2002 through 2004 of up to \$8 billion in tax-exempt private activity bonds called Liberty Zone Bonds to finance rebuilding of portions of New York City damaged in the September 11, 2001, terrorist attacks. To further ease reconstruction, the law allowed additional exceptions to private activity bond rules, including volume limits, certain restrictions on acquisition of existing property, arbitrage restrictions, and the alternative minimum tax. The law also allowed certain bonds (including governmental bonds and 501(c)(3) bonds) financing facilities located in New York City to be advance refunded one additional time.

Economic Growth and Tax Relief Reconciliation Act of 2001 (Public Law 107-16)

This law increased the additional amount of governmental bonds

for public schools that small governmental units may issue without being subject to the arbitrage rebate requirements from \$5 million to \$10 million. Thus, these governmental units may issue up to \$15 million of governmental bonds in a calendar year provided that at least \$10 million of the bonds are used to finance public school construction expenditures. The law also expanded the definition of a qualified facility eligible for private activity bond financing to include elementary and secondary public school facilities owned by private, for-profit corporations pursuant to public-private partnership agreements with a State or local educational agency. These bonds were subject to a separate volume limit equal to the greater of \$10 per resident or \$5 million.

Community Renewal Tax Relief Act of 2000 (Public Law 106-554)

This law accelerated scheduled increases in state volume limits on tax-exempt private activity bonds. Specifically, it increased State volume limits from the greater of \$50 per resident or \$150 million to the greater of \$62.50 per resident or \$187.5 million in calendar year 2001; and then to the greater of \$75 per resident or \$225 million in calendar year 2002. Beginning in calendar year 2003, the volume limits were adjusted annually for inflation.

Omnibus Appropriations Act of 1998 (Public Law 105-277)

This law included the first increase in private-activity bond volume caps since the 1986 Tax Reform Act. The current (1999) volume cap of \$50 per capita or \$150 million, whichever is greater, will be increased to the greater of \$55 per capita or \$165 million beginning in fiscal year 2003. The volume cap will then increase each fiscal year by \$5 per capita or \$15 million until fiscal year 2007, when it will reach the maximum level of \$75 per capita or \$225 million, whichever is greater. The volume cap will not be indexed for inflation thereafter.

The Taxpayer Relief Act of 1997 (Public Law 105-34)

This law included several provisions in the area of tax-exempt bonds.

It increases the small issuer arbitrage rebate exception from \$5 to \$10 million for qualified education facilities allowing up to \$5 million of additional bonds used to finance public school capital expenditures to be issued on a tax-exempt basis, after December 1, 1997. It waives certain mortgage revenue bond requirements and limitations in certain Presidentially declared disaster areas for bonds issued after December 31, 1996, and before January 1, 1999. It repeals the \$150 million cap on nonhospital 501(c)(3) bonds for new money issues.

It includes a package of simplification changes related to the \$100,000 arbitrage rebate limitation, debate on debt service funds, limitations on certain non-purpose investments, and repeal of expired provisions, effective after August 5, 1997.

Small Business Jobs Protection Act of 1996 (Public Law 104-188)

This legislation included three tax-exempt bond provisions. It made modifications to rules governing the issuance of tax-exempt bonds for first-time farmers; it modified the “two-county” bond rule for local furnishers of electricity and gas; and it authorized tax-exempt bonds for the purchase of the Alaska Power Authority.

Unfunded Mandates Reform Act of 1995 (Public Law 104-4)

The Act affects Congressional Budget Office cost estimates on bills impacting state and local government expenditures and revenue authority. Establishes a point of order against any reported bill estimated to cost state and local governments more than \$50 million (adjusted for inflation) per year for new mandate proposals that are not fully funded. Mandates are defined as enforceable duties imposing direct costs on state and local governments. Direct costs also include amounts state and local governments would be prohibited from raising in revenues.

Omnibus Budget Reconciliation Act of 1993 (Public Law 103-66)

This law contained several provisions that affect tax-exempt financing and the market for tax-exempt bonds.

It extended the mortgage revenue and small-issue industrial development bond programs permanently, retroactive to June 30, 1992, when they expired.

It authorized the designation of nine empowerment zones and 95 enterprise communities in economically distressed urban and rural areas. A new category of exempt-facility bonds could be used in the zones and enterprise communities to buy land, buildings, and equipment.

It extended the exemption from volume cap allocation to 100 percent of bonds for governmentally owned high speed intercity rail facilities (not including rolling stock).

This law also changed market discount rules so that market discount earned on tax-exempt bonds purchased after April 30, 1993, would be treated as ordinary income rather than capital gain as under previous law. Since ordinary income tax rates for many investors are higher than the capital gains rate, this change could have a negative impact on the demand for state and local government bonds.

Energy Policy Act of 1992 (Public Law 102-486)

This Act contained three provisions that affect tax-exempt financing.

The Act removed restrictions on investments of nuclear decommissioning funds (previously restricted to U.S. Treasury securities, bank deposits, and tax-exempt state and local government securities) and lowered the funds’ 34 percent tax rate to 22 percent in 1994 and 20 percent in 1996. The removal of restrictions on investments also removed an incentive for

the funds to purchase state and local government bonds.

Tax-exempt financing is permitted for local furnishing of electricity, previously limited to certain contiguous areas, to facilities that have been ordered by the Federal Energy Regulatory Commission to provide transmission (“wheeling”) services to other parties that generate electricity without violating the Internal Revenue Code’s local furnishing exception if no tax-exempt bond financing is provided for the non-local furnishing activities.

The Act also authorized a new type of exempt-facility bond for environmental enhancement of hydroelectric generation facilities that is not subject to the statewide volume cap, provided 80 percent of the net proceeds of each bond is used to finance property for the promotion of fisheries or other wildlife resources.

Tax Extension Act of 1991 (Public Law 102-227)

This Act extended the mortgage revenue bond and small-issue IDB programs for six months, through June 30, 1992.

Omnibus Budget Reconciliation Act of 1990 (Public Law 101-508)

This Act extended the mortgage revenue bond and small-issue MB programs through December 31, 1991.

Omnibus Budget Reconciliation Act of 1989 (Public Law 101-239)

This Act contained changes to the arbitrage rebate requirement, use of hedge bonds, and the alternative minimum tax (AMT).

Specifically, relief from the arbitrage rebate requirement was provided for issuers of governmental bonds, qualified §501(c)(3) bonds, and private-activity bonds for governmentally owned facilities if at least 75 percent of net proceeds are to be used for construction and 95 percent of the funds are spent according to a spending schedule over a 24-month period. Issuers using this rebate relief provision may elect a financial penalty in lieu of rebate if the spending schedule is not met.

In addition, new requirements were imposed on the ability of state and local governments to sell bonds as a hedge against future increases in interest rates (so-called “hedge bonds”). The Act also provided that 75 percent of bonds issued to finance high speed intercity rail facilities (but not rolling stock) would not be subject to the statewide volume cap. Finally, the mortgage revenue bond and small-issue IDB programs were extended for nine months.

Technical and Miscellaneous Revenue Act of 1988 (Public Law 100-647)

This Act made a number of technical changes to the arbitrage rebate requirement and other tax-exempt bond provisions of the tax law, and extended the mortgage revenue bond program one year, through December 31, 1989, with tighter targeting provisions. It also authorized the use of tax-exempt,

private-activity bonds for certain high speed rail facilities and required that only 25 percent of the financing would be subject to the statewide volume cap. A new savings program was instituted under this Act that permitted taxpayers below a certain income level to exclude from taxable income the interest income on U.S. savings bonds (Series EE Bonds) if the bonds are used to help pay education expenses of the taxpayers, their spouses, or their children. These bonds carry a superior yield and compete with the market for state and local government bonds.

Omnibus Budget Reconciliation Act of 1987 (Public Law 100-203)

This legislation defined bonds used by cities to acquire nongovernmental gas and electric utility output property as “private activity” bonds if the city does not already operate a municipal utility. Exceptions were allowed for qualified annexations no greater than 10 percent (per annexation) of the geographic service area or output capacity of the public power system.

Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-571)

This Act increased the corporate alternative minimum tax (AMT) on all tax-exempt interest income.

Tax Reform Act of 1986 (Public Law 99-514)

The Tax Reform Act of 1986 rewrote the Internal Revenue Code of 1954, resulting in the following changes to tax-exempt bond law:

- » Defined and restated “private-activity bonds” to include IDBs as well as student loan bonds, mortgage revenue bonds, and §501(c)(3) organization bonds;
- » It also subjected all tax-exempt income of individuals and corporations that is preferentially treated under the tax code, including income from private-activity bonds issued after August 7, 1986 (excluding §501(c)(3) organization bonds), to an alternative minimum tax (AMT), resulting in a new class of bonds that may be only partially tax-exempt. Also subjected all tax-exempt interest earned by corporations to the AMT under the adjusted net book income calculation (changed in 1989 to the adjusted current earnings (ACE) calculation);
- » Required rebate of “excess” arbitrage earnings to the Federal Government, with exemption for small issuers (governmental units with taxing authority that issue less than \$5 million of bonds annually) or if proceeds are spent within six months of issuance;
- » Added hazardous waste disposal facilities as a new category of exempt-facility bonds;
- » Denied tax-exempt status to private-activity bonds for sports facilities, convention or trade show facilities, parking facilities (unless functionally related to other exempt

facilities), air or water pollution control facilities, alcohol and steam generation facilities, qualified hydroelectric generating facilities, and privately owned airports, docks, wharves, and mass-commuting facilities;

- » Prohibited advance refunding for private-activity bonds (§501(c)(3) organization bonds excepted), and limited governmental obligations issued after 1985 to one advance refunding;
- » Lowered the private use and security interest tests from 25 percent to 10 percent, and added a special private use restriction on “output facilities” (for generation, transmission, and distribution of electricity or gas) of the lesser of 10 percent or \$15 million;
- » Imposed a limit of the lesser of 5 percent or \$5 million on loans to nongovernmental persons or for private business purposes unrelated to the governmental use of the financing;
- » Limited bond issuance costs for private-activity bonds to 2 percent of proceeds;
- » Reduced the statewide volume cap on private-activity bonds to the greater of \$50 per capita or \$150 million effective in 1988, and subjected the excess over \$15 million of private use portion of governmental bonds to the volume cap;
- » Required all individual income tax returns filed after December 31, 1987, to report tax-exempt interest income;
- » Repealed the bank interest deduction for costs of purchasing and carrying tax-exempt bonds except for issuances of governmental units and §501(c)(3) organizations that issue less than \$10 million of bonds annually;
- » Required property and casualty insurance companies to reduce deductions for loss reserves by 15 percent of the company’s tax-exempt interest income from bonds acquired after August 7, 1986.

Deficit Reduction Act of 1984 (Public Law 98-369)

This Act imposed a statewide volume cap on private-activity bonds of the greater of \$150 per capita (reduced to \$100 after 1986) or \$200 million. There were exceptions for certain “qualified public facilities,” including multifamily housing and publicly owned airports, docks, wharves, mass-commuting facilities, and convention or trade show facilities, but the Act repealed authority for advance refunding for qualified public facilities. The Act also eliminated the tax-exemption of interest on bonds in cases where more than five percent of the proceeds of such bonds were to benefit a non-exempt purpose. Tax-exemption was also denied for bonds issued to finance “sky boxes” in sports arenas, airplanes, health club facilities, gambling facilities, or liquor stores. Additional restrictions were placed on veterans’ mortgage bonds, and the bank deduction of the costs of purchasing and carrying tax-exempt bonds was lowered from 85 to 80 percent. The Act also restricted tax-exempt entity leasing and arbitrage earnings for student loan bonds, made changes to the small-

issue IDB program, and extended the sunset date of the program through 1988 for manufacturing facilities.

Social Security Amendments of 1983 (Public Law 98-21)
This Act required Social Security recipients to include interest earned on tax-exempt bonds in gross income for purposes of determining the taxation of Social Security benefits.

Tax Equity and Fiscal Responsibility Act of 1982 (Public Law 97-248)

This Act required that bonds be issued in registered form in order to remain tax-exempt. The Act also imposed an information reporting requirement on certain types of bonds called “private-activity bonds,” including IDBs, student loan bonds, and §501(c)(3) bonds. The law also added local district heating and cooling facilities to the list of eligible purposes, and set a sunset date of December 31, 1987, for the small-issue IDB program. In addition, the legislation reduced the interest deduction for financial institutions from 100 percent to 85 percent of the costs to purchase and carry tax-exempt obligations.

Economic Recovery Tax Act of 1981 (Public Law 97-34)

This law added certain mass-commuting vehicles and certain volunteer fire departments to the list of eligible facilities, and provided a safe harbor for the leasing of mass-commuting vehicles.

Mortgage Subsidy Bond Tax Act of 1980 (Public Law 96-499)

This legislation eliminated tax-exempt mortgage bonds as of January 1, 1984 (later extended), and also made such bonds subject to an annual state volume cap (the first time such a limitation was imposed) and to arbitrage and advance refunding restrictions.

Crude Oil Windfall Profits Tax of 1980 (Public Law 96-223)

Electricity-generating or alcohol-producing solid waste disposal facilities were made eligible for tax-exempt financing by this Act, and hydroelectric and other renewable energy generating facilities were also added to the list of eligible facilities.

Revenue Act of 1978 (Public Law 95-600)

This Act further liberalized eligibility for tax-exemption by allowing more private projects to qualify under “local furnishing” of electricity. It also increased the limits on small-issue IDBs from \$5 million to \$10 million.

Tax Reform Act of 1976 (Public Law 94-455)

This law added a new tax-exempt purpose: qualified scholarship funding bonds.

Revenue Adjustment Act of 1975 (Public Law 94-164)

A new exception was added by this law to the list of exempt-purpose IDBs, allowing tax-exempt financing for dams

furnishing water for irrigation with a subordinate use for generating electricity. The exception was allowed only if substantially all stored water was available for release for irrigation purposes.

Tax Reform Act of 1969 (Public Law 91-172)

This legislation denied the tax-exemption for any municipal bond issuance defined as an “arbitrage bond.” An arbitrage bond is an issuance in which all or a major portion (subsequently defined as more than 15 percent) of the proceeds are used directly or indirectly to purchase securities producing a materially higher yield. Exceptions were provided for temporarily investing the proceeds (with “temporary period” later defined as three years) and for a reasonably required reserve or replacement fund.

Revenue and Expenditure Control Act of 1968 (Public Law 90-364)

This legislation established that the interest income from IDBs is taxable, and defined IDBs according to a two-part test. Any bond that met a private use test and a security interest test was defined as taxable.

The private use test was satisfied if all or a major portion of the bond proceeds were to be used in a trade or business of a non-exempt person (that is, neither a government unit nor a charitable §501(c)(3) organization). The security interest test was satisfied if all or a major portion of the debt service was to be secured by property used in or payments derived from a trade or business of a non-exempt person. The threshold level for both tests was set at 25 percent. (Later, as part of the 1986 Tax Reform Act, the allowable private use and payments were reduced to 10 percent or, for public power, the lesser of 10 percent or \$15 million.)

The 1968 legislation also provided a long list of exceptions, termed “exempt purpose IDBs,” for projects that were deemed to serve a worthwhile public purpose and thus should be eligible for tax-exemption. Such exceptions included:

- » air and water pollution control facilities;
- » sewage or solid waste disposal facilities;
- » facilities for local furnishing of electric energy, gas or water; and
- » airports, docks, and wharves.

This legislation also restricted the use of IDBs to small issues of not more than \$1 million, which was raised to \$5 million in subsequent legislation.

Chronology of Federal Laws Creating and Altering Tax Credit and Direct Payment Bonds

Consolidated Appropriations Act of 2016 (Public Law 114-113)

The Act authorizes issuance of up to \$400 million of qualified zone academy bonds for 2015 and 2016, respectively. The option to issue direct-pay bonds is not available.

Tax Increase Prevention Act of 2014 (Public Law 113–295)

The Act authorizes issuance of up to \$400 million of qualified zone academy bonds per year for 2014. The option to issue direct-pay bonds is not available.

Revenue Provisions Contained in the American Taxpayer Relief Act of 2012 (Public Law 112–240)

The Act authorizes issuance of up to \$400 million of qualified zone academy bonds per year for 2012 and 2013. The option to issue direct-pay bonds is not available.

Revenue Provisions of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (Public Law 111–312)

The Act authorizes issuance of up to \$400 million of qualified zone academy bonds for 2011. The option to issue direct-pay bonds is not available.

Hiring Incentives to Restore Employment Act of 2010 (Public Law 111–147)

The Act allows issuers to elect to issue new clean renewable energy bonds, qualified energy conservation bonds, qualified zone academy bonds issued, and qualified school construction bonds as direct payment bonds, rather than as tax credit bonds.

Revenue Provisions of the American Recovery and Reinvestment Act of 2009 (Public Law 111–5)

The Act created a new type of bond, the Build America Bond (“BAB”). A BAB is a bond which would otherwise qualify as a tax-exempt bond, but which is issued either:

- » As a tax credit bond, i.e., the interest paid is taxable, but the bondholder receives a tax credit, in this case equal to 35 percent of the interest paid; or
- » As a direct payment bond, i.e., the interest paid is taxable, but the issuer receives a credit payment equal to 35 percent of interest paid.

Issuance of Build America Bonds was limited to the period after the date of enactment (Feb. 17, 2009) but before 2011, i.e., through Dec. 31, 2010.

The Act created a new category of tax-credit bonds: qualified school construction bonds, for the construction, rehabilitation, or repair of a public school facility or for the acquisition of land on which such a bond-financed facility is to be constructed. The annual limit for such bonds is \$11 billion for 2009 and 2010, allocated to states along similar proportions to other federal elementary and secondary school funding. The credit rate for the bond is equal to the rate that would permit issuance of the bond without discount and interest cost to the issuer.

The Act also authorized the issuance of up to \$1.4 billion of qualified zone academy bonds annually for 2009 and 2010, respectively.

The Act created a new type of tax credit bond, the Recovery Zone Economic Development Bond, for capital expenditures paid or incurred with respect to property located in such zone and expenditures for public infrastructure and construction of public facilities located in a “recovery zone.” The Act provides several criteria of economic distress for qualifying as a “recovery zone.”

The Act provides procedures for passing through credits on “tax credit bonds” to the shareholders of an electing regulated investment company.

The Act authorized issuance of up to an additional \$1.6 billion of new CREBs.

The Act authorized issuance of an additional \$2.4 billion of qualified energy conservation bonds and clarified that capital expenditures to implement green community programs include grants, loans and other repayment mechanisms to implement such programs. For example, this expansion enables States to issue these tax credit bonds to finance retrofits of existing private buildings through loans and/or grants to individual homeowners or businesses, or through other repayment mechanisms.

The Act prospectively applies federal prevailing wages requirements to any project financed with New CREBs; qualified energy conservation bonds; qualified zone academy bond; school construction bond; or recovery zone economic development bond.

Emergency Economic Stabilization Act of 2008, Energy Improvement and Extension Act of 2008, and Tax Extenders and the Alternative Minimum Tax Relief Act of 2008 (110–343)

The law created a new category of Clean Renewable Energy Bond (New CREB) with a national issuance limit of \$800 million to be allocated equally to public power providers, other governmental bodies, and rural electric cooperatives. Unlike the credit rate for CREBs, the credit rate for New CREBs is equal to 70 percent of the rate that would permit the issuance of such bonds without discount and interest cost to the issuer. Additionally, tax credits may be stripped from the underlying bond, similar to how interest coupons are stripped for interest-bearing bonds.

It created a new category of tax credit bond, the Qualified Energy Conservation Bond (QECB), for financing a variety of energy conservation and renewable energy projects and investments. There is an \$800 million volume limit, with allocations made to States, and sub-allocations to large local governments. In contrast to generally applicable rules, 100 percent of bond proceeds must be used on capital expenditures. The credit rate for QECBs is equal to 70 percent of the rate that would permit the issuance of such bonds without discount and interest cost to the issuer. Additionally, tax credits may be stripped from the underlying bond, similar to how interest coupons are stripped for interest-bearing bonds.

It authorized the issuance of up to \$400 million of qualified zone academy bonds annually through 2009. For bonds issued after Oct. 3, 2008, 100 percent of available project proceeds must be spent on qualified zone academy property (up from a prior-law requirement of 95 percent). In addition, the provision modifies the arbitrage rules by providing that available project proceeds invested during the three-year period beginning on the date of issue are not subject to the arbitrage restrictions (i.e., yield restriction and rebate requirements).

The Act allows tax credit bonds (“Midwestern Tax Credit Bonds”) to be issued in 2009 by a Midwestern disaster area state (or instrumentality of the State). As with Gulf Tax Credit Bonds, proceeds from Midwestern Tax Credit Bonds are used to pay principal, interest, or premium on outstanding state and local debt. The maximum amount of Midwestern Tax Credit Bonds that may be issued is: (1) \$100 million Midwestern disaster area states with a population of 2 million or more and (2) \$50 million for Midwestern disaster area states with a population of less than 2 million.

Food, Conservation, and Energy Act of 2008 (Public Laws 110-234 and 110-246)

The Act created a new category of tax-credit bonds, qualified forestry conservation bonds, to be issued by state and local governments or 501(c)(3) organizations for the purpose of acquiring forest land adjacent to U.S. Forest Service land. At least half of the land acquired must be transferred to the U.S. Forest Service and the land must be subject to a habitat conservation plan. There is a national volume limit of \$500 million and the credit rate is set to allow the issuer to issue the bond without discount and interest cost.

Tax Relief and Health Care Act of 2006 (Public Law 109-432)

The law extended authorization of qualified zone academy bonds for two years (through 2007). It also imposed arbitrage requirements, new spending requirements, and information reporting requirements.

It also increased the volume of CREBs that could be issued by \$400 million (for a total of \$1.2 million).

Gulf Opportunity Zone Act of 2005 (Public Law 109-135)

The Act created Gulf Tax Credit Bonds proceeds from which were to repay bond debt outstanding prior to Hurricane Katrina. The maximum amount of Gulf Tax Credit Bonds that may be issued pursuant to this provision is \$200 million in the case of Louisiana, \$100 million in the case of Mississippi, and \$50 million in the case of Alabama.

The Energy Policy Act of 2005 (Public Law 109-58)

The Act created a new category of tax credit bond, the Clean

Renewable Energy Bond (CREB), to finance expenses related to facilities that would otherwise qualify for the Internal Revenue Code Section 45 renewable energy production tax credit. Like qualified zone academy bonds, CREBs are not interest-bearing, but the taxpayer holding a CREB is allowed a tax credit equal to the bond’s credit rate times the face amount on the bond. The credit rate is set by Treasury at a rate estimate to allow the bond to be issued without discount and interest to the qualified issuer. Qualified issuers include governmental bodies and rural electric cooperatives. Issuers must be allocated CREB bond volume – which is capped at \$800 million – by Treasury.

Working Families Tax Relief Act of 2004 (Public Law 108-311)

The Act extended the authority to issue qualified zone academy bonds through 2005.

Job Creation and Worker Assistance Act of 2002 (Public Law 107-147)

The law authorized issuance of up to \$400 million of qualified zone academy bonds annually in calendar years 2002 and 2003.

Tax Relief Extension Act of 1999 (Public Law 106-170)

The law authorized up to \$400 million of QZABs to be issued in each of calendar years 2000 and 2001 and unused QZAB authority may be carried forward two years. Unused QZAB authority arising in 1998 and 1999 may be carried forward by the State or local government entity to which it was allocated for up to three years after the year in which the authority originally arose.

Taxpayer Relief Act of 1997 (Public Law 105-34)

The Act created the first tax credit bond, a Qualified Zone Academy Bond (QZAB), to be issued by state and local governments to finance expenses related to primary and secondary schools operated cooperatively with private entities in an Empowerment Zones or Enterprise Community (or meeting other criteria for qualifying as serving lower-income students). Under the provision, certain financial businesses actively engaged in the business of lending money that hold “qualified zone academy bonds” are entitled to a nonrefundable tax credit equal to a credit rate multiplied by the face amount of the bond. The credit is includible in gross income (as if it were an interest payment on the bond), but may be claimed against regular income tax and AMT liability. Treasury sets the credit rate at the date of issuance at a level estimated to allow issuance of QZABs without discount and without interest cost to the issuer. The maximum term of QZABs are limited and the volume of QZABs is limited to \$400 million annually in 1998 and 1999.

APPENDIX C Some of the Public Finance Network members include:

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American Hospital Association, Mike Rock, 202-626-2325
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The United States Conference of Mayors, Larry Jones, 202-861-6709





Government Finance Officers Association

www.gfoa.org

From: [The Ohio Municipal League](#)
To: [Jake Burton](#)
Subject: [External Sender] Federal Call to Action: Tax-exempt Status of Municipal Bonds
Date: Wednesday, February 12, 2025 2:58:52 PM

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Member Alert

Feb. 12, 2025

Protecting the Tax-Exempt Status of Municipal Bonds

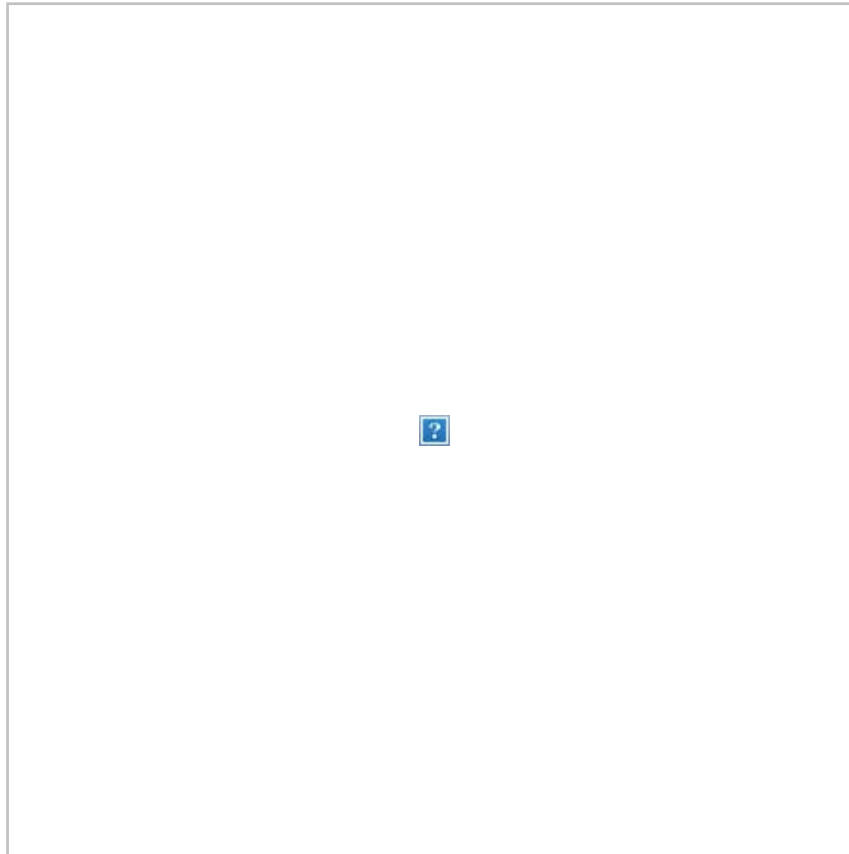
OML Members:

Communities of all sizes rely on tax-exempt municipal bonds as a critical tool to finance infrastructure projects and essential public services. These bonds help fund everything from schools and hospitals to roads and utilities—projects that are vital to the well-being of communities across the country.

However, with Congress expected to focus on sunseting tax provisions, the National League of Cities (NLC) anticipates that tax-exempt municipal bonds may be at risk.

NLC recently collaborated with the Government Finance Officers Association

(GFOA) to launch the #BuiltByBonds campaign to undeniably demonstrate the importance of tax-exempt municipal bonds in every congressional district nationwide.



This initiative aims to illustrate the vast impact of tax-exempt municipal bonds in every congressional district and community in America. Showcasing real-world examples of infrastructure projects funded by tax-exempt bonds and emphasizing their importance to lawmakers will be crucial in their survival. You can read an additional resource from GFOA about understanding financing for public infrastructure [here](#).

HOW TO HELP

If your municipality would like to pass a resolution declaring support for the preservation of the federal tax-exempt status of municipal bonds, NLC has provided template language that can be downloaded in Word format [here](#).

Local officials can also help educate Congress on this issue by populating [this map](#) using [this form](#) with one project that has been partially or fully funded through tax-exempt municipal bonds. The information on the map will allow congressional members and staff to search for projects financed with municipal bonds in their own state and congressional district.

Thank you for your attention on this issue.

WEBINAR

Municipal Bonds 102: Advanced Uses and Applications of Municipal Bonds

Join the National League of Cities for Municipal Bonds 102 to receive an educational overview of private activity bonds, revenue bonds, and other tailored financing tools for specific projects like housing, utilities, or transportation.

Speakers include:

- Megan Kilgore: City Auditor, City of Columbus, OH
- Dante Moreno: Finance, Administration, and Intergovernmental Relations Legislative Manager, NLC
- Bethany Pugh: Managing Director, PFM Financing Advisors LLC
- Michael Stanton: Head of Strategy and Communications, BAM Mutual

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RESOLUTION NO. 17-2025

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MONROE, OHIO DECLARING SUPPORT FOR THE PRESERVATION OF THE FEDERAL TAX EXEMPTION OF MUNICIPAL BONDS.

WHEREAS, the tax-exempt municipal bond market is a widely used source of capital for states, local governments, tribes, territories, and non-profit borrowers that finances a tremendous share of the nation's public infrastructure; and

WHEREAS, state and local governments finance about three-quarters of the public infrastructure in the United States and use tax-exempt bonds to do so, with the federal government providing only about one-quarter of the investment; and

WHEREAS, federal tax exemption for municipal bonds, dating back to the 1800s and incorporated into the modern tax code in 1913, has been crucial for state and local governments to affordably finance critical infrastructure projects; and

WHEREAS, tax-exempt bonds offer borrowers to achieve a multiplier effect of 2.11, meaning that for every dollar, borrowers achieve \$2.11 in borrowing cost savings thereby demonstrating the efficiency and effectiveness of this exemption in facilitating infrastructure investment; and

WHEREAS, tax-exempt bonds provide for essential infrastructure projects, such as roads, bridges, utilities, broadband, water and sewer systems, and hospitals, which are vital to the health and well-being of our community such that without such bonds, the cost of borrowing would be more expensive thereby causing an increase in taxes and fees that would place an undue burden on taxpayers; and

WHEREAS, the City Council of the City of Monroe ("Governing Body") finds and determines that tax-exempt municipal bonds provide an opportunity for economic development along its path, better facilitate the movement of agriculture products, equipment, and other goods, and increase safety.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF MONROE, STATE OF OHIO, THAT:

SECTION 1: The Governing Body of the City of Monroe hereby encourages the Ohio Congressional Delegation to assist the City of Monroe, Ohio by preserving the tax-exempt status of municipal bonds by supporting and ensuring the protection of the federal tax exemption of municipal bonds.

SECTION 2: The Director of Finance shall furnish copies of this Resolution to all members of the Ohio Congressional Delegation.

SECTION 3: Following the reading of the foregoing Resolution, _____ made the motion and _____ seconded the motion, and the question being put to a roll call vote, the result was taken as follows:

SECTION 4: This measure shall take effect and be in full force from and after its passage pursuant to Section 7.08 (C) of the Charter.

PASSED: _____

ATTEST:

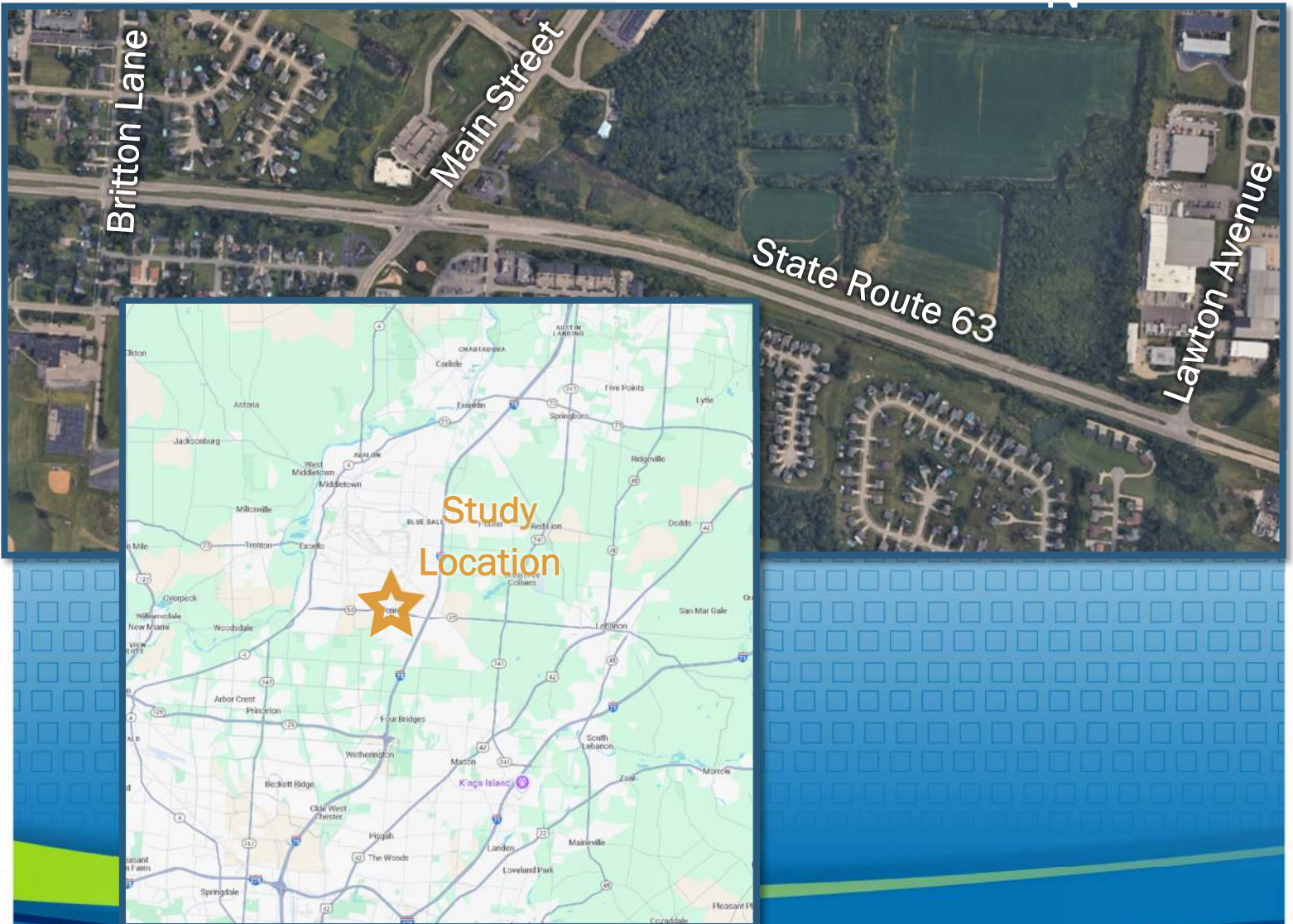
APPROVED:

Clerk of Council

Mayor

State Route 63 Corridor Study

Britton Lane to Lawton Avenue



Prepared for: City of Monroe
Prepared by: **BURGESS & NIPLE**

Final
January 2025

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1.0 Executive Summary

The purpose of this study was to analyze safety and capacity conditions of the State Route 63 (SR 63) corridor between Britton Lane and Lawton Avenue in Monroe, Ohio with a special focus at the Main Street/Cincinnati Dayton Road intersection. The study results determined countermeasures to improve safety and help the city plan for future development at the Main Street intersection.

SR 63 is a four-lane divided roadway which acts as a high-speed limited access roadway and services 2024 average annual daily traffic (AADT) volumes of around 22,000 vehicles. It includes two twelve feet wide lanes in each direction, separated by a 30 feet wide grass median. Three signalized intersections are located within the study area – Britton Lane which services residential neighborhoods and Monroe Primary School, Main Street which services Monroe’s historic downtown, and Lawton Avenue which services industrial properties.

Between 2021 and 2023, 125 crashes were reported on the corridor. Crashes primarily occurred at the signalized intersections and resulted in a 25% injury rate. One fatal crash was reported at the Main Street intersection, which occurred when a westbound vehicle ran the red light. Three serious injury crashes were also reported, all at or near the Main Street intersection. Semi-trucks or single-unit box trucks were involved in 12 of the 125 crashes, or nearly 10% of all crashes. The most prevalent crash type was rear end, which accounted for 58% of all crashes. No rear end crashes resulted in fatal or serious injury.

Based on analysis results, the following countermeasures were identified to improve safety and operations. Additional evaluation is needed for the long-term recommendations, specifically for the Main Street Partial Continuous Flow Intersection/Displaced Left Turn (CFI/DLT) alternative. This includes more detailed traffic analysis and concept designs/estimates.

Britton Lane –

- Add backplates with retroreflective border to all existing signal heads.
- Install near side supplemental signal heads on the eastbound and westbound approaches.
- Install dual signal ahead warning signs in advance of the intersection.
- Re-evaluate signal timing and adjust accordingly.
- Refresh pavement markings.
- Replace the existing crosswalk with a high-visibility longitudinal bars crosswalk design.
- Clear vegetation.
- Install eastbound and westbound right turn lanes.

Main Street –

- Add backplates with retroreflective border to all existing signal heads.
- Install near side supplemental signal heads on the eastbound and westbound approaches.
- Install dual signal ahead warning signs in advance of the intersection.
- Re-evaluate signal timing and adjust accordingly.
- Prohibit right turn on red.
- Refresh pavement markings.
- Extend eastbound and westbound right turn lanes.
- Revise design of the East Avenue westbound left turn lane.
- In the long term, revise the intersection design to include additional turn lanes that optimize capacity and handle future traffic growth or redesign as a Partial CFI/DLT. Additional analysis is needed to better identify design requirements, impacts, and costs for the CFI/DLT.

Lawton Avenue –

- Add backplates with retroreflective border to all existing signal heads.
- Install near side supplemental signal heads on the eastbound and westbound approaches.
- Install dual signal ahead warning signs in advance of the intersection.
- Re-evaluate signal timing and adjust accordingly.
- Refresh pavement markings.

2.0 Purpose & Location

The purpose of this study was to analyze safety and capacity conditions of the State Route 63 (SR 63) corridor between Britton Lane and Lawton Avenue in Monroe, Ohio. The study results will help determine countermeasures to reduce crashes along SR 63, improve traffic operations, and help the city plan for future development on the vacant property northeast of the Main Street intersection.

The study limits are situated within the center of Monroe along SR 63 from Britton Lane (Log Point 3.281) to Lawton Avenue (Log Point 4.337). The primary focus of this study was the Main Street/Cincinnati Dayton Road intersection (Log Point 3.663), which serves as the primary access to Monroe's historic downtown area to the south. **Figure 1** shows the study area including the intersections of interest.



Figure 1: SR 63 Study Area from Britton Lane to Lawton Avenue

3.0 Existing Conditions

3.A Land Use

The land use along the SR 63 corridor is a mix of commercial, residential and industrial properties. SR 63 connects to large commercial distribution centers two miles west of the study area, and a large steel distributor three miles north of the Main Street intersection, all of which contribute to high truck volumes along SR 63. The area east of the study area also features many manufacturing businesses, warehouses and commercial services. Residential neighborhoods reside north and south of the Britton Lane intersection, including an elementary school 750 feet south of the

intersection. Monroe's historic commercial downtown area is situated just south of the Main Street intersection and is surrounded by other residential properties.

3.B Roadway Conditions

The volume, classification and speed limit data for the study area is summarized in **Table 1**. The roadway functional class was obtained from ODOT's Transportation Information Mapping System (TIMS), and speed limits were determined through field review. Existing Average Annual Daily Traffic (AADT) volumes were obtained through traffic counts taken on Thursday, September 12, 2024.

Table 1: Roadway Data

	Volume (2024 AADT)	Classification	Speed Limit
Britton Ln (North/South)	3,520/1,360	Urban Major Collector/Urban Local	35 MPH/25 MPH
SR 63 from Britton Ln to Main St	19,650	Urban Major Collector	50 MPH
Main St (North/South)	12,180/7,980	Urban Minor Arterial/ Urban Major Collector	45 MPH/25 MPH
SR 63 from Main St to East Ave	22,070	Urban Minor Arterial	50 MPH
East Ave	2,370	Urban Local Roadway	25 MPH
SR 63 from East Ave to Lawton Ave	23,230	Urban Minor Arterial	50 MPH
Lawton Ave	1,660	Urban Local Roadway	Unknown

SR 63 is a four-lane divided roadway which acts as a high-speed limited access roadway. It includes two twelve feet wide lanes in each direction, separated by a 30 feet wide grass median. Terrain along the corridor is rolling. Intersection characteristics within the study area are summarized below.

3.C Intersection Conditions

Britton Lane

The intersection at Britton Lane and SR 63 is a four leg at-grade intersection that features one protected left turn lane in both the east and westbound directions. Britton Lane has a single travel lane in each direction with no turn lanes. It services residential neighborhoods to the north and south and Monroe Primary School to the south.

Figure 2 shows the lane configuration at Britton Lane and SR 63.

The intersection is signalized, lighted with luminaires and actuated with radar detectors. The



Figure 2: Britton Lane & SR 63 Lane Configuration

signal heads are in good condition and are tethered on a box span wire configuration. Four strain poles support the box span with one in each intersection quadrant, three of which have luminaires installed (**Photo 1**). Both Britton Lane approaches have two three-section solid ball signal heads without backplates. Both SR 63 approaches have two three-section solid ball signal heads for the thru lanes and one three-section arrow signal head for the protected-only left turns, all with backplates. The eastbound and westbound left turns are protected-only, and southbound and northbound movements have permissive left turns.



Photo 1: Typical Britton Lane Strain Pole with Luminaire

The signage at the intersection is clear, legible and in good condition. Restriction signs include “No Pedestrian Crossing” (R9-3) for the westbound approach and “No Turn On Red” (R10-11) for the southbound approach. There are no signal ahead (W3-3) signs on the SR 63 approaches, but oversized dual school pedestrian crossing (S1-1) signs exist 780 feet from the westbound stop line and 750 feet from the eastbound stop line (**Photo 2**). The oversized school pedestrian signs are also situated at the intersection’s crosswalk. There are no lane control signs at the intersection except for span-wire mounted left turn only signs for the eastbound and westbound left turn signals. Pavement markings are in fair condition.



Photo 2: Dual School Pedestrian Crossing Signs, Westbound Approach

The intersection features pedestrian accommodations, including a 120 feet long painted crosswalk on the eastbound approach with curb ramps, pedestrian signal heads and push buttons (**Photo 3**).

Main Street

The intersection at Main Street and SR 63 is an at-grade four leg intersection that intersects at an angle of roughly 55 degrees. Both approaches on SR 63 feature a 15 feet wide painted median that separates the left turn lane from the thru lanes, one protected left turn lane, and a right turn slip lane. Main Street north of the intersection services a mix of industrial and commercial properties. Outside of the SR 63 intersection it is equipped with two thru lanes in each direction. At the intersection, Main Street transitions to one southbound

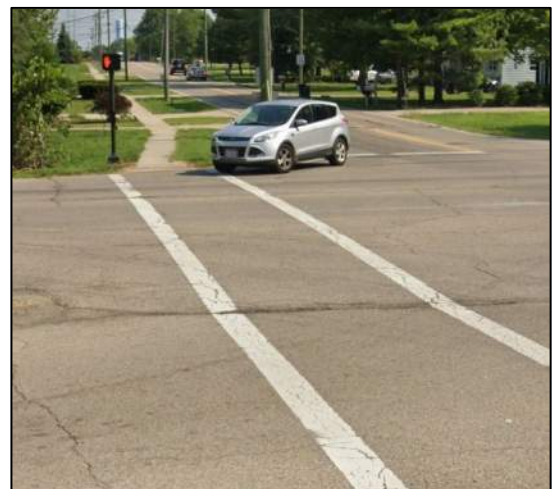


Photo 3: Britton Lane Crosswalk

thru lane, a left turn lane, a right turn lane, and two northbound thru lanes. Main Street south of the intersection services Monroe's downtown. Outside of the intersection it is equipped with a single thru lane in each direction. At the intersection, Main Street has a northbound left turn lane, a single thru lane in each direction, and a second northbound thru/right turn lane (**Figure 3**). The asphalt surface at the intersection has many ruts and uneven spots, likely caused by the higher volume of truck traffic.

Note, currently vacant land in the northeast corner of the intersection is planned for future development.

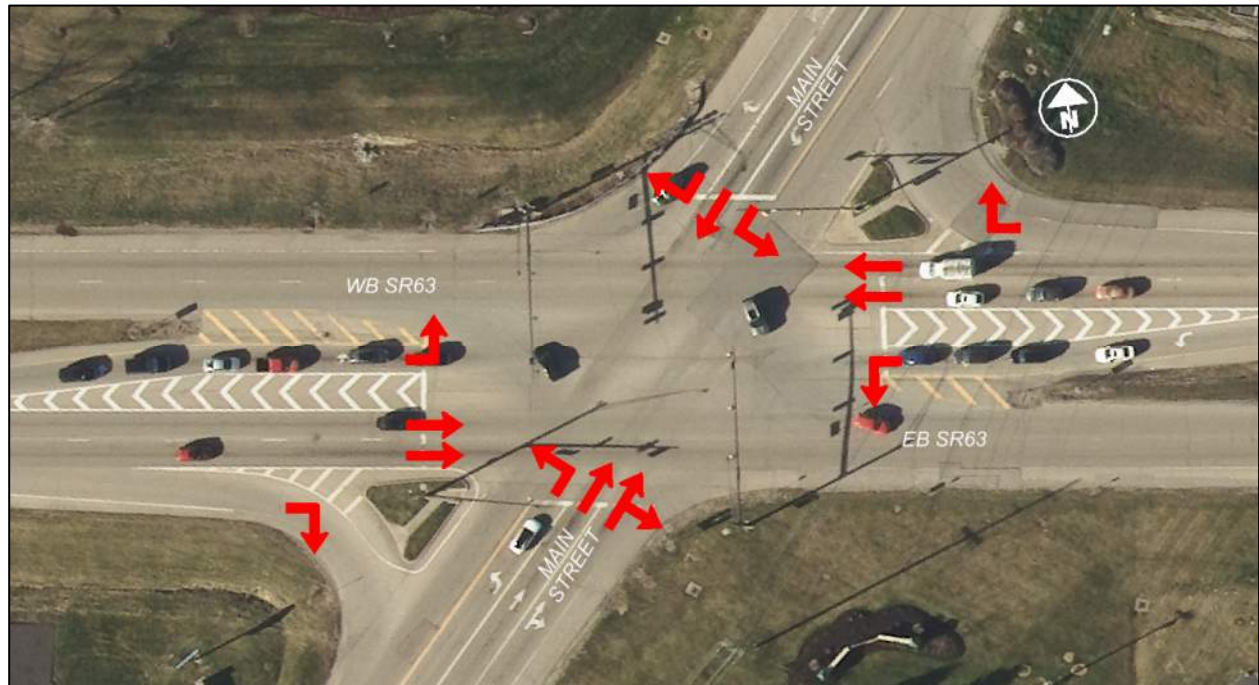


Figure 3: Main Street & SR 63 Lane Configuration

The intersection is controlled by an actuated signal that gives SR 63 priority over Main Street. The signal heads are attached to overhead mast arms, and the four mast arm poles have luminaires along with cameras and emergency vehicle preemption devices (**Photo 4**). The intersection has protected-only left turn phasing in the eastbound and westbound directions and protected-permissive left turn phasing for the southbound and northbound directions. Both Main Street approaches have one five-section doghouse head for the left turn lane, and one three-section solid ball signal head for the thru/right lane. The SR 63 signal heads include two three-section solid ball signals for the thru movements and one three-section head with arrows for the protected left turn movements.



Photo 4: Typical Strain Pole at Main Street Intersection

Signage is clear and in good condition along all approaches of the intersection. Post mounted lane control signs are featured on the Main Street approaches but not on the SR 63 approaches. The only lane control signs for SR 63 are left turn-only signs mounted on the mast arms. There is no traffic signal ahead (W3-3) or intersection ahead (W2-1) signs in the eastbound or westbound directions on SR 63. The pavement markings are mostly worn on all approaches, including edge lines, lane lines, channelizing lines, arrows and stop lines. The worn pavement markings on SR 63 make it particularly confusing to traverse the westbound right turn slip lane, as the channelizing and lane lines are nearly gone (**Photo 5**). The right turn slip lanes are yield controlled, noted by a single yield sign for each direction.

Pedestrian accommodations are provided at the intersection in the form of curb ramps and pedestrian push buttons at the raised slip lane islands (**Photo 6**). Pedestrian signal heads are not provided, despite the buttons and curb ramps. “No Pedestrian Crossing” signs (R9-3) are placed on the southwest and northwest mast arm poles, and no painted crosswalks are provided within the intersection.



Photo 5: Westbound Right Turn Slip Lane with Worn Pavement Markings

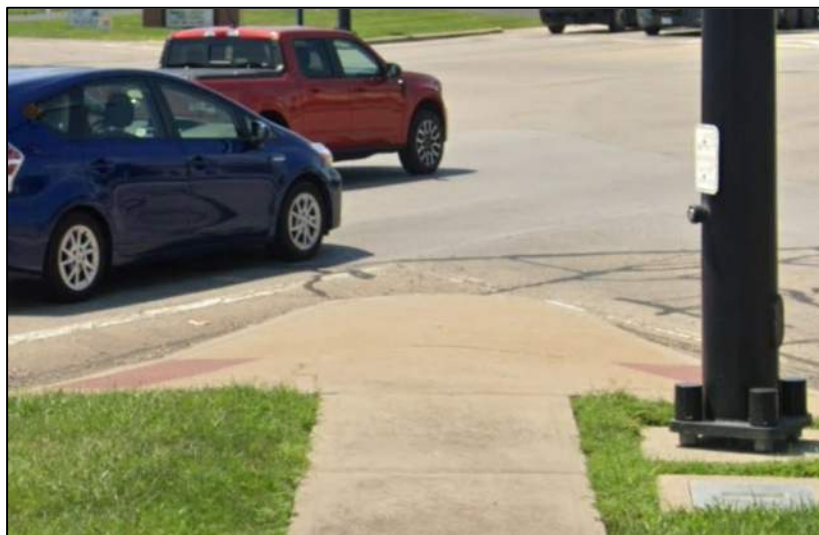


Photo 6: Curb Ramps and Pedestrian Pushbutton on Northeast Island

East Avenue

The intersection at East Avenue and SR 63 is stop-controlled with restricted turning movements (see **Figure 4**). Westbound vehicles traveling on SR 63 may turn left onto East Avenue, but vehicles traveling northbound on East Avenue may only turn right at the intersection. The westbound left turn lane opens within the turn lane for southbound Main Street and is separated by a 270 feet long concrete median. East Avenue services a gas station and other commercial properties.

Dual post-mounted stop signs are placed on East Avenue with “No Left Turn” (R3-2) signs beneath. On the median, “Do Not Enter” (R5-1) and “No Left Turn” signs are placed facing East Avenue along with yellow plastic delineators that line the length of the median (**Photo 7**). Pavement markings are worn and hard to see on East Avenue. Edge line and transverse markings at the westbound left turn lane are worn in a way that suggests vehicles are turning into the lines (**Photo 8**).

No pedestrian infrastructure such as sidewalks, crosswalks or pedestrian signal heads are provided at the intersection.



Figure 4: East Avenue & SR 63 Lane Configuration



Photo 7: Concrete Median at East Avenue



Photo 8: Westbound Left Turn Lane Worn Pavement Markings

Lawton Avenue

The intersection at Lawton Avenue and SR 63 is a signalized three-legged intersection with the lane configuration shown in **Figure 5**. The intersection is mostly asphalt but the westbound approach

before the stop line is concrete. East of the intersection, SR 63 services a mix of commercial and industrial properties and is designed with three westbound thru lanes and two eastbound thru lanes. At the intersection, the westbound outermost thru lane is dropped by transitioning to right turn only (sometimes referred to as a “trap lane”). Eastbound SR 63 has a left turn only lane for Lawton Avenue. The Lawton Avenue approach is on an uphill grade that features one right turn only and one left turn only lane. Lawton Avenue currently services mostly industrial properties, although a gas station is planned for the northeast corner of the intersection.



Figure 5: Lawton Avenue & SR 63 Lane Configuration

The intersection is controlled by an actuated signal. The signal heads are connected to a span wire in a box configuration and are in good condition. The signal heads are not tethered nor have backplates (**Photo 9**). Four strain poles support the box span with one in each intersection quadrant, one of which has a camera and luminaire installed. The Lawton Avenue approach has a three-section solid ball signal head for the left turn lane, and a five-section doghouse signal head with right turn arrow for the right turn lane. Eastbound left turn phasing is protected/permissive. The eastbound approach for SR 63 has a doghouse signal head for the left turn lane and a three-section head for the thru lanes. The westbound approach features two solid ball three-section heads for the thru lanes and a five-section head with right arrow for the right turn lane.



Photo 9: Signal Heads on Lawton Avenue

Signage is clear and in good condition along all approaches of the intersection. Existing signage is minimal but includes lane control signs on the span wires and approaches, overhead street name signs, and “Keep Right” (R4-7) signs at the median ends. The pavement markings vary



Photo 10: Worn Pavement Markings on Eastbound Left Turn Lane

in quality, with the westbound and southbound lines very clear and legible, but the eastbound lane lines, arrows and edge lines are very worn (**Photo 10**).

No pedestrian infrastructure such as sidewalks, crosswalks or pedestrian signal heads are provided at the intersection.

3.D Site Visit Observations

A field visit was conducted during the PM peak hour (4:15 PM-5:15 PM) on Wednesday, October 16, 2024. Site observations were primarily taken at the study area intersections and included infrastructure features and traffic behavior.

Britton Lane & SR 63

Westbound traffic approaching Britton Lane was observed going either faster than the posted speed limit of 50 MPH to get around trucks or slower due to vehicles stuck behind trucks. The westbound direction is an uphill grade less than 2000 feet away from the Main Street intersection, so trucks typically accelerate slower than passenger vehicles, especially if previously stopped at the Main Street signal. Instances of sudden braking were observed at the signal. Trucks also obscure the visibility of the approaching Britton Lane signal for vehicles behind, which contributes to hard braking.

Britton Lane has a sight distance issue in the northbound approach, where a strain pole with school pedestrian crossing sign blocks some visibility of eastbound traffic (**Photo 11**). The southbound approach also has a sight distance limitation where westbound traffic cannot be seen due to vegetation in the intersection's northeast quadrant (**Photo 12**). The southbound approach has two “No Turn On Red” (R10-11 and R10-11b) signs – one pole mounted at the intersection approach and one mounted overhead on the span wire.

Signal timing appeared adequate at this intersection. SR 63 is prioritized and cleared all queues after the red signal, and Britton Lane had enough time to clear queues on both approaches. No pedestrians were observed around the intersection or crossing the crosswalk on the eastbound approach.



Photo 11: Southwest Corner of Britton Lane & SR 63

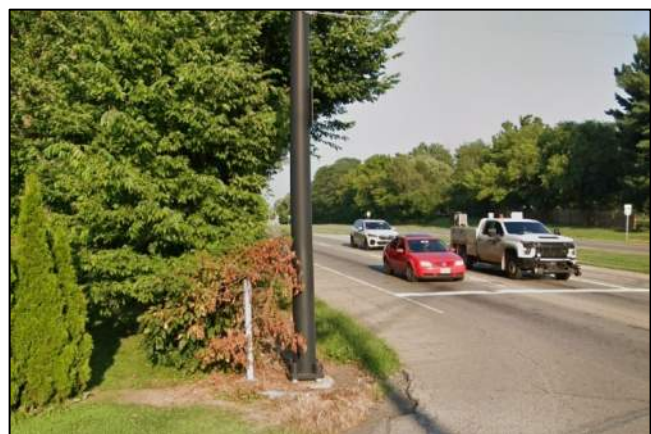


Photo 12: Northeast Corner of Britton Lane & SR 63

Main Street & SR 63

Long queues were seen on all approaches (**Photo 13**), with the westbound thru lanes experiencing queues up to 1500-2000 feet long. Despite these queues the thru lanes on all approaches cleared their green phases most of the time and seemed to be timed adequately. However, all protected left turn timings seemed too short, especially for eastbound and southbound. During the field visit the left turn arrows were as short as eight to ten seconds. The eastbound left turn lane consistently saw long queues and often did not clear the protected turn phase completely, despite the queue never extending into the thru lane. The southbound left turn lane also had long queues that did not clear most of the time, especially when trucks were at the intersection. Due to the uphill grade of the approach, trucks starting from a stop cannot accelerate fast enough to let more than three to five vehicles behind follow through the turn.

On the westbound approach before Main Street there is a long vertical curve whose crest is approximately 1000 feet from the intersection. While visibility for short queues is fair, longer queues require a quicker brake reaction time right after the driver traverses over the crest. There are no advanced warning signs.

Two EMS vehicles were observed at the intersection over the span of 30 minutes, causing vehicles to suddenly yield (**Photo 14**). Many vehicles could not pull over due to the high traffic density, causing challenges for the EMS vehicles to navigate through the intersection. Fire Department 61 is approximately 700 feet south of the intersection.



Photo 13: Long Queue on Main Street Southbound Approach



Photo 14: EMS Vehicle Presence at Main Street



Photo 15: Westbound Right Turn Vehicle Yielding to Eastbound Left Turn Vehicles at Main Street

Overall very few vehicles were seen speeding, disobeying traffic control devices or exhibiting hard braking. Red light running was not witnessed, though some vehicles in the southbound and westbound thru movements were seen rushing the yellow signal. Despite short protected left turn timings, turning vehicles were not seen entering the intersection after yellow arrow signals. Some vehicles did not yield at the westbound right turn slip lane when eastbound left turning vehicles were entering the north leg. In most other cases vehicles did slow down and yield to oncoming traffic before turning right (**Photo 15**).

Pedestrians or cyclists were not observed at the Main Street intersection.

East Avenue & SR 63

Eastbound and westbound vehicles on SR 63 typically turned onto East Avenue to access the IGA convenience store. During the PM peak hour, westbound vehicles in the left turn lane often formed queues which typically cleared once eastbound traffic stopped at the Main Street intersection. Queueing was not observed on the northbound approach. Risky left turn movements were observed, such as drivers turning at small gaps between eastbound vehicles, making wide turns and accelerating through the turn.

Lawton Avenue & SR 63

Lawton Avenue dead ends a half mile north of SR 63 and supports a few industrial facilities. The majority of Lawton Avenue traffic was southbound left turning trucks and other types of commercial vehicles. No queueing was observed on the southbound approach, and the signal was adequately timed to let trucks and vehicles through the intersection. On both SR 63 approaches, no vehicles were seen running the red signal or excessively speeding, and queues did not get very long. In the westbound direction a couple vehicles in the right-only trap lane were observed crossing into the adjacent thru lane before the intersection.

4.0 Existing & No Build Traffic Operations & Safety Conditions

A stakeholder meeting was held at the City of Monroe Police Department on October 22, 2024. The purpose of this meeting was to present the existing conditions assessment and listen to community concerns. A copy of the meeting minutes is included in **Appendix A**.

4.A Existing Traffic Capacity

Traffic volumes were collected for the four study intersections on Thursday, September 12, 2024 between the hours of 6:00 AM and 6:00 PM. Copies of the raw traffic counts can be found in **Appendix B**. Traffic volumes for all counted intersections were compiled and an AM and PM peak hour was determined - 7:15 - 8:15 AM and 4:15 - 5:15 PM, respectively.

The SR 63 corridor carries a considerable amount of heavy vehicle traffic. The AM peak hour has higher heavy vehicle traffic. In the AM peak hour, westbound thru heavy vehicle traffic ranges from 12% at Britton Lane to 15% at Main Street. Lawton Avenue sees 14% in the westbound direction. In the eastbound thru movement, values range from 11% at Lawton and Main to 12% at Britton. In the PM peak hour, heavy vehicle percentages are lower. In the westbound thru movement, values range from 6% at Lawton and Main to 7% at Britton. In the eastbound thru movement, values range from 7% at Lawton to 8% at Main and Britton.

Heavy vehicle traffic in the north and southbound directions varies between each intersection. Generally, Britton Lane and East Avenue have low heavy vehicle volumes. Main Street has a moderate amount of heavy vehicle traffic on the southbound approach in the AM peak hour (10%). Lawton Avenue has a large amount of heavy vehicle traffic on the southbound approach with a total of 34% in the AM peak hour and 18% in the PM peak hour.

Traffic capacity analysis for the existing conditions was performed using *HCS* software. A copy of the output reports is provided in **Appendix C**. Existing traffic capacity is acceptable throughout the corridor. **Table 2 through Table 5** detail existing capacity results for the four study intersections.

Table 2: Existing Capacity Analysis for SR 63 and Britton Lane

INTERSECTION	APPROACH	AM Peak					PM Peak				
		110s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Britton Lane	EB Left	D	54.6	0.43	0.15	29'	E	58.6	0.61	0.38	71'
	EB Thru	B	12.0	0.44	0.08	253'	B	10.8	0.36	0.07	220'
	EB Thru-Right	B	12.0	0.44	0.08	231'	B	10.8	0.36	0.07	206'
	Eastbound	B	12.9	--	--	--	B	13.6	--	--	--
	WB Left	E	56.6	0.37	0.09	16'	E	60.0	0.41	0.18	32'
	WB Thru	B	10.1	0.39	0.14	193'	B	11.3	0.54	0.19	261'
	WB Thru-Right	A	9.9	0.39	0.13	170'	B	10.9	0.54	0.17	231'
	Westbound	B	10.7	--	--	--	B	12.0	--	--	--
	NB Left-Thru-Right	D	40.2	0.26	0.38	87'	D	46.4	0.38	0.60	137'
	Northbound	D	40.2	--	--	--	D	46.4	--	--	--
	SB Left-Thru-Right	D	45.9	0.73	0.64	245'	D	51.2	0.72	0.62	238'
	Southbound	D	45.9	--	--	--	D	51.2	--	--	--
	Intersection Total	B	16.6	--	--	--	B	17.3	--	--	--

Table 3: Existing Capacity Analysis for SR 63 and Main Street

INTERSECTION	APPROACH	AM Peak					PM Peak				
		120s Cycle Length					125s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Cincinnati-Dayton Road	EB Left	E	63.2	0.80	0.37	161'	E	64.6	0.87	0.57	252'
	EB Thru	B	16.2	0.61	0.19	268'	C	30.4	0.57	0.26	371'
	EB Right	B	15.9	0.61	0.18	238'	C	30.2	0.57	0.25	337'
	Eastbound	C	20.4	--	--	--	D	36.5	--	--	--
	WB Left	E	56.4	0.61	0.12	83'	E	64.4	0.86	0.36	246'
	WB Thru	C	22.7	0.55	0.09	335'	D	42.3	0.87	0.16	619'
	WB Right	C	22.9	0.56	0.08	281'	D	42.9	0.87	0.15	551'
	Westbound	C	25.1	--	--	--	D	45.3	--	--	--
	NB Left	D	42.2	0.34	0.71	120'	D	40.8	0.43	0.79	135'
	NB Thru	D	54.3	0.83	0.89	239'	E	71.1	0.89	1.35	364'
	NB Right	D	50.3	0.54	0.86	134'	D	48.0	0.43	0.87	135'
	Northbound	D	50.1	--	--	--	E	58.8	--	--	--
	SB Left	D	41.9	0.70	0.70	239'	D	41.3	0.75	0.71	241'
	SB Thru	D	43.6	0.36	0.16	137'	D	45.9	0.60	0.30	265'
	SB Right	D	43.6	0.35	0.13	115'	D	44.8	0.53	0.22	193'
	Southbound	D	42.8	--	--	--	D	44.0	--	--	--
	Intersection Total	C	29.4	--	--	--	D	44.5	--	--	--

Table 4: Existing Capacity Analysis for SR 63 and East Avenue

INTERSECTION	APPROACH	AM Peak					PM Peak				
		Stop Control					Stop Control				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & East Avenue	EB Thru	A	0.0	0.00	0.00	0'	A	0.0	0.00	0.00	0'
	EB Thru-Right	A	0.0	0.00	0.00	0'	A	0.0	0.00	0.00	0'
	Eastbound	A	0.0	--	--	--	A	0.0	--	--	--
	WB Left	B	13.9	0.13	0.04	11'	B	11.7	0.18	0.06	15'
	Westbound	B	13.9	--	--	--	B	11.7	--	--	--
	NB Right	C	18.5	0.28	0.11	31'	B	13.4	0.13	0.04	10'
	Northbound	C	18.5	--	--	--	B	13.4	--	--	--
	Intersection Total	A	1.8	--	--	--	A	1.8	--	--	--

Table 5: Existing Capacity Analysis for SR 63 and Lawton Ave

INTERSECTION	APPROACH	AM Peak					PM Peak				
		110s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Lawton Avenue	EB Left	A	3.7	0.06	0.02	4'	A	4.8	0.07	0.02	4'
	EB Thru	A	2.7	0.46	0.02	75'	A	0.8	0.37	0.01	18'
	Eastbound	A	2.8	--	--	--	A	0.9	--	--	--
	WB Thru	A	6.4	0.37	0.20	145'	A	7.2	0.52	0.33	243'
	WB Right	A	2.8	0.06	0.02	12'	A	2.4	0.04	0.01	6'
	Westbound	A	6.1	--	--	--	A	7.1	--	--	--
	SB Left	D	50.9	0.45	0.02	55'	E	56.5	0.57	0.03	85'
	SB Right	D	45.4	0.29	0.14	56'	D	51.1	0.36	0.17	71'
	Southbound	D	47.8	--	--	--	D	53.8	--	--	--
	Intersection Total	A	5.7	--	--	--	A	6.5	--	--	--

4.B No Build Traffic Capacity

As previously mentioned, future development is expected for the vacant land at the northeast corner of SR 63 and Main Street. Because of this, future year (2050) No Build traffic analysis includes traffic growth related to this development. Two development scenarios were provided by City of Monroe –

Development scenario 1 – assumed 1,600 multifamily housing units and 290,000 square feet of mixed retail.

Development scenario 2 – assumed 1,120 of multifamily housing units, 310,000 square feet of industrial space, and 290,000 square feet of mixed retail.

Trip generation was produced according to procedures outlined in the Institute of Transportation Engineer's *Trip Generation Manual, 11th Edition, 2021*. Internal capture and pass-by rates were limited to a total reduction of 20%. Both scenarios produced similar results. Scenario 1 resulted in 810 new trips in the AM peak hour and 1544 new trips in the PM peak hour. Scenario 2 resulted in 726 new trips in the AM peak hour and 1423 new trips in the PM peak hour. Development scenario 1 was selected and utilized in projected traffic volumes due to its higher number of trips. Details are shown in **Table 6**, below. Calculations are provided in **Appendix D**.

Table 6: Scenario 1 Trip Generation Results

Development Scenario #1	Code	Quantity	Units	Daily Trips	AM Peak			PM Peak		
Land Use					In	Out	Total	In	Out	Total
Multifamily Housing	220	1600	Units	10331	125	394	519	447	262	709
Mixed Retail	820	290000	SQ FT	13436	189	116	305	583	632	1215
Totals:				23767	313	510	824	1030	894	1924
Internal Capture				%	2%	1%	2%	22% 10%*	25% 11%*	23% 11%*
Passby (Retail)				External Trips:	307	503	810	930	796	1726
				%	0%	0%	0%	34% 15%*	34% 15%*	34% 15%*
				Passby Trips	0	0	0	87	94	182
				New Trips:	307	503	810	843	701	1544

*Internal Capture and Passby rates limited to a 20% total reduction

As a result of this future development, two future access points were assumed – one at the existing intersection of Cincinnati-Dayton Road and Overbrook Court and one new intersection between East Avenue and Lawton Avenue on SR 63.

With projected 2050 traffic volumes and development traffic, the existing SR 63 and Main Street intersection with retiming performs poorly. In the AM Peak hour, a LOS of D with an average vehicle delay of 50.7 seconds is expected. In the PM peak hour, a LOS of F with an average vehicle delay of 203.2 seconds is expected. Capacity for each movement at all study intersections is detailed in Table 7 through Table 10 below. Detailed reports are provided in Appendix D.

Table 7: Future 2050 No Build (with Development) Traffic Capacity, Britton Lane

2050 Existing No Build with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		110s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Britton Lane	EB Left	E	59.6	0.44	0.17	32'	E	62.3	0.71	0.48	91'
	EB Thru	B	17.6	0.61	0.13	420'	B	17.5	0.59	0.13	420'
	EB Thru-Right	B	17.6	0.61	0.13	383'	B	17.5	0.59	0.13	393'
	Eastbound	B	18.3	--	--	--	B	19.6	--	--	--
	WB Left	E	61.0	0.37	0.10	17'	E	63.5	0.37	0.12	22'
	WB Thru	C	31.7	0.58	0.44	619'	C	29.2	0.54	0.39	550'
	WB Thru-Right	C	32.7	0.58	0.44	564'	C	30.0	0.54	0.39	511'
	Westbound	C	32.5	--	--	--	C	30.0	--	--	--
	NB Left-Thru-Right	D	39.7	0.21	0.39	91'	D	42.2	0.29	0.58	133'
	Northbound	D	39.7	--	--	--	D	42.2	--	--	--
	SB Left-Thru-Right	D	51.7	0.79	0.86	331'	E	55.0	0.78	0.84	324'
	Southbound	D	51.7	--	--	--	E	55.0	--	--	--
	Intersection Total	C	28.2	--	--	--	C	27.9	--	--	--

Table 8: Future 2050 No Build (with Development) Traffic Capacity, Main Street

2050 Existing No Build with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		110s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Cincinnati-Dayton Road	EB Left	D	49.9	0.86	0.39	170'	E	68.4	0.93	0.82	359'
	EB Thru	E	58.0	0.95	0.56	798'	F	169.1	1.25	0.83	1193'
	EB Right	E	58.5	0.96	0.55	724'	F	169.8	1.25	0.82	1100'
	Eastbound	E	57.4	--	--	--	F	150.4	--	--	--
	WB Left	E	58.2	0.83	0.26	182'	E	79.1	0.90	0.60	413'
	WB Thru	D	47.5	0.90	0.33	662'	F	392.6	1.76	1.25	2496'
	WB Right	D	45.6	0.91	0.29	524'	F	422.3	1.83	1.24	2362'
	Westbound	D	47.7	--	--	--	F	361.4	--	--	--
	NB Left	D	38.3	0.39	0.87	149'	D	35.8	0.45	0.94	160'
	NB Thru	D	52.9	0.86	1.10	297'	E	61.2	0.89	1.65	444'
	NB Right	D	48.6	0.65	1.28	198'	D	45.8	0.64	1.66	257'
	Northbound	D	48.0	--	--	--	D	51.4	--	--	--
	SB Left	D	43.2	0.77	0.82	278'	D	44.3	0.84	0.85	290'
	SB Thru	D	40.9	0.39	0.20	176'	D	38.5	0.53	0.33	286'
	SB Right	D	41.2	0.41	0.18	156'	D	38.9	0.55	0.27	239'
	Southbound	D	42.0	--	--	--	D	40.6	--	--	--
	Intersection Total	D	50.7	--	--	--	F	203.2	--	--	--

Table 9: Future 2050 No Build (with Development) Traffic Capacity, East Avenue

2050 Existing No Build with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		Stop Control					Stop Control				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & East Avenue	EB Thru	A	0.0	0.00	0.00	0'	A	0.0	0.00	0.00	0'
	EB Thru-Right	A	0.0	0.00	0.00	0'	A	0.0	0.00	0.00	0'
	Eastbound	A	0.0	--	--	--	A	0.0	--	--	--
	WB Left	C	18.6	0.15	0.05	13'	C	18.0	0.32	0.13	34'
	Westbound	C	18.6	--	--	--	C	18.0	--	--	--
	NB Right	C	20.6	0.13	0.05	13'	C	19.4	0.23	0.09	23'
	Northbound	C	20.6	--	--	--	C	19.4	--	--	--
	Intersection Total	A	0.8	--	--	--	A	2.1	--	--	--

Table 10: Future 2050 No Build (with Development) Traffic Capacity, Lawton Avenue

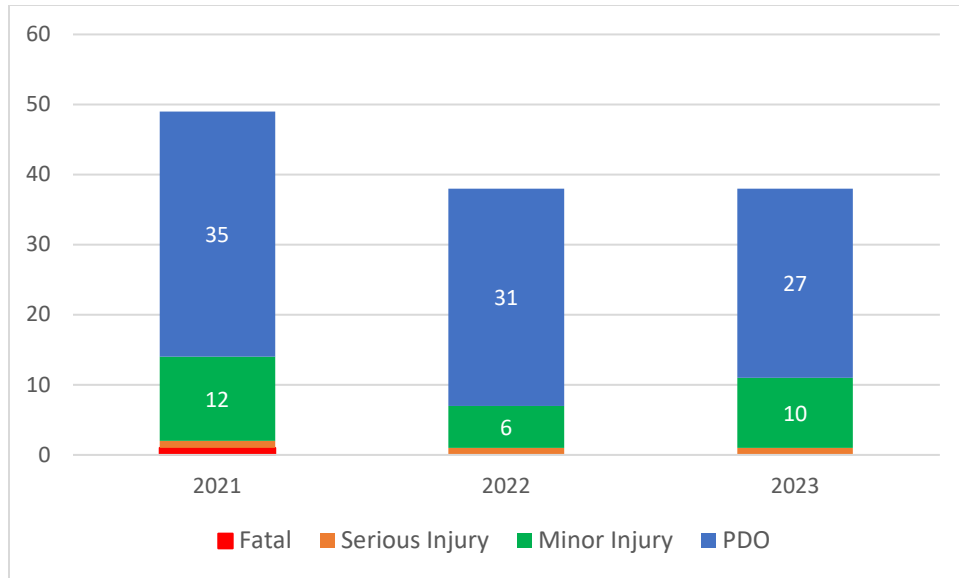
2050 Existing No Build with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		110s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Lawton Avenue	EB Left	A	4.2	0.08	0.02	5'	B	10.1	0.11	0.05	10'
	EB Thru	A	3.9	0.60	0.08	139'	A	2.1	0.55	0.02	66'
	Eastbound	A	3.9	--	--	--	A	2.2	--	--	--
	WB Thru	A	7.1	0.48	0.31	226'	B	10.7	0.73	0.57	417'
	WB Right	A	2.7	0.06	0.02	12'	A	2.4	0.04	0.01	6'
	Westbound	A	6.9	--	--	--	B	10.6	--	--	--
	SB Left	E	58.4	0.63	0.03	84'	E	56.5	0.57	0.03	85'
	SB Right	D	49.5	0.23	0.11	46'	D	50.9	0.36	0.17	71'
	Southbound	D	54.6	--	--	--	D	53.7	--	--	--
	Intersection Total	A	6.5	--	--	--	A	8.2	--	--	--

4.C Crash Trends

The three most recent years of crash data (2021-2023) were downloaded from ODOT's GIS Crash Analysis Tool (GCAT) for the study area. This data was analyzed using ODOT's Crash Analysis Module (CAM) tool. Crash reports were reviewed for accuracy, and a collision diagram was created. A copy of the CAM output and collision diagram is included in **Appendix E**.

In total 133 crashes were recorded within the study area. Two crashes were removed from further analysis after determining that they occurred outside the study area, four were eliminated due to being work zone related, and two were removed due to being classified as animal related. This left a total of 125 crashes in the study area that occurred between 2021 and 2023. Crash breakdown by year and severity is shown in **Graph 1**.

Note, the team also reviewed preliminary 2024 data. During the first 11 months of 2024, roughly 22 crashes occurred at the Main Street intersection. Crash types included six rear end crashes, four right turn crashes, and four angle crashes. Two serious injury crashes were reported – one angle crash and one left turn crash. So far in 2024, eight crashes have been reported at Britton Lane. This includes five rear end crashes, one left turn crash and one right turn crash. No serious injuries were reported. Five crashes were reported at Lawton Avenue so far, four of which were rear end crashes. Data from 2024 is not included in the crash analysis due to it being incomplete but was considered when identifying countermeasures.



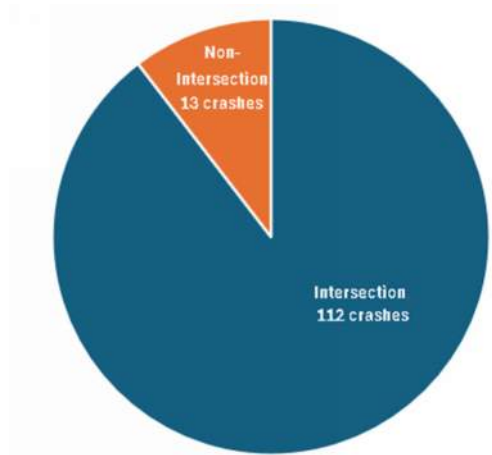
Graph 1: Crash Breakdown by Year and Severity

Since 2021, the overall number of crashes has trended down, and the overall injury rate over this three-year period was 25.2%. This includes one fatal crash in 2021, and three serious injury crashes (one per year).

The fatal crash was reported as an angle crash at the Main Street intersection. It occurred when a westbound vehicle ran the red light. No adverse weather or lighting conditions were noted.

The three serious injury crashes included one fixed object crash, one motorcycle crash, and one left turn crash. The fixed object crash occurred in the westbound direction, immediately west of Main Street. An emergency medical event was suspected to be the cause. The motorcycle crash occurred at the Main Street intersection. The motorcycle was making a turn from the southbound approach and slipped on an unknown substance on the road. The left turn crash also occurred at the Main Street intersection when a vehicle turning left from the westbound direction failed to yield to eastbound traffic.

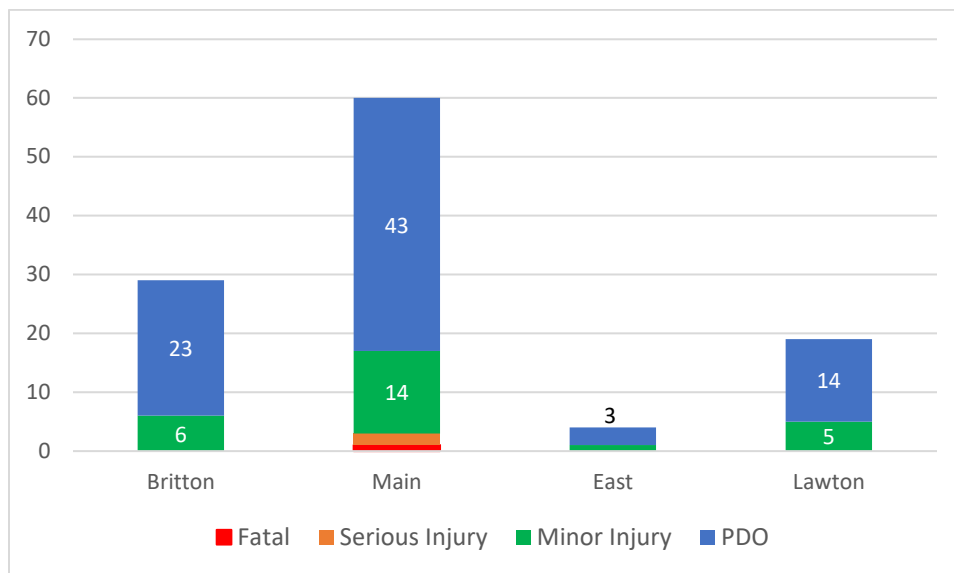
Crash breakdown by location type is shown in **Graph 2**.



Graph 2: Crash Breakdown by Location Type

Nearly 90% of all crashes were reported as intersection related. Just 13 crashes were reported as non-intersection related. Non-intersection related crashes were most frequent along SR 63 between East Avenue and Lawton Avenue. There was also a concentration of driveway related crashes at the Domino's driveway on Main Street, north of SR 63.

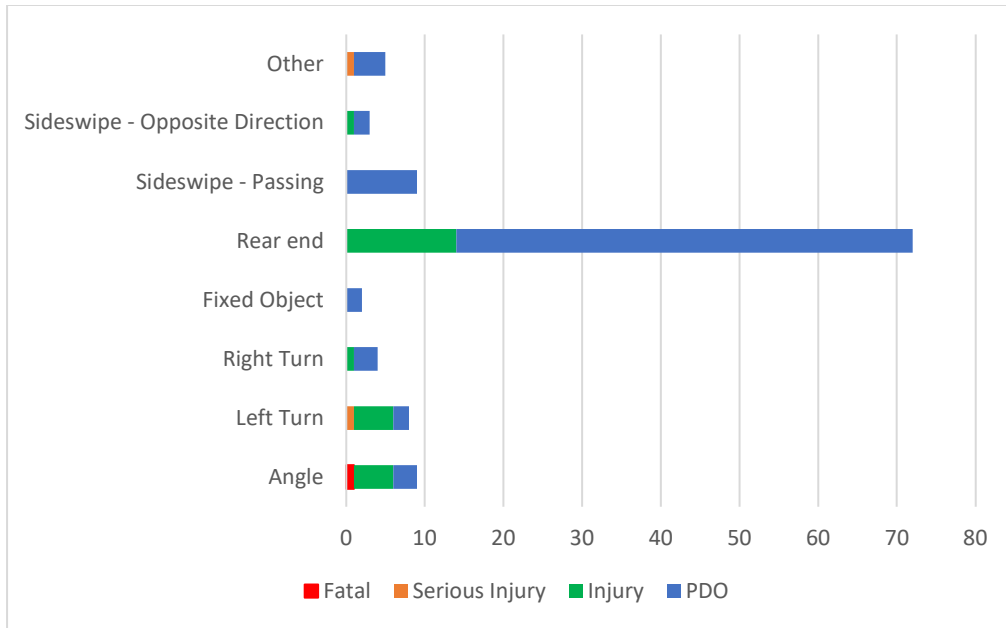
The breakdown in intersection-related crashes by location is described in **Graph 3**.



Graph 3: Crash Breakdown by Intersection

Intersection crashes were most concentrated at the Main Street intersection. This intersection alone accounted for 60 of the 112 intersection crashes. This intersection was also the only intersection to experience fatal or serious injury crashes.

Crash breakdown showing the type and severity of intersection related crashes across all intersections is summarized in **Graph 4**.



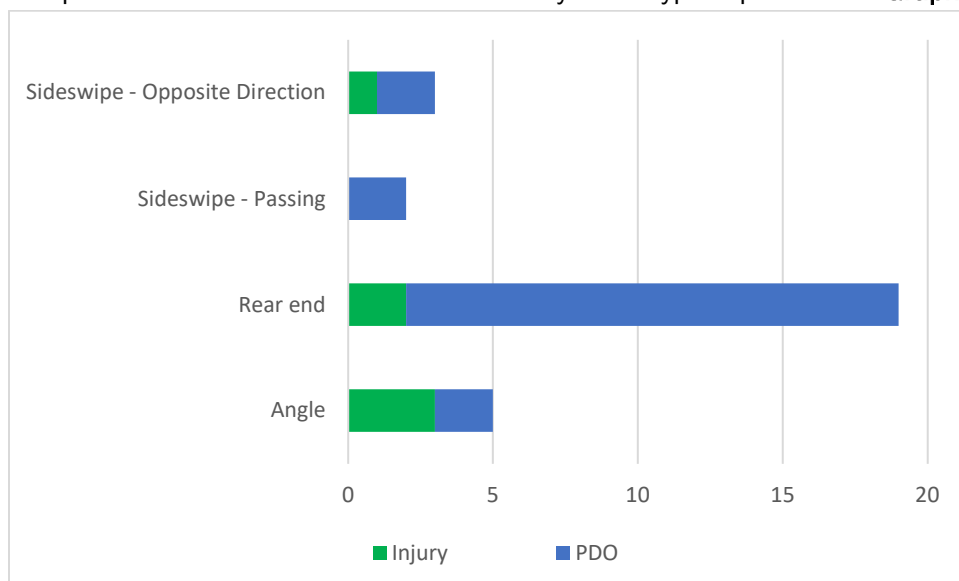
Graph 4: Overall Intersection Crash Breakdown by Type and Severity

Overall, the most frequent intersection related crashes were rear end, followed by angle and sideswipe-passing. Trends are summarized per intersection below.

Semi-trucks or single-unit box trucks were involved in 12 of the 125 crashes, or nearly 10% of all crashes.

Britton Lane

At Britton Lane, 29 total crashes occurred and 21% resulted in injury. No fatal or serious injury crashes were reported at this intersection. Breakdown by crash type is provided in **Graph 5**.



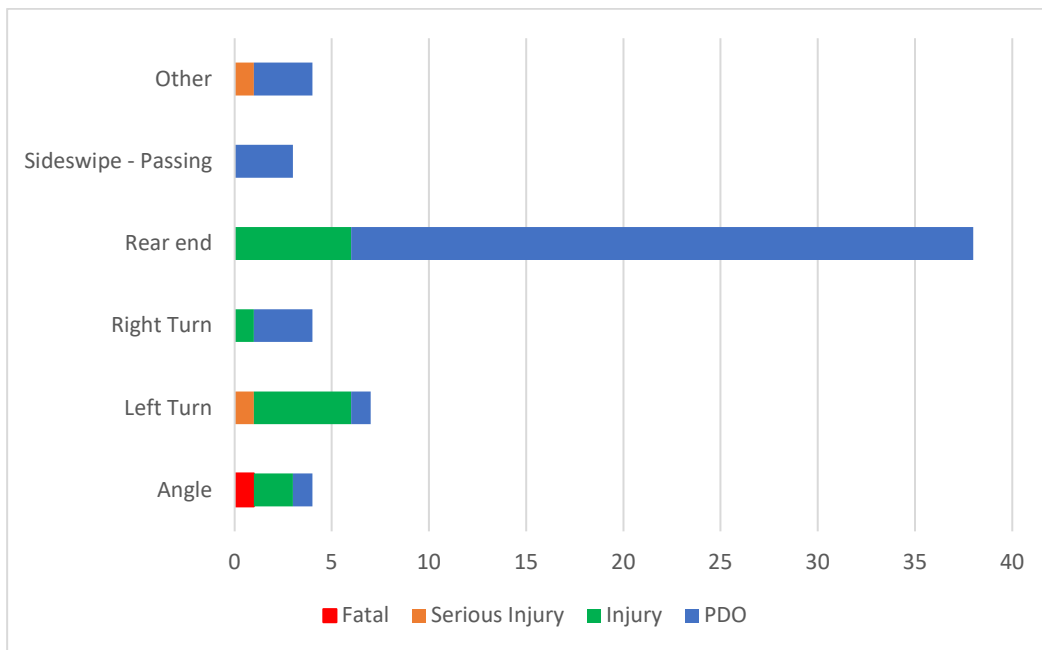
Graph 5: Britton Lane Intersection Crashes by Type and Severity

The most frequent crash types at this signalized intersection were rear end, followed by angle.

- **Rear end** crashes accounted for a total of 19 crashes, which equates to 66% of all Britton Lane intersection crashes. This exceeds the ODOT statewide average for rear end crashes at urban, 4-leg signalized, divided multi-lane intersections by nearly 20%. The statewide average is 47.03%. Rear end crashes at this intersection were most common to occur in the westbound direction between four and six PM.
- **Angle** crashes accounted for a total of 5 crashes, which equates to 17% of all Britton Lane intersection crashes. These crashes were evenly split between eastbound and westbound vehicles running the red light.

Main Street

At Main Street, 60 total crashes occurred and 28% resulted in injury. This includes one fatal crash and two serious injury crashes. The fatal crash was reported as an angle crash that occurred when a westbound vehicle ran the red light. No adverse weather or lighting conditions were noted. The serious injury crashes included one motorcycle crash and one left turn crash. A motorcycle was making a turn from the southbound approach, slipped on an unknown substance on the road and overturned. The left turn crash occurred when a vehicle turning left from the westbound direction failed to yield to eastbound traffic. Breakdown by crash type is provided in **Graph 6**.



Graph 6: Main Street Intersection Crashes by Type and Severity

The most frequent crash types at this signalized intersection were rear end, followed by left turn, and angle.

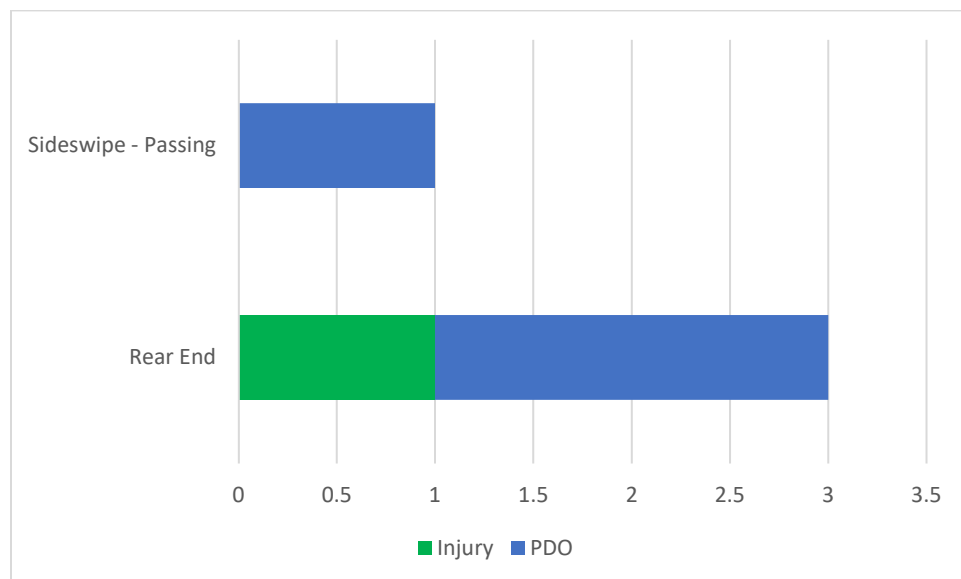
- **Rear end** crashes accounted for a total of 38 crashes, which equates to 63% of all Main Street intersection crashes. This exceeds the ODOT statewide average for rear end crashes at urban, 4-leg signalized, divided multi-lane intersections by over 16%. The statewide average is 47.03%. Rear end crashes at this intersection most frequently occurred on the westbound and southbound approaches. On the westbound approach, rear end crashes most frequently occurred between four and six PM. There was also a concentration of rear

end crashes that occurred in the westbound right turn slip lane. Vehicles turning right from this lane must yield to oncoming northbound traffic. On the southbound approach rear end crashes most frequently occurred between 11 and one PM.

- **Left turn** crashes accounted for a total of seven crashes, which equates to 12% of all Main Street intersection crashes. These crashes most frequently originated on the southbound approach. All noted failure to yield as the contributing factor. Currently, the northbound and southbound approaches are equipped with protected/permitted left turn phasing. In 2022, the eastbound and westbound SR 63 approaches were converted to be protected only left turn signal phasing.
- **Angle** crashes accounted for a total of five crashes, which equates to 8% of all Main Street intersection crashes. All occurred when a driver ran the red light and was most common on the eastbound and westbound approaches.

East Avenue

At East Avenue, four total crashes occurred and just one resulted in minor injury. No fatal or serious injury crashes occurred. Breakdown by crash type is provided in **Graph 7**.

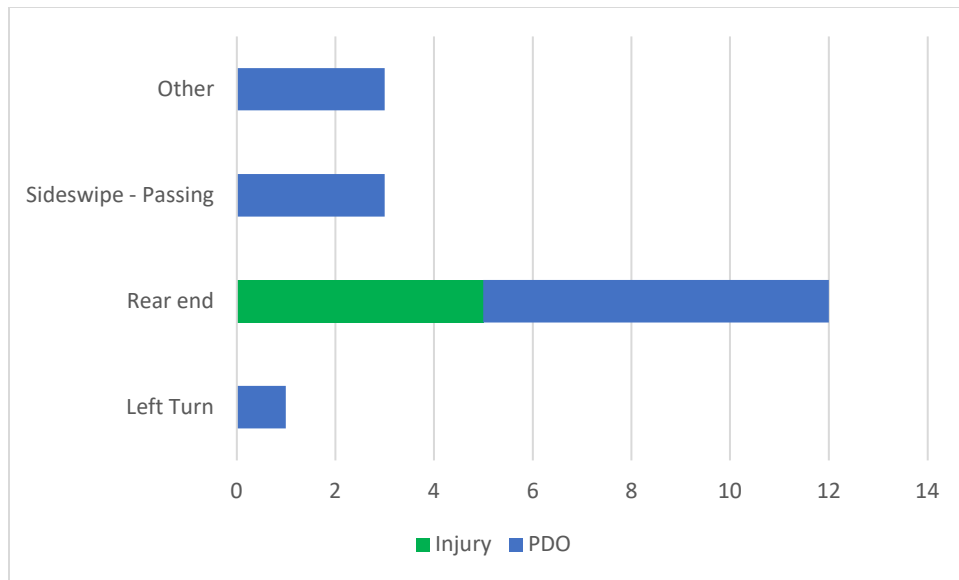


Graph 7: East Avenue Intersection Crashes by Type and Severity

Crashes at this stop-controlled intersection included three rear ends and one sideswipe-passing. All rear end crashes originated on the northbound approach. The single sideswipe-passing crash occurred on eastbound SR 63 west of East Avenue.

Lawton Avenue

At Lawton Avenue, 19 total crashes occurred and 26% resulted in injury. No fatal or serious injury crashes were reported at this intersection. Breakdown by crash type is provided in **Graph 8**.



Graph 8: Lawton Avenue Intersection Crashes by Type and Severity

The most frequent crash types at this signalized intersection was rear end, followed by sideswipe-passing.

- **Rear end** crashes accounted for a total of 12 crashes, which equates to 63% of all Lawton Avenue intersection crashes. This exceeds the ODOT statewide average for rear end crashes at urban, 3-leg signalized intersections by nearly 23%. The statewide average is 40.55%. Rear end crashes at this intersection most frequently occurred on the westbound approach between four and five PM. On the eastbound approach rear end crashes most commonly occurred between 11 and one PM.
- **Sideswipe-Passing** crashes accounted for three crashes at the intersection, and all occurred on the westbound approach. All occurred during wet and/or adverse lighting conditions.

4.D Existing Safety Analysis

Highway Safety Manual methodology was applied using ODOT's Economic Crash Analysis Tool (ECAT). This process allows users to assess the safety performance of a location based on a combination of historical crash data, existing roadway characteristics, and traffic volumes. The analysis output is provided via three values, defined below.

Predicted Crash Frequency ($N_{\text{PREDICTED}}$) – defined as how a site would be expected to perform relative to 1,000 sites with comparable roadway characteristics and traffic volumes. This value is presented using units of crashes per year, and commonly broken down according to injury severity level.

Expected Crash Frequency (N_{EXPECTED}) – defined as the average performance of a site, normalized over an extended period based on actual crash history. This value is presented using units of crashes per year, and commonly broken down according to injury severity level.

Potential for Safety Improvement (N_{PSI}) – difference between Expected Crash Frequency and Predicted Crash Frequency. A positive value indicates that the location is performing poorly

compared to similar locations and safety improvements would likely have a significant impact on reducing crash frequency.

Results are presented in terms of injury severity levels, which are based on FHWA's KABCO rating scale where: K= fatal injury crash, A = incapacitating injury crash, B= non-incapacitating injury crash, C= possible injury, O= no injury/property damage only.

Table 11 examines the existing study area as a whole.

Table 11: Existing Safety Performance Evaluation Results

	KA	B	C	O	Total
N _{PREDICTED} - Existing	0.4877	2.3591	3.6329	16.5418	23.0215
N _{EXPECTED} - Existing	0.5602	2.7992	4.4194	24.4895	32.2683
N _{PSI} - Existing	0.0725	0.4401	0.7865	7.9477	9.2468

Findings show that the study area experiences 9.25 more crashes per year than would be predicted based on the roadway characteristics and traffic volumes. This overrepresentation is experienced across all crash severity levels. The PSI per segment and intersection were further examined to identify the primary safety concerns by location. These results are summarized in **Table 12**. Locations and crash severities experiencing more crashes than would be predicted are shown in red.

Table 12: Existing Potential for Safety Improvement per Location

	KA	B	C	O	Total
SR 63 and Britton Ln	-0.0010	-0.0053	-0.0096	1.3635	1.3476
SR 63 from Britton Ln to Main St	-0.0012	-0.0065	-0.0149	-0.2127	-0.2353
SR 63 and Main St/Cincinnati Dayton Rd	0.0761	0.4409	0.8046	6.0557	7.3773
SR 63 and East Ave	0.0007	0.0035	0.0051	0.1294	0.1387
SR 63 from East Ave to Lawton Ave	-0.0111	-0.0469	-0.0947	-0.0763	-0.2290
SR 63 and Lawton Ave	0.0090	0.0544	0.0960	0.6881	0.8475

Findings show that the overrepresentation of crashes is spread across all intersections, and most prevalent at the SR 63 and Main Street Intersection. This intersection experiences 7.38 more crashes per year than would be predicted.

Detailed ECAT reports for the existing conditions are provided in **Appendix F**.

5.0 Countermeasure Identification

A second stakeholder meeting was held at the City of Monroe Library Community Center on November 20, 2024. The purpose of this meeting was to present the countermeasures and solicit feedback. A copy of the meeting minutes is included in **Appendix A**.

5.A Britton Lane

Short Term

Add **backplates with retroreflective border** to all existing signal heads on the northbound and southbound approaches. Signal heads on the eastbound and westbound approaches are already equipped with backplates. According to FHWA, signal backplates with retroreflective border are a

proven safety countermeasure. They improve signal visibility and can lead to a 15% reduction in total crashes. Note, that backplates will increase the wind load on the existing signal strain poles. Existing loading and capacity on the current signal poles should be checked prior to implementation of this recommendation.

Install **near side supplemental signal heads** on the eastbound and westbound approaches, right side of the road. These signal heads may potentially be installed on the existing signal strain poles, pending the ability to clear vegetation and other sight distance obstructions. If not, they should be installed on their own pedestal signal poles. Supplemental signal heads improve signal visibility by offering more viewing angles and allow vehicles more time to react and come to a stop for red lights. Per ODOT's *Traffic Engineering Manual*, supplemental signal heads are recommended on all signalized intersections with high speeds (45 mph or greater) or high truck traffic (10% or greater). SR 63 meets both criteria.

Install **dual signal ahead warning signs** in advance of the intersection on the eastbound and westbound approaches. One sign should be installed in the median, and a second on the right side of the road. Signpost reflectors are recommended on the signposts to improve visibility. Advance intersection warning signs bring increased awareness of the upcoming signal and dual signs ensure optimal visibility for drivers in both lanes.

Re-evaluate **signal timing** at the intersection and adjust accordingly. Concerns related to coordination between signals along SR 63 were noted by stakeholders. Poor signal coordination, combined with the truck volumes and grades along SR 63 may be contributing to the number of rear end crashes at the intersection.

Refresh pavement markings corridor wide. Pavement markings that are easy to see help clarify lane designations for drivers and can reduce confusion and driver mistakes that lead to crashes. This work is already scheduled to be completed in 2025.

Replace the existing crosswalk with a **high-visibility longitudinal bars crosswalk design**. Stakeholders noted this crosswalk is heavily used and high-visibility markings can improve safety by bringing increased awareness to drivers. An example is shown in **Figure 6** below. According to FHWA, high-visibility crosswalk markings can improve pedestrian safety by as much as 40%.



Figure 6: Example of High-Visibility Crosswalk

Clear vegetation, specifically in the northeast corner. Vegetation overgrowth and fencing restricts southbound drivers' view of westbound traffic, and stakeholders noted red light running is not uncommon due to the grades on SR 63. Some clearing in the southwest corner could also help, especially if supplemental signal heads are implemented.

A cost estimate for all short term recommendations is provided in **Appendix G**.

Medium Term

Install **eastbound and westbound right turn lanes**. Designated right turn lanes are especially beneficial on high-speed roadways like SR 63 because they allow a safe space for right turning vehicles to decelerate. According to the *Highway Safety Manual*, a dedicated right turn lane can result in a 9% reduction in total injury crashes when installed on a single intersection approach, or 17% reduction when installed on two approaches. According to 2050 traffic projections, the recommended turn lane lengths are 225 feet on the eastbound approach and 395 feet on the westbound approach. Note this would likely require rebuilding the existing signal and right-of-way acquisition.

5.B Main Street

Short Term

Add **backplates with retroreflective border** to all existing signal heads on the northbound and southbound approaches. Signal heads on the eastbound and westbound approaches are already equipped with backplates. According to FHWA, signal backplates with retroreflective border are a proven safety countermeasure. They improve signal visibility and can lead to a 15% reduction in total crashes. Note, that backplates will increase the wind load on the existing signal mast arms. Existing loading and capacity on the current signal poles should be checked prior to implementation of this recommendation.

Install **near side supplemental signal heads** on the eastbound and westbound approaches, right side of the road. These signal heads will need to be installed on new pedestal poles and should be positioned so that both oncoming traffic on the thru lanes and vehicles waiting in the slip lane can see the signal. Along with this improvement, stop line pavement markings should be added on the right turn slip lanes to denote where vehicles must stop. Supplemental signal heads improve signal visibility by offering more viewing angles and allow vehicles more time to react and come to a stop for red lights. Per ODOT's *Traffic Engineering Manual*, supplemental signal heads are recommended on all signalized intersections with high speeds (45 mph or greater) or high truck traffic (10% or greater). SR 63 meets both criteria.

Install **dual signal ahead warning signs** in advance of the intersection on the eastbound and westbound approaches. One sign should be installed in the median, and a second on the right side of the road. Signpost reflectors are recommended on the signposts to improve visibility. Advance intersection warning signs bring increased awareness of the upcoming signal and dual signs ensure optimal visibility for drivers in both lanes.

Re-evaluate **signal timing** at the intersection and adjust accordingly. Concerns related to coordination between signals along SR 63, and timing for the southbound left turn movement were

noted by stakeholders. Poor signal coordination, combined with the truck volumes and grades along SR 63 may be contributing to the number of rear end crashes at the intersection.

Refresh pavement markings corridor wide. Pavement markings that are easy to see help clarify lane designations for drivers and can reduce confusion and driver mistakes that lead to crashes. This work is already scheduled to be completed in 2025.

Prohibit right turn on red on all approaches. Restricted visibility caused by the intersection skew, combined with the high speeds at the intersection can make it difficult for drivers to safely identify a safe gap to turn right on red. Additionally, several crashes in 2024 have been identified as related to drivers turning right on red. Traffic capacity at the intersection is not negatively impacted by prohibiting right turn on red, but safety is improved.

A cost estimate for all short term recommendations is provided in **Appendix G**.

Medium Term

Extend the existing **eastbound and westbound right turn lanes**. Designated right turn lanes are especially beneficial on high-speed roadways like SR 63 because they allow a safe space for right turning vehicles to decelerate. Right turn lanes currently exist at this intersection but are not long enough and commonly blocked by traffic in the thru lanes. Based on 2050 traffic projections, the recommended turn lane lengths are 295 feet on the eastbound approach and 545 feet on the westbound approach.

Revise design of the **East Avenue westbound left turn** lane so that it opens before the Main Street westbound left turn and consider adding overhead signage. The current design is prone to confusion by left turning vehicles.

Long Term

Six intersection alternatives were considered, which are summarized below. Three were dismissed due to poor traffic capacity results – Roundabout, Restricted Crossing U-Turn (RCUT) intersection, and Offset T-intersections. Three were carried forward through more detailed analysis – Traditional Signal Improvements, Quadrant Roadway, and Partial Continuous Flow Intersection/Displaced Left Turn (CFI/DLT).

Long Term Considerations Dismissed

Multi-Lane Roundabout – this alternative was dismissed because even with dual circulating lanes and right turn bypass lanes on all approaches, it is unable to support 2050 traffic volumes. Multiple approaches reach a LOS of F in both the AM and PM peak hours. In addition, the surrounding area has few roundabouts. A complex, multi-lane roundabout could be difficult to navigate for unfamiliar drivers.

RCUT intersection – this intersection type displaces minor road left and thru movements to adjacent U-turn intersections. **Figure 7** below is an example of this intersection type, located in Hamilton, Ohio at the intersection of OH 4 Bypass and Tylersville Road. This alternative was dismissed due to right-of-way and intersection spacing conflicts. The eastbound U-turn movement was placed at Britton Lane due to proximity to the Britton Lane and Main Street intersection. However, projected volumes

indicated a dual U-turn lane would be required, but the limited right-of-way and intersection spacing made this improvement impractical.



Figure 7: Example RCUT Intersection in Hamilton, OH

Offset T-intersections – converting the existing 4-leg intersection to two offset T-intersection would allow Main Street to intersect SR 63 at 90-degree angles, spaced approximately 600 feet apart. Both roundabout and signalized traffic control options were analyzed at the two intersections. Each intersection performs well by itself (LOS C), but the delay of each intersection must be combined for a fair comparison to other alternatives. Combining the delay, this intersection has significantly higher delay than other alternatives. Therefore, this alternative was dismissed.

Long Term Considerations Carried Forward

Traditional Signalized Intersection Improvements – this alternative examined what would be required to keep the existing signalized intersection but still handle future 2050 traffic volumes. Findings showed that the intersection must be expanded to include dual eastbound, westbound, and southbound left-turn lanes. Additionally, two northbound thru lanes on Main Street are required to support projected traffic. A conceptual layout for this alternative is provided in **Appendix G**. Traffic capacity, safety, and cost details are provided in the next section.

Quadrant Roadway Intersection – this intersection type is an innovative design solution which eliminates all left turns at the primary intersection. To do so, a secondary roadway (the quadrant roadway) is constructed to provide a path for diverted traffic. **Figure 8** below demonstrates these diversions.

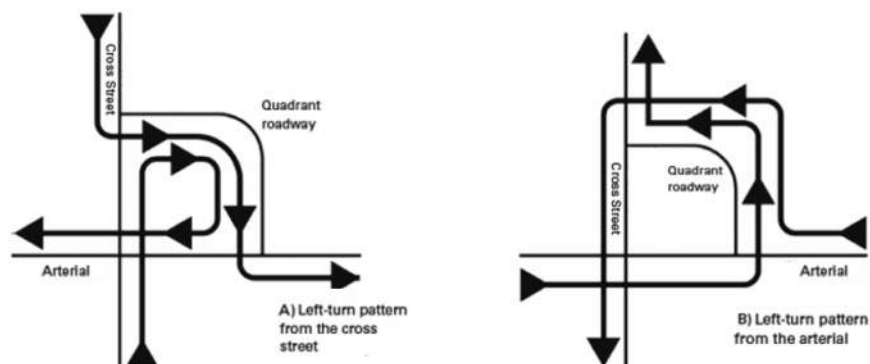


Figure 8: Example of Quadrant Roadway Traffic Flow

With a quadrant roadway intersection, two additional intersections are required. Note, these are not new intersections and would exist in all alternatives because of the development. One terminal of the quadrant roadway would tie into the new development drive on SR 63 between East Avenue and Lawton Avenue. The other terminal of the quadrant roadway would tie into the existing intersection at Overbrook Court and Cincinnati-Dayton Road. The site plan for the development will need to be designed with the quadrant roadway in consideration. A conceptual layout for this alternative is provided in **Appendix G**. Traffic capacity, safety, and cost details are provided in the next section.

Partial CFI/DLT – this intersection type is another innovative intersection design solution. A Partial CFI/DLT crosses left turning movements over so that thru traffic and left turning movements can be performed simultaneously with no conflicts. The crossover can occur on either the major or minor roadway approaches. At SR 63 and Main Street, the left turns would cross over on the SR 63 approaches. **Figure 9** below is an example of this intersection type, located in Miamisburg, Ohio at the intersection of Austin Boulevard and Springboro Pike. A conceptual layout has not been developed at time. Traffic capacity and safety details are provided in the next section.



Figure 9: Example Partial CFI/DLT in Miamisburg, Ohio

5.C Lawton Avenue

Short Term

Add **backplates with retroreflective border** to all existing signal heads on all approaches. According to FHWA, signal backplates with retroreflective border are a proven safety countermeasure. They improve signal visibility and can lead to a 15% reduction in total crashes. Note, that backplates will increase the wind load on the existing signal strain poles. Existing loading and capacity on the current signal poles should be checked prior to implementation of this recommendation.

Install **near side supplemental signal heads** on the eastbound and westbound approaches, right side of the road. These signal heads will need to be installed on new pedestal poles so they can be positioned for optimum visibility. Supplemental signal heads improve signal visibility by offering more viewing angles and allow vehicles more time to react and come to a stop for red lights. Per ODOT's *Traffic Engineering Manual*, supplemental signal heads are recommended on all signalized intersections with high speeds (45 mph or greater) or high truck traffic (10% or greater). SR 63 meets both criteria.

Install **dual signal ahead warning signs** in advance of the intersection on the eastbound and westbound approaches. One sign should be installed in the median, and a second on the right side

of the road. Signpost reflectors are recommended on the signposts to improve visibility. Advance intersection warning signs bring increased awareness of the upcoming signal and dual signs ensure optimal visibility for drivers in both lanes.

Re-evaluate **signal timing** at the intersection and adjust accordingly. Concerns related to coordination between signals along SR 63 were noted by stakeholders. Poor signal coordination, combined with the truck volumes and grades along SR 63 may be contributing to the number of rear end crashes at the intersection.

Refresh pavement markings corridor wide. Pavement markings that are easy to see help clarify lane designations for drivers and can reduce confusion and driver mistakes that lead to crashes. This work is already scheduled to be completed in 2025.

A cost estimate for all short term recommendations is provided in **Appendix G**.

Medium Term

No medium term recommendations were identified for this intersection.

6.0 Main Street Long Term Alternatives Comparison

6.A Proposed Traffic Capacity

Traditional Signalized Intersection Improvements

To handle 2050 traffic volumes with development traffic, the intersection must be expanded to include dual eastbound, westbound, and southbound left-turn lanes. Additionally, two northbound thru lanes on Main Street are required to support projected traffic. With this expansion, the intersection is projected to perform at a LOS of C with an average vehicle delay of 29.7 seconds in the 2050 AM peak hour with development traffic. In the PM peak hour, the intersection will perform at a LOS of D with an average vehicle delay of 38.9 seconds. This intersection delay is slightly better than the existing PM peak hour condition (D/44.5). Capacity for each movement is detailed in **Table 13** below. Detailed reports are provided in **Appendix H**.

Table 13: Proposed 2050 (With Development) Traffic Capacity, Traditional Signal

2050 Proposed Lanes with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		120s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Cincinnati-Dayton Road	EB Left	D	53.2	0.59	0.21	92'	D	54.8	0.80	0.43	189'
	EB Thru	C	26.2	0.79	0.34	486'	D	43.9	0.77	0.43	618'
	EB Right	B	10.9	0.08	0.05	34'	C	22.2	0.10	0.17	120'
	Eastbound	C	28.1	--	--	--	D	44.7	--	--	--
	WB Left	D	51.6	0.52	0.11	78'	E	58.9	0.78	0.27	184'
	WB Thru	B	17.3	0.58	0.27	272'	C	28.6	0.87	0.45	454'
	WB Right	A	6.4	0.25	0.07	57'	A	8.7	0.41	0.12	99'
	Westbound	B	18.7	--	--	--	C	29.1	--	--	--
	NB Left	D	39.0	0.54	0.83	142'	D	39.4	0.65	0.96	163'
	NB Thru	D	46.5	0.59	0.53	143'	D	46.9	0.61	0.79	213'
	NB Right	D	40.7	0.53	1.11	172'	D	38.6	0.53	1.50	232'
	Northbound	D	42.9	--	--	--	D	42.9	--	--	--
	SB Left	D	50.8	0.80	0.46	155'	D	55.0	0.82	0.54	184'
	SB Thru	D	46.8	0.65	0.21	180'	D	49.9	0.84	0.36	316'
	SB Right	D	39.0	0.44	0.16	143'	D	36.6	0.50	0.26	227'
	Southbound	D	46.5	--	--	--	D	47.8	--	--	--
	Intersection Total	C	29.7	--	--	--	D	38.9	--	--	--

Quantifying this, total delay (average delay multiplied by total entering traffic) was calculated. This traditional signalized intersection experiences 49.2 hours of delay in the 2050 PM peak hour.

Quadrant Roadway Intersection

With a quadrant roadway, all intersections are projected to perform well in the 2050 AM and PM peak hours with development traffic. The Overbrook Court intersection will perform at a LOS B/18.6 and B/14.7 in the AM and PM peak hours, respectively. This assumes both a single left turn and single right turn lane on all approaches except eastbound. The New Road intersection with SR 63 will perform at a LOS B/18.3 and C/31.4 in the AM and PM peak hours, respectively. This assumes dual left turn lanes on both the eastbound and southbound approaches, and a single right turn lane on the westbound and southbound approaches. The intersection of Main Street and SR 63 will perform at a LOS B/18.0 in the AM peak hour and C/22.4 PM peak hour. This assumes no left turn movements at the intersection, and a single right turn lane on all approaches. While delays are minimized, additional travel time must be considered. For example, a northbound vehicle attempting to go westbound must travel at least 0.5 mile to complete this movement. Capacity for each movement is detailed in **Table 14 through Table 16** below. Detailed reports are provided in **Appendix H**.

Table 14: Proposed 2050 (With Dev) Traffic Capacity, Quadrant Intersection (Main Street)

2050 Quadrant Roadway with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		120s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & Cincinnati-Dayton Road	EB Thru	B	10.4	0.64	0.20	294'	B	18.9	0.71	0.32	459'
	EB Right	A	6.4	0.08	0.00	27'	B	11.7	0.09	0.00	46'
	Eastbound	B	10.2	--	--	--	B	18.5	--	--	--
	WB Thru	A	7.9	0.49	0.11	203'	B	13.3	0.76	0.15	303'
	WB Right	A	8.2	0.26	0.00	108'	A	8.4	0.42	0.00	130'
	Westbound	A	8.0	--	--	--	B	12.3	--	--	--
	NB Thru	D	47.4	0.90	1.54	416'	D	40.7	0.87	1.85	500'
	NB Right	D	39.8	0.44	1.15	179'	C	33.3	0.44	1.40	217'
	Northbound	D	45.2	--	--	--	D	38.5	--	--	--
	SB Thru	D	42.2	0.64	0.34	294'	D	42.0	0.91	0.60	525'
	SB Right	D	39.1	0.38	0.17	151'	C	34.0	0.49	0.25	220'
	Southbound	D	41.2	--	--	--	D	39.6	--	--	--
	Intersection Total	B	18.0	--	--	--	C	22.4	--	--	--

Table 15: Proposed 2050 (With Dev) Traffic Capacity, Quadrant Intersection (New Drive)

2050 Quadrant Roadway with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		120s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
State Route 63 & New Road	EB Left	D	51.4	0.81	0.69	174'	D	48.4	0.92	0.97	339'
	EB Thru	A	5.8	0.54	0.10	189'	A	5.9	0.41	0.08	148'
	Eastbound	B	13.9	--	--	--	C	23.3	--	--	--
	WB Thru	B	11.4	0.56	0.13	237'	D	44.2	0.99	0.39	696'
	WB Right	A	2.7	0.16	0.12	31'	A	9.8	0.52	0.71	178'
	Westbound	B	10.1	--	--	--	D	35.1	--	--	--
	SB Left	D	45.2	0.67	1.05	264'	D	44.7	0.68	0.86	301'
	SB Right	D	37.3	0.65	0.31	310'	C	29.5	0.68	0.42	415'
	Southbound	D	41.8	--	--	--	D	37.7	--	--	--
	Intersection Total	B	18.3	--	--	--	C	31.4	--	--	--

Table 16: Proposed 2050 (With Dev) Traffic Capacity, Quadrant Intersection (Overbrook Court)

2050 Quadrant Roadway with Development Traffic											
INTERSECTION	APPROACH	AM Peak					PM Peak				
		120s Cycle Length					120s Cycle Length				
		LOS	DELAY	V/C	QSR	QUEUE	LOS	DELAY	V/C	QSR	QUEUE
Cincinnati-Dayton Road & Overbrook Court	EB Left-Thru-Right	D	53.5	0.21	0.00	41'	D	53.5	0.21	0.00	41'
	Eastbound	D	53.4	--	--	--	D	53.5	--	--	--
	WB Left	D	44.5	0.54	0.00	208'	D	47.7	0.47	0.00	136'
	WB Thru	D	36.6	0.03	0.00	11'	D	41.1	0.03	0.00	12'
	WB Right	C	34.9	0.47	0.00	233'	C	32.7	0.25	0.00	116'
	Westbound	D	39.1	--	--	--	D	40.3	--	--	--
	NB Left	B	12.1	0.02	0.00	6'	B	11.9	0.02	0.00	6'
	NB Thru	B	13.8	0.22	0.00	135'	B	15.7	0.41	0.00	267'
	NB Right	A	8.2	0.16	0.00	75'	B	11.5	0.30	0.00	168'
	Northbound	B	12.2	--	--	--	B	14.6	--	--	--
	SB Left	A	9.6	0.42	0.00	131'	B	11.7	0.74	0.00	180'
	SB Thru	A	6.7	0.10	0.00	44'	A	5.7	0.24	0.00	109'
	SB Right	A	6.2	0.01	0.00	4'	A	4.6	0.01	0.00	3'
	Southbound	A	8.2	--	--	--	A	8.0	--	--	--
	Intersection Total	B	18.6	--	--	--	B	14.7	--	--	--

Overall, the quadrant roadway experiences 56.4 hours of delay in the 2050 PM peak hour.

Partial CFI/DLT

At this time the Partial CFI/DLT alternative has only been evaluated at a high-level to determine viability. If this option is pursued further, additional analysis is recommended to be performed using TransModeler software, in accordance with ODOT standards. Preliminary results show that with dual left turn lanes a partial CFI/DLT is projected to perform well in the 2050 PM peak hours with development traffic. Only the PM peak hour was evaluated since it has the highest traffic volumes. A partial CFI/DLT consists of three intersections. The west crossover intersection will perform at a LOS A/7.2 in the PM peak hour. The Main Street intersection with SR 63 will perform at a LOS C/26.7 in the PM peak hour. The east crossover intersection will perform at a LOS A/8.4 PM peak hour. Capacity for each movement is detailed in **Table 17** below.

Table 17: Proposed 2050 (With Dev) Traffic Capacity, Partial CFI/DLT

2050 Continuous-flow Intersection with Development Traffic							
INTERSECTION	APPROACH	West Crossover		Main Intersection		East Crossover	
		LOS	DELAY	LOS	DELAY	LOS	DELAY
State Route 63 & Cincinnati-Dayton Road	EB Left	D	42.8	D	39.3	-	-
	EB Thru	A	0.2	C	26.2	A	7.1
	EB Right	-	-	B	16.7	-	-
	Eastbound	A	8.3	C	27.5	A	7.1
	WB Left	-	-	D	38.9	C	33.2
	WB Thru	A	3.3	B	16.2	A	0.2
	WB Right	-	-	B	14.8	-	-
	Westbound	A	3.3	C	20.4	A	6.7
	NB Left	-	-	C	24.8	-	-
	NB Thru	-	-	E	60.6	-	-
	NB Right	-	-	A	3.1	C	26.3
	Northbound	-	-	C	34.4	C	26.3
	SB Left	-	-	D	44.5	-	-
	SB Thru	-	-	D	49.2	-	-
	SB Right	C	23.5	A	0.2	-	-
	Southbound	C	23.5	C	33.3	-	-
	Intersection Total	A	7.2	C	26.7	A	8.4

Overall, the partial CFI/DLT experiences 47.4 hours of delay in the 2050 PM peak hour. If this option is pursued further, additional analysis is recommended to be performed using TransModeler software, in accordance with ODOT standards.

In conclusion, all alternatives provide acceptable accommodations for traffic, but all have implications regarding cost to construct, right of way impacts, and pedestrian accommodations. The traditional signalized intersection provides a familiar design while achieving moderate delays with 49.2 hours of total delay in the PM peak hour. The quadrant roadway introduces an innovative solution which redirects left turns at an intersection. This strategy encounters the highest delay of the three proposed alternatives with 56.4 hours of delay in the PM peak hour. Lastly, the partial CFI/DLT optimizes traffic flow by offsetting left turns, offering the lowest delay at 47.4 hours in the PM peak hour.

6.B Proposed Safety Analysis

It's difficult to truly quantify the safety benefits of each long term alternative since they are not widely used, and there is not a lot of published research behind them. Because of this the simplest way to compare safety is to look at the conflict points associated with each. There are three types of conflict points – crossing, merging and diverging. Crossing conflict points occur between vehicles traveling in opposite directions and tend to result in the most severe crashes. Merging/diverging conflict points occur between vehicles traveling in the same direction and tend to result in less severe crashes.

If only looking at the intersection itself, a comparison of the conflict points associated with each alternative is shown in **Table 18**.

Table 18: Conflict Points Comparison, without development driveways

	Crossing	Merging	Diverging	TOTAL	Notes
Traditional Signalized Intersection	16	8	8	32	Conflict points isolated at 1 intersection*
Quadrant Roadway	10	10	10	30	Conflict points dispersed across 3 intersections*
Partial CFI/DLT	14	8	8	30	Conflict points isolated at 1 intersection*

*Fewer conflict points at a single intersection could be safer because there is less for a driver to have to comprehend/digest/react upon at one location.

The Quadrant Roadway alternative offers a design with the fewest number of crossing conflict points, and the Partial CFI/DLT alternative offers a design with the fewest number of merge/diverge conflict points. Combined, the total number of conflicts points are equal in the Quadrant Roadway and Partial CFI/DLT alternatives, but the Quadrant Roadway conflict points are dispersed across three intersections. Fewer conflicts at one location means drivers have less to comprehend at one location and reduces the chance of information overload. While research has not been published on the effectiveness of Quadrant Roadway intersections, a published paper does exist for the CFI/DLT. A 2015 study by Zlatkovic, titled *Development of Performance Matrices for Evaluating Innovative Intersections and Interchanges* determined that CFI/DLT may result in a reduction in crashes by as much as 12%.

It is important to also consider the development drives that will be coming, and so the conflict points associated with each of those access points should also be included. A comparison of conflict points per each alternative with the two driveways included is shown in **Table 19**.

Table 19: Conflict Points Comparison, with development driveways

	Crossing	Merging	Diverging	TOTAL	Notes
Traditional Signalized Intersection	22	14	14	50	2 signals on SR 63 (including driveway)*
Partial CFI/DLT	20	14	14	48	4 signals on SR 63 (including driveway)*
Quadrant Roadway	10	10	10	30	2 signals on SR 63 (including driveway)*

*Signalized intersections tend to see more rear end crashes than other control types, which is the prevalent crash type occurring today

With the drives, the Quadrant Roadway has the fewest number of all conflict point types. The Quadrant Roadway also offers benefits to pedestrians because the crossing distance can be designed with shorter lengths and fewer phases.

6.C Cost Comparison

A construction cost estimate was prepared for each of the long term alternatives. These construction cost estimates assumed that the big-ticket items, such as pavement, curb, and median were quantified using CADD areas. Other items, such as earthwork, drainage, traffic control, and maintenance of traffic (MOT), were reported as a raw percentage of the total construction cost or based on similar projects due to the lack of detailed design completed at this time. The cost estimate utilized 2024 bid tabs for unit costs, and the entire estimate was inflated for 2035 year of construction using an inflation percentage increase of 39.3% (per ODOT's Business Inflation Calculator Tool). A 30% contingency was applied to the construction cost subtotal due to the level of uncertainty that still exists with the design. **Table 20** shows the estimated construction costs for each of the alternatives. Refer to **Appendix G** of this report for detailed construction cost estimates and assumptions for each alternative, as well as a concept design layout for the Quadrant Roadway and Traditional Signal alternatives.

Table 20: Cost Comparison, Long Term Alternatives

PROPOSED ALTERNATIVE	ESTIMATED CONSTRUCTION COST (2024 \$)	ESTIMATED CONSTRUCTION COST (2035 \$)
Combined Quadrant Roadway Intersection and Roadway Construction	\$16,716,000	\$21,769,000
Quadrant Roadway Construction	\$5,983,000	\$7,792,000
Quadrant Intersection Construction	\$11,610,000	\$15,119,000
Traditional Signal Improvement	\$9,890,000	\$12,879,000
Partial CFI/DLT	\$17,379,000	\$22,633,000

Note: Combined Quadrant Intersection and Roadway constructions combined make up the first line; however, there is mobilization, MOT, etc. savings with combining them. For this reason, the sum of the two parts is greater than the combined that is shown in the first row of the table.

As shown in **Table 20**, the Combined Quadrant Intersection and Roadway (first line of the table) is a combination of the two rows below it. However, there are certain costs, such as mobilization, MOT, and clearing and grubbing, that offer savings to the overall estimate when the two smaller projects are combined. For this reason, the sum of the two parts (second and third row of the table) is greater than the combined cost (first row of the table).

6.D Miscellaneous Considerations (for Long Term Solutions)

Pedestrian Accommodations

If pedestrian activity is expected at the intersection, ease of accommodating pedestrians at the intersection should be considered. Shorter crossing distances are generally recommended.

Right-of-Way Impacts

Right-of-way acquisition was not included in the cost estimates but can be costly. The concept layouts provided in **Appendix G** show estimated right-of-way limits, but this should be verified with the City of Monroe. Based on the preliminary data, both the traditional signal and quadrant roadway alternatives show minimal work outside of the right-of-way. The partial CFI/DLT has not been designed at this time.

Environmental Impacts

Environmental evaluation was outside the scope of this project, but it is important to point out the presence of Veteran's Memorial Park in the southeast corner of the intersection. If touched with construction this could trigger Section 4(f) requirements.

Utility Impacts

Utility relocation costs were also not included in the cost estimate but could be costly due to the presence of large overhead transmission lines nearby.

7.0 Considerations for New Development Drive on SR 63

As part of this study the project team was also responsible for providing recommendations related to a new access point on SR 63 that would be installed as part of future development in the northeast corner of the Main Street intersection. Recommendations are discussed below.

7.A Optimum Location

In 2003, ODOT granted a point of permissible access on SR 63 between Main Street and Lawton Avenue. The location was on the north side of the road, roughly 2000 feet east of Main Street. As part of this study, the team evaluated whether this location was adequate based on expected development and intersection improvements needed at SR 63/Main Street. Two considerations were evaluated when selecting the optimal access point location. This includes queue lengths at the Main Street intersection and sight distance on SR 63.

Queue lengths – based on the peak hour queue lengths calculated for the quadrant roadway and traditional signal alternatives, the new access point should be located no closer than 1000 feet from the center of the Main Street intersection. This accounts for the maximum SR 63 at Main Street peak hour queues that were calculated to extend around 500 feet from the westbound stop line with additional buffer.

Intersection sight distance – a qualitative only sight distance evaluation was performed on SR 63. Locations between 1000 feet and 2000 feet from the Main Street intersection were evaluated. Findings showed that locating the access point around 1400 feet from the center of the intersection would offer the greatest visibility because the grades on SR 63 flatten out in this area. This location also avoids impacts related to the large transmission line poles that extend along the north side of SR 63.

Based on these considerations, the access point is recommended to be located roughly 1400 feet from the center of the Main Street intersection. This access point will likely require closure of the westbound left turn lane into East Avenue.

Note, this recommendation does not consider the footprint of the partial CFI/DLT alternative. More detailed analysis of this alternative is needed to identify where the crossover intersections should be placed. Depending on these results, the CFI/DLT crossover intersection could require the access point to be located further away from Main Street.

7.B Signal Warrant

ODOT justifies signals using nine warrants defined in Chapter 4C of the *Ohio Manual of Uniform Traffic Control Devices*. This manual stipulates that a signal may be justified if at least one of the warrants are met, but the decision must also consider engineering judgement. For the new drive on SR 63, Warrant 1 is most applicable. This warrant stipulates minimum hourly traffic volumes that must be met on both the major and minor intersection approaches for at least eight hours of a day.

Both existing 2024 traffic counts and 2050 growth projections show that Warrant 1's minimum volume thresholds on SR 63 (major approach) are met for at least 12 hours of a typical weekday. A signal at the new drive would then be warranted once the drive (minor approach) generates at least 75 vehicles leaving the drive each hour for at least eight hours of the day. This equates to generally 1500 vehicles per day because it is widely accepted that the 8th highest hour is comprised of 5% of the daily traffic.

According to the trip generator assumptions used for this study, at full build-out the drive is expected to see around 350 exiting vehicles in the AM peak hour and 570 exiting vehicles in the PM peak hour. These volumes are solely from the assumed development scenario. This equals between 3500 and 5700 vehicles per day because the peak hour is widely accepted to represent around 10% of the daily traffic volumes. Based on this information, with full build-out on the property a signal would be warranted. It will likely also be warranted at 50% completion.

If development were to occur in smaller phases that don't immediately generate 75 exiting vehicles per hour for eight hours, coordination with ODOT would be needed to obtain approval for the signal ahead of meeting warrants. ODOT will want to understand what is proposed in each phase of the project, and how long it is expected to take before the warrant is met.

8.0 Recommendations & Next Steps

The findings from this study were presented to City Council on January 14, 2025. As funding allows, the following short term recommendations are recommended to be implemented in 2025:

Britton Lane –

- Add backplates with retroreflective border to all existing signal heads on the northbound and southbound approaches.
- Install near side supplemental signal heads on the eastbound and westbound approaches, right side of the road.
- Install dual signal ahead warning signs in advance of the intersection on the eastbound and westbound approaches. One sign should be installed in the median, and a second on the right side of the road.
- Re-evaluate signal timing at the intersection and adjust accordingly. Specifically, update coordination between SR 63 signals.
- Refresh pavement markings corridor wide.
- Replace the existing crosswalk with a high-visibility longitudinal bars crosswalk design.
- Clear vegetation, especially in the northeast corner.

Main Street –

- Add backplates with retroreflective border to all existing signal heads on the northbound and southbound approaches.
- Install near side supplemental signal heads on the eastbound and westbound approaches, right side of the road.
- Install dual signal ahead warning signs in advance of the intersection on the eastbound and westbound approaches. One sign should be installed in the median, and a second on the right side of the road.
- Re-evaluate signal timing at the intersection and adjust accordingly. Specifically, update coordination between signals along SR 63, and timing for the southbound left turn movement.
- Refresh pavement markings corridor wide.
- Prohibit right turn on red on all approaches.

Lawton Avenue –

- Add backplates with retroreflective border to all existing signal heads on all approaches.
- Install near side supplemental signal heads on the eastbound and westbound approaches, right side of the road.
- Install dual signal ahead warning signs in advance of the intersection on the eastbound and westbound approaches. One sign should be installed in the median, and a second on the right side of the road.
- Re-evaluate signal timing at the intersection and adjust accordingly. Specifically, update coordination between SR 63 signals.
- Refresh pavement markings corridor wide.

The following medium term countermeasures are recommend to be implemented in the next five years:

Britton Lane –

- Install eastbound and westbound right turn lanes. According to 2050 traffic projections, the recommended turn lane lengths are 225 feet on the eastbound approach and 395 feet on the westbound approach.

Main Street –

- Extend the existing eastbound and westbound right turn lanes. Based on 2050 traffic projections, the recommended turn lane lengths are 295 feet on the eastbound approach and 545 feet on the westbound approach.
- Revise design of the East Avenue westbound left turn lane so that it opens before the Main Street westbound left turn and consider adding overhead signage.

Lawton Avenue –

- None

The following long term countermeasures for Main Street are recommended to be further evaluated and discussed before selecting a preferred solution.

- Traditional signal improvements, including additional turn lanes
- Partial CFI/DLT

Further evaluation of the CFI/DLT should include traffic capacity using Transmodeler software (ODOT standard), conceptual design with grading impacts identified, red flag environmental and utility review, and refined cost estimates. Because Partial CFI/DLT intersections are not common in Ohio, close coordination with ODOT should also continue. To ensure project success, it will be crucial to understand ODOT's requirements and obtain their support should the City choose to move forward with funding, design, and construction.

BURGESS & NIPLE

330 Rush Alley | Suite 700 | Columbus, OH 43215 | 614.459.2050

City of Monroe
233 South Main Street
Monroe, Ohio, 45050

Re: SR 63 at Main Street Intersection Evaluation

February 12, 2025

Dear City of Monroe:

Burgess & Niple, Inc. (B&N) is pleased to submit this proposal to provide engineering services for the above referenced project. The following describes our understanding of the scope of services and anticipated schedule to provide these services and presents our proposed method and amount of compensation to provide the services.

SCOPE OF SERVICES

Task 1 – Field Review

Up to two B&N team members will perform one field review. The purpose of the visit will be to document physical features/constraints at the intersection that will need to be accounted for in the design.

Task 2 – Proposed Traffic Analysis

B&N will perform capacity analyses for the future Build condition, which is assumed to be a Continuous Flow/Displaced Left Turn (DLT) Intersection, using Transmodeler software. The analysis will use the proposed traffic projections developed for the SR 63 Corridor Study, which assumed both baseline growth and development in the NE corner of the intersection. Results will be presented for both the AM and PM peak hours, and identify capacity impacts, required lane configurations, and turn lane lengths.

Task 3 – Preliminary Design

Using aerial imagery and Lidar data obtained from OGRIP's 3D Elevation Program (no additional supplemental survey will be collected with this proposal), a DLT intersection preliminary layout will be developed. The layout will be based on the lane configuration identified in Task 2 – traffic analysis.

This task anticipates that horizontal geometry will be stored, including baselines, curve data, and cardinal points, for the Build alternative using OpenRoads. A conceptual, "rough", proposed 3D model will be developed by estimating the profile based on the existing alignment and widening at the intersection.

A plan view exhibit will be developed for the DLT alternative only. This exhibit is anticipated to be a large-scale roll plot (100-scale) showing the plan view, with lane arrows, preliminary pavement markings, anticipated construction limits, and anticipated R/W and utility impacts. This exhibit will be developed using the existing



aerial image as the background. No vertical profile sheets will be developed. Additional details/exhibits will include up to ten critical cross sections to highlight the grading in critical locations, and up to two proposed typical sections to show the various lane widths, offsets, curb width, etc.

Task 4 – Preliminary Cost Estimate

A planning level cost estimate will be prepared primarily based on the "big ticket" cost contributors such as pavement, structures, earthwork, and other items that can be easily measured using Microstation elements. Other items such as MOT, Drainage, etc. will be developed as a percentage of the total construction cost. Utility and right-of-way impacts will be identified, but costs for these items will not be estimated.

Task 5 – Environmental and Utility Review (desktop only)

This task includes a desktop review of the following items –

Existing Right-of-Way: Existing right-of-way GIS files will be obtained from the Butler County Auditor's website and overlaid onto the preliminary design to identify impacts. Impacts will be identified and tabulated in the form of a summary table. The table will include items such as total acreage of impacted parcel, impacted acreage, impacted buildings, etc.)

Utilities: An OUPS ticket will be submitted for the intersection. Information received will be added to the plan view exhibit only. Impacts will be identified (number of poles, lines, etc.) and tabulated in the form of a summary table. This task does not include meetings or coordination with utility owners, nor cost estimates for relocation.

Environmental: The project location will be researched in ODOT's TIMS Environmental map viewer, and findings will be documented in the study deliverable.

Task 6 – Report

A study technical memorandum will be created that summarizes the effort completed in Tasks 1 through 5. Time is included to address one round of comments from Monroe.

Task 7 – Meetings

Up to three meetings will be held to discuss the project both internally and externally.

Meeting 1 – assumed to be primarily internal to B&N, although staff from Goodhue Consulting may attend if they like. The purpose of this meeting will be to engage a multi-disciplinary team (transportation planners, designers, active transportation engineers, and DLT subject matter experts) to identify ways to align the proposed design with the City of Monroe's Downtown Master Plan. This meeting will be held after the field review and traffic analysis is complete, and before any concept layouts begin.

Meeting 2 – This meeting will be held after a draft of the preliminary design is complete. The purpose will be to discuss any questions and/or identify revisions needed to ensure alignment with the City's goals/desires.

Meeting 3 – This meeting will be held after submission of the Draft Study. The purpose will be to review comments and discuss next steps for moving the project forward.

Task 8 – Project Management and Coordination

This task includes B&N's efforts in project management and progress reporting, general quality assurance, client satisfaction check-ins, and invoicing.

ITEMS NOT INCLUDED

- Stakeholder engagement
- Public involvement

- NEPA documentation

SCHEDULE

The schedule will be discussed and agreed on at notice to proceed with anticipated completion in June 2025.

COMPENSATION FOR SERVICES

We propose to provide these services for a lump sum fee of \$43,188.

Invoices will be issued monthly. Payment to B&N is due upon receipt of invoice.

PROPOSAL VALIDITY

This proposal is valid provided we receive your authorization to proceed within 60 days from the date of this proposal.

TERMS AND CONDITIONS

Terms and Conditions are given in **Attachment A**, which shall be incorporated into this proposal as if written herein and will become part of this Proposal when fully executed.

If you are in agreement with the above stated terms, please sign below and return an electronic copy which will serve as our notice-to-proceed.

Thank you for the opportunity to respond to your engineering needs. If you have any questions, please do not hesitate to contact us.

Very truly yours,

BURGESS & NIPLE, INC.

CITY OF MONROE

Megan Valentine, PE, RSP₂₁

Printed Name
Project Manager

Megan Valentine

Signature
Project Manager

Jim S. Burt

Vice President Signature

Client Signature

Client Printed Name

Date

ATTACHMENT A TERMS AND CONDITIONS

1. These Terms and Conditions are attached to and are part of this Proposal and are considered to be the Agreement between the Client and Burgess & Niple, Inc. (B&N) upon signature by both parties.
2. **Changes to Agreement.** Services beyond those stated herein can be provided by B&N upon written authorization of an addition fee and associated scope of additional services.
3. **Independent Contractor.** It is expressly understood and agreed that in the performance of their services under this Agreement, B&N shall not be considered an agent, i.e., an employee of the Client, but shall be considered an independent contractor.
4. **Standard of Care.** The standard of care for all professional and related services performed or furnished by B&N under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality. B&N makes no warranties, express or implied, under this Agreement or otherwise, in connection with any services performed or furnished by B&N.
5. **Insurance.** B&N will maintain insurance coverage for workers compensation, employer's liability, general liability, automobile liability, and professional liability throughout the time of this agreement. Certificates of insurance will be provided upon request.
6. **Indemnification.** To the fullest extent permitted by law, B&N and Client each agree to indemnify the other party and the other party's officers, directors, employees, and representatives, from and against all losses, damages, and judgements arising from claims by third parties, including reasonable attorney's fees and expenses recoverable under applicable law, but only to the extent they are found to be caused by a negligent act, error, or omission of the indemnifying party or any of the indemnifying party's officers, directors, members, partners, agents, employees, or subconsultants in the performance of services under this agreement. If claims, losses, damages, and judgements are found to be caused by the joint or concurrent negligence of Client and B&N, they shall be borne by each party in proportion to its negligence.
7. **Limitation of Liability.** To the fullest extent permitted by laws and regulations, and notwithstanding any other provision of this Agreement, Client agrees that the total liability, in the aggregate, of B&N and B&N's officers, directors, members, partners, agents, employees, and subconsultants, to the Client, its subsidiary and/or affiliated companies and their respective officers, directors, employees, agents, and anyone claiming by, through, or under Client for any and all injuries, claims, losses, expenses, damages whatsoever arising out of, resulting from or in any way relating to B&N's services, this Agreement or any Addenda, from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty express or implied of B&N or B&N's officers, directors, members, partners, agents, employees, or subconsultants, shall be limited to the total amount of compensation received by B&N or \$50,000, whichever is greater.
8. **Ownership of Documents.** All documents prepared or furnished by B&N pursuant to this Agreement are instruments of B&N's professional service, and B&N shall retain an ownership and property interest therein. B&N grants Client a license to use instruments of B&N's professional service for the purpose of constructing, occupying and maintaining the Project. Reuse or modification of any such documents by Client, without B&N's written permission, shall be at Client's sole risk, and Client agrees to indemnify and hold B&N harmless from all claims, damages and expenses, including attorneys' fees, arising out of such reuse by Client or by others acting through Client.
9. **Opinions of Cost.** When included in B&N's scope of services, opinions or estimates of probable construction cost are prepared on the basis of B&N's experience and qualifications and represent B&N's judgment as a professional generally familiar with the industry. However, since B&N has no control over the cost of labor, materials, equipment or services furnished by others, over contractor's methods of determining prices, or over competitive bidding or market conditions, B&N cannot and does not guarantee that proposals, bids, or actual construction cost will not vary from B&N's opinions or estimates of probable construction cost.
10. **Suspension of Services.** If Client fails to make any payment due to B&N for services and/or expenses within 60 days after receipt of B&N's invoice, B&N may, after giving seven days written notice to Client, suspend services under this Agreement until B&N has been paid in full all amounts due for services, expenses, and other related charges. Owner waives any and all claims against B&N for any such suspension.
11. **Force Majeure.** Neither party shall be deemed in default of this Agreement to the extent that any delay or failure in the performance of its obligations results from any cause beyond its reasonable control and without its negligence.
12. **Termination.** Client may terminate this Agreement with seven (7) days' prior written notice to B&N for convenience or cause. B&N may terminate this Agreement for cause with seven (7) days' prior written notice to Client. Failure of Client to make payments when due shall be cause for termination or, at the option of B&N, suspension of services under this Agreement until B&N has been paid all amounts due. The terminating party may set the effective date of termination at a time up to 30 days later than otherwise provided to allow B&N to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Project materials in orderly files. In the event of any termination, B&N will be entitled to invoice Client and to receive full payment for all services performed or furnished in accordance with this Agreement and all reimbursable expenses incurred through the effective date of termination.

Attachment B Scope of Work and Schedule

Scope of Work

This Alternative Evaluation report will build off the SR 63 Corridor Study by providing additional analysis for the SR 63/Main Street Intersection. It will provide evaluation of the Continuous Flow/Displaced Left Turn (DLT) Intersection alternative only. The purpose will be to better identify impacts, costs, and any red flags for the alternative if it were to move forward.

Assumed scope is as follows-

Task 1 – Field Review

Up to two B&N team members will perform one field review. The purpose of the visit will be to document physical features/constraints at the intersection that will need to be accounted for in the design.

Assumptions: 6 hours total (3 hours each for two engineers, includes travel time)

Task 2 – Proposed Traffic Analysis

B&N will perform capacity analyses for the future Build condition, which is assumed to be a DLT Intersection, using Transmodeler software. The analysis will use the proposed traffic projections developed for the SR 63 Corridor Study, which assumed both baseline growth and development in the NE corner of the intersection. Results will be presented for both the AM and PM peak hours, and identify capacity impacts, required lane configurations, and turn lane lengths.

Assumptions: 82 hours total (64 hours for Engineer, 12 hours for Senior Engineer, 6 hours for Quality Review)

Task 3 – Preliminary Design

Using aerial imagery and Lidar data obtained from OGRIP's 3D Elevation Program (no additional supplemental survey will be collected with this proposal), a DLT intersection preliminary layout will be developed. The layout will be based on the lane configuration identified in Task 2 – traffic analysis.

This task anticipates that horizontal geometry will be stored, including baselines, curve data, and cardinal points, for the Build alternative using OpenRoads. A conceptual, "rough", proposed 3D model will be developed by estimating the profile based on the existing alignment and widening at the intersection.

A plan view exhibit will be developed for the DLT alternative only. This exhibit is anticipated to be a large-scale roll plot (100-scale) showing the plan view, with lane arrows, preliminary pavement markings, anticipated construction limits, and anticipated R/W and utility impacts. This exhibit will be developed using the existing aerial image as the background. No vertical profile sheets will be developed. Additional details/exhibits will include up to ten critical cross sections to highlight the grading in critical locations, and up to two proposed typical sections to show the various lane widths, offsets, curb width, etc.

Assumptions: 74 hours total (32 hours for horizontal geometry, 12 hours for 3D model, 8 hours for exhibit, 6 hours for typical sections, 10 hours for cross sections, 6 hours Quality Review)

Task 4 – Preliminary Cost Estimate

A planning level cost estimate will be prepared primarily based on the "big ticket" cost contributors such as pavement, structures, earthwork, and other items that can be easily measured using Microstation elements.

Attachment B Scope of Work and Schedule

Other items such as MOT, Drainage, etc. will be developed as a percentage of the total construction cost. Utility and right-of-way impacts will be identified, but costs for these items will not be estimated.

Assumptions: 12 hours total (8 hours for engineer, and 4 hours for senior review)

Task 5 – Environmental and Utility Review (desktop only)

This task includes a desktop review of the following items –

Existing Right-of-Way: Existing right-of-way GIS files will be obtained from the Butler County Auditor's website and overlaid onto the preliminary design to identify impacts. Impacts will be identified and tabulated in the form of a summary table. The table will include items such as total acreage of impacted parcel, impacted acreage, impacted buildings, etc.)

Utilities: An OUPS ticket will be submitted for the intersection. Information received will be added to the plan view exhibit only. Impacts will be identified (number of poles, lines, etc.) and tabulated in the form of a summary table. This task does not include meetings or coordination with utility owners, nor cost estimates for relocation.

Environmental: The project location will be researched in ODOT's TIMS Environmental map viewer, and findings will be documented in the study deliverable.

Assumptions: 22 hours total (10 hours for OUPS ticket, creating utility basemap, and tabulating utility impacts; 6 hours for tabulating RW impacts using RW basemap from SR 63 Corridor Study; 6 hours for Environmental desktop screening and summarizing findings)

Task 6 – Report

A study technical memorandum will be created that summarizes the effort completed in Tasks 1 through 5. Time is included to address one round of comments from Monroe.

Assumptions: 22 hours total (16 hours for engineer, and 6 hours for senior review)

Task 7 – Meetings

Up to three meetings will be held to discuss the project both internally and externally.

Meeting 1 – assumed to be primarily internal to B&N, although staff from Goodhue Consulting may attend if they like. The purpose of this meeting will be to engage a multi-disciplinary team (transportation planners, designers, active transportation engineers, and DLT subject matter experts) to identify ways to align the proposed design with the City of Monroe's Downtown Master Plan. This meeting will be held after the field review and traffic analysis is complete, and before any concept layouts begin.

Assumptions: 6 hours total (1 hour meeting with up to 6 tech. experts)

Meeting 2 – This meeting will be held after a draft of the preliminary design is complete. The purpose will be to discuss any questions and/or identify revisions needed to ensure alignment with the City's goals/desires.

Assumptions: 2 hours total (1 hour virtual meeting with up to 2 staff members)

Attachment B
Scope of Work and Schedule

Meeting 3 – This meeting will be held after submission of the Draft Study. The purpose will be to review comments and discuss next steps for moving the project forward.

Assumptions: 2 hours total (1 hour virtual meeting with up to 2 staff members)

Combined Assumptions: 10 hours total for meetings

Task 8 – Project Management and Coordination

This task includes B&N's efforts in project management and progress reporting, general quality assurance, client satisfaction check-ins, and invoicing.

Assumptions: 16 hours total (4 hours per month, 4 month schedule)

Items Not Included –

- Stakeholder engagement
- Public involvement
- NEPA documentation

Proposed Schedule

The schedule will be discussed and agreed on at notice to proceed with anticipated completion in June 2025.

ATTACHMENT C
FEE PROPOSAL

ENGINEERING AND TECHNICAL SERVICE COST PRICE PROPOSAL
AND LABOR RATES FOR
City of Monroe - SR 63 at Cincinnati Dayton Road Alternative Evaluation

CONSULTANT: Burgess & Niple

Proposal Date: 2/11/2024
Revised Date:

PROJECT DESCRIPTION:
SR 63 at Cincinnati Dayton Road Alternative Evaluation

Average Overhead Rate = 157.79% (Net Fee Calc.)
Overhead Percentage = 188.00%
Net Fee Percentage = 11.00%
Cost of Money = 1.51%

Task Description	Total Hours	Labor Costs	Overhead Costs	Cost of Money	Direct Costs	Subcon Costs	Net Fee	Total Cost
Total Basic Services	244	\$13,553	\$25,480	\$205	\$107	\$0	\$3,843	\$43,188
Total - Basic Services	244	\$13,553	\$25,480	\$205	\$107	\$0	\$3,843	\$43,188
Total If Authorized - Project 4	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total - If Authorized	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

DETAILED BREAKDOWN OF PROPOSED TOTAL HOURS, PERSONNEL CATEGORIES
AND LABOR RATES FOR
City of Monroe - SR 63 at Cincinnati Dayton Road Alternative Evaluation

Proposal Date: 2/11/2024
Revised Date:

CONSULTANT: Burgess & Niple

HOURLY RATES

HOURLY RATES

DLT Quality Review	\$ 78.00	Sr Rdwy Engineer / DLT Design Lead	\$ 94.00
Project Manager	\$ 65.00	Roadway Engineer	\$ 48.00
Sr Traffic Engineer	\$ 78.00	Technician	\$ 37.00
Traffic Engineer / Env Scientist	\$ 45.00	Admin	\$ 45.00

PROJECT DESCRIPTION:
SR 63 at Cincinnati Dayton Road Alternative Evaluation

Task Description	DLT Quality Review	Project Manager	Sr Traffic Engineer	Traffic Engineer / Env Scientist	Sr Rdwy Engineer / DLT Design Lead	Roadway Engineer	Admin	Overall Total Hours	Labor Costs
Basic Services									
Task 1: Field Review				3		3		6	\$279
Task 2: Proposed Traffic Analysis	6		12	64				82	\$4,284
Task 3: Preliminary Design	6				12	56		74	\$4,284
Task 4: Preliminary Cost Estimate					4	8		12	\$760
Task 5: Environmental and Utility Review (desktop only)				6	2	14		22	\$1,130
Task 6: Report		6		16				22	\$1,110
Task 7: Meetings	1	4	1		3	1		10	\$746
Task 8: Project Management and Coordination		12					4	16	\$960
								0	\$0
								0	\$0
								0	\$0
								0	\$0
								0	\$0
Total - Basic Services	13	22	13	89	21	82	4	244	\$13,553
If Authorized Tasks									
								0	\$0
Total - If Authorized	0	0	0	0	0	0	0	0	\$0

ATTACHMENT C
FEE PROPOSAL

DIRECT COSTS FOR
City of Monroe - SR 63 at Cincinnati Dayton Road Alternative Evaluation

PROJECT DESCRIPTION:
SR 63 at Cincinnati Dayton Road Alternative Evaluation

Proposal Date: 2/11/2024
Revised Date:

CONSULTANT: Burgess & Niple

RATES

Mileage \$0.670
Technology Fee \$0.00 (see approved audited rates)
Hotel \$142.00
Meals \$57.00

Task Description	Mileage	Technology Fee	Hotel	Meals	Miovision Processing	Printing	Total Direct Costs
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Total - Basic Services

Basic Services	Mileage	Technology Fee	Hotel	Meals	Miovision Processing	Printing	Total Direct Costs
Task 1: Field Review	\$107.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$107.20
Task 2: Proposed Traffic Analysis	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 3: Preliminary Design	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 4: Preliminary Cost Estimate	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 5: Environmental and Utility Review (desktop only)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 7: Meetings	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 8: Project Management and Coordination	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total - Basic Services	\$107.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$107.20

If Authorized Tasks	Mileage	Technology Fee	Hotel	Meals	Miovision Processing	Printing	Total Direct Costs
0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total - If Authorized	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

ENGINEERING AND TECHNICAL SERVICE COST PRICE PROPOSAL
AND LABOR RATES FOR
City of Monroe - SR 63 at Cincinnati Dayton Road Alternative Evaluation

CONSULTANT: Burgess & Niple

Proposal Date: 2/11/2024
Revised Date:

PROJECT DESCRIPTION:
SR 63 at Cincinnati Dayton Road Alternative Evaluation

Average Overhead Rate = 157.79% (Net Fee Calc.)
Overhead Percentage = 188.00%
Net Fee Percentage = 11.00%
Cost of Money = 1.51%

Task Description	Hourly Rate	Total Hours	Labor Costs	Overhead Costs	Cost of Money	Direct Costs	Subcon Costs	Net Fee	Total Cost
Basic Services									
Task 1: Field Review	\$46.50	6	\$279	\$525	\$4	\$107	\$0	\$79	\$994
Task 2: Proposed Traffic Analysis	\$52.24	82	\$4,284	\$8,054	\$65	\$0	\$0	\$1,215	\$13,617
Task 3: Preliminary Design	\$57.89	74	\$4,284	\$8,054	\$65	\$0	\$0	\$1,215	\$13,617
Task 4: Preliminary Cost Estimate	\$63.33	12	\$760	\$1,429	\$11	\$0	\$0	\$216	\$2,416
Task 5: Environmental and Utility Review (desktop only)	\$51.36	22	\$1,130	\$2,124	\$17	\$0	\$0	\$320	\$3,592
Task 6: Report	\$50.45	22	\$1,110	\$2,087	\$17	\$0	\$0	\$315	\$3,528
Task 7: Meetings	\$74.60	10	\$746	\$1,402	\$11	\$0	\$0	\$212	\$2,371
Task 8: Project Management and Coordination	\$60.00	16	\$960	\$1,805	\$14	\$0	\$0	\$272	\$3,052
0		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
0		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
0		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
0		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
0		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total - Basic Services		244	\$13,553	\$25,480	\$205	\$107	\$0	\$3,843	\$43,188
If Authorized Tasks									
0		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total - If Authorized		0	\$0	\$0	\$0	\$0	\$0	\$0	\$0